University of Glasgow

Marr, Natalie Louise (2024) *Windows to the universe: mapping the values of the Galloway Forest Dark Sky Park.* PhD thesis.

https://theses.gla.ac.uk/84210/

Copyright and moral rights for this work are retained by the author

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge

This work cannot be reproduced or quoted extensively from without first obtaining permission from the author

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given

Enlighten: Theses
https://theses.gla.ac.uk/
research-enlighten@glasgow.ac.uk

# WINDOWS TO THE UNIVERSE
# MAPPING THE VALUES OF THE GALLOWAY FOREST DARK SKY PARK

# Abstract

This thesis critically explores the cultural values of an International Dark Sky Park (IDSP) through an interdisciplinary research practice composed of site-based ethnography, qualitative research methods and creative enquiry. IDSPs are internationally designated areas where communities have pledged to conserve the natural darkness of the night sky through light pollution abatement programmes and educational outreach. This research focuses on one such place: the Galloway Forest Dark Sky Park (GFDSP) in southwest Scotland, which was awarded dark sky status in 2009.

*Windows to the universe* maps the lifeworlds of the GFDSP and its unique approach to dark skies. I discuss the impact of the designation on the region and its communities, and explore how the GFDSP and its values are variously imagined, experienced and enacted by its stakeholders as conservation model, novel tourist destination and place of residence. From recreational programming and planning to more informal gatherings of local residents and contingent encounters with other nocturnal inhabitants, the project presents a rich ethnography of the social lives and landscapes of the GFDSP. The research presented in this thesis was conducted during 2016–2020, a period leading up to and including the GFDSP's ten-year anniversary in 2019. It engages with stakeholders in a process of critical reflection that casts forward to possible new futures for IDSP practice.

Through an interdisciplinary research practice composed of site-based ethnography, qualitative research methods and arts-based approaches such as long-exposure photography, audio recording and embodied, participative practice, *Windows to the universe* engages the GFDSP as an evolving assemblage, co-constituted by a diverse range of agents, practices, and experiences. A commitment to non-representational practice further guides this research. Through an aesthetic attention to the affective, situated and relational dimensions of dark sky stewardship, *Windows to the universe* demonstrates how the values and 'stakes' of IDSPs are neither fixed nor stable, but emergent and co-produced through practice and *in-place.* I affirm IDSPs as important sites of cultural and socioecological encounter with dark skies and dark landscapes, and further, that IDSPs could be more directly engaged as important sites of knowledge production about the night, darkness and light. My approach is realised in the form of the thesis through the deployment of a 'distributed methodology' that interrupts and interpolates the linear narrative of the thesis to make visible – and tangible – the generative relationships between researcher, site and practice, and to continually re-situate my discussions in the material, social and ecological context of my research site: the Galloway Forest Dark Sky Park.

# Table of Contents

Abstract........................................2
Table of Contents........................................3
List of Figures........................................4
Acknowledgements........................................6
Author's Declaration........................................8
Abbreviations........................................9
Chapter 1
Going dark: an introduction to the project........................................11
Chapter 2
Dark matters: conceptualising dark sky values........................................38
Chapter 3
Field/work: a distributed methodology........................................83
Chapter 4
Half the Park is After Dark........................................106
Chapter 5
Dark skies on the ground: stewarding the Park beyond the designation........................................152
Chapter 6
The spaces between stars: lifeworlds of the Dark Sky Park........................................196
Chapter 7
A contact aesthetic: Dark Sky Park as creative milieu........................................237
Chapter 8
Project reflections, contributions and propositions........................................285
Appendices........................................307
References........................................311

## List of Figures


Figure 1.1. Dark Sky Park and Transition Zone. 18

Figure 2.1. On the Patterns We Gaze. 58

Figure 2.2. Posters for Bryce Canyon National Park. 64

Figure 2.3. Real night no longer exists. 65

Figure 2.4. The vertical and voluminous. 70

Figure 2.5. Anatomy of a Northern Astronomer. 77

Figure 2.6. 'Dark Adaptation'. 78

Figure 3.1. Diagram of fieldwork across a two-year period. 85

Figure 3.2. A distributed methodology. 104

Figure 4.1. Becoming a Dark Sky Park. 109

Figure 4.2. Conducting a dark sky survey. 112

Figure 4.3. 'Our Stars'. 113

Figure 4.4. View of the Scottish Dark Sky Observatory at night time. 118

Figure 4.5. Inside the SDSO. 119

Figure 4.6. Clauchrie Wind Farm Development. 122

Figure 4.7. Asset-mapping dark skies. 124

Figure 4.8. 'Go beyond your horizons'. 129

Figure 4.9. Where to view the wonders of the night sky in Galloway Forest Dark Sky Park. 131

Figure 4.10. 'Darkness and Stars' visitor experiences. 134

Figure 4.11. Stargazing at Clatteringshaws Loch. 135

Fig 4.12. Why we never see the dark side of the Moon. 136

Figure 4.13. Light pollution beyond the hills. 139

Figure 4.14. Various artworks and projects featured at *Sanctuary* arts festival. 148

Figure 5.1. Dark sky actors. 162

Figure 5.2. Forestry Restructure. 172

Figure 5.3. A boat trip at night. 176

Figure 5.4. Mapping the values with stakeholders. 190

Figure 6.1. Exploring Cairn Holy with Joe. 206

Figure 6.2. Cairn Holy by pinhole. 207

Figure 6.3. An "alternative committee meeting". 218

Figure 6.4. Sensory explorations in Caldons Wood. 221

Figure 6.5. Deep listening and mark-making. 222

Figure 6.6. Reflections by the fire. 223

Figure 6.7. 35mm photographic slides, shot by Newton Stewart resident Michael Lang. 230

Figure 6.8. 'Silver Flowe'. 233

Figure 7.1. Night sky in the forest. 240

Figure 7.2. The dark forest. 242

Fig. 7.3. Camera o(b)scura. 248

Figure 7.4. Weather-worn pinhole cameras 253

Figure 7.5. Solargraph. 255

Figure 7.6. Solargraph. 255

Figure 7.7. Textures underfoot. 260

Figure 7.8. Night vision. 264

Fig. 7.9. *Hide (night moves)* 267

Figure 7.10. Driving at night in the Dark Sky Park. 270

Figure 7.11. Nocturnal presences/absences. 278

Figure 8.1. Happy Birthday Dark Sky Park! 288

Unless otherwise stated, all images in this thesis are credited to Natalie Marr.

# Acknowledgements

Thank you to all those who welcomed and spoke to me in and around the Galloway Forest Dark Sky Park during my Master's and PhD research. This thesis is for you.

Special thanks in particular to Keith Muir and Marie McNulty for their steadfast guidance and encouragement throughout the project. I am so grateful for your time and energy.

To Jesse, the first person I met in the Dark Sky Park. I am grateful for your thoughtfulness and generosity. Thank you, and thank you Helen also for your warm company and for giving me a cosy place to stay and delicious meals besides!

To Mike and Helen at the Galloway Astronomy Centre. Our first chat and experience looking at the stars together was so enchanting. I hold this memory close.

To Elizabeth, my deepest thanks for your kindness, enthusiasm and friendship, and for sharing your practice so generously with me. The Dark Sky Park is all the richer for having you.

Thank you to the AHRC for generously funding this research and to Forest Research Scotland for supporting fieldwork costs. Thank you also to the School of Geographical and Earth Sciences for supporting my attendance at a number of conferences throughout my study.

I have been ever so lucky to develop my work with and alongside Hayden Lorimer and David Borthwick. Thank you both for your guidance and insights, your humour and verve. Thank you Hayden for always having time to chat and for encouraging me to pursue interesting opportunities. Thank you Dave for your generous reflections and for introducing me to the magic of barnacle geese!

Deepest thanks also to David Edwards for both practical advice and thoughtful musings on creative practice, which greatly shaped my fieldwork and attention to site.

I wish also to extend thanks to Tim Collins. I'm still not sure I would have made it to the interview without your glowing reference. Thank you for your time and all you do in the world.

Love and thanks to my PhD cohort: Eleanor, Tom, Ed, Katherine – for the distracting (but welcome!) office chats and wholesome group activities – and to my wider PhD family: Maia, Mirjami, Megan, Fran, Jennika, Phil, Sarah, Hannah, Mette, Amy, Maurits. A great bunch of people to have met through this.

Thank you to my colleagues and friends in all things dark. So much of my thinking and practice unfolds through encountering your work and our conversations. Special mentions to my current collaborators: thank you Helen for your generous spirit and willingness to be playful. You made writing a book chapter fun! Thank you Élisabeth and Piibe for your sense of adventure, open heartedness and unparalleled karaoke skills.

Much gratitude to Maia and Mirjami. Collaborating with you is a dream, being your friend even more so! A warm thank you also to Sarah. Your adventurous spirit and fiery thinking always sets off sparks in my mind and heart. Thank you for the much-needed reminders to feel the earth beneath me.

To my family and to dear friends who knew me before PhD-land and regularly checked in, thank you! Special thanks to Anna, Rebecca, Emily, Camilla, Oda and Louis for getting into the weeds with me.

Thank you Teresa for returning me to myself. I plan to have an ice cream when this is all over!

Much love and gratitude for Dawn, you who I love to stand in moonlight with. You who sees all of me, my shadow as well as my light. Thank you for joining me on research trips, for proofreading and for encouraging me to talk through ideas when I was blocked. Thank you for cooking meals when I was too tired or stressed, for dancing with me in the living room and for all the other ways you were there.

# Author's Declaration

**College of Science and Engineering**
**Natalie Louise Marr  xxxxxxx**

I certify that the thesis presented here for examination for a PhD degree of the University of Glasgow is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it) and that the thesis has not been edited by a third party beyond what is permitted by the University's PGR Code of Practice.

The copyright of this thesis rests with the author. No quotation from it is permitted without full acknowledgement.

I declare that the thesis does not include work forming part of a thesis presented successfully for another degree [unless explicitly identified and as noted below].

I declare that this thesis has been produced in accordance with the University of Glasgow's Code of Good Practice in Research.

I acknowledge that if any issues are raised regarding good research practice based on review of the thesis, the examination may be postponed pending the outcome of any investigation of the issues.

Natalie Marr
Date: 18th August, 2023

# Abbreviations

| | |
|---|---|
| ALAN | Artificial Light at Night |
| AONB | Area of Outstanding Natural Beauty |
| BAA | British Astronomical Association |
| CES | Cultural Ecosystem Services |
| CfDS | The Commission for Dark Skies |
| CPRE | The Campaign to Protect Rural England |
| D&G | Dumfries and Galloway |
| DSA | Dark Sky Area |
| BDSR | Biosphere Dark Sky Ranger |
| DSS | Dark Sky Studies |
| EDSP | European International Dark Sky Places |
| EIA | Environmental Impact Assessment |
| ES | Ecosystem Services |
| FCS | Forestry Commission Scotland |
| FES | Forest Enterprise Scotland |
| FLS | Forestry and Land Scotland |
| FRS | Forest Research Scotland |
| GAC | Galloway Astronomy Centre |
| GBCT | Glentrool and Bargrennan Community Trust |
| GFAS | Galloway Forest Astronomical Society (formally the Wigtownshire Astronomical Society) |
| GFDSP | Galloway Forest Dark Sky Park |
| GFP | Galloway Forest Park |
| GGLP | Galloway Glens Landscape Partnership |
| GSAB | Galloway and Southern Ayrshire Biosphere |
| HES | Historic Environment Scotland |
| HLF | Heritage Lottery Fund |
| IAU | International Astronomical Union |
| IDA | International Dark-Sky Association |
| IDSP | International Dark Sky Place |
| ILP | Institute of Lighting Professionals |
| IYA | International Year of Astronomy |

| | |
|---|---|
| KDSVC | Kirkcudbright Dark Skies Visitor Centre |
| LCADS | Lighting Consultancy and Design Service |
| LMP | Lighting Management Plan |
| LoNNe | Loss of the Night Network |
| NNR | National Nature Reserve |
| NPS | US National Park Service |
| RAS | Renfrewshire Astronomical Society |
| RASC | Royal Astronomical Society of Canada |
| SA | Stakeholder Analysis |
| SAC | Special Area of Conservation |
| SEPA | Scottish Environment Protection Agency |
| SHA | Sustainable Heritage Area |
| SHAPE | Sustainable Heritage Areas: Partnerships for Ecotourism |
| SI | Starlight Initiative |
| SNH | Scottish Natural Heritage |
| SQM | Sky Quality Meter |
| SSDO | Scottish Dark Sky Observatory |
| SSSI | Site of Special Scientific Interest |
| STFC | Science and Technology Facilities Council |
| SUP | Southern Upland Partnership |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| WAS | Wigtownshire Astronomical Society |
| WPA | Works Progress Administration |

# Chapter 1
## *Going dark: an introduction to the project*

Time to go into the dark
where the night has eyes
to recognize its own.

---

*Sweet Darkness* (Whyte 1999)

There's work to do. Starwork,
but earthbound all the same.

---

*The Overstory* (Powers 2018: 10)

# *I / Windows to the universe*

It starts with some unusual activity after dark. A counter records an increasing heart rate of activity at the edge of Clatteringshaws Loch in the visitor car park. A mechanical error is suspected, but as it turns out the counters are working fine; the numbers are to be believed. Forest Enterprise calls local police asking them to look into it.

By day the reservoir is well-loved, a noted destination on Park leaflets. A main road − The Queen's Way − regularly shrugs off visitors in search of respite and the clear view across to the Galloway Hills. Around dusk the last few committed hill walkers will be on their way. By night, the Forest Park is altogether different. There have been problems before: bothy vandalism, Forestry gates prised open, the remnants of hunts and ill-advised fire pits finished with plastic wrappers and cigarette ends. This waterside gathering must be the next challenge; one can only imagine.

But what's really going on is this:

After the last few walkers have left for the day and the visitor centre locked up, the loch sits still and opaque, a sharp slice of the sky, dark and unmoving. But just as stars have a tendency of appearing in quickening succession the longer you look, headlights begin to blink in and out of various bends along The Queen's Way. Several minutes later, the first vehicle swings in with control and purpose, engine is switched off and door crooked open. More vehicles arrive in this fashion and a small crowd begins to form. There is no sheepish shuffle of feet, no not-meant-to-be-here awkward flashlight dances. This is an organised assembly, a gathering of star-inclined folk who get straight to it positioning their telescopes. There is a roster of celestial objects to be viewed, tracked, and captured: a planet, a binary star, a nebula. Bodies appropriately clothed in fleece and Gore-Tex engage in alignments and re-alignments that produce an intimate soundscape of scratches and crumples. There is much bending and adjusting and checking and adjusting further. Among this self-assuredness, there is yet a flicker of wonder, the kind that disarms even the most knowledgeable and dry-humoured of astronomers, and with a deft adjustment of its own lifts the chin and cranks the spine skywards.

Coming across this scene, you can imagine the relief of the police officer tasked with solving the riddle. Did the stargazers all turn at the same time, their head torches catching a bashful

smile in red torchlight? Was there a moment of awkward understanding; a shared, unspoken joke that broke the tension? Did they look up to the sky, as if to say: *Why else would we be out here?*

Around the same time that groups were enjoying the clear skies above Clatteringshaws Loch in the Galloway Forest Park, astronomer Steve Owens was scanning a map of the UK at night, cross-checking with a list of National Parks and nature reserves. As UK Coordinator for the forthcoming International Year of Astronomy (IYA), Owens was looking for potential sites from which the UK's first International Dark Sky Park might flourish. The Galloway Forest Dark Sky Park, then, disclosed its own possibility at two different scales: one seen from without by a sympathetic eye roving the strange geography of a night-darkened Scotland and the other from within, through a shared affection for a dark geography above. After almost two years of careful planning and preparation, which drew together the Galloway Forest Park's Recreation Team, the International Dark-Sky Association, international astronomy experts, lighting engineers, university researchers and local residents, the Galloway Forest Dark Sky Park (hereafter, GFDSP, Dark Sky Park) was formally designated on the 16th of November 2009 and welcomed its first official dark sky visitors into the quiet night.

This thesis presents a critical exploration of international dark sky values from the situated perspective of the GFDSP. It charts the process of becoming an International Dark Sky Place (IDSP), the impact of the designation on the region and its communities and considers the challenges of developing the Dark Sky Park in the years following the designation. Through an ethnography attentive to the social lives, landscapes and aesthetic experience of the Galloway Forest Dark Sky Park and an interdisciplinary research practice composed of site-based ethnography, qualitative research methods and arts-based approaches, I explore how dark skies and their values are variously imagined, experienced and enacted *in place*.

## The International Dark Sky movement

The night sky has been an enduring source of inspiration and wonder (Brown and Wilson 2019; Lee et al. 2018–; Moore, Richman and Chamberlain 2011; Gallaway 2010). It is the subject of many cherished artworks (Falchi and Furgoni 2020), volumes of poetry, prose, fiction and non-fiction spanning the centuries (Bach and Degenring 2015; Levy 2001) and it has resourced many faiths and spiritual practices (Campion 2016; della Dora 2011: 828). To some, it is a place of learning and exploration into how we got here and where we might be

headed. To others, it is a powerful reminder of our short time on earth, a great leveller and symbol of commonality. It may offer the simple pleasure of a beautiful display or a deep sense of ancestral belonging. And yet, it is falling out of focus as our skies are increasingly affected by the presence of anthropogenic artificial light pollution, now widely understood as the 'inappropriate or excessive use of artificial light' (IDA n.d.h.; see also, Claudio 2009, Morgan-Taylor 2015). The impacts of light pollution are multiple and complex, and the subject of increasing numbers of research papers from studies exploring the impact of artificial light on human health and wellbeing (Stevens 1987; Garcia-Saenz et al. 2018; Kloog et al. 2011), to research on the disruptive effects of urban lighting on ecosystems and the foraging, mating and migratory behaviours (among others) of various animals (Longcore and Rich 2004; Rich and Longcore 2005; Novak 2018), and the seasonal biorhythms of plants and trees (Xihong et al. 2021; Škvareninová et al. 2017). In losing a view of the night sky, we may also lose its associated values, Pierantonio Cinzano, Fabio Falchi and Christopher D. Elvidge caution in their highly influential paper 'The first World atlas of artificial night sky brightness' (2001). The authors argue that the extent of global light pollution represents 'a loss of perception of the Universe where we live' with 'unintended impacts on the future of our society' (599).

Today, 83% of the world's population lives under light-polluted skies (Falchi et al. 2016: 4), and despite increasing awareness of the global nature of this issue, light pollution continues to increase at double the rate of global population growth (Falchi and Furgoni 2020). Early legal and policy frameworks for artificial light pollution or 'obtrusive light' as it was initially referred to (Morgan-Taylor 2015: 152), describe it as 'prejudicial to health' and 'a statutory nuisance' (The Clean Neighbourhoods and Environment Act (CNEA) 2005), for which Local Authorities and the Environment Agency were granted additional powers to address. In 2009, the UK Royal Commission on Environmental Pollution released a report that declared excessive artificial light a pollutant (IDA 2015: 5). The term 'light pollution' continues to be an uncomfortable concept for societies that perceive artificial light as a public good (IDA 2015a: 7; Gandy 2017), often associated with basic living needs such as heat and power, a healthy economy and public safety (Petrova 2017; Gandy 2017; Meier et al. 2015). With so many of the world's population living in light, whether the excessive or inappropriate lighting of our public spaces or the various screens that fill domestic spaces, our 'night vision' has been greatly diminished. (Moore 2008). Many of us have lost or are losing our *sense* of the universe.

The international dark sky movement has been instrumental in bringing the cosmos and its associated values into view, by drawing together groups of widely differing stakeholder orientations including astronomers, heritage preservationists, environmental agencies, local

and state governments around this shared resource (Meier 2015; 2019; Rodrigues, Rodrigues and Peroff 2015). Gathering momentum in the late 80s and early 90s through campaigns by professional and amateur astronomers in different parts of the world (Zielińska-Dabkowska, Xavia and Bobkowska 2020; IDA 2015a; Nordgren 2010), the movement has extended its efforts beyond restoring a view of the stars for the benefit of specialists and enthusiasts, to ensuring access to unpolluted night skies as 'an inalienable right of humankind equivalent to all other environmental, social, and cultural rights' (La Palma Declaration 2007). International organisations such as the Royal Astronomical Society of Canada (RASC), the International Dark-Sky Association (IDA) and the Starlight Initiative (SI) designate protected areas in co-operation with situated communities and develop cultural programmes that seek to raise awareness of the impact of artificial lighting and increase public engagement with the night sky and astronomy. In the UK, the Campaign for the Protection of Rural England (CPRE) and the British Astronomical Association (BAA) have led on raising awareness of light pollution with the BAA establishing an anti-light pollution campaign group, the Commission for Dark Skies (CfDS) in 1989 (Dunnett 2015). These groups have most recently fed into the formation of an All-Party Parliamentary Group (APPG) in 2019 and the creation of a UK IDA Chapter in 2021 (Dark Sky UK 2024), with further support provided by the Institution of Lighting Professionals (ILP) along with various National Parks, AONBs (Area of Outstanding Natural Beauty) and related organisations (BAA Commission for Dark Skies n.d.; Eaves 2021).

Research plays a critical role in strengthening these efforts. Remote satellite imagery of the world at night has been central to various dark sky campaigns (Dunnett 2015), which aim to show "a global view of the human footprint on Earth" (S. Pritchard 2017: 313, citing NASA 2012; see also, Shaw 2017). In 2014, the IDA partnered with the European Union Cooperation in Science and Technology through its programme 'Loss of the Night Network' to set up the Artificial Light at Night Research Literature Database (ALANDB), a publicly accessible database of scientific publications on artificial light at night.[1] This research has become increasingly diverse and multidisciplinary with distinct contributions from sociology, urban studies, tourism studies, ecology, architecture and human geography (Shaw 2018; Dunn 2016; Blair 2016; Meier et al 2015; Dunnett 2015; van Liempt, van Aalst and Schwanen 2015; Edensor 2013a, 2013b; Longcore and Rich 2004). In 2019, the Consortium for Dark Skies, itself a new interdisciplinary and multi-institutional research group based at the College of

[1] The ALANDB can be accessed here: https://www.zotero.org/groups/2913367/alan_db/library

Architecture and Planning, University of Utah,[2] established both a new minor degree in Dark Sky Studies – the first of its kind in the world – and a new peer-reviewed *Journal of Dark Sky Studies*.[3] The journal, which aims to 'bring scientists, academics, artists, stakeholders, policy makers, and the general public together under a shared vision to protect the conservation of natural night skies' (Barentine et al. 2019), is reflective of a shared commitment within the international dark sky research community to formalise dark sky studies and develop solutions capable of responding to the complex issues of light pollution through interdisciplinary work (Le Gallic and Pritchard 2019; Kyba et al. 2020; Hamacher, Napoli and Mott 2020; Meier et al. 2015). The contribution of academic scholarship, popular literature and material culture to dark sky studies and conservation is discussed in more detail below. *Windows to the universe* is situated at the intersection of interdisciplinary research and practice.

Since the GFDSP is an IDA-designated area, this thesis engages most closely with the IDA's practice, and in particular, its innovative programme of International Dark Sky Places launched in 2001. The IDA emerged from the interests and concerns of two friends – David Crawford, a professional astronomer based at Kitt Peak Observatory, Arizona, and Tim Hunter, a medical doctor and amateur astronomer – who understood 'that the issue of dark skies goes beyond the concerns of one observatory or one segment of the scientific community' (Levy 1998). In 2001, as the research revealing the extent of global artificial light pollution and its multiple impacts was being published and various international symposia and conferences convened, Crawford and Hunter devised a distinctive model of excellence for dark sky stewardship. This was to become the International Dark Sky Places (hereafter, IDSP) award programme. The very first IDSP designation was awarded to Flagstaff, Arizona, a city whose historical connection to dark skies is said to have inspired the award programme, having adopted the first lighting ordinance in 1958 (Owens 2011: 18) and promoted as 'The Skylight City' in the 1890s (ibid.: 17). At the time of writing this thesis and more than two decades after launching its IDSP programme, the IDA has certified more than 200 IDSPs with an increasingly diverse membership distributed across 22 countries. In 2015, the Kaibab Paiute Indian Reservation on the Arizona-Utah border became the first Dark Sky Nation (IDA 2015b) and in 2017, the Waterton-Glacier International Peace Park, which spans both Montana, US and Alberta, Canada, was granted provisional status as the first transnational Dark Sky Park (IDA 2017). The IDA is one of three international organisations currently

[2] More information about the Consortium and its work is available here: https://unews.utah.edu/consortium-for-dark-sky-studies/

[3] The Journal of Dark Sky Studies is published twice yearly here: https://jdss988378514.wordpress.com/

designating dark sky areas, each awarding a variety of titles and modalities that reflect the diversity of contexts in which dark sky communities are situated. The IDA awards a variety of modalities for night sky preservation − Park, Sanctuary, Reserve, Community and its most recent award, Urban Night Sky Place (IDA n.d.f). The Royal Astronomical Society of Canada currently awards three types of light-restricted protected areas: Dark-Sky Preserves, Urban Star Parks and Nocturnal Reserves (RASC, 2021). The Starlight Initiative offers a diverse spectrum of what it calls 'Modalities': Reserves, Tourist Destinations, Villages & Cities, Rural Hotels and Houses, Stellar Parks and Stellariums and Camps. The Starlight Initiative also designates Heritage Sites, Astronomy Sites, Natural Sites, Landscapes, Oases, and Mixed Sites all under the 'Starlight' moniker (Starlight Foundation n.d.). Places wishing to gain dark sky designation may choose which status or modality they wish to adopt, and structure their approach accordingly, informed by their specific contexts. The designation of dark sky areas is a complex process requiring adherence to a rigorous set of parameters around lighting controls, which often require large geographic areas to be under unitary control (McNally and Morgan-Taylor 2012: 25) and the support of 'substantial multi-stakeholder efforts' (Meier 2015: 177; see also, Silver and Hickey 2020, Zielińska-Dabkowska, Xavia and Bobkowska 2020).

**The Galloway Forest Park Dark Sky Park**

The designation of the GFDSP represented a distinctive moment in the dark sky movement's development. Awarded during the International Year of Astronomy (IYA) as part of a programme objective to develop a European chapter of the IDA (IYA 2009a), it was the first of its kind in the UK and Europe and only 4th in the world. An International Dark Sky Park is a designation awarded by the IDA to a location:

> possessing an exceptional or distinguished quality of starry nights and a nocturnal environment that is specifically protected for its scientific, natural, educational, cultural heritage, and/or public enjoyment. (IDA n.d.e)

It was a bold endeavour, a shot in the dark. While early instances of DSAs were established by specialists well-versed in the language of the night sky, the GFDSP's application was shepherded by a small team based in the Tourism and Recreation Services office of the Galloway Forest district, for whom the stars held a personal, not professional interest. This team worked alongside the astronomer and then, UK Co-ordinator for the IYA, Steve Owens,

to deliver a full audit of all exterior lights within the Forest Park, the creation of a lighting masterplan that would impact the three council areas across which the Dark Sky Park's boundaries were situated, and the development of public outreach activities. As part of this, members of the local Wigtownshire Astronomical Society (established in 1998) recorded 'sky quality'[4] readings across the region. The Park recorded a 'night sky brightness' of 22.7 in the darkest part of the Park, on a possible scale up to 25, where the higher the value, the darker the sky. This translates roughly to a value of 2 when using the less exact but nonetheless popular 'Bortle Scale' (Bortle 2001), designed by amateur astronomer John E. Bortle. The Scale runs from 9, indicating brightness akin to an inner-city sky, to 1, indicating an 'observer's Nirvana!' (loc. cit.).

## 3. Dark Sky Park and Transition Zone

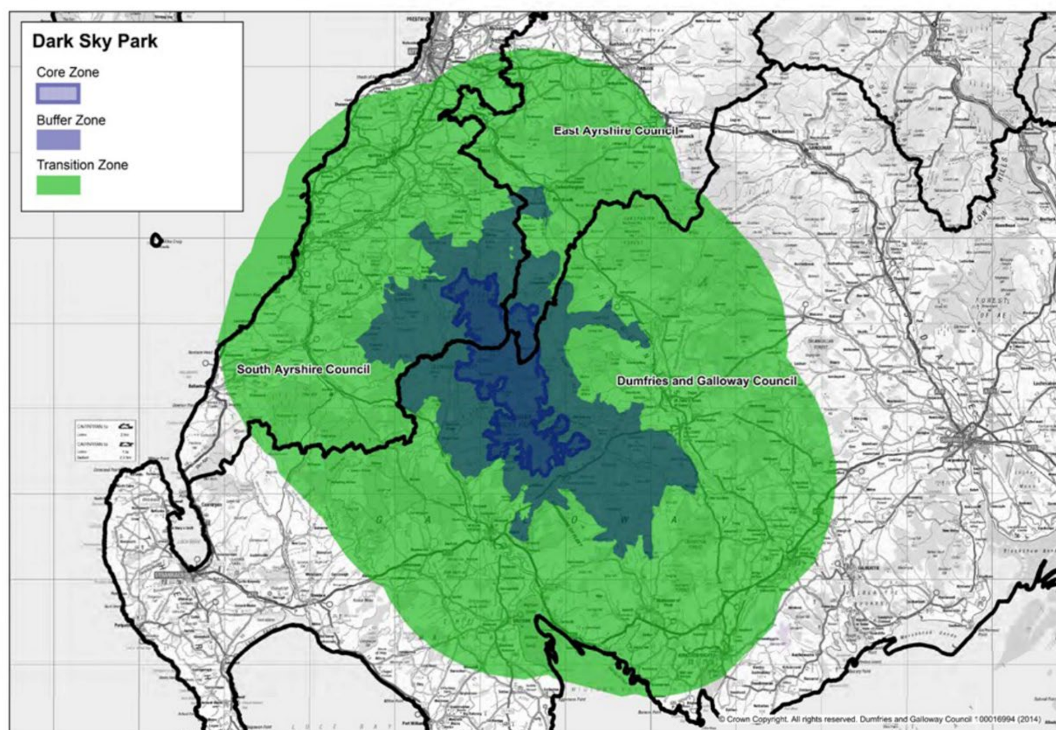



**Figure 1.1. Dark Sky Park and Transition Zone.** The three zonal areas of the Galloway Forest Dark Sky Park and the three local authority areas that it covers.

Image credit: Dumfries and Galloway Council Local Development Plan Supplementary Guidance: Dark Sky Park Friendly Lighting (DGC 2015: 4).

[4] Sky quality readings are measured using a pocket-size device called a Sky Quality Meter, designed by Doug Welch and Anthony Tekatch. The device measures night sky brightness in visual magnitudes per square arcsecond.

With 300 square miles of land cover, the GFDSP is Britain's largest Forest Park and spans three local authority areas – Dumfries and Galloway, South Ayrshire and East Ayrshire (Fig. 1.1). The delineation of Core, Buffer and Transition zones for the GFDSP's Lighting Management Plan are informed by the UNESCO Biosphere model, with which the region has a long relationship. In 1976, three 'old-style' Biosphere sites were designated: the Merrick Kells Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC), the Silver Flowe Ramsar SSSI and National Nature Reserve (NNR), and the Cairnsmore of Fleet SSSI and NNR. The outlining of three distinct zonal areas – Core, Buffer and Transition – was introduced by UNESCO in the mid-1980s to Biosphere Reserves and it is these three zones that the Dark Sky Park adopted. The Core zone of the GFDSP, for example, contains the three original Biosphere sites and is free from human settlement and permanent illumination (FCS 2009a). In 2012, the region was re-designated as a 'new-style' UNESCO Biosphere, its own Buffer Zone delineated by the external boundaries of the Dark Sky Park. As this thesis will discuss, while the Dark Sky Park and the Biosphere are managed by two different organisations, their geographies – physical and cultural – are very much entangled.

At the time of its designation, the GFDSP's distinctive engagement with tourism reflected an increasing understanding among leaders within the dark sky movement of the night sky as a 'tourist resource' and tourism itself as a practice through which the night sky can be protected and valued (Rodrigues, Rodrigues and Peroff 2015: 292; see also, La Palma Declaration 2007; Weaver 2011; Challéat, Lapostolle and Milian 2018). Established as a National Forest Park in 1947 by the Forestry Commission, the Galloway Forest Park has enjoyed a long relationship with visitors. It is known for its beautiful and varied scenery and dramatic history, but also for its distinctive tranquillity, described in a Forestry Commission guide as 'The Quiet Country' (Dier 1974: 49; see also, McCormick 1954: 3), despite being within easy reach of Scotland's most populous centres and northwest England (McCormick 1954: 1). It would appear that the designation of the Dark Sky Park will further promote and enhance this imagination of the region. In a promotional piece for Scotland's national tourism board Visit Scotland, Keith Muir,[5] a key figure behind the designation, describes the GFDSP as 'synonymous with quiet, dark exploration' (Muir n.d.). Today the GFDSP welcomes 800,000 visitors a year and has secured a strong legacy of dark sky practice in the UK and Ireland. Since its designation as a 'Gold Tier'[6] destination for stargazing and astronomy, a further 16 IDSPs have been awarded

[5] Head of Visitor Services and Communication at Forest Enterprise Scotland (FES)

[6] The Tier system is no longer used by the IDA, but at the time of the GFP's award, was the highest accolade a Dark Sky Park could receive, reflective of excellence in lighting controls and star visibility.

in the UK and Ireland, from Glenlivet and Tomintoul Dark Sky Park in the north of Scotland to the Dark Sky Island of Sark (an IDA Dark Sky Community) in the Channel Islands.

**Our dark skies, our total lives: a cultural return to the dark**

While the preservation of dark skies is rooted in the efforts of amateur and professional astronomers, light pollution is also a cultural issue, representing 'a profound alteration of a fundamental human experience—the opportunity for each person to view and ponder the night sky' (Falchi et al. 2016: 1). The GFDSP was designated as part of the IYA 2009, a UNESCO project that celebrated the profound impact that astronomy has had on human culture, and which aimed to 'facilitate the preservation and protection of [our] global cultural and natural heritage of dark skies' (IYA 2009a: 5). Conceptualised as 'windows to the universe' (IDA n.d; Marín and Jafari 2007; Isobe 1998), IDSPs are promoted as places in which we can reconnect with our 'universal common heritage' (IDA n.d.; Marín and Jafari 2007) and as vehicles for integrating 'all that lies above–sights, sounds, hopes… into our total lives' (Jafari 2007: 55). As astronomer Steve Owens writes in support of the Galloway Forest Park's application for dark sky status:

> People have been looking up at the night sky, telling stories and passing on myths and legends, for the entirety of recorded human history. But when we moved into cities, we lost that very deep connection with the universe. In setting up dark sky parks, we're trying to reconnect people with nature. (FCS 2009a: 12)

Since the GFDSP's designation in 2009, sixteen additional IDSPs have been awarded in the UK and Ireland with dark skies proving to be 'all the rage' (Eaves 2021). In June 2019, travel publisher Lonely Planet announced that 'dark skies' would be one of its new trends and later that year published the guidebook *Dark Skies: A Practical Guide to Astrotourism* (Stimac 2019). Open to the public and featuring educational and recreational programmes relating to astronomy, stargazing and heritage sites, IDSPs play an important role in a wider cultural turn to the dark and the night sky (Bogard 2013; Dunn and Edensor 2024). These efforts are complemented by a network of local and national astronomy and environmental organisations called Dark Sky Discovery Sites, modelled after the Dark Sky Scotland Project, delivered as part of the IYA 2009 (Robson and Owens 2010: 1.18). Often located in car parks or at the edges of towns and cities rather than on protected land, the sites are chosen by groups and organisations as their 'top local spot to see the stars' (Dark Sky Discovery n.d.) and though

they offer ‘not-quite-perfect-but-much-better-than-you-normally-get’ conditions for stargazing (Owens 2010b), they represent a growing cultural return to the dark, which aims to be as inclusive and accessible as possible.

The form that dark sky programmes take is increasingly varied. Many IDSPs, cultural organisations and networks run annual dark sky festivals, which include activities such as public stargazing events, rocket-making workshops, cosmic storytelling and space travel talks; but increasingly their programmes include cultural events such as film screenings, live music and art installations. Live magic events by candlelight and talks on the cultural value of the night sky have been regularly featured at County Mayo Dark Sky Park’s (Ireland) annual Dark Skies Festival since its first iteration in 2017. In 2019, the Isle of Lewis (Scotland), hosted its inaugural ‘Hebridean Dark Skies Festival’ which featured ‘Whatever Gets You Through the Night’, a live multi-media event that invited Scottish musicians and writers to ‘tell stories set between midnight and 4am’ (Bissett 2018). Since 2013, the GFDSP has hosted the semi-regular arts festival *Sanctuary* in the Core Zone of the Dark Sky Park, which brings together artists, musicians and performers around the themes of darkness, remoteness, technology and community (Sanctuary 2015; 2017; 2019).

A cultural return to the dark has been further resourced by a proliferation of popular literature on the night sky over the last 20 or so years (Levy 2001; Bogard 2008, 2013; Nordgren 2010; Attlee 2011; Fildes 2016; Clare 2018; Francis 2019; Brown and Wilson 2019; Gaw 2020; Yallop 2023), nudging minds and hearts skywards through enchanting and relatable stories of journeys in search of natural darkness, reflections on the enduring relationships between astronomy and the arts, down-to-earth tales of do-it-yourself astronomy, and personal reflections on the value of darkness to well-being and creativity. These studies complement the efforts of the international dark sky movement through enchanting accounts of natural darkness and starlight that celebrate and make tangible our cultural entanglements with the night sky and aim to redress entrenched fears of the dark.

Light and darkness have been imaginatively engaged through light festivals such as Lumiere Light Festival in the city of Durham (Edensor 2015a) and the Moonraking Festival in Slaithwaite (Edensor 2018a), Yorkshire, and large-scale public artworks in which illumination and darkness are key components from Michel de Broin’s *La maîtresse de la Tour Eiffel*, in which an enormous mirrored ball was suspended over the city of Paris in 2009 (Sloan 2015), and *Speed of Light*, a mass performance event staged in Holyrood Park in Edinburgh, Scotland, during which members of the public participated as runners or walkers, adorned with lights

(Edensor and Lorimer 2015). The qualities and experiences of such events have been the subject of a growing body of multi-disciplinary studies within academic research, with a focus on how our everyday – and every*night* – lives are shaped in, through and with light, darkness and gloom (Edensor 2013a; Edensor 2012; Bille and Sørensen 2007). The myriad and often contested values and inhabitations of the night have been explored through cultural and historical studies of sleep, labour, lighting practices and industrialisation (Melbin 1987; Palmer 2000; Ekirch 2005; Koslofsky 2011). Geographical and social science scholarship has further expanded this work through spatiotemporal analyses of the sociomaterial practices of night that have critically explored racial segregation (Talbot 2007; Frasch 2012; Harrison 2015; Browne 2019), social control (Williams 2008), the privatisation and commercialisation of the night (Crary 2013; Gallan 2015; Shaw 2018) and the hidden, subversive and disenfranchised practices and lives of the urban night (Sandhu 2007; Shaw 2018). More recently, Nick Dunn and Tim Edensor (2021, 2024) have published two multi-authored volumes that bring together research on darkness and dark skies from across the social sciences and humanities, with significant consideration afforded to the value of interdisciplinary research and creative practice in deepening and diversifying understandings of the night and darkness more specifically. Together, this growing field of 'night studies' (Le Gallic and Pritchard 2019; Kyba et al. 2020; Dunn and Edensor 2021, 2024) makes an increasingly stronger case for the night as a 'critical realm of everyday existence' worthy of sustained enquiry (Kyba et al. 2020: 4; see also, Gallan and Gibson 2011; Shaw 2018). Such work is reflective of efforts within dark sky preservation to "re-enchant" our relationships with darkness, starlight and the night (Marín and Jafari 2007; Bogard 2008; Nordgren 2010; Bogard 2013). However, despite their important role in a cultural return to the dark, IDSPs remain understudied within this scholarship, largely appearing as specific case studies of international dark sky practice and astrotourism development, whilst theoretical engagement has largely centred on the 'urban night'. Notable work that has addressed this imbalance and bridged the gap between appraisals of dark sky values and the specific sites and practices that protect and promote them includes Paul Bogard's influential book *The End of Night: Searching for Natural Darkness in an Age of Artificial Light* (2013) and Ada Blair's research monograph *Sark in the Dark: Wellbeing and Community on the Dark Sky Island of Sark* (2016).[7] In *The End of Night*, Bogard recounts a long journey across North America from 'the brightest pixel on Earth' (a light installation atop the Luxor Hotel and Casino in Las Vegas), to Bryce Canyon National Park and Natural Bridges National Monument, two of the darkest places recorded by the IDA. Along the way he speaks

[7] At the time of publishing this thesis, Nick Dunn and Tim Edensor (2024) published the volume *Dark Skies: Places, Practices, Communities* which features research from across the arts and humanities and often involving collaboration and partnership with dark sky places and practitioners.

to dark sky practitioners whose motivations, experiences and aspirations build an increasingly rich and diverse account of international dark sky practice. Blair's book *Sark in the Dark* zooms into a specific IDSP – the Dark Sky Island of Sark – offering a close study of the island's community of dark sky residents, stakeholders and practitioners whose situated experiences inform a number of research themes relevant to wider dark sky research from 'the desire to see the night sky' to 'fear and fearlessness of the dark' (Blair 2016: 104). Both books have greatly resourced my own research and it is their work of bridging international dark sky preservation and its practice 'on the ground' that *Windows to the universe* wishes to correspond and extend. It does so through a critical and creative exploration of dark sky values from the situated perspective of the Galloway Forest Dark Sky Park.

## *II / Mapping the values of a Dark Sky Park*

### The scope of the project

It is within this cultural return to the dark and an 'emerging engagement with the heavens' within tourism (Weaver 2011: 39; see also, Collison and Poe 2013; Challéat, Lapostolle and Milian 2018; Poméon and Challéat 2014) that this research project is situated. The following section describes how I came to be involved in the project, its collaborative and interdisciplinary nature and the academic context in which it has unfolded. I then outline the central enquiries that have guided the research.

I have a long-held fascination with outer space, fed by Hollywood productions of astronautic adventures and ill-advised screenings of alien horror during childhood, later embellished by science fiction novels and written accounts of space missions and astronauts. Despite this, I do not remember looking up at the sky much at all throughout my childhood. It was not something I was encouraged to do and rarely did we have access to clear skies in any case, having lived either on air force bases or in busy towns. I do remember though, a moment of idleness in later childhood, waiting on the front doorstep while my parents searched for their keys, and noticing the Plough constellation pitched in the gap between our house and the house of our grandparents who lived next door. This was my first 'window' to the universe. It was a small one, but it was enough to transport me momentarily.

The first time I visited the Galloway Forest Dark Sky Park was in March 2016. I was making a short film as part of my Master's degree, an essay piece that reflected on my experience of grief after losing a close friend, and how this was supported through a deepening relationship with the night sky. Initially, I had planned to focus on astronauts' experiences of being away from home, of being out-of-time physically, emotionally and psychologically, and what it felt like to return to Earth. During a meeting to discuss pre-production research, my tutor suggested *why not focus on the people who are stuck on earth but still looking up?* He recommended I look up an arts project that had taken place in a Dark Sky Park. I had never heard of a *Dark Sky Park*; what a fascinating concept. Later that month, I rented a car and drove down from Glasgow, having lined up a one-to-one astrophotography workshop with Jesse Beaman (who would later become a Biosphere Dark Sky Ranger for the GFDSP) and an interview with Mike Alexander, co-owner of the Galloway Astronomy Centre, a B&B dedicated to amateur astronomy and stargazing. Within that same week, I became aware of this PhD project, advertised on the Scottish Graduate School for the Arts and Humanities (SGSAH) website. Thrilled at the thought of being able to continue my relationship with this incredibly fascinating place and its starry-eyed people, I downloaded the application pack and began to write.

*Windows to the universe* critically maps the values of the Galloway Forest Dark Sky Park and its unique approach to international dark sky preservation through a research practice composed of site-based ethnography, qualitative research methods and creative enquiry. It considers the impact of the designation on the region and its communities and explores how the GFDSP is variously imagined, managed and inhabited by its stakeholders as conservation model, novel tourist destination and place of residence. The research presented in this thesis was conducted during 2016–2020, a period leading up to and including the GFDSP's ten-year anniversary in 2019. It engages with stakeholders in a process of critical reflection that casts forward to possible new futures for IDSP practice. It is published at a time when international dark sky leaders, activists, researchers and practitioners are reflecting on the future of the movement. Guiding their efforts is a commitment to approach night studies as an interdisciplinary field through which to 'consider questions that disciplinary researchers have not yet thought to ask' (Kyba et al. 2020: 1; Le Gallic and Pritchard 2021; Galinier et al. 2010), and to critically expand participation in dark sky preservation, particularly of those who are most affected by artificial light pollution (IDA 2021c; Hamacher, de Napoli and Mott 2020; S. Pritchard 2017). *Windows to the universe* supports these efforts through research attentive to the situated practice

of international dark sky preservation and an understanding of dark sky values as co-constituted and variously enacted.

**Lines of enquiry**

The following aims underpin this research project:

— To explore the values of the GFDSP through in-depth qualitative research and creative enquiry that examines stakeholder perceptions and practices and remains attentive to the agency of place.

— To investigate the impact of the designation on this region and its communities and to critically explore how the Dark Sky Park continues to be imagined, practiced and developed in the years following its designation.

— To examine the cultural phenomena of stargazing and dark sky appreciation and to write an ethnography of the social lives, landscapes and values that co-compose the Dark Sky Park.

— To critically reflect on the challenges and potentials of the designation in Forestry Commission properties and landscapes, and environmental governance and tourism more broadly in a UK context.

These commitments are variously woven together throughout the thesis and reflect three central thematic areas of enquiry:

1. To develop an expanded vocabulary of dark sky values
2. To explore dark sky values from the situated perspective of the Galloway Forest Dark Sky Park
3. To approach the Dark Sky Park as creative crucible for interdisciplinary research

The following section introduces each theme before closing with a summary of the thesis chapters.

**An expanded vocabulary of dark sky values**

In 2001, amateur astronomer John E. Bortle (2001) created a scale running from 1 to 9 as an aid to astronomers looking to account for increasingly bright night skies and the negative impact of artificial light pollution on the visibility of celestial bodies[8]. In this scale of qualitative value, a 'Class 9' indicates an inner-city sky so brightly lit that '[T]he only celestial objects that really provide pleasing telescopic views are the Moon, the planets, and a few of the brightest star clusters (if you can find them).' At the other end of the scale, a 'Class 1' sky will indicate an 'observer's Nirvana!' wherein a whole suite of celestial objects will be visible to the naked eye, and such phenomena as zodiacal light, gegenschein, and zodiacal band[9] will be clearly visible to those who know to look for it. While the scale notes points of reference that only a seasoned observer may be familiar with (e.g. the M33 galaxy or M22 globular cluster), it remains 'subtle and inconsistent' (Bogard 2013: 9) with guidance notes that include landscape details ('[I]f you are observing on a grass-covered field bordered by trees') and the down-to-earth details of everyday life ('you can read newspaper headlines without difficulty') (Bortle 2001: 129). Alongside astronomical terminology, Bortle also notes enchanting imagery seen without use of specialist equipment: 'The summer Milky Way is highly structured to the unaided eye, and its brightest parts look like veined marble when viewed with ordinary binoculars' (ibid.: 127).

At first glance, the Bortle Scale appears to draw value from what can or cannot be seen by a specific group of people. Yet, with its peculiar blend of specialist knowledge, mundane detail, and environmental sensitivity, as well as its lack of precision, it begins to open onto a more expansive sense of dark sky engagement, through which more-than-visual and other-than-specialist values of the night sky may be sensed and articulated. Though 'subtle and inconsistent', Paul Bogard reflects, the Bortle Scale does much more than measure the brightness of the night sky; it offers 'a language to help define what we mean when we talk about different shades of darkness, about what we have lost, what we still have, what we might regain' (Bogard 2014: 9). I take this as a departure point for the elaboration of an

---

[8] The Bortle Scale forms part of the IDA's formal guidelines for conducting a Sky Quality Survey (IDA n.d.c.) though with a caution that an application made to IDA using only this method, is less likely to be approved in comparison with one that uses a Sky Quality Meter (SQM) (a device which measures units of sky brightness as magnitude per arcsecond) or when using both methods.

[9] An excellent definition of zodiacal light, gegenschein and the zodiacal band is provided by Tyler Nordgren in his book *Stars Above, Earth Below* (2010) on page 431.

expanded vocabulary of dark sky values, with a particular focus on the cultural value(s) of starlight and darkness.

This is an area of investigation that has received increasing interest over the last two decades by geographical and urban studies scholarship looking to disrupt and reconfigure entrenched binary understandings of light and darkness and the sociomaterial consequences of such narrow formulations that bind light to progress, wealth and morality, and darkness to danger, struggle and deviance (Ekirch 2005; Palmer 2000; Koslofsky 2011; Gallan and Gibson 2011; Edensor 2013a). While the night sky lends itself to societal notions of value, from the scientific to the spiritual (Gallaway 2010), our *felt* sense for natural darkness and starlight – our 'night vision' (Moore 2008) – has been diminished and often dispossessed (Hamacher, de Napoli and Mott 2020; Prescod-Weinstein 2021). In this context, IDSPs are celebrated as 'windows to the universe' that enable us to reclaim and rebuild relationships to a different version of the night (Marín and Jafari 2007).

An expanded vocabulary of the GFDSP's dark sky values, as it is developed in this thesis, is also sensitive to both the signifying power of the IDA designation (which declares the value of this naturally dark landscape) and the diverse experiences and situated practices of the GFDSP's stakeholders, through which values emerge and take shape. My approach to dark sky practice is informed by the human geographical concept of 'lifeworld' (Buttimer 1976; Seamon 1979; Lowenthal 1961), wherein meaning – or value – is understood as always and already co-composed with others and through lived experience, what cultural geographer Hayden Lorimer describes as the '*felt-world* of relations between people and place' (Lorimer 2019: 332, my emphasis). Drawing on non-representational theory, arts-based and more-than-human approaches to landscape in cultural geography, anthropology and the environmental humanities more broadly, and an evolving multi-model research practice composed of site-led ethnography, qualitative research methods and creative enquiry, I explore the personal, relational and experiential dimensions of dark sky practice in the GFDSP (see also, Blair 2016; McGhie 2020a). What emerges is a rich vocabulary of dark sky values that includes the personal and professional, the planned and contingent, the symbolic and situated. Deploying the concept of lifeworld in my stakeholder analysis of the GFDSP is a novel approach that takes seriously the imaginative, affective, shared and situated dimensions of conservation work and environmental stewardship (Coleman, Hodges and Haggett 2014; West et al. 2018; Vreese et al. 2019). It offers critical insight into how the values of international dark sky preservation intersect with and are shaped by existing local, regional and national environmental policies and practices that are already at work in a particular site. Further, in shifting the focus from

stakeholder identities, roles and responsibilities to a dynamic imagination of stakeholder *doings*, the project maps *how* dark sky values are produced through specific practices, encounters and relationships both in and without formal processes of stakeholding and decision-making (see also, Dunkley 2018b; Franklin and Dunkley 2017; Ellis and Waterton 2004).

**An exploration of dark sky values from the situated perspective of the Galloway Forest Dark Sky Park**

Once the domain of astronomers, dark sky preservation has come to encompass a broader and complex range of interests. The GFDSP represents an increasing trend within dark sky practice that is seeing applications for dark sky status led by individuals and organisations who *do not* specialise in astronomy. This thesis responds to calls for the analysis of dark sky stakeholder perceptions and practices 'in different settings' (Lyytimäki and Rinne 2013; see also, Heim 2020; Silver and Hickey 2020, Meier 2015), a greater attention to the 'landscape dimension' of dark sky practice (Marín 2009: 451; see also Charlier and Bourgeois 2013, Nordgren 2010: 405–406; Bogard 2013: 248), and to the different and intersecting ways in which 'darkness is seen and employed as a resource' (Meier 2019: 91; see also, Challéat, Lapostolle and Milian 2018: 13).

Informed by the shared values and mission aims of a globally distributed dark sky movement, each IDSP site also comes with its own context, specific expressions and cadences, drawn from shifting configurations of landscape features, lives and local practices. Despite this – and despite increasing research on the positive impact of natural darkness on both human and non-human life – there remain few dedicated studies of IDSPs, what they mean and what they do. *Windows to the universe* does not, however, offer comparative analysis of IDSPs, nor a contained case study of the GFDSP. While it lends itself to considerations of best practice by identifying challenges and opportunities that may speak to other dark sky and conservation contexts, the project has endeavoured to engage with the GFDSP as a site through which international dark sky practice can be *thought*. As this thesis demonstrates, while international designation can be understood as a representation of value conferred on a specific location, it is also enactive, requiring ongoing stewardship and community engagement of values *in-place* (Silver and Hickey 2020; IDA 2018; Blair 2016). This thesis charts the process through which the Dark Sky Park was brought into being, how it was envisioned, resourced and delivered, and how its values were communicated to the region's various communities. It also looks beyond the designation to explore how the people who live and work in the region, do or do

not come into relationship with the Dark Sky Park and how the values of the designation are variously strengthened, displaced and transformed over time (Reed et al. 2009).

While dark sky preservation is considered to be 'a largely harmonious matter' that unites multiple interests across natural resource management, environmental conservation, cultural heritage, recreation and sustainable development (Meier 2015: 193; see also, Meier 2019; Fayos-Solá, Marín, and Jafari 2014; Dalgleish 2020), there remain gaps in research as to what these intersections look like in practice and what they produce (Silver and Hickey 2020; Challéat, Lapostolle and Milian 2018). *Windows to the universe* responds to this challenge by mapping the GFDSP as a site composed of intersecting conservation, tourism, socioecological and cultural interests and practices, with which international dark sky values make contact. Informed by site-ontological theories as developed from the work of social geographer Theodore Schatzki (2003), this project approaches the research site and its associated knowledge as 'the emergent property of [its] interacting human and non-human inhabitants' (Marston, Jones III and Woodward 2005: 425; see also, Woodward et al. 2010). I ask: How are the values of the international dark sky movement differentially mobilised and re-worked through context-specific practices and organisational agendas (Challéat, Lapostolle and Milian 2018; Silver and Hickey 2020), and in what ways are the distinctive experiences of stakeholding an IDSP in a quiet corner of the UK productive of international dark sky practice? Further, how do engagements with the aims and opportunities of international dark sky designation speak to the everyday concerns of environmental decision-makers on the ground?

In exploring these questions, my work contributes to contemporary debates that grapple with the meaningful integration of diverse values in natural resource management and land use decision-making (Jacobs et al. 2016; Vreese et al. 2019; West et al. 2018; Mathews 2016; Tabbush 2010), whilst also remaining attentive to the critical opportunities and challenges presented by international dark sky designation as a novel environmental practice (Duriscoe 2001; Marín 2011). An intersection with which *Windows to the universe* closely engages, is the one that the Dark Sky Park shares with Scottish forestry, its application to the IDA made in the name of the Galloway Forest Park and managed by Forest Enterprise Scotland/Forestry Commission Scotland (now, Forestry and Land Scotland) (Forestry Commission Scotland 2009). My research reflects on Forest Enterprise Scotland's (FES) mobilisation of international dark sky status in support of a wider mission to diversify forestry (FCS 2009b; STFC 2010; see also, D. Pritchard 2008; Tsouvalis 2000) and the challenges of doing so as the first IDSP of its kind with no concrete examples to follow. Further, through a research

practice informed by more-than-representational and creative geographies of place (Lorimer 2005; Hawkins 2013), *Windows to the universe* supports Forest Research Scotland's (FRS) aims to better understand and elaborate the values of trees, woods and forests beyond notions of cultural capital, and elaborate the diverse ways in which people experience Scotland's forests (Edwards, Collins and Goto 2016; Thomson 2013; Tabbush 2010; D. Pritchard 2008). Beyond professional practice, this project also locates value in everyday and informal instances of stewardship and environmental appreciation, through which the Dark Sky Park comes to matter (Heim 2020; Blair 2016; see also, Dunkley 2018a; Craggs, Geoghegan and Neate 2016; Geoghegan 2012), from a convivial twilight excursion to find moths and glow worms by a village community, to the daily – and nightly – affectionate exploration of a Neolithic site by a local resident. My interest in the informal shaping of dark sky values further extends to contingent encounters with humans and non-humans as we variously negotiate our shared experiences. In these moments of charged encounter or uncanny non-attunement (Wilson 2016; Kohn 2013), the values of the Dark Sky Park are variously transformed, interpolated, challenged and expanded.

*Windows to the universe*, then, conceptualises dark sky designation not only as a policy instrument, but as a dynamic assemblage, co-constituted by a diverse range of agents, practices, and experiences. The following and final thematic section of this chapter develops this position through a discussion of the project's interdisciplinary and partnership framework.

**The Dark Sky Park as creative crucible for interdisciplinary research**

*Windows to the universe* is a Collaborative Doctoral Award (CDA) research project in partnership with the Galloway Forest Dark Sky Park and Forest Research Scotland. Launched in 2005 by the Arts and Humanities Research Council (AHRC), CDAs are interdisciplinary doctoral research projects developed in partnership with external organisations such as museums, libraries, environmental agencies and heritage organisations (AHRC 2019), that are intended to produce research of value to audiences beyond the academy. I align my work with recent calls for night studies (inclusive of dark sky studies) to embrace interdisciplinarity and collaboration to meet the complex challenges of light pollution and to reflect the fundamental interconnectedness of the night (Le Gallic and Pritchard 2019; Kyba et al. 2020; Hamacher, Napoli and Mott 2020; Barentine et al. 2019; see also, Hölker et al. 2010). Mindful of Challéat, Lapostolle and Milian's (2018: 13) call for interdisciplinary, transdisciplinary and participatory processes to be pursued in collaboration with IDSP practitioners to 'define and jointly develop

research objectives and methods in order to achieve a common goal', *Windows to the universe* takes seriously the GFDSP as a place that produces knowledge about and with dark skies. This thesis, then, affirms the value of dark sky designation as a policy instrument for the movement and conservation efforts more broadly, but equally strives to make a case for dark sky practice − inclusive of research − to be more imaginatively thought and more thoroughly interdisciplinary and situated in its makings (S. Pritchard 2017: 324).

The project's interdisciplinarity is reflected through its academic framing, situated between cultural geography and ecocritical studies at the University of Glasgow. It is further resourced by my background in the arts. I am trained in fine art practice and filmmaking and have worked as a creative practitioner since the early 2010s. My art practice is multi-modal, composed of research, image, sound, writing and performative actions, with an interest in forms that centre experience and facilitate dialogue. At different moments, this has manifested as publicly exhibited works, socially-engaged arts projects in collaboration with communities of interest and place, curatorial projects, course design and creative facilitation. Though cultural geography and ecocritical studies were new intellectual fields for me at the outset of this project, their conceptual engagements with landscape and the more-than-human, and methodological explorations of embodied practice and aesthetic experience (Parr and Lorimer 2014; Edensor and Lorimer 2015; Cameron 2012; Lynch, Glotfelty and Armbruster 2012; Vannini 2015a; Bastian et al. 2017; Tsing et al. 2017), resonated a great deal with the creative and theoretical work I had been developing during my Master's degree. Simultaneously, my new disciplinary "home" has critically re-situated my creative practice in cultural geographic and environmental humanities research, newly attuned to questions of place and space, re-presentation and knowledge production. As such, this project foregrounds the role of site in the shaping of interdisciplinarity and creative practice, approaching the *place* of the GFDSP as an 'experiential field of investigation' (Thomson 2013; see also, Hawkins 2013) and 'source of authority' for the research (Massey 2003: 76; see also, Tuck and McKenzie 2015; Woodward et al. 2010). Throughout the project, 'discrete' methods such as interviews, autoethnography and observant participation were continually unsettled by the messy reality of site-relations, which often re-directed my attention and changed the shape of my enquiries. By situating the research *in* an IDSP, this project approaches the GFDSP as a 'creative crucible for interdisciplinary research' (SGSAH 2016), an epistemological stance that orients to the GFDSP as a site through which interdisciplinary knowledge about dark skies is produced through ideas and practices that arise directly from and with the site, its stakeholders and inhabitants.

This is discussed in greater detail in Chapter 3 where I look to theoretical approaches in geography and anthropology that conceptualise field site not as a temporally and spatially bounded area of study that remains separate from the researcher and their other research work (literature reviews, research design) (Massey 2003; Hyndman 2001; Katz 1994), but as social and/or ecological contexts, through which research is produced and developed (Clifford and Marcus 1986; Reed-Danahay 1997; Rose 1997; Butz and Besio 2004; Candea 2007; Butz 2009; Sundberg 2014; Larsen and Johnson 2016; Buchanan, Bastian, and Chrulew 2018). Drawing on my training as an artist, I mobilise creative enquiry and arts-based approaches in a stakeholder context, which, in locating value in the processual, iterative and dialogical (Kester 2004; Heim 2003), allow for the topic or problem at hand to be 'taken beyond [their] established disciplinary boundaries and institutional settings' (Edwards, Collins and Goto 2016; see also, Collins, Goto and Edwards 2014; Hawkins 2013: 156; Foster and Lorimer 2007). This thesis also demonstrates the value of creative enquiry in the production of dark skies research, a disciplinary orientation that is gathering momentum in academic scholarship, particularly through Master's and PhD research (Blair 2016; McGhie 2020a; Wilkerson 2020; Jeffrey 2021; King 2022; McGhie and Marr 2024), yet remains under-engaged in night studies literature, despite calls for more interdisciplinary approaches. A commitment to creative enquiry is made tangible through the form of the thesis, through what I describe as a 'distributed methodology'. The distributed methodology is composed of extended vignettes that break the flow of the research narrative throughout the central chapters to reflect on specific research encounters and the questions and challenges they raise. Such an intervention is deployed to continually return the research narrative to the '*working* materialities' of site (Woodward et al. 2010: 273, authors' emphasis) and to the conditions of research-making and re-presentation as 'the labored viscerality of being in whatever's happening' (Stewart 2013: 282; see also, Wilson 2016: 465; Crowther 2018: 91).

## *Thesis structure*

**Chapter 2, Dark matters: conceptualising dark sky practice** sets up the theoretical and conceptual framework of the thesis in two parts and brings international dark sky preservation and its associated values into critical conversation with recent geographies of the night. In the first half of this review, I discuss the important role that cultural geography and associated literatures have played in a re-enchantment of darkness and light by placing night at the centre of their analyses (Shaw 2018: 119). This work has sought to recuperate darkness and light

from their entrenched symbolic trappings to elaborate richer and more complex imaginations of the night that, through a sustained engagement with the affective, relational and situated qualities of darkness, light and landscape, challenge normative ways of reading, inhabiting and producing place with others. Key to my discussion is an engagement with creative, embodied and situated practices within arts-based and geographic research that perform a discursive shift away from the harms of artificial light and the necessity of its regulation, to instead ask: How do darkness and light shape our everyday – and every*night* – lives, and how might they otherwise?

In the second part of the review, a spatial imagination of dark sky places and the values they represent, is critically explored through two key concepts of the international dark sky movement: *windows to the universe* and *terrestrial skies*. I discuss how IDSPs are positioned in dark sky discourse as places that offer retreat and cosmic reconnection, and the sociomaterial practices and environmental relations that such narratives produce. Building on recent studies of dark sky stewardship and stakeholder practices, I close the chapter with a speculative exploration of dark sky preservation from the situated perspective of IDSPs. I bring these studies into conversation with environmental humanities work on narrative (re)inhabitations and non-representational earth-writing within cultural geography to conceptualise dark sky designation (and my account of it) as both inscriptive – a frame through which dark sky values are installed and presented; and enactive – a contact zone through which alternative environmental relations with place and planet might be fostered.

**Chapter 3, Field/work: a distributed methodology** introduces the methodology and describes how and why it is *distributed* throughout the chapters that follow. The chapter is divided into three parts. First, I discuss the crafting of methodological enquiry through pilot visits to the GFDSP, the exploration of different modes of enquiry and participation as the foundation for an interdisciplinary field practice, and the refiguring of stakeholder analysis approaches through arts-based and non-representational practice. In the second part of the chapter, I discuss how the Dark Sky Park as research site creatively interpolated the shape of my enquiry and research practice and reflect on the challenges and affordances of an iterative, site-responsive methodology. In the final part of the chapter, I discuss the aesthetic strategies deployed in the writing of this thesis, reflecting on its representational challenges and possibilities, inclusive of the "writing-up" phase that is so often separated out from a project's knowledge-making.

**Chapter 4, Half the Park is After Dark** charts the crafting of the GFDSP, from its application to the IDA for international dark sky status to the delivery of dark sky activities for a visiting public. In the first part of the chapter, I cover the marshalling of resources and expertise to prepare an application that, if successful, would blaze a new trail for international dark sky places in Europe. I discuss how tourism was placed at the heart of the application as part of delivering a 'diversified forest' to support Dumfries & Galloway's rural economy. This chapter also begins to consider the impact of the designation on the region by discussing the key ways through which international dark sky status has been interpreted and mobilised in local planning policies, environmental decision-making processes and community-led asset mapping. In the second half of the chapter, I explore the various ways in which the Dark Sky Park is made navigable and meaningful to a visiting public, with a focus on self-led exploration and the engagement of non-specialist audiences. I describe how the GFDSP's public-facing guides, the Biosphere Dark Sky Rangers, craft visitor activities that include jaw-dropping views of the stars, but also more unusual experiences that emphasise the sensory and social dimensions of dark sky encounters. The chapter ends by reflecting on a key practitioner's desire to communicate "the whole experience" of Galloway's dark skies, and how this has been initiated through a commitment to include creative and cultural approaches in the ongoing development of the Dark Sky Park.

**Chapter 5, Dark skies on the ground: stewarding the Dark Sky Park beyond the designation** considers the challenges of developing an IDSP beyond its designation with a focus on stakeholder dynamics. After the dust has settled, how do stakeholders continue to orient themselves to their shared resource? My discussion focuses on organisational and stakeholder challenges, expectations and aspirations. I explore how the Dark Sky Park represents 'a new geography' for the region's environmental decision makers and land managers, its conceptual 'nebulousness' proving difficult to engage with despite a tangible sense of pride and personal connection to Galloway's natural darkness and starry skies. Stakeholders share their concerns about a perceived loss of momentum and low community participation amidst structural changes and precarious leadership, but also begin to identify potential stakeholder formations and community assets that could more evenly distribute the benefits of the designation and resource broader participation. Key to this discussion is a critical exploration of the generative tension between formal[ising] dimensions (e.g. official organisational structures and modes of engagement and decision-making activities) and formative dimensions (e.g. informal, open-ended, non-instrumental activities) of IDSP practice. With reference to my own unfolding research practice and storying of the GFDSP, I reflect on its perceived nebulousness less as a problem to be solved, and rather as a valuable

imaginary through which to develop a different 'sense' of how the Dark Sky Park comes to be meaningful to its various stakeholders and how, additionally, its meaning materialises through the representational strategies of a research project.

**Chapter 6, The spaces between stars: Lifeworlds of the Dark Sky Park** explores how Galloway's dark skies are experienced as part of personal and shared lifeworlds. I further develop my analysis of the GFDSP's stakeholdership through an aesthetic attention to the informal and every*night* instances of dark sky stewardship that are often overlooked and under-engaged in conservation and environmental decision-making. Such engagements, I argue, animate important connections between dark skies and other forms of recreation, heritage and ecology, whilst enacting the Dark Sky Park as a community resource. In mapping the affective affinities and relational values of informal stakeholder engagements, I elaborate an understanding of dark sky stewardship as relational and situated and the GFDSP as an evolving assemblage co-composed through constellations of values, meanings and material practices.

**Chapter 7, A contact aesthetic: Dark Sky Park as creative milieu** turns earthwards to engage a situated perspective of the Dark Sky Park. In the first half of the chapter, I explore how the GFDSP's practitioners are thinking through the challenges of devising dark sky experiences that meaningfully – and safely – incorporate Galloway's dark landscape 'below' and encourage unusual ways of relating to place. An imagination of the Dark Sky Park as contact zone and creative environmental milieu infuses this chapter, variously explored through my own creative engagements with long-exposure lens-less photography and sound installation, or in the contingent encounters and diverse nocturnal beings and doings through which the Dark Sky Park 'plays itself'.[10] I explore how dark sky values are 'placed' and 'take place' through co-constitutive encounters; from the sometimes comforting, sometimes uneasy meetings with other humans whilst out on night walks, to the fleeting encounters with non-humans as I drove between research locations. The chapter ends with a critical reflection on how diverse nocturnal practices and encounters variously shape the Dark Sky Park and challenge us – as practitioners, researchers and activists – to consider the value and necessity of conceptualising Dark Sky Places as sites of dark sky practice in-becoming.

The thesis is drawn to a close with **Chapter 8, Project reflections, contributions and propositions**. I begin with an account of a quiet gathering on the night of the GFDSP's ten-

[10] This phrase is borrowed from the film 'Los Angeles Plays Itself' (dir. Thom Andersen, 2003).

year anniversary and summarise the thesis. I then outline the key contributions of the research through the three thematic enquiries introduced at the beginning of the thesis, discussing how they have been developed throughout the chapters and what further questions and challenges this work raises. I affirm that a multi-modal and site-responsive methodology has enabled the articulation of an expanded vocabulary of dark sky values that both supports and exceeds the interests of astronomy and tourism, with value to both the GFDSP and international dark sky practitioners more broadly. Further, I reflect that this research has developed a rich imagination of dark sky stewardship as situated practice, through which the core values of the dark sky movement are mobilised, re-worked and sometimes challenged by values that emerge on the ground through practice. My work also contributes to scholarship, namely night studies, cultural geography and environmental humanities research. *Windows to the universe* brings the night sky and darkness more firmly into the earth-writing project of geography and critically situates dark sky preservation, its values and practices within environmental humanities work, through a sustained exploration of the ways in which our stories of place produce certain environmental values, engagements and relationships. Oriented to site as a 'source of authority' for the research (Massey 2003: 76; see also, Tuck and McKenzie 2015; Woodward et al. 2010) and committed to a more-than-representational research practice, my work also contributes to recent calls for interdisciplinary approaches and 'more thoughtful, reflective strategies' for the study of night, darkness and light pollution (S. Pritchard 2017: 324). Finally, I return to the GFDSP, closing the thesis with an image drawn from sleight-of-hand magic to invite readers to think about and *with* the Dark Sky Park as a work of collective enchantment, made possible through the various constellations of skill, appreciation, experience and encounter that co-compose the Galloway Forest Dark Sky Park.

# *Additional notes*

### The use of participant names

Real names are used throughout the thesis so that dialogue between participants may continue through this written work. All participants have agreed for their names to be included.[11] When introducing participants for the first time, I use their full name and state their organisation or project affiliation and role. Thereafter, I use first names only with organisation or profession/role in brackets, i.e. Natalie (University of Glasgow) or Natalie (researcher).

### Forestry Commission Scotland, Forest Enterprise Scotland, Forestry and Land Scotland

At the beginning of this project, the Galloway Forest Park was managed by Forest Enterprise Scotland (FES) as an agency of the Forestry Commission Scotland. Following the Forestry and Land Management (Scotland) Act 2018, two new executive agencies were established: Scottish Forestry (SF), and Forestry and Land Scotland (FLS). I use all of these acronyms at different points in the thesis but have been mindful to do so without unnecessary disruption to the reader. I first mention the devolution in Chapter 5, and so I have chosen to use 'FCS/FES' in the chapters preceding this, and 'FLS' thereafter.

### The Scottish Dark Sky Observatory

The Scottish Dark Sky Observatory (SDSO) (situated in the Craigengillan Estate at the northeast edge of the Dark Sky Park) and its practitioners are featured at various points throughout this thesis. At the time of publishing this thesis, the SDSO no longer exists as it did. In the early hours of 23rd June 2021, the building was destroyed by a fire. Given its significance to the Dark Sky Park, any accounts of the SDSO in this thesis are written as it was then, rather than through its more recent history. My intention with this, is to honour the research as it was conducted and to contribute in some way to re-presencing the Observatory as an important anchor point in the overall constellation of the Dark Sky Park.

[11] Participants have signed a Consent Form to confirm their participation in the research. See Appendix A.2 for this form.

# Chapter 2

## *Dark matters: conceptualising dark sky values*

[T]he Aurora flickered and dimmed, like an anbaric bulb at the end of its life, and then *went out* altogether. In the gloom, though, Lyra sensed the presence of the Dust, for the air seemed to be full of dark intentions, like the forms of thoughts not yet born.

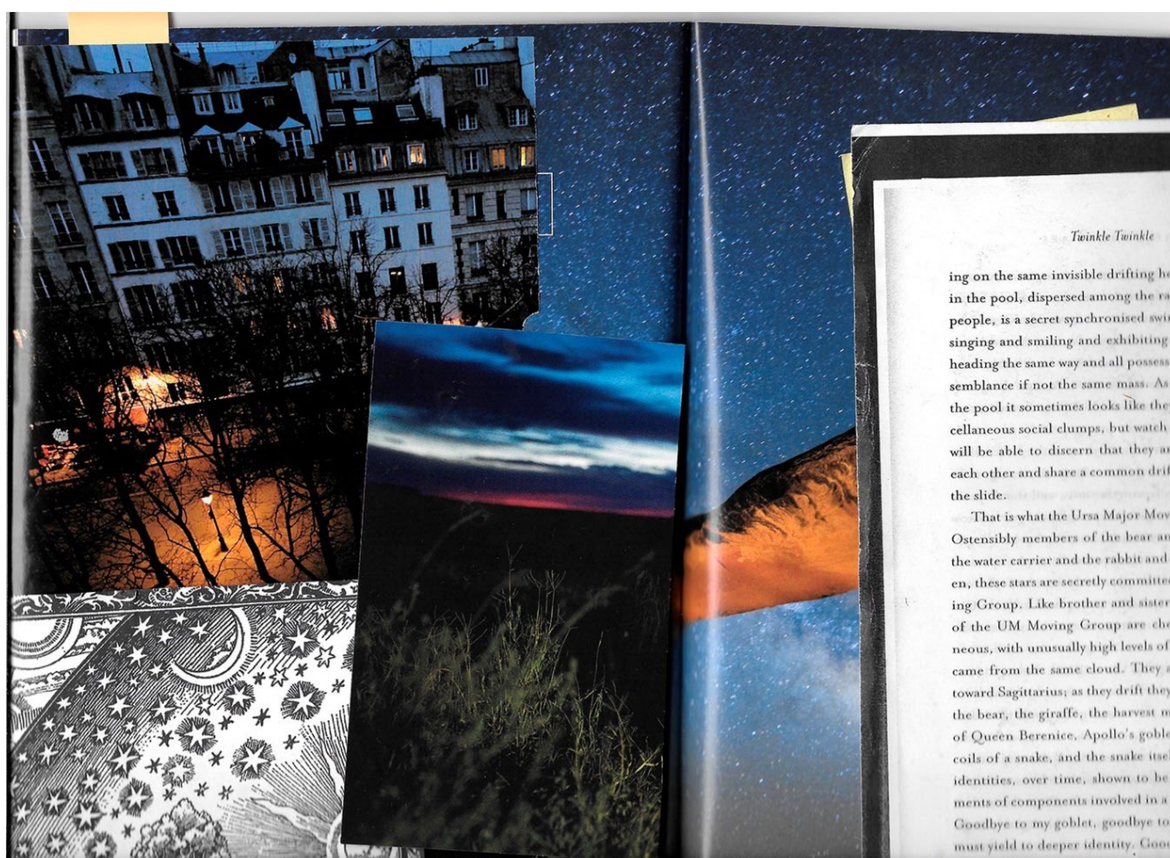
---

*Northern Lights* (Pullman 1996[1995]: 390)

Is it possible for a human individual to feel a certain fondness for the solar system itself?

---

*Topophilia* (Tuan 1974: 47)



## *Introduction*

The following chapter explores how dark skies, and their associated values, are critically situated in and developed through geographical scholarship, and how this work both enhances and expands the efforts of the international dark sky movement. During the last two decades, cultural geography and urban studies have made significant contributions to shifting cultural understandings of darkness and light, gathering initial momentum around two international conference sessions: 'Nightscapes: geographies of urban nights' – AAG 2011; and 'Emerging from the dark: explorations into the experience of the night' – RGS-IBG 2011, and special journal issues dedicated to the urban experience of light pollution (van Liempt, van Aalst and Schwanen 2015) and cultural geographical perspectives on darkness (Morris 2011; Edensor 2013a, 2013b). This work identified night as a much-neglected topic in geography and aimed to redress the overwhelming tendency to conceptualise landscape 'primarily in terms of daytime use' (Jakle 2001: vii).

While there is considerable research in the social sciences and humanities regarding the experience of darkness and light, there remains far less scholarly engagement with the international dark sky movement. I address this in the second half of the chapter by situating my discussion within the inter- and transdisciplinary field of the environmental humanities. Over the last three decades the environmental humanities have emerged through critical intersections of humanities scholarship such as cultural geography, anthropology, science and technology studies, literary studies, philosophy, and feminist, postcolonial and animal studies among others. This work has raised important questions regarding the human relationship to the non-human and staged critical and creative interventions that challenge entrenched understandings of knowledge production in and beyond the academy (Latour 1991, trans. 1993; Cronon 1996; Buell 1995; Plumwood 2001; Whatmore 2002; Chakrabarty 2009; Clark 2011; Haraway 2016; Tsing et al. 2017). Having developed simultaneously in multiple institutional settings (Emmett and Nye 2017: 6), the environmental humanities are well-positioned to engage with the rapidly evolving and increasingly complex field of night studies, supporting the aims of its proponents to 'consider questions that disciplinary researchers have not yet thought to ask' (Kyba et al. 2020: 1).

In this spirit and in support of this project's ambition to critically engage the Galloway Forest Dark Sky Park as creative crucible for interdisciplinary research, this chapter is thematically organised around key concepts, concerns and challenges of the international dark sky movement, from efforts to transform entrenched perceptions of light and

darkness in Part I, to the challenge and necessity of thinking dark sky practice 'from the ground up' in Part II. This allows me to make critical connections across disciplines with the intention to expand and trouble key concepts and claims of the international dark sky movement and night studies scholarship respectively. Key to this is a sustained consideration of how knowledge of light, darkness and the night is engaged and developed through practice as well as theory and through non-academic literature and art forms. My discussion draws resource from (auto)ethnographic engagements, popular literature, site-responsive artworks, and embodied, participative practices, the aesthetic orientations and sensibilities of which infuse my theory-building and support my commitment to elaborate a richer understanding of dark sky values and practice.

*Part I*

# *I / Re-enchanting the night: a cultural re-appraisal of darkness*

> There are two hard facts that stand in our way: people are afraid of the dark and cities are afraid of lawsuits. Changing how society thinks about lighting will require a lot of education, but it is the only way to achieve our goals. (IDA 2015a: 7).

These words, written by then-Executive Director Bob Mizon of the IDA, identify the significant challenge faced by the international dark sky movement in transforming entrenched perceptions of light and darkness. "Light pollution", Folkert Degenring writes, is a term that 'grates' (Degenring 2015: 201). As a powerful symbol of all that is good, trustworthy and desirable, light is tightly woven through our languages. When there is hope, we "see light at the end of the tunnel." As scholars, we often promise to "shed light on" an issue, or "bring to light" a lesser attended area of study (see, Miles 2005: 330). Meanwhile, "pollution" calls to mind the toxic and unhealthy. It is thick, dense, dirty; words that, as ecocritic Greg Garrard notes, have historically come with moral overtones that gesture to defilement and deviance (Garrard 2012: 8).

Darkness better fits the bill. A 'persistent nyctophobia' (fear of the night-time and its associated darkness) (Edensor 2013: 421) is expressed through terms such as "dark deeds" suggesting murderous or lascivious actions, and "dark humour" which draws laughs from difficult subject matter. When we encounter spiritual crisis, we may say we are "in the dark", a term also used to describe uncertainty or the experience of being deceived. While naturally dark night skies 'embody many characteristics routinely identified as valued by society […] scientific value, historical value, cultural value, recreational value, beauty, and inspiration or spiritual value' (Gallaway 2010: 75), they continue to be overlooked, economist Terrell Gallaway bemoans. Not readily connected to mainstream understandings of value as primarily economic (ibid.: 80; see also, Isobe 1998: 216), suggestions to dim down our lights, or worse, turn them off altogether, are likely to be met with great resistance, the increasing loss of naturally dark skies provoking 'more indifference than outrage' (Gallaway 2010: 72). As our sense for darkness diminishes, so does our sense for those we share with it, from night workers who metabolise the city (Shaw 2018: 63-64; see also, Berwick Street Film Collective 1975; Brody 2006; Sandhu 2010) to the 'matings, migrations, pollinations, and feeding […] the basic happenings that keep world biodiversity alive' (Bogard 2014: 131; see also, Novak 2018;

Flack 2022a, 2022b). Dark skies and darker nights are not seen as a common good perhaps because they are not seen as common to begin with.

Dark sky leaders and practitioners are keenly aware that an elaboration of dark sky values beyond the economic and more responsive to context are sorely needed if public perceptions of artificial light and darkness are to change (IDA 2021a; Kyba et al. 2020; Hamacher, Napoli and Mott 2020; Le Gallic and Pritchard 2019; Stone 2018; S. Pritchard 2017; Gallaway 2015). Where changes to lighting have been actioned in the UK and Europe, the rationale for doing so has remained closely tied to cost benefits and energy savings (Gallaway 2015; Henckel and Moss 2015). The uneven distribution of knowledge about lighting and its impacts, Dietrich Henckel and Timothy Moss argue, contributes to far lower rates of citizen participation in lighting master plans than in other planning contexts (Henckel and Moss 2015: 300; see also, Schulte-Römer and Hänel 2015: 104) and, as Martin Morgan-Taylor notes, slows efforts to formulate a coherent and holistic legal definition for light pollution (Morgan-Taylor 2015). Interventions are often managed by those with influence and power, overlook the needs and experiences of specific contexts and communities (S. Pritchard 2017; Prescod-Weinstein 2021, Hamacher, Napoli and Mott 2020) and, as research studies are increasingly demonstrating, may actually increase negative impacts. For example, the mass replacement of sodium streetlights with blue-rich white light-emitting diode (LED) models in the UK, may lead to three times the sky glow of older lighting types (Walker, Luginbuhl and Wainscoat 2009; see also, Kyba et al. 2020: 3) as well as harming human and non-humans whose eyes are more sensitive to blue-rich light (Junta de Andalucia, n.d.; Longcore 2016). As light and illumination are continually mapped to productivity, growth, safety, morality and innovation, we lose our sense for the darkness, its diverse values and potentialities (Moore 2008; Edensor 2013a, 2013b; Dunn 2016). Equally, the creative possibilities of light in all its variations and cultural resonances, are diminished when we insist on such reductive formulations (Gallan and Gibson 2011; see also, Bille and Sørensen 2007; Kumar and Shaw 2015).

In the first half of this chapter, I discuss how human relationships with darkness and the night have been historically 'disenchanted' (Schivelbusch 1988; Edensor 2013b; Edensor 2017: 124; Dunn and Edensor 2024: 6) through entrenched material-semiotic imaginations and enactments that cast light as a common good and darkness as its foil. I engage with research literature that explores and unsettles these 'definitive ontological distinctions' (Gallan and Gibson 2011: 2512), through critical histories of contested spatiotemporalities of the night that see in darkness and gloom, the conditions for cultivating 'resources of otherness' (Edensor 2013a: 429). I then discuss research interested in the creative capacities of darkness

and light to 'deepen and defamiliarise' place and self, offering alternative cues for being in the world (Edensor 2015a: 131; Jeffrey 2019; Vannini and Taggart 2015; Edensor and Lorimer 2015; Morris 2011). Developed through embodied practice, non-representational theory and atmospheric attunement, this work shifts an imagination of light, darkness, and landscape from one of regulation and control in urban contexts (Williams 2008; Palmer 2000) to a more capacious approach that animates our creative relations with light and darkness, space, time and landscape, both in the sense of artistic experimentation and as a mode of worldly participation (Wylie 2004; McCormack 2008; Ingold 2011; Morris 2011; Edensor and Lorimer 2015; Sumartojo 2021; Jeffrey 2019).

## Disenchanted night, disembodied night: symbolic and material choreographies of light and darkness

> When gas first spread along a city… a new age had begun for sociality and corporate pleasure-seeking… Mankind and its supper parties were no longer at the mercy of a few miles of sea-fog; sundown no longer emptied the promenade; and the day was lengthened to every man's fancy. The city folk had stars of their own; biddable, domesticated stars. (Stevenson 1881, cited in Degenring 2015: 203)

Surely, it is only natural to be frightened of the dark. As children – and sometimes still, as adults – we avoid dark corners of the house. Our hands may tremble as, sleep-fogged, we struggle to find a light switch on our way to the bathroom in the middle of night. After sundown, small concerns can transmute into stomach-churning anxieties with alarming speed and force. The sound of someone approaching from behind at night puts all senses on edge and many of us are encouraged – have *learned* – to avoid dark spaces in cities and towns, and so the rich possibilities of the night and nocturnal *being* are obscured by bright light. Over the last two decades, this missing geography of the night (Jakle 2001: vii) has been recomposed by cultural geographers and urban studies scholars through critical explorations of the significant role that natural darkness, gloom and illumination play in the shaping of everyday life (Bille and Sørensen 2007; Gallan and Gibson 2011; Edensor 2013b: 447; Shaw 2018) and richly evoked autoethnographic accounts of alternative nocturnal experiences (Morris 2011; Edensor 2013b; Edensor and Falconer 2015; Edensor and Lorimer 2015) that draw on contemporary and historical literary and artistic celebrations of darkness and starlight as life-affirming (Levy 2001; Bogard 2008; Attlee 2011; see also, Davidson 2015; Bach and Degenring 2015). The following discussion introduces key texts within this body of literature and establishes the

principal themes and motifs with which I have woven the conceptual framework of my research project.

A key reference point for renewed scholarly interest in the complex spatiotemporalities of artificial light and the night is sociologist Murray Melbin's theory of the night as a temporal 'frontier', which, 'like space, is part of the ecological niche' that humans are increasingly expanding into: (Melbin 1978: 5, 1987; see also, Lefebvre 2004[1992]). Through 'the conquest of [the] darkness' via urbanisation, night is consumed and re-made in the image of day, extending production and recreational activities (Melbin 1987: 35; see also, Melbin 1977, 1978; Koslofsky 2011: 236, 277; Sandhu 2007: 117; Schivelbusch 1988: 8–9). While Melbin's employment of the frontier metaphor conceptualises the night as empty and fails to note the violence that underpins the frontier as a colonizing process (Koslofsky 2011: 158), his theory has been an important departure point for scholarship that seeks to assert night as 'a critical realm of everyday existence' that has been long overlooked (Kyba et al. 2020: 4; see also, Jakle 2001: vii; Gallan and Gibson 2011; Shaw 2018). Diverging from Melbin's imagination of the night as empty and ready for the taking, works such as Wolfgang Schivelbusch's *Disenchanted Night: The Industrialization of Light in the Nineteenth Century* (1988), Chris Otter's *The Victorian Eye: A Political History of Light and Vision in Britain, 1800–1910* (2008) and Craig Koslofsky's *Evening's Empire: A History of the Night in Early Modern Europe* (2011) are frequently-cited texts among others (Cauquelin 1977; Palmer 2000; Ekirch 2005; Brox 2010) that critically situate the increasing occupation of the night within capitalist and colonialist narratives of progress and mastery that 'disenchant' the night, a term that hails perhaps from Wolfgang Schivelbusch's (1988) historical account of the development of artificial illumination and its relationship to the intellectual and cultural project of Enlightenment in Europe, but further references sociologist Max Weber's conceptualisation of 'Entzauberung der Welt' as a disenchantment or 'unmagicking' of the world (Crawford 2020), which describes 'the eclipse of wonder at the world' and an increasing moral investment in the rational and calculable (Bennett 2001: 8). In Weber's own words, disenchantment captures how '[the] ultimate and most sublime values have retreated from public life either into the transcendental realm of mystic life or into the brotherliness of direct and personal human relations' (Crawford 2020, citing Weber 1917). Such disenchantment is described by night studies scholars and dark sky advocates alike as the widespread loss of meaningful, plural and engaged relationships with the night and a devaluing of natural darkness and the night sky in everyday life (Cinzano, Falchi and Elvidge 2001; Marín and Jafari 2007; Edensor 2013b; Gallaway 2015; Falchi et al. 2016; Edensor 2017: 124). I use the terms 'disenchant', 'disenchantment' and 're-enchantment'

throughout this thesis, cognisant of contemporary critiques within the social sciences and humanities regarding an upsurge of interest in and calls for the "enchantment" or "re-enchantment" of various phenomena, subjects, fields and disciplines (Crawford 2020; see also, Bennett 2022; Krøijer and Rubow 2022). As Jason Crawford argues, the celebratory spirit with which re-enchantment has been embraced and promoted, has tended to locate meaningful relationships with the world in an idealised pre-modern past that belies the complex social, cultural and ecological histories of disenchantment(s), which I pluralise to emphasise Crawford's point:

> disenchantment is not so much a static condition of liberated rationality or disappointed skepticism as it is a dynamic, unstable practice of mystification, fascination, suspicion, and exclusion. (Crawford 2020; see also, Bennett 2001: 8).

Similarly, Jane Bennett's critical exploration of the promise of enchantment in the practice of ethical life (Bennett 2001) is the departure point of a recent special issue of *Environmental Humanities* journal that 'explores the operative may of Bennett's assertion: if and how enchantment of the world translates into ecological responsibilities and modes of care' (Krøijer and Rubow 2022: 376). In this issue, Bennett (2022) resituates her 'counterstory' of enchantment (ibid.: 8) in the contemporary context of environmental humanities scholarship which, rather than look to a distant and uncomplicated past or to 'the romantic figure of nature as pure site unpolluted by humanity', engages with the affective force of 'impersonal natural forces and everyday objects' (Bennett 2022: 495) and grapples with the extent to which enchantment 'involves unsettled relations' (Krøijer and Rubow 2022: 376). Critical reappraisals of the terms "enchantment" and "re-enchantment" are particularly pertinent to discourses within dark sky preservation and policy-making that uncritically mobilise narratives of wonder and wilderness in their calls for a re-enchantment of the night. This, I discuss in more depth in the second half of this chapter. As my discussion below demonstrates however, night studies scholarship has excavated rich and complex sociocultural histories of lives lived between darkness and light and diverse nocturnal practices shaped by and productive of multiple enchantments and disenchantments of the night that maintain a critical tension with narratives of re-enchantment.

This literature describes how centrally organised public lighting arose out of the use of temporary and spectacular lighting used for festivities, theatrical performances and rituals in the royal courts, before spreading out gradually and unevenly into public life, as lighting became more affordable and standardised through innovations in design and engineering

and the increased availability of materials afforded by broader industrialization, extraction and colonisation, processes which were likewise aided by the development of artificial light (Koslofsky 2011: 145; Schivelbusch 1988; Shaw 2018: 33; Le Gallic and Pritchard 2019). As lighting moved beyond the court in European cities, wealthy elites were able to broaden their recreational activities beyond the household, aided by increasingly brighter and more dependable lights that allowed them to smoothly traverse public space (Schivelbusch 1988: 82-83; Melbin 1987: 35–36; Ekirch 2005: 328; Degenring 2015: 205). In order to fully inhabit this new realm however, the night's usual occupants had to be pushed to its edges (Koslofsky 2011: 151). This was enacted through moral geographies of the night that mapped popular understandings of darkness as dangerous and unproductive onto those who the state wished to discourage from the streets such as lackeys, vagrants, sex workers, youths, tavern visitors and anyone else who fell under suspicion, or who the state wished to monitor and control (Koslofsky 2011: 162; Ekirch 2005: 19–20). Reinforced by Enlightenment values that associated light with moral superiority, knowledge and divine understanding (Koslofsky 2011: 258), artificial light was mobilised as an instrument – both symbolic and material – to 'civilise' such citizens, their activities, habits and behaviours, the anonymity provided by gloom and darkness no longer guaranteed (Koslofsky 2011: 171; see also, Williams 2008: 518).

As Chris Otter (2008) explores in his book *The Victorian Eye: A Political History of Light and Vision in Britain, 1800 – 1910*, an ideology of urban differentiation aided by the development and proliferation of artificial lighting, was also enacted at the level of the eye in Victorian Britain, embedding symbolic associations of light as rational, sophisticated and moral in the figure of the Victorian liberal subject. Though the eye is 'a sublimely complex interface between body and world' (ibid.: 23), Otter describes how ophthalmologic science disaggregated its physiological functionality from its optical functionality (ibid.: 28), thus contributing to the development of a liberal philosophy that separated subject from world and correlated vision with knowledge, detachment and power:

> To view something properly involves disembedding oneself from the viewed world. Vision is, thus, the sense of phenomenological individuality par excellence: unlike smell and taste, vision involves not so much incorporating or merging into the world as setting oneself against and apart from it (ibid.: 48).

As such, Otter's work demonstrates how the disenchantment of light also involved a *disembodiment* of people's relationships with it, as light's tactile, unpredictable and excessive

qualities were increasingly tempered and purified. Similarly, photographer and art critic Melissa Miles theorises western philosophy as a 'photology', for which an understanding of light as a 'stable and coherent […] transparent medium in which truth and the objective world are revealed' is absolutely central (Miles 2005: 330). Photography, Miles writes, was shaped by such discourses, conceptualised as a practice of creating 'documents of truth in which that apparently natural and extra-discursive agent transferred a trace of the "thing itself" directly and precisely onto the photographic emulsion' (ibid.: 331). As such, the excessive and unstable qualities of light and the equally important role of darkness and shadow in the production of photographic images, are subsumed within a rhetoric of human mastery and separation (see also, Bennett 2001: 57). Recent cultural histories of the night have sought to recuperate alternative imaginations of light, shadow and darkness. A. Roger Ekirch describes the close, tactile relationships people had with candles and oil lamps, which required that you got close to them to feel their warmth (Ekirch 2005: 101; see also, Schivelbusch 1988: 29; Bille and Sørensen 2007: 275) and the burning of which necessitated regular maintenance and repair (Le Gallic and Pritchard 2017: 9). Similarly, Jun'ichirō Tanizaki writes of how the flickerings of candlelight caused by currents of air in the room, can 'lur[e] one into a state of reverie' (Tanizaki 2001 [1933]). Schivelbusch describes perceptions of state-regulated gas lighting delivered to people's homes during the nineteenth century as 'octapus-like [sic]' (Schivelbusch 1988: 29), an insidious and invasive change that not only replaced the physical apparatus of domestic lighting, but also changed the sensations, habits and relationships that such forms of light had facilitated: '[P]eople gazing at a gaslight no longer lost themselves in dreams of the primeval fire; if anything, they were thinking of the gas bill' (loc. cit.).

Historians describe how moral geographies of the night were also enacted through direct force and other forms of oppression such as the enforced visibility of certain individuals and groups (Koslofsky 2011: 158; see also, Browne 2019; Harrison 2015; Palmer 2000). Wolfgang Schivelbusch details how initial attempts to install public lighting during the sixteenth century in Northern European cities required citizens to display lights outside their windows by a specific time each night during the winter months, thus incorporating individual homes into the rationalising logic of the state (Schivelbusch 1998: 82). Describing more forceful impositions of who should be seen where and *when*, Craig Koslofsky details the midnight patrols that were introduced in many large Northern European cities during the early eighteenth century to curtail the activities of vagrants, youths, criminals and sex workers which often resulted in violent clashes and vandalism to streetlights (Koslofsky 2011: 171; see also, Schivelbusch 1988: 97). As Koslofsky notes, such attempts to police the night across

Northern Europe, are reflective of 'larger projects of territorial conquest and control' (Koslofsky 2011: 145) and the banishment of darkness did not so much involve its complete removal as it did a displacement onto other regions and groups of people (ibid.: 281). The role of public lighting in the racialisation of space is the subject of Conor Harrison's article 'Extending the 'White Way': municipal streetlighting and race, 1900–1930' (Harrison 2015; see also, Nye 1990: 35–36). Harrison examines how public street lighting systems were mobilised by urban planners and local authorities in Rocky Mount, North Carolina in the late nineteenth and early twentieth century to produce 'spaces of white privilege and black disinvestment' that linked darkness – and its associations with the primitive – to blackness, and brightly illuminated spaces with white wealth, status and power (Harrison 2015: 952-953). Similarly, Simone Browne's research on surveillance technologies produced for and by transatlantic slavery in eighteenth-century North America, details how lighting was employed to make black and brown bodies 'knowable, locatable and contained within [the city]' (Browne 2019: 553) through lantern laws, which required that "no Negro or Indian Slave about the age of fourteen years do presume to be or appear in any of the streets […] one hour after sunset without a lantern or a lit candle' (ibid.: 552, citing the New York Common Council, Volume III). In this aesthetic regime of 'black luminosity' (ibid.: 553), Browne writes, artificial light was used to oppress black and brown bodies whilst simultaneously producing them as racial subjects (ibid.: 546).

Recent scholarship across the social sciences has built on much of this work to examine how cultural nyctophobia serves private and political interests that seek to determine the social and material lives of citizens and shape sensory and spatiotemporal norms, through 'spaces of morality and hospitality' (Bille and Sørensen 2007: Gallan and Gibson 2011; van Liempt, van Aalst and Schwanen 2015), inclusion and exclusion, and distinct choreographies of darkness and light, visibility and invisibility (Palmer 2000; Talbot 2007; Williams 2008; Koslofsky 2011; Harrison 2015). Representations of the night as a space of danger and deviance continue to compose the battle lines along which the case against natural darkness is fervently waged, with artificial lighting widely accepted as a necessary and common good that promotes security and safety, despite evidence that shows its negligible impact on reducing crime (Atkins, Husain and Storey 1991; Koslofsky 2011: 163). Pervasive imaginations of night as an incubator of excess and ill intent and of light as a moral technology (Edensor 2015: 424; Koslofsky 2011: 160; Brands, Schwanen and van Aalst 2013) reinforce racist, sexist and classist ideologies that link crime to poverty, race, sexual identity and sex work, discouraging certain individuals and groups from occupying public spaces after dark whilst simultaneously normalising any violence that happens to them there, as well as masking the state violence that withholds vital

resources such as street lighting and electricity from poor, migrant and BIPOC[12] communities (Henery 2019; Kumar and Shaw 2019; Harrison 2015: 152; Talbot 2007; Frasch 2012; Koslofsky 2011: 17; Williams 2008: 523; Baldwin 2004; Snowden, Garthwaite and McNeill 1981). Michel Foucault's theory of *governmentality* (Foucault 1978[1975]) and Gilles Deleuze and Félix Guattari's theory of *de/territorialisation* (Deleuze and Guattari 1987[1980]; see also, Deleuze 1992) are touchstones for this research, re-figuring urban lighting designs as carefully managed aesthetic regimes that seek to monitor and prescribe who and what should be seen, and where and *when*, through strategies that 'impose and imprint an instrumentally rationalizing order from above' (Williams 2008: 517; Palmer 2000). While darkness and gloom *de*territorialise by disrupting the recognisable boundaries and 'rules' of a particular space (Williams 2008: 518), artificial light can be employed to *re*territorialize through sharply defined delineations that reincorporate spaces and citizens back into a language of visibility and control. Such reterritorializations are not necessarily punitive or overtly coercive, nor do they solely operate through distinct visual boundaries that cleanly bisect physical spaces. They may also play out through individually internalised and collectively performed behaviours or 'conduct' (Foucault 1978[1975]) and forms of 'sensory routinization' and social being (Gandy 2017: 1091) that configure the every*night* as 'a commonsensical realm that is difficult to imagine otherwise' (Dunn and Edensor 2021: 9; see also, Palmer 2000; Williams 2008). For example, the popular saying of "TGIF" ("Thank God It's Friday") reinforces the same 9 to 5 grind that it would appear to be denouncing by enclosing the more playful, convivial and creative capacities of night (and day) within commercial spaces that encourage revellers to first "work hard" in order to "play hard". The radical possibilities of the night are thus co-opted and streamlined into rhythms of social being whose beats rarely change (see also, Dunn 2016: 28). Such practices are indicative of how 'daycentric attitudes come to dominate' our understandings of the night (Gallan and Gibson 2011: 2511), reducing 'the complexity and variety of the ways in which humans sense nocturnal space' (Edensor 2013b: 462). Similarly, Robert Shaw notes how '[A]nticipated throughout the week, the night out and the night-time economy drive many perceptions of what the city centre at night is and what it can do' (Shaw 2018: 69). My discussion now turns to mapping a 'counter-aesthetics' (Shaw 2018: 87; see also, Dunn 2016) of the night through historical and contemporary accounts of contested nocturnal spatiotemporalities that 'embody the capacity to conceive and achieve different ends' (Williams 2008: 525) and begin to elaborate an expanded vocabulary of multiple darkness(es) and light(s) through which meaningful relationships with darkness might be fostered and developed (Le Gallic and Pritchard 2019).

---

[12] Black, indigenous (and) People of Colour.

**Resources of otherness: counter-aesthetics of the night**

> [T]he darkness of night loosened the tethers of the visible world. Despite night's dangers, no other realm of preindustrial existence promised so much autonomy to so many people. Light was not an unalloyed blessing, nor darkness inevitably a source of misery. (Ekirch 2005: 152)

In recent decades, cultural historians and geographers have shown that the brightening of night was not a wholly coherent and linear project of disenchanting the night, but rather, historically contested and complex in its spatiotemporalities (Schivelbusch 1988; Palmer 2000; Ekirch 2005; Koslofsky 2011; Edensor 2015). Folkert Degenring notes early 'aesthetic objections' (Degenring 2015: 203) such as an outraged letter written to the Oxford English Dictionary editors from a John Gangstad in Madison, Wisconsin in 1968 that describes, with reference to streetlamps, 'an unnatural appearing light. […] Light pollution!' (ibid.: 202). Further, he notes an impassioned essay by the author Robert Louis Stevenson, written in 1878, which describes the new electrical arc streetlight as "a lamp for a nightmare! Such a light as this should shine only on murders and public crime […] a horror to heighten horror" (ibid.: 203). Resistance to state-regulated lighting was enacted in many different forms. Historian Craig Koslofsky writes of initial opposition from local authorities and citizens to the cost of public lighting, informed by an awareness that 'those who paid the least for the lighted streets benefitted the most [members of the court]' (2011: 151). Wolfgang Schivelbusch writes of more violent scrapes with authority, detailing the smashing of gas lanterns by citizens of early 19th Century Paris in response to increased policing of nocturnal activity (Schivelbusch 1988: 97). Such actions, Schivelbusch writes, were less about reclaiming the darkness and more about liberating the volatile heat and light from its state trappings, a symbolic redistribution of power and claiming back of personal and collective autonomy (Schivelbusch 1988: 106; see also, Koslofsky 2011: 165). Similar deterritorialisations of public space were enacted by youths, whose violent clashes with nightwatchmen and other citizens persistently troubled attempts to civilise their behaviour and limit their chosen nocturnal activities, from the innocuous – serenading – to the more obviously distasteful and deviant – 'drinking, gambling, brawling, and sexual license' (Koslofsky 2011: 166).

Such aesthetic objections and acts of resistance, Koslofsky argues, trouble an understanding of nocturnalisation as a 'top-down process' (ibid.: 159). Rather, the night is a 'jumbled terrain' (ibid.: 8; see also, Gandy 2017: 1091) composed not just by those in

power, but by 'those who resisted […] shaped its boundaries, or found their daily lives caught up in it' (Koslofsky 2011: 159). It is a framing that resonates with geographer Robert Shaw's critical refiguring of Melbin's concept as 'fragmenting frontier' and 'contact zone', through which the seemingly fluid and unbounded 'incessancy' at the heart of Murray Melbin's theory of night as frontier, is differently articulated by and distributed across time, spaces, bodies and practices (Shaw 2018: 35). Shaw's research with street cleaners in Newcastle upon Tyne, which examines '[their] simultaneous invisibility and necessity' in the life of a city (ibid.: 63; see also, Berwick Street Film Collective 1975), is one of an increasing number of studies that critically detail nocturnal lives and practices often omitted from official accounts and imaginations of the urban night (see also, Brody 2006; Sandhu 2010; Norman 2011; Dunn 2016). To map the missing geographies of the night is to make visible moments of contact and rupture, and in doing so, make visible the spaces of possibility through which other ways of being might be reclaimed and re-embodied (Dunn 2016: 30, 38). While deterritorialisations of the night may take place through spectacular actions such as the smashing of lanterns, they can also materialise, as Shaw's analysis shows, through moments of impasse and breakdown as bodies variously weather and sometimes refuse what is demanded of them (see also, Dunn 2016: 26; Sandhu 2007: 124). Similarly, Tim Edensor's description of the 'imaginative, creative "resources of otherness"' cultivated through alternative nocturnal practices (Edensor 2013a: 429), gestures to an imagination of deterritorialization as less a reactionary or *counter*– response to control and rather – or, as well as – a nurturing of a 'state of *being*' that opens up the possible in daily life (Dunn 2016: 7, author's emphasis; see also, Gallan 2014: 57; Williams 2008: 517; Bennett 2001: 3). Edensor's framing, with its emphasis on the affective and relational qualities of alternative nocturnal practices, speaks to philosopher Jacques Rancière's theory of the *distribution of the sensible*, which frames 'aesthetic acts as configurations of experience that create new modes of sense perception and induce novel forms of political subjectivity' within our shared worlds (2004: 9). Such a framing emphasises that our values, habits and social relations are a sensory matter. As Constance Claessen writes: '[W]e not only think about our senses, we think *through* them' (cited in Edensor and Falconer 2015: 602, my emphasis; see also, Dunn 2016). Similarly, Robert Shaw draws on Michel Foucault's term 'conditions of possibility' to explore how 'our knowledge and beliefs about what is possible (the conceptual, or discourse)' are intimately entangled with 'our embodied actions (the corporeal, or practice) and physical infrastructures (the material)' (Shaw 2018: 52–53; see also, Bennett 2001: 3). While a distribution of the sensible involves efforts to disrupt aesthetic regimes, Rancière notes that if the excluded are to be heard, there also needs to be a public prepared to listen (Rancière

2004: 3). The sensible (what is perceived, understood, felt) is distributed when it is held in common, diversely experienced and practiced.

The ways in which darkness and gloom resource such practices have been richly elaborated in scholarship through (auto)ethnographic accounts that explore how alternative inhabitations of public space at night can facilitate non-normative and non-habitual expressions and realisations of place and sociality (Williams 2008: 520; Brox 2010: 243). Nick Dunn's evocative accounts of 'nightwalking' his home city of Manchester (UK) (Dunn 2016; see also, Beaumont 2015; Sandhu 2007; Woolf 1930) show how darkness and gloom re-distribute the 'sensible' of the city, allowing for new and multiple interpretations, impressions and inscriptions:

> Hitherto barely undetectable features take on an altogether different quality in the dark. Urban crevices, interstitial spaces and the city's margins loom forth in their confidence. The footnotes in these places are rich palimpsest, disclosing temporary inhabitation, sharp tangs of detritus and passage, dank and dripping, sunk and slippery against the more rational and acceptable materiality of the city. (Dunn 2016: 13)

As darkness rises and thickens, Dunn writes, the city comes alive with alternative cues for being that interpolate the nightwalker, the 'liminal landscape of the nocturnal city' increasingly felt as 'an intersection of the physical and psychological state of being present' (ibid.: 28). The emergence of less habitual cues for social interaction and public appearance is explored in Tim Edensor and Emily Falconer's (2015) article '*Dans le Noir*? Eating in the dark: sensation and conviviality in a lightless place.' The authors reflect on a series of visits to *Dans le Noir?*, a restaurant in London where guests dine in complete darkness, waited by blind or partially-sighted staff. Here, the usual social codes are suspended, and normative sensual apprehensions of space re-configured. Diners cannot peruse a menu or see their food, nor can they make eye contact with one another (Edensor and Falconer 2015: 613). While the darkness strips away certain ways of being, it simultaneously enables the emergence of new and surprising forms of conviviality and togetherness. Participants describe 'a fuller communication with fellow diners' (ibid.: 611) and a sense of 'shared adventure' (ibid.: 613; see also, Brox 2010). Further, diners had to touch and be touched by waiting staff so that plates could be placed without spills, reconfiguring a relationship of care often taken for granted (Edensor and Falconer 2015: 611). Similarly, Johan Eklöf (2022[2020]) reflects on his experience of participating in *SAMTAL* (*CONVERSATION*),

an art installation presented at Jönköpings Läns Museum in 2019, which 'sought to find out what happens when we can't see the person we're talking to' (ibid.: 194; see also, Edensor 2013b: 459). Participants were seated at a long table laid with food and drink, and invited to 'help [ourselves] to the food and help [each other] choose and pour the drinks' (loc. cit.). He describes a gradual attunement of each person to the others with whom they shared the table: 'In the absence of visual cues, we all seemed more inclined to wait to the end and let the last of the words land and ebb out before we ourselves or anyone else went on (ibid.: 195). *SAMTAL* gestures to A. Roger Ekirch's richly detailed accounts of people's relationships with darkness and gloom in Western Europe prior to the industrialisation of light (Ekirch 2005). Ekirch's work is perhaps most widely cited for its description of the common habit of biphasic sleep, comprised of 'two major intervals of sleep bridged by up to an hour or more of wakefulness' (ibid.: 300), a liminal time-space in which people engaged in conversation, storytelling, play, sex and contemplation, among other activities. Ekirch writes of the sense of freedom that such a period engendered, facilitated by the liminal qualities of gloom, darkness and candlelight (ibid.: 192.)

Darkness then, can open us up to others by increasing our sensitivity to other forms of expression and embodiment. However, we need not turn all the lights out in order to experience ourselves and our world otherwise. As Nick Dunn is careful to stress, 'we need to explore the rich potential of the dark, or perhaps more precisely *the never-quite-dark*' (Dunn 2016: 25, my emphasis). As Stéphanie Le Gallic and Sara B. Pritchard also appeal, researchers must strive 'to challenge reductionist frameworks that focus on light alone, without reference to darkness' and vice versa (Le Gallic and Pritchard 2019: 2–3). Further, they add, our accounts should engage with 'light(s) and darkness(es)' in the plural to more critically account for their 'instability and multiplicity' (ibid.: 9), and the diverse ways in which light(s) and darkness(es) are *made* through political, economic and cultural processes (ibid.: 4). Mikkel Bille and Tim Flohr Sørensen's (2007) 'anthropology of luminosity' is notable for its recuperation of light's expressive, material and relational qualities as it interplays with multiple darkness(es). Interested in 'the social life of light' (ibid.: 266), the authors draw on the example of 'hygge' a Danish concept and aesthetic practice that seeks to create atmospheres of 'comfortable conviviality' and intimacy using light, shadow, textures and sounds that are mobile and collectively tended (ibid.: 275). Though this practice has been highly commercialised, it invites (and popularises) an embodied understanding of our everyday and *everynight* experiences as creative acts, open to interpretation and composed with others (ibid.: 276; see also, Ekirch 2005: 192; Pink, Mackley and Moroşanu 2015; Vannini and Taggart 2013). More broadly, their anthropology

of luminosity gestures to how we make worlds together in and through different arrangements and experiences of light and darkness that are embodied, situated and relational. A key conceptual resource for this work is *atmosphere*, a term that is widely understood and engaged within humanities scholarship as:

> a quality of specific configurations of sensation, temporality, movement, memory, our material and immaterial surroundings and other people, with qualities that affect how places and events feel and what they mean to people who participate in them. (Sumartojo and Pink 2017: 6; see also McCormack 2016; Böhme 1993, 2008, 2013)

While they can be conditioned and prescribed through aesthetic regimes, atmospheres are 'intermediate phenomena' (Böhme 2008: 3) that attune us to conditions of possibility, 'underscor[ing] a gradual process of transformative rather than absolute and stable perception' (Bille, Bjerregaard and Sørensen 2015: 32; see also, Edensor 2012: 1106). To '*think atmospherically'* (Sumartojo and Pink 2017: 4, authors' emphasis) is to shift an analytical focus from the agency and activity of humans *in* a world, to the 'affective forces of lifeworlds' (McCormack 2017: 2). The following discussion further expands this line of enquiry through an exploration of dark(er) and differently illuminated landscapes beyond 'the urban' to ask what conditions of possibility such places facilitate, and how research engagements that centre the embodied and situated dimensions of light, darkness and landscape might elaborate a richer vocabulary for night studies and dark sky research.

**Conditions of possibility: darkness, light and landscape**

> [W]hen we douse the lights, a child can discover that the universe is lit by lamps humans did not switch on, deepened by distances we cannot fathom, moved by forces we do not understand. (Moore 2008: 12)

Our world looks different in darkness, *feels* different. If we momentarily step out of the bright corona of a streetlight's illumination, and into the darkness – even, into the gloom – and if we stay a little while longer, we might start to notice subtle details emerging – new textures, tones, shadows and glimmers. In daylight, the *cone* photoreceptors on our retinas are predominantly active, producing the world in clear colour and form. At night, as darkness thickens, the *rod* photoreceptors mobilise, ushering in a different modality of vision characterised by diminishing colour, a heightened contrast and texture and a stronger sensitivity to what lies at

the edge of our sight (Elkins 2009 [2000]: 216), a reminder that all vision is partial, embodied and situated (Dunn and Edensor 2021: 13; see also, Cook and Edensor 2014; Morris 2011). As new or unusual things come into focus or touch the edges of our vision, so too might other ways of being suggest themselves to us.

In his book-length love letter to the Moon, *Nocturne*, James Attlee celebrates the transformative 'shape-shifting' quality of moonlight, (Attlee 2011: 5), which enrols us in a creative sensing of our world, enchanting that which is often taken as given: 'Like a drug, it triggers real physiological changes in our bodies, which in turn change our perception, offering escape from the routine banality of existence' (ibid.: 76). On a night visit to the mountains in New York State, John Tallmadge experiences an increasing sense of porosity between self and world: 'You had to get closer to things in order to recognize them [...] I could almost feel my skin growing thinner, pores thirsty for any sensation (Tallmadge 2008: 140). Similarly, in Peter Davidson's book *The Last of the Light: About Twilight*, the author delights in 'the depth of twilight, when one unseasonable white flower hanging on an elder bush, jumps forward a hundred yards to meet the eye' (Davidson 2015: 20). Dark landscapes obscure detail, depth, scale, and distance, shifting the sensing body into the realm of the peripheral and contingent (Pallasmaa 2005: 46; see also, Morris 2011; Edensor and Lorimer 2015; Shaw 2018: 104). Vision thickens and expands beyond an impulse to identify and define as other agents of landscape shape the experience:

> At night, new orders of connection assert themselves: sonic, olfactory, tactile. The sensorium is transformed. Associations swarm out of the darkness. […] The landforms remain, but they exist as presences: inferred, less substantial, more powerful. (Macfarlane 2007: 193)

Such accounts of dark landscapes feature in recent cultural geographic scholarship that has engaged with darkness and light as part of a wider orientation within the discipline 'towards less evident landscape features, qualities, practices and representations' (Edensor 2017a: 599). This work takes its cues from non-representational and vitalist theories of landscape and place that gathered momentum during the 1990s and early 2000s, spurred by influential texts within geography – Nigel Thrift's *Spatial Formations* (1996) and *Non-Representational Theory: Space, Politics, Affect* (2007), Sarah Whatmore's *Hybrid Geographies* (2002); and beyond – Donna Haraway's *Simians, Cyborgs and Women: The Reinvention of Nature* (1991), Bruno Latour's *We Have Never Been Modern* (1991), and the geo-philosophies of Gilles Deleuze and Félix Guattari (Deleuze 1992; Deleuze and Guattari 1987 [1980]). Characterised by an interest in 'process,

movement and becoming' (Morris 2011: 317) and engaged with concepts such as affect, materiality and nonhuman agency, non-representational geographies broke away from conceptualisations of landscape as cultural discourse or 'way of seeing' through which the world is constructed and ordered, to more expansive and speculative explorations of landscape as 'the materialities and sensibilities with which we see' (Rose and Wylie 2006: 478; see also, Casey 1993: 114; Wylie 2004; Ingold 2011: 154; Simpson 2021: 4). Addressing the 'matter-neglecting aspects' of the linguistic and cultural turns of the 1980s (Sullivan 2014: 83), non-representational and vitalist theories of landscape also shifted analytical focus of the experiential and affective dimensions of everyday life away from phenomenologies that centred the human (individual, usually sighted) as the privileged organising agent of a sensible world (Merleau-Ponty 1962; Buttimer 1976; Ingold 2000, 2011), to *ontologies* of place that have sought to explore 'the situated and becomingness of subjectivities' (Ferretti 2020: 1666; see also, Whatmore 2006: 601) and the diverse ways in which nonhumans co-compose everyday life and social being (de Certeau 1984[1980]; Thrift 2004). Oriented to 'the livingness of the world' (Whatmore 2006: 602), this research emphasises 'experience, encounter, sensation, perception, atmosphere and affect' as 'fields of intellectual enquiry and artistic experiment' rather than discrete objects to be studied, cognised and deconstructed (Edensor and Lorimer 2015: 1; see also, Sumartojo and Pink 2017; Lorimer and Wylie 2010; McCormack 2010, 2017; Dewsbury et al. 2002; Thrift 1999: 297). As such, non-representational practice (Vannini 2015a) makes an appropriate epistemological container for studying darkness and dark(er) places, wherein the usual sensory cues for crafting cultural geographic research are suspended (Morris 2011: 318; Edensor 2012, 2013b). In the remaining discussion, I draw on four studies of landscape that explore the *aesthetic experience* of dark(er) and alternatively illuminated places, attentive to how phenomena, things and encounters touch our senses and come to *make sense* to us (Böhme 1993: 114). This work asks how encounters with dark(er) places might differently resource our relationships to light, darkness and landscape and elaborates the *conditions of possibility* that such encounters hold and foster.

The ways in which everyday, seasonal and climatic cycles of light and darkness materially shape human lives, are explored in Philip Vannini and Jonathan Taggart's (2015) study of off-grid dwellers in Canada with particular attention afforded to how off-gridders adapt to the challenges of seasonal darkness. Living in power-synchronous dwellings, the authors write, requires an intensified and sustained attention to dark conditions as 'a climatic and cosmic re-occurrence' that is experienced through 'technology, material objects, place, and time' (639; see also, Shaw 2018: 50–51). Rather than focus on the challenges of such a lifestyle, Vannini and Taggart are interested in the kinds of lives that such attunements foster. Experiencing

light as a form of power and heat (see also, Le Gallic and Pritchard 2019; Gandy 2017; Petrova 2017), and darkness as a 'textured and nuanced event' (Vannini and Taggart 2015: 638) attunes off-gridders to the energetic and precarious qualities of sunlight (see also, Miles 2005), whilst also unsettling an association of natural darkness with the night-time (Vannini and Taggart 2015: 637). Such attunements compose relationships with light, darkness and place that are responsive and engaged rather than instrumental and alienated (ibid.: 650; see also, Gallan 2014: 131). Vannini and Taggart's study offers an imagination of '[T]he sky, and its varying degrees of light (or lack thereof)' not as a backdrop against which human lives play out, but as 'a place for everyday inhabitation, a going concern, a tool for everyday living' (Vannini and Taggart 2015: 650; see also, Ingold 2011: 95).

The transpersonal experience of landscape in natural darkness is central to Nina Morris' (2011) autoethnographic account of *The Storr: Unfolding Landscape*, a temporary night-time installation produced by arts organisation nva (nacionale vita activa) on the Isle of Skye, Scotland in the summer of 2005. *The Storr* was presented by nva as 'a journey of expanding horizons' (Farquhar 2005: 49) intended as 'a recognition of the creative act, the observation of what is there, taken inside, transformed and brought back again in new form to the outside world' (ibid.: 117). While Morris does not directly critique a tendency within social and cultural geographic studies of night to focus on nightwalking as a primary form of counter-aesthetics – a practice that is unevenly accessed and performed – she notes the problematic solipsism in non-representational ethnographies that have historically centred the [walking] human subject within expressive accounts of landscape (Morris 2011: 318). In blurring the visual boundaries between self, others and world, darkness, Morris writes, 'facilitates an understanding of bodies and landscapes as emergent through their mutual relationships rather than as autonomous or pre-defined forms' (Morris 2011: 334; see also, Edensor 2013b: 455; Whatmore 2006: 602). Acknowledging the challenges of this within her own ethnography of *The Storr*, Morris maintains a sense of the precariousness of interpretations and relations within landscape encounter by populating her account with the multiple and sometimes conflicting interpretations, impressions and sensations of the installation's various participants as they individually and collectively negotiate an unfamiliar darkness (Morris 2011: 317). Morris describes how participants experienced one another's presences during and after the walk, from the pilgrimage-like experience of being both alone and together during the walk (ibid.: 328; see also, Edensor and Lorimer 2015: 11), to conflicting expressions of enchantment and disappointment as participants shared their experiences with Morris and with each other after the walk (ibid.: 331). The landscape of *The Storr* is thus storied as an intersubjective unfolding that weaves individuals' unique references and embodied experiences of place, showing how

differing sociocultural values of landscape, light and darkness are relationally negotiated (ibid.: 317).

Darkness as a co-forming entity of place is also explored in Ellen Jeffrey's practice-led research, which investigates 'the perception of rural nightscapes through movement' (Jeffrey 2021: 2) and, '[t]hrough the involvement of dance practitioners and local inhabitants' sought to 'explore how a shared kinaesthetic sensibility towards nightfall might be developed' (ibid.: 24). In March 2019, I witnessed one of Jeffrey's site- and time-specific choreographed performances *On the Patterns We Gaze* (Figure 2.1). During the piece, a small group was slowly guided on foot through ancient woodland across the three stages of twilight: civil, nautical, and astronomical, often stopping to sit or stand in silence. Meanwhile, a trio of dancers dressed all in white, moved slowly through the woodland, incrementally coming into view, first as pale impressions in our peripheral vision and then closer, their ghostly forms taking on the shape of our surroundings – a tree branch split at the trunk, its weight pressing into the forest floor; a form turned in on itself like a husk or acorn tumbling down from a hillock in slow motion before gathering itself up to begin the descent again. While our attention was drawn to the intentional movements of human figures, they were nonetheless experienced as part of a wider choreography of Grubbins Wood, from the staged arrivals of different bird species coming in for the night, to the differently pitched scrapings and creakings of trees and the changing intensities and textures of light and darkness. The dancers, then, were less objects of visual focus and more sensory cues, what Jeffrey describes as 'a patterning of potentialities that compose and de-compose within the temporalities of [that] nightscape' (Jeffrey 2019b: 37).

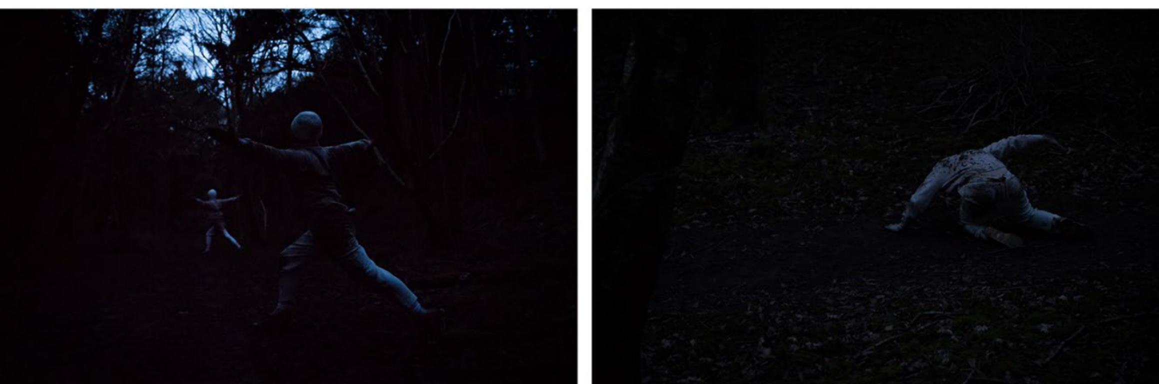


**Figure 2.1: On the Patterns We Gaze.** Photographic documentation of Ellen Jeffrey's *On The Patterns We Gaze*, performed in Grubbins Wood, Cumbria in March 2019. Left image: Dancers, Lucy Starkey and Jenny Reeves. Right image: Dancer, Lucy Starkey. Images by Rebecca Richards and reproduced here with the permission of Ellen Jeffrey.

The collective enactment of landscape in variegated patternings of light and dark is engaged in Tim Edensor and Hayden Lorimer's (2015) reflective account of *Speed of Light*, another large-scale public installation devised by nva, this time staged in Holyrood Park during the 2012 Edinburgh International Festival, in which Edensor and Lorimer participated as walker and runner respectively. *Speed of Light* enlisted the participation of approximately 300 runners and 250 walkers to dramatise the landscape of Arthur's Seat and Salisbury Craggs, each person adorned with either an exoskeleton of LED lights (runners) or equipped with a luminescent staff (walkers) that 'gave off thin sparks of light from its top whenever making contact with the ground' (Edensor and Lorimer 2015: 1–2). The installation then, invited participants to actively explore their relationships with light(s) and darkness(es) (see also, Morris 2011: 317), both through embodied practice that reveals 'affective and sensual qualities', intensifying 'an attunement to the structures and properties of the world at night' (Edensor and Lorimer 2015: 13), and through social relations as participants shape one another's experience of this landscape through their 'accumulated presence' and 'kinetic forms' (loc. cit.). Edensor and Lorimer's account also builds momentum around a theory of 'landscapism', a term 'intended to capture the transporting and enchanting affects that result from estranging the encounter with topography, terrain and atmosphere' (ibid.: 1) and which gestures to where such affects might take us. *Landscapism*, in the context of *Speed of Light*, takes place through a collectively performed inhabitation of the city that is both within and without, the dark(er) and quieter park sitting in tension with 'the visible flows and pulsings of the city's residential, commercial and transport infrastructures', which became more apparent as walkers and runners made their ascent (ibid.: 12). Dramatising such tensions, *Speed of Light* invites participants to sense and situate differently, their myriad and improvised inscriptions of light 'scrambling the normative values by which the illumination of space comes to be understood as a public good' (Edensor and Lorimer 2015: 14).

Through an aesthetic attention to the 'partial, situated and relational' qualities of both darkness and light, the research discussed above offers valuable cues for the emerging and interdisciplinary field of night studies, by shifting focus from how light and dark are designed, controlled and appropriated in service of specific ideologies toward a decidedly more life-affirming and politicised understanding of light(s) and darkness(es) as multiple, relational and creative. Further, in the context of international dark sky preservation, this offers a critical reminder that '[C]hanging how society *thinks* about lighting' (IDA 2015a: 7) is not enough. To focus on symbolic meanings of light and darkness, their design and regulation, without a sustained engagement of their affective, atmospheric and agentive qualities, runs the risk of reproducing 'definitive ontological distinctions' of night and day (Gallan and Gibson 2011:

2512). At this halfway point of the literature review, I carry these challenges and potentialities into an extended exploration of international dark sky preservation, its values, narratives and practices, to explore International Dark Sky Places (IDSPs) as sites that enact alternative relationships with light and darkness, place and planet.

## *II / Placing the Universe: spatial imaginations of dark sky preservation*

> But if we do nothing, then when the Milky Way disappears in even remote areas, and we are no longer able to see beyond our own atmosphere… we lose our place in the Universe.
>
> (Tyler Nordgren, 2010: 427−428)

In 'opening' *windows to the universe*, international dark sky designation is conceptualised as a universally significant project that recuperates the night sky in the public imagination at a time when its 'cultural references are falling into oblivion' (Marín, 2009: 450). Beyond protecting rare and exceptional views of the cosmos, IDSPs are also said to offer a different kind of view: a fundamental shift in how we − humans − perceive our place in the universe. With feet firmly planted on earth in the here and now, visitors can immerse themselves in other worlds and share in the same skies as our most distant ancestors (IDA n.d.f.; Bogard 2013). Finding ourselves in the midst of something that extends in all directions, we may also be moved to consider future generations and our role in securing their access to the stars (Isobe 1998: 213; Prescod-Weinstein 2021). Dark sky advocates call this 'our universal common heritage' (IDA n.d.g; La Palma Declaration 2007), wherein the sky is envisioned as a connective tissue across time and space. This finds further expression in the Starlight Initiative's (SI) concept of *terrestrial skies* (Starlight Initiative 2007) which captures the efforts of dark sky designation to 'anchor the earth to its roof' by integrating 'all that lies above–sights, sounds, hopes… into our total lives' (Jafari 2007: 55; see also, Rodrigues, Rodrigues and Peroff 2015).

These two concepts − windows to the universe, and terrestrial skies − suffuse dark sky literatures, whether explicitly promoted by dark sky organisations and advocates (Charlier

2018: 10; Marín 2009; Fayos-Solá, Marín and Jafari 2014), tacitly explored as cosmic reconnection (Gaw 2020; Francis 2019; Bogard 2013, Nordgren 2010), or as cultural return to the dark in scholarship, popular literature and artworks (Edensor 2013; Bogard 2008; Levy 2001). They are compelling terms, suggestive of complex spatial imaginations. It is surprising, then, that they − and the wider dark sky discourse they are part of − remain under-examined within geography and cognate disciplines, which tend to focus on the spatialities of darkness and light in urban contexts. International dark sky designation and IDSPs receive only brief mentions − often praised but rarely engaged directly by the research (an exception to this is: Edensor 2013; 2017). If darkness and starlight are deterritorialising agents that transform ways of perceiving and inhabiting the world (Jeffrey 2019; Edensor and Lorimer 2015; Morris 2011), how might the unusual landscape of an internationally designated Dark Sky Park be critically situated within existing debates concerning place and space, and why does this matter?

My enquiry is in part a response to what appears to be a tendency in dark sky studies to approach designation primarily as a coherent environmental policy instrument to be implemented and refined in different geographic locations, rather than as an evolving assemblage of values, meanings and material practices, differentially situated and unevenly produced (Hamacher, Napoli and Mott 2020; S. Pritchard 2017; Dunnett 2015). This narrowed formulation has not escaped the attentions of dark sky leaders. In 2020, delegates at the IDA's Annual Conference turned their attention to 'the environmental and cultural threat that light pollution poses to people who have been underrepresented in the work to protect the night' (IDA 2021d). That same year, an interdisciplinary group of DSS scholars and activists published a paper that called for night itself to be engaged as an interdisciplinary research object to broaden participation in the production of this knowledge (Kyba et al. 2020; see also, Hölker et al. 2010), and Duane W. Hamacher, Krystal de Napoli and Bon Mott (2020) published 'Whitening the Sky: light pollution as a form of cultural genocide', a paper calling on night studies scholars and dark sky advocates to develop more nuanced and situated perspectives that address environmental and social injustices (see also, Shewry 2023; Le Gallic and Pritchard 2019; Shaw 2018).

The work reviewed in this chapter supports a critical exploration into how specific narratives, imagery and rhetoric employed by the dark sky movement, move people − advocates, decision-makers, visitors − into various arrangements of environmental relation and engagement. Drawing on the inter-/transdisciplinary field of the environmental humanities, for which a critical and creative interrogation of environmental values and practices is a central

concern (Rose et al. 2012; Heise 2017; Emmett and Nye 2017), my discussion grapples with how dark sky values are constructed and experienced, who participates in dark sky practice, and how. I explore dark sky designation as discourse and sociomaterial practice, beginning with an examination of its conceptual framings and visual language, with a particular focus on wilderness narratives and 'views from above'. This discussion is further developed through an engagement with imaginations of IDSPs as distinct spaces of transformative environmental encounter that inspire meaningful action but may also tie dark places too firmly to an 'astronomical sublime' (Dunnett 2015) that reterritorialises emplaced communities, their associated values and practices. I close the chapter by re-situating the review in 'views from below' through examples of dark sky research that engage specifically with IDSPs and related areas of dark sky protection with an emphasis on situatedness, lived experience and practice. Bringing this work into conversation with environmental humanities scholarship and ecocritical strategies of storying place, I outline key questions and concerns which indicate directions of travel for my research with the Galloway Forest Dark Sky Park.

**Black is the new green: dark skies within environmental imaginations**

> The night sky is the world's largest national park with its beauty available to anyone who steps outside and looks up. (Chester, cited in Nordgren 2010: 397)

The US National Park Service's (NPS) dark skies programme came into being, Paul Bogard narrates (2013: 250), when a small constellation of geographically dispersed rangers began to reach out to one another, as they noticed the quality of the night sky diminishing across the years above their respective parks:

> Moore wondered if there were [sic] a way to measure the light pollution around the parks, and he began asking colleagues at other parks if they knew. "I literally got the same answer from a dozen different people: I don't know, but I'm worried about it too." (Bogard 2013: 250, NPS ranger Dan Duriscoe is quoted)

From these initial conversations, the rangers – Dan Duriscoe of Death Valley National Park in Nevada, Chad Moore of Pinnacles National Monument in California, Angie Richman of Chaco Culture National Historical Park in New Mexico, and Kevin Poe of Bryce Canyon National Park in Utah – coordinated efforts to secure a research-grade digital camera to record data on sky quality over several months, a project that would make a strong case for protecting the night sky by showing how rapidly it was disappearing from view (ibid.: 250–2;

see also, Nordgren 2010: 407–409). While dark sky designation could not have happened without the efforts of these individuals, it is significant that their project developed within the National Park model. Well-established in the popular imagination, National Parks provided a familiar language and policy framework into which dark skies could be smoothly integrated, and through which their value could be quickly understood.

National parks are protected areas with state-sanctioned limitations on infrastructure and human inhabitation.[13] They are host to a whole range of conservation and heritage organisations oriented to protecting species, habitats and particular qualities of place such as wilderness, biodiversity and natural beauty. It is the conditions afforded by protected areas that make these locations so appealing to dark sky preservationists, as noted by Josiane Meier in her study of dark sky stakeholder perceptions (2015). Further to this, Meier adds, dark sky designation is reciprocal and offers enhanced protection and policy reinforcement, by connecting existing environmental concerns to increasing awareness about the loss of the night sky (Meier 2015: 186; see also, Charlier and Bourgeois 2013: 21). As Chris Moss (2009) writes in a magazine article covering the GFDSP's bid for dark sky status: '[B]lack is the new green'.

This shared environmental imagination informs a poster series created by astronomer and artist, Tyler Nordgren, to celebrate the emergence of dark sky programmes in the US national parks during the early 2000s (Fig. 2.2). Each poster depicts a clear dark sky (often with the Milky Way flowing through it) over a specific national park. The posters bear the slogan 'Half the Park is After Dark', a reminder that the pleasures and wonders of national parks continue long after night falls: 'Those qualities that draw us to the parks by day − their unspoiled scenic vistas and backcountry wilderness − also make them especially beautiful at night' (Nordgren, 2010: 400). The design of the posters pays direct homage to the US Works Progress Administration's (WPA) Federal Art Project, which, during the late 1930s, published a poster series under the title 'See America' (Pillen 2008). The ambition of the US WPA was to reaffirm national identity in the wake of the Great Depression by encouraging Americans to engage in travel as a dutiful performance of nationhood, whereby the visitation of designated parks and monuments would connect citizens to a shared sense of an authentic past, immortalised in a common geography (ibid.: 54). This was powerfully consolidated through 'wilderness', an enduring cultural concept within white western imaginations of place encounter that identified

[13] Wilderness Act 1964, Organic Act 1916, Yellowstone Land Grant 1864

and set aside sections of land as 'untrammelled' by human intervention and therefore, a source of moral restoration in a nation troubled by 'economic hardship and instability' (loc. cit).

**Figure. 2.2. Posters for Bryce Canyon National Park.** Left: Tyler Nordgren's poster advertising Bryce Canyon International Dark Sky Park. Image credit: Tyler Nordgren. Available from: https://www.tylernordgren.com/poster Right: An example of a WPA poster printed between 1938 and 1941, to which Nordgren pays homage. Image credit: National Park Service. Available from: https://shop.brycecanyon.org/product-p/1377.htm

As Pillen notes, the distinctive visual argument of the US WPA's posters lies in their scalar depiction of the natural world. Tiny human figures are shown in silhouette against highly detailed, brightly coloured backdrops that are so vast and grand that even the edges of the poster cannot quite contain them (Pillen 2008: 50). Nordgren's series builds on this visual language by silhouetting not just the human figures but their immediate terrestrial environments too, which, though important to the experience, appear as shadowy set pieces that frame the main event. By de-emphasising the visibility of landforms and centring the human relationship with the Milky Way, Nordgren re-frames a widely understood symbol of national heritage as *universal* heritage and strengthens an imagination of the night sky as a kind

of wilderness (Duriscoe 2001; National Park Service n.d.a.). It is an effective visual flourish, which brings the cosmos forward in the experience of place, and along with the slogan – 'Half the Park is After Dark' – suggests a need to recuperate this 'taken for granted' resource into the imagination of environmental agencies and conservation practices (Duriscoe 2001: 30; Marín 2009: 453). Untethered from the world below, the night sky is often conceptualised as an 'exotic, abstract object, a virtual, other place […] beyond reach' (Charlier and Bourgeois 2013: 192), proving difficult for dark sky advocates to secure international and cultural protections such as UNESCO heritage status for IDSPs and other dark landscapes (loc. cit.; see also, Smith 2015). Night sky as wilderness provides a familiar language of place-relation, a terrestrial framework within which dark skies can be anchored.

However, while binary understandings of light as good and darkness as bad have been challenged by the dark sky movement in support of its efforts to welcome in a different version of the night, mobilisations of the wilderness concept in dark sky advocacy and literature suggests that this oppositional relationship remains relatively unchecked.[14] Dark sky discourse will often simply reverse the binary, casting light as the villain and darkness as its authentic adversary, as is suggested in the IDA's use of the term 'real night' in a recent information brochure (Fig. 2.3).

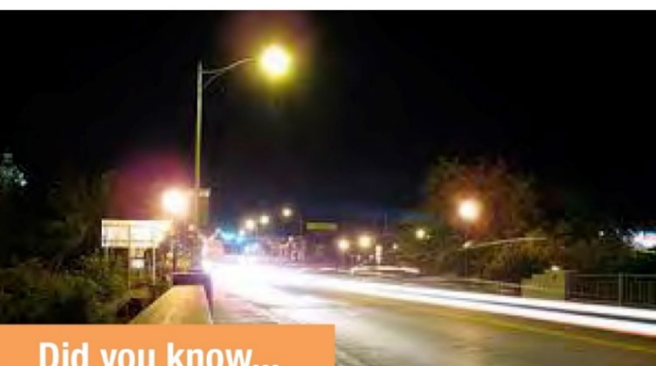



Figure 2.3. Real night no longer exists. 'Did you know… Real night no longer exists in hundreds of cities around the world.' Excerpt from a 2021 IDA brochure providing general information about the work they do (IDA 2021c).

---

[14] For further critical discussion of Tyler Nordgren's posters and their problematic relationship with wilderness imaginations, see Dwayne Avery's text: 'Beauty won't save the starry night: Astro-tourism and the astronomical sublime' (2024).

In a striking turn of phrase, co-founder Tim Hunter has described light pollution as 'a pernicious evil that slowly crept up on us' (IDA 2015a: 8). These expressions, as well-intentioned as they may be, reinforce commonly accepted dualisms such as nature/culture and passive/active wherein nature (darkness) serves as a stable and enduring backdrop against which human lives play out in their myriad variations (light) (see also, Gallan and Gibson 2011). This is evident in recent literary accounts of dark skies, which are suffused with imagery of remoteness, the wild and the primal, twinning the rural dark with notions of refuge and sanctuary. Here, the rehabilitative qualities of natural darkness are pitched against the indiscriminate lights of cities and towns, which 'push the dark into corners and alleys' and dull our imaginations (Tallmadge 2008: 139; see also, Attlee 2011: 9). This version of the night is often depicted as under threat from the 'obliterating glare' of contemporary urban life (Daniel 2008: 24), which lurks about the place, like skyglow[15] on the horizon, or as Mark Treddinick describes in his essay 'The Original Country', 'like light leaking under your bedroom door' (Treddinick 2008: 150). In richly describing and evoking the qualities and experiences of darkness, shadow, gloom and starlight, these accounts contribute to wider efforts to "re-enchant" a night that has been historically "disenchanted" through the progressive loss of naturally dark landscapes and our cultural relationships with the night-time and darkness (Cinzano, Fabio Falchi and Elvidge 2001; Marín and Jafari 2007; Nordgren 2010; Edensor 2013b; Dunnett 2015; Gallaway 2015; Falchi et al. 2016; Edensor 2017: 124). However, as historian Jason Crawford (2020) cautions in his discussion of the recent surge of interest in re-enchantment across the social sciences and humanities, we need to think beyond the now well-worn story of disenchantment (see also, Bennett 2001: 4,7) with its 'linear narratives of pre-modern fullness and modern loss' (Crawford 2020). Within the context of dark sky activism, such narratives locate care for dark skies in an idealised past and in relationships of environmental protection and technofix. Instead, we might ask after the possible ways in which we can come into relationship with dark skies, their conditions, qualities and becomings, from the particular contexts and situations we currently find ourselves in, what Donna Haraway has described as 'staying with the trouble' of our planetary entanglements (Haraway 2016; see also, Tsing et al. 2017; Krøijer and Rubow 2022: 376; Flack and Jørgensen 2022: 246).

[15] Skyglow describes a high luminosity of the sky above densely populated areas (Falchi et al. 2001). It is so-called because it is diffuse in its luminosity (Flanders 2008).

The uncritical mapping of darkness to nature and light to human activity within dark sky discourse, is the focus of Sara B. Pritchard's article 'The Trouble with Darkness: NASA's Suomi Satellite Images of Earth at Night' (2017). Her discussion revolves around a visual analysis of two images of the Earth as seen from space: the first, a digital image of the world at night – *City Lights of Africa, Europe and the Middle East* (hereafter *City Lights*) – released by NASA on 5th December, 2012 as part of a collection of images showing the planet at night; and the second, the famous *Blue Marble* photograph taken by the crew of the Apollo 17 mission on 7th December, 1972, almost 40 years earlier to the day. *Blue Marble* became a powerful icon of environmentalism in the 1970s and 80s (see also, Heise 2008: 23) and is key to the message of *City Lights*, which adopts the same basic composition, presenting the planet as marble-like: a self-contained and beautifully patterned orb floating in the deep darkness of outer space, 'like a precious jewel in a case of velvet' (loc. cit.). It is this imagination and rhetoric of a unified but fragile Earth that is recalled in the *City Lights* image, and which forms the foundation of its central narrative: namely, that our precious Earth is threatened by the geographic spread of artificial light pollution.

Pritchard's article pays homage to a classic essay on environmentalism by William Cronon (1996): 'The Trouble with Wilderness; or, Getting Back to the Wrong Nature'. Cronon's essay remains a touchstone for critical discussions of environmental practice, by challenging the 'uncontested nature of nature' (ibid.: 20) as it is imaginatively constructed through culturally specific ideas such as 'wilderness', 'the sublime' and 'the frontier'. Though dark sky preservation has emerged in a very different environmentalist 'scene' (S. Pritchard 2017: 323), Pritchard is concerned that many of the assumptions critiqued by Cronon are present in contemporary dark sky discourse and activism (ibid.: 321). Cronon describes how wilderness is cast as 'an older, simpler, truer world that is about to disappear forever' (Cronon 1996: 76), its 'natural' equilibrium at the mercy of human intervention. To be protected, it must be preserved and carefully managed so that it may remain in its "natural" state.

It is a narrative mobilised in *City Lights* by utilizing image-processing techniques[16] to produce an aesthetics of contrast between a 'natural' global night and human activity. It includes the digital colorisation of the original black and white image to produce a deep blue night, inscribed by the bright yellow veins and contusions of artificial light; as well as the removal of natural displays of light, such as aurorae, fires and biofluorescence (S. Pritchard 2017: 319). The romanticisation of darkness in the image, Pritchard argues, makes 'certain knowledge of

[16] Though, as Pritchard notes, the final *Blue Marble* photograph was a cropped version of the original photograph in which the Earth was off-centre and much smaller in the composition.

nighttime lighting literally (im)perceptible' (ibid.: 315), and suggests that unclear skies are solely a human and technological issue (see also, S. Pritchard forthcoming 2024). That *City Lights* might speak as clearly about lighting *poverty* (see also, Petrova 2017; Gandy 2017) as it does about urban sprawl is subsumed beneath the image's title *City Lights* (ibid.: 320) and by NASA's accompanying text, which describes the image as "a global view of the human footprint on Earth" (ibid.: 313). Such views of global light pollution, geographer Robert Shaw argues, produce an imagination of earth as a surface inscribed by human activity, which in turn produces a corresponding 'surface-based ethics' that, while emphasising connectivity, may do so at the expense of social and environmental justice (Shaw 2017: 139; see also, Shaw 2018: 21; S. Pritchard 2017: 324; Le Gallic and Pritchard 2019; Hamacher, Napoli and Mott 2020). The use of 'technological visions of the land from above' in dark sky campaigns is critically explored by Oliver Dunnett in his study of the 'moral geographies of light pollution in Britain' (Dunnett 2015: 630). Dunnett describes how the Campaign for Dark Skies (in collaboration with the established organisation Campaign for the Protection of Rural England [CPRE]) has consistently drawn on satellite imagery of global light pollution to reinforce the organisation's longstanding efforts to maintain an 'aesthetic distinction between town and country' (ibid.: 629; see also, Stone 2018). A heading from CPRE's 2003 promotional leaflet *Night Blight* reads: "Rapidly spreading light pollution chases the stars from the night… *closing our window to the universe*" (Dunnett 2015: 631, my emphasis). Though the images discussed above – whether overhead shots of global ALAN or marketing imagery designed to entice visitors – represent just one framing of the discourse in which IDSPs are positioned, they have been hugely influential in making a compelling case for international dark sky designation as an instrument that preserves 'oases of darkness, far from the bright lights of home' (Nordgren 2010: 400). The following section explores how such imagery and narratives shape visitor imaginations and inhabitations of IDSPs, to critically addresses the 'landscape dimension' of dark sky tourism (Marín 2009: 451; see also Charlier and Bourgeois 2013).

**Performing the astronomical sublime: dark sky tourism as (de)territorialising practice?**

> Are the stars worth saving? Come see for yourself. […] Come see the clues to who we are and where we come from. Come see the evidence for where we are and where we could go. Come see your home in the Galaxy. Come see the Milky Way. (Nordgren 2010: 428–430)

The transformative experience of standing under a dark night sky is central to the IDA's IDSP programme. Indeed, 'Visit an International Dark Sky Place' is listed as one of the possible

actions that people can take to protect dark skies (IDA 2021b). For dark sky advocates, *windows to the universe* do not just give us a different 'view' of place and planet, but also act as portals to another way of being, imbuing visitors with new values and transforming their environmental behaviours and actions (Duriscoe 2001: 35; Marín 2009: 455). As Matt Gaw writes of IDSPs: '[B]y tuning in, there is a greater chance of us also turning off. […] They allow us to question our place in the universe, but also the use of artificial lights in our lives' (2020: 190). Informed by Aldo Leopold's 'land ethic', in which an increased sensitivity to the land and the many others with whom we share it expands our sense of place and community, NPS Ranger and founding member of the NPS Dark Sky Team, Dan Duriscoe argues that unhindered views of the night sky allow us to develop 'intimate knowledge of the universe', transforming the way we perceive and inhabit place (2001: 35; see also, Bogard 2013: 191).

For Fayos-Solá, Marín and Jafari (2014), astrotourism is part of a new travel paradigm, through which tourists assume the role of 'explorer' or 'voyageur', seeing in their travel activities an opportunity for personal development (ibid.: 664). This figure, the authors write, takes time to understand and engage in activities that feel 'meaningful' as well as entertaining or recreational (loc. cit.). It is an imagination consistently mobilised in the marketing campaigns and visitor information materials of IDSPs, which often depict a lone figure looking up at the stars through a telescope or extending an arm to point something out to a companion (Charlier and Bourgeois 2013). While high quality photography and video can inspire visitors by communicating the night sky's unusual beauty (IDA 2020), they also present visual cues that shape ways of seeing and being in place long before visitors have set foot within the boundaries of an IDSP, what geographer Bruno Charlier (2018) describes as the 'manufacture of a unique nocturnal territorial identity' (Charlier 2018: 16). Charlier draws on landscape philosopher Alain Roger's (1998) theory of 'L'artialisation' (artialisation), whereby images of landscape (whether visual or narrative in form) evoke a 'poetic' sense of place that encourages feelings of inhabitation and emotional investment (see also, Husson 2017). Often, Charlier notes, dark sky photography will use instantly recognisable and charismatic landmarks and features such as an observatory, an archway or a waterfall to help anchor the night sky in a familiar terrestriality, creating visual relays between above and below within a single frame (Charlier and Bourgeois 2013: 194). The presence of a human figure in the image intensifies this experience, evoking the 'immense, upward sweep, and depth of the astronomer's gaze' (Ingle 2010: 91), the vastness of the night sky imaginatively anchored in the body of the viewer, what has been described elsewhere as an 'astronomical sublime' (Kessler 2012), which encompasses both stunning imagery of the night sky and a sense of its absolute mysteriousness (Dunnett 2015: 624–625; see also, Lane 2008). We get to see what they see, to

share their awe and wonder. These images recall 19th century Romantic depictions of the wilderness and the sublime, such as Caspar David Friedrich's *Der Wanderer über dem Nebelmeer* (*Wanderer above the Sea of Fog*) (1818), and Thomas Moran's *The Grand Canyon of the Yellowstone* (1872) (Fig. 2.4), in which a sense of the vertical and voluminous is forcefully present in the work but mediated and contained through a figure whose gaze and encounter with place become our own, whether through a distinct individual pictured in the frame, as with Friedrich's painting, or embodied in our own gaze as we look at the image, as with *The Grand Canyon of Yellowstone*. In these depictions, an 'external' wilderness or more-than-human 'wildness' is visualised as an interior (human) space, and the practice of physical exploration and encounter is subsumed within a heroic narrative of individual and intellectual voyaging. Such an imagination, Jane Bennett and William J. Chaloupka (1993: ix) write, frames wilderness as a cultural resource – albeit one hidden behind the "natural" – to which we can visit whenever we need a reminder of our authentic selves. It is perceived as 'the original source', which 'provides the comfort of an existential foundation.' As Cronon explains, wilderness areas had to be conceptualised as empty, untouched and timeless, so that they could be furnished with qualities that spoke to the desires and motivations of those who wished to have access, most often white, wealthy travellers (Cronon 1996: 8).

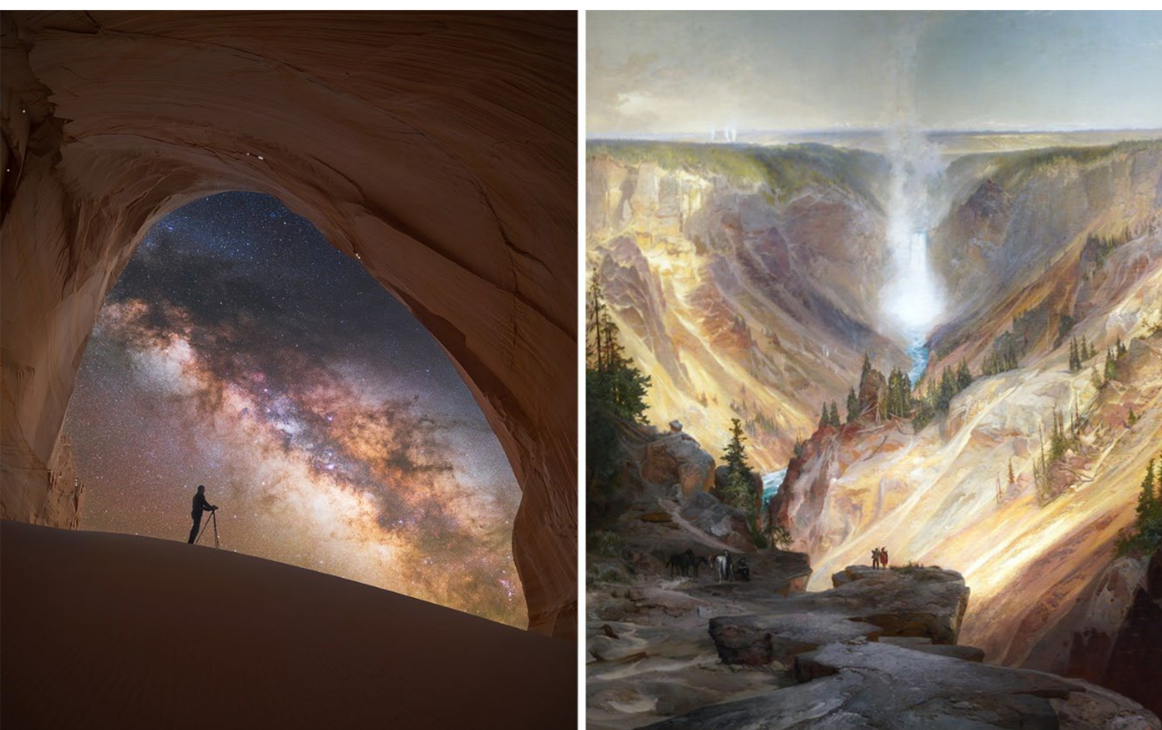


**Figure 2.4. The vertical and voluminous.** Left: Detail from *The Grand Canyon of the Yellowstone* (1872) by Thomas Moran. Right: *Awestruck* by Marcin Zajac (2022).

As a practice that promotes an imagination of dark sky landscapes as 'natural, enduring and harmonious' (Dunnett 2015: 628), astrotourism is at risk of reinforcing a protective language and mode of engagement that reterritorialises places in the image of those who have the means and privilege to visit, but do not themselves remain, what Challéat, Lapostolle and Milian describe as 'the touristification of a virginal space-time, which is spreading through environmental protection' (2018: 2; see also, Avery 2024; Shaw 2017: 139; see also, Büscher and Fletcher 2020: 168).

Dark sky advocates often make the claim that light pollution is the only form of pollution that is 100% recoverable (Nordgren 2010: 427; Duriscoe 2001: 30), and while this is a compelling statement likely to inspire environmental action (Bogard 2013: 187), it masks other losses that are not entirely recoverable. Reterritorialisation applies not just to physical landscapes, but also to people's relationships to place, their worldviews, knowledge systems and cultural practices for which darkness and starlight may be vital (della Dora 2011: 828; de la Cadena 2015; Hamacher, Napoli and Mott 2020; Prescod-Weinstein 2021). The interiorisation of an astronomical wilderness 'out there' and its potential impacts on the lifeworlds of already established communities, is discussed in Mark Ingle's (2010) account of astrotourism in South Africa's Karoo region. In recent years, the semi-desert region's 'apparent emptiness' has been increasingly foregrounded in astrotourism marketing (ibid.: 89), visualised as a vast and open space to expand into, to release and retreat so that visitors may "find" themselves (ibid.: 103). Windows to the universe are conceptualised as 'peepholes', Ingle writes, the immediate environment merely a dark room; no distractions, all the better to view from (ibid.: 98). Similarly, in her study of astrotourists in the GFDSP between 2013 and 2016, Deborah Slater (2019: 5) observes an apparent disinterest among astrotourists in 'their Earthly surroundings'. The night sky above the Dark Sky Park becomes *the* destination for tourists, while the 'place' of the GFDSP is merely 'an enabler, a means to an end' (Slater 2019: 18; see also, Gallan 2014: 189). Such framings of starry sky appreciation are at risk of casting dark places as 'a passive resource' for the benefit of tourists, who may overwrite emplaced histories, cultural practices and landscapes, producing the very 'emptiness' that astrotourism relies upon (Ingle 2010; see also, Urry 1992: 913; Cronon 1996; Hansen 2013; Lund and Jóhannesson 2016; Büscher and Fletcher 2020).[17] The 'emptiness' produced is both spatial and temporal in its imagination, as Ada Blair notes of visitors to the Dark Sky Island of Sark who exert 'a subtle pressure on the island to be ageless and not subject to change' (Blair 2016: 19), one example being an

[17] It is disappointing, then, that Ingle does not elaborate on how stakeholders can negotiate these challenges, and instead notes how the Karoo's environmental conditions make a strong case for the region to host a 'spaceport' so that it may participate in the recent – and extremely niche – tourism trend of 'sub-orbital space flight' launched by Virgin Galactic in 2010 (Ingle 2010: 99–100).

encounter with a tourist who expresses disappointment that their mobile phone receives decent reception on the island (loc. cit.). Though astronomical heritage initiatives often incorporate ideas of cultural heritage and historical relationships with the night sky as studied in archaeoastronomy (Ruggles 2015; Silva et al. 2016; Ruggles and Saunders 1993) and 'skyscape archaeology (Henty and Brown 2019), ambitions to integrate all that lies above 'into our total lives' below (Jafari 2007: 55) tend to locate these practices in an ancient past, and so overlook sky knowledge and relationships sustained and cultivated by existing communities. In their discussion of Maunakea in Hawai'i, astrophysicist Chanda Prescod-Weinstein (2021: 232) argues that this often leads to harmful interventions by astronomers in the name of science, as the unquestioned value of knowledge-seeking and institutional expertise overrides the existing astronomical knowledge held and practiced by indigenous people and their ancestors (see also, Shewry 2023). Prescod-Weinstein speaks of indigenous astronomy as being concerned not only in a shared past, but in a continuing present and its future possibilities (ibid.: 233). A key contribution of Prescod-Weinstein's work is their insistence on a universal right to know and love the night sky: '[F]reedom looks like the dark night sky and everyone having a chance to look at it, wonder about it, and know it' (ibid.: 276). This offers a subtle but important refiguring of what dark sky advocates often narrate as a desire to know and protect the night sky (Nordgren 2010: 426; Fayos-Solá, Marín and Jafari 2007; Duriscoe 2001). Side by side, these two formulations of dark sky preservation evoke the tension between the heroic qualities and privileged circumstances embodied in the figure of the voyageur-conservationist and situated relationships with the night sky that understand cultural heritage as ongoing and seek to make dark skies accessible to all (Prescod-Weinstein 2021: 260). It is an important tension to which the final section of this chapter now turns, through a critical exploration of dark sky stewardship as situated practice.

**As above, so below? Situating dark sky practice**

> What makes Sark especially compelling is that people actually live there […] it's the protection of darkness in places where people actually live that will ultimately change attitudes toward light and darkness. (Bogard 2013: 185).

Speaking to Paul Bogard about his work supporting the International Dark Sky Island of Sark with its application to the IDA (granted in 2010), astronomer Steve Owens reflects: "'If you only want to slap patches on very dark places, you can do that to your heart's content, cover the world with dark sky parks […] Sark, they had to do some light work'" (Bogard 2013: 185). While Owen's comment refers to the labour involved in applying for international dark sky

status, it also frames international dark sky designation as a situated practice that involves specific communities of place. Though no precise definition of 'place' is given, the IDA's five current certification categories reflect early human geographical theorisations of place as *particular*, possessing distinctive identities shaped by repeated and enduring inscriptions of inhabitation that 'endow [space] with value' (Tuan 1974: 12; see also, Lefebvre 2004[1992]; Cosgrove 1985):

1. **International Dark Sky Communities**
   Communities are legally organized cities and towns that adopt quality outdoor lighting ordinances and undertake efforts to educate residents about the importance of dark skies.

2. **International Dark Sky Parks**
   Parks are publicly- or privately-owned spaces protected for natural conservation that implement good outdoor lighting and provide dark sky programs for visitors.

3. **International Dark Sky Reserves**
   Reserves consist of a dark "core" zone surrounded by a populated periphery where policy controls are enacted to protect the darkness of the core.

4. **International Dark Sky Sanctuaries**
   Sanctuaries are the most remote (and often darkest) places in the world whose conservation state is most fragile.

5. **Urban Night Sky Places**
   UNSPs are sites near or surrounded by large urban environs whose planning and design actively promote an authentic nighttime experience in the midst of significant artificial light at night, and that otherwise do not qualify for designation within any other International Dark Sky Places category. (IDA n.d.f).

Whilst a conceptualisation of place as the human transformation of supposedly 'empty' *space* into something more meaningful is widely contested within geographical scholarship and cognate fields (Massey 2005; Heise 2008; Katz 1994), it is a framing that nonetheless haunts dark sky discourse, whether through remote satellite imagery of humanity's spread across the globe through artificial light (S. Pritchard 2017; Dunnett 2015) or through conceptual language such as 'windows to the universe' and 'terrestrial skies'. Committed as my research is to a non-representational approach however, the inscriptive line of international designation need not

be seen as a symbolic representation alone. Rather, following Hayden Lorimer's encouragement to think more boldly about what representations might *do* (Lorimer 2007: 89; see also, Dewsbury et al. 2002), I wish to engage with the 'window' of dark sky designation and its 'terrestrialising' character as a form of relation that, in being *relational*, cannot be settled, whether physically or conceptually. Approached in this spirit, both *windows to the universe* and *terrestrial skies* present conceptual provocations for a place-critical exploration (see for example, Tuck and McKenzie 2015) of an IDSP, its people, practices and lifeworlds. The following discussion will draw directly on research studies that give insight into 'the diversity of local configurations and territorial dynamics' of international dark sky practice (Challéat, Lapostolle and Milian 2018: 9), alongside critical re-framings of dark sky places through literary and arts-based approaches that elaborate the more-than-visual, situated and relational dimensions of dark sky places and support a critical exploration of designation as both a framing device (symbolic, inscriptive) and contact zone (relational, enactive).

International dark sky designation as situated and ongoing practice is explored in Daniel Silver and Gordon Hickey's study of stakeholder relations in the world's first IDSP, the Torrance Barrens Dark Sky Reserve in Canada (TBDSR) (Silver and Hickey 2020). Their article presents a complex account of dark sky preservation as it is collectively managed and developed across two decades by stakeholders whose interests, values and approaches did not immediately cohere into unified action. At the heart of Silver and Hickey's study is a critical analysis not just of who stakeholders are, but the various interactions, activities and processes through which they become involved (or not) in dark sky stewardship (ibid.: 2640). This is also explored in Jessica Heim's (2020) study of light pollution abatement in the town of Stanley, Idaho, which, building on Josiane Meier's typology of various dark sky actors (Meier 2015, 2019), explores the intersection of personal and professional values as they variously inform participation in lighting changes and dark sky advocacy. Heim makes a strong case for further research into the role that personal associations and lived experience play in the development of dark sky values and relationships, noting that 'the continued ability to have personal experiences with and develop a connection to the night sky may be one of the most essential components of dark sky protection' (ibid.: 74). The lived experience of dark sky actors is also central to Ada Blair's study of the Dark Sky Island of Sark, which offers insight into why people wish to live in concert with dark skies, the ways in which 'individuals and communities might be affected by the presence of cosmic immensities in their everyday lives' (Blair 2016: xv; see also, Heim 2020: 27), and 'how exactly [dark sky] culture and heritage can be preserved' (Blair 2016: 38). With a focus on community, well-being and every*night* encounters, Blair's study demonstrates the significance of informal practices of recreation and care in the co-

production of an IDSP, from raising funds locally for a new observatory and astronomy society (ibid.: 29) to more spontaneous activities such as communal skywatching while standing outside for a cigarette (ibid.: 113).

These recent studies of dark sky places *in practice* provide insight into how dark sky values emerge and develop before, during and after official designation, inviting a critical understanding of an IDSP as a 'constellation of processes rather than a thing' (Massey 2005: 141; see also, Woodward et al. 2010). Such a conceptualisation of IDSPs is central to this thesis, as I explore dark sky designation (and my account of it) as both inscriptive and enactive, a framing device and contact zone. A key conceptual resource for my approach is 'bioregional imagination' defined by Tom Lynch, Cheryll Glotfelty and Karla Armbruster as a philosophy and politics of place that asks what our stories of place *do* (Lynch, Glotfelty and Armbruster 2012: 13). Their term refers to the literary expressions and aesthetic strategies used by the bioregionalism movement in North America since the 1980s, to speak about 'relationships with specific bioregions' (ibid.: 10) and the ways in which imaginations, discourses and stories of place produce certain environmental values, engagements and relationships (see also, Garrard 2012; Iovino 2012). The roots of bioregionalism can be traced to the work of regional planner and theorist Lewis Mumford who, in the 1920s, concerned by the creeping industrialisation of society post-war in North America, developed a theory of 'ecoregionalism' as an alternative phenomenology of place that integrated culture with nature and positioned the local and particular in tension with the global and universal (McGinnis, 1998: 3). Bioregionalism was later adopted as an organising model by environmental movements, particularly in North America and Western Europe and came to international recognition when writer Peter Berg and conservationist Raymond Dasmann published 'Reinhabiting California' in 1977, in which they advocated for bioregionalism as a practice of 'reinhabitation' or 'living-in-place' (399). Lynch, Glotfelty and Armbruster's (2012) edited volume returns to the bioregional in the context of the environmental humanities, wherein the dominant stories told about the world, place, space and environment, have been fervently challenged and creatively re-worked through diversely situated engagements with environmental justice, more-than-human agencies and indigenous knowledge practices (Tsing et al. 2017; Haraway 2016; Thomas 2015; Sundberg 2014; Rose et al. 2012; Heise 2008; Massey 2005). This work seeks to reconfigure notions of place, belonging and rootedness in relation to a world in flux, through representational strategies that aim to de-centre the human and trouble the binary of nature/culture (Clark 2010; Whatmore 2002; Haraway 1988). Such strategies have been increasingly explored in cultural geographic literature, with key contributions characterised by writing that aims 'to animate rather than simply mimic, to

rupture rather than merely account, to evoke rather than just report, and to reverberate instead of more modestly resonating' (Vannini 2015b: 318). Within earth-writing, such aesthetic strategies seek to trouble received notions of self, place and world, making tangible our always, already entangled relationships (Lorimer and Parr 2014; Lorimer 2019). While geographers 'have a relatively longstanding interest in the capacity for stories to create social, political, and intellectual change', Emilie Cameron has noted a significant shift brought about by the 'material turn' through which geographers and other humanities scholars have explored stories as 'productive, participatory, ontological interventions that might call into being alternative worlds' (Cameron 2012: 580; see also, Whatmore 2006). Addressing the 'matter-neglecting aspects' of the linguistic and cultural 'turns' of the 1980s (Sullivan 2014: 83), non-representational and vitalist approaches to landscape have sought to de-centre the individuated sensing [human] subject within place-writing and engage more imaginatively and boldly with 'the dynamic materiality of landscape' (Rose and Wylie 2006: 477; Ingold 2011, 2008) and agency of nonhumans (Whatmore 2002, 2006; Lorimer 2005, 2007; Kohn 2013; Tuck and McKenzie 2015; Bastian et al. 2017).

An alternative storying of an IDSP through an exploration of the more-than-visual and situated is offered by artist-researcher Helen McGhie's practice-based PhD, which she has been delivering in collaboration with Kielder Observatory and Astronomical Society (KOAS) in the Northumberland Dark Sky Park since 2017. Aligned with visual-cultural critiques of the astronomical sublime (Kessler 2012), McGhie's work aims to expand the visitor imagination of KOAS by elaborating more-than-visual and situated experiences of stargazing and astronomy (McGhie 2020a, 2020b; see also, Dunnett 2015). The photo series *Anatomy of a Northern Astronomer* (2019) (Figure 2.5), features images of astronomical 'kit' and other stargazing ephemera. Among these items are the expected telescope or solar eclipse-friendly glasses, but also objects that speak to the situated and embodied dimensions of stargazing. Muddied hiking boots suggest the difficulty of navigating the ground beneath our feet as we move around in the dark, but also the expansion of astronomy into places other than observatories. A Thermos flask gestures to the time and patience required to stand still in the cold, sometimes for hours; but also recalls the pleasure of sharing a hot cup of tea with a companion.

Figure 2.5. **Anatomy of a Northern Astronomer.** Photographic series by Helen McGhie (2019) as part of her PhD project *Stargazing at the Invisible*. Reproduced with her permission.

An emphasis on the strange earthly environment of stargazing can also be seen in McGhie's standalone photograph 'Dark Adaptation' (2019) (Fig. 2.6), an image that depicts what looks like the gravelly floor of a car park, a favoured site for many stargazing groups and events, and often the first environment that a visitor to an observatory will step into. What is striking about this image is that it is cast in red light. The car park could well be the surface of the Moon or Mars. The photograph evokes the experience of using a red torchlight[18] to apprehend nocturnal environments. 'Dark Adaptation' refers to the process by which the eye sensitises itself to lower levels of illumination (Chen and Sampath 2018: 396), a process which takes roughly around 20–45 minutes. It is a fitting metaphor for the unusual and estranging dimensions of dark sky experiences, which begin as soon as one steps out of the brightly lit car and into the sometimes sudden and profound darkness of dark sky sites. The absence of a figure in McGhie's image refutes the comfortable notion of "finding oneself in the universe" and presents us instead with a sense of place as 'ontological predicament' (Lorimer 2019: 332), reflective of recent cultural geographic accounts of dark landscapes (Edensor and Lorimer 2015; Edensor 2013b; Morris 2011).

[18] Visitors to dark sky places are encouraged to use red torchlights (or to modify their 'white' torchlights by attaching translucent red material or by covering with red nail polish or marker pen) as red light inhibits the rod cells in our eyes (most suited to dark adaptation) the least.

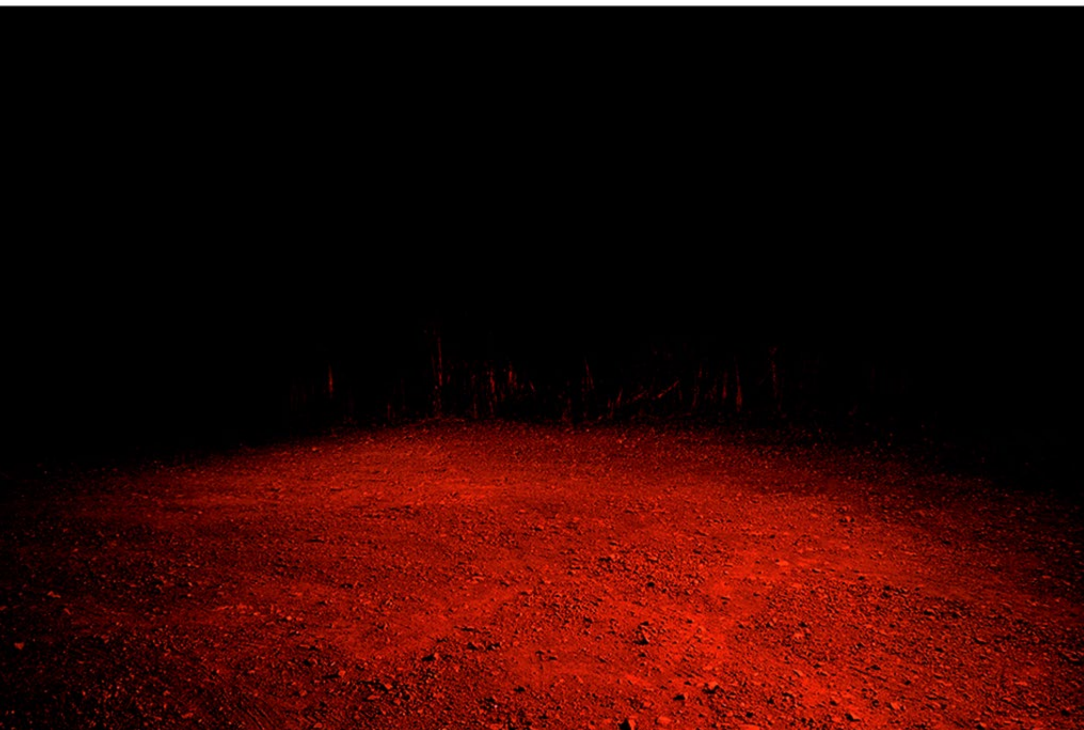


Figure 2.6. 'Dark Adaptation'. Photographic print by Helen McGhie (2019) as part of her PhD research in partnership with Kielder Observatory and Astronomical Society (KOAS). Reproduced with her permission.

The situatedness of an IDSP is also explored in Jean Atkin's poetry collection *The Dark Farms* (Atkin 2012[19]), this time not through the visitor experience but through an evocative socioecological history (Whatmore 2002; see also, S. Pritchard 2020) of the Galloway Forest Dark Sky Park. *The Dark Farms* offers a poignant articulation of the GFDSP's darkness by situating it within a history of decline and disappearance of certain ways of life. Inside the front cover, Atkin writes:

> Due to its lack of light pollution, this is one of the best places in the world to see the night sky and the stars. […] Long term rural depopulation and the decline of a rich tradition of hill farming no doubt help to account for the very dark skies.

Such a reflection troubles romantic notions of dark sky places as wilderness areas, untouched and uninhabited. Rather, *The Dark Farms* is populated by 'the ghosts of stables, and cart-sheds, and sheep rees'[20] […] the ghosts of placenames and farm names' (Atkin 2017), a palimpsest of landscape. Ghosts are like weeds, Tsing et al. write; they 'point to our forgetting, showing us

[19] With artwork by Hugh Bryden.

[20] The Gallovidian word for a sheepfold.

how living landscapes are imbued with earlier tracks and traces' (Tsing et al. 2017: G6). 'What's Human', the final poem of Atkin's collection reads:

> Outside under
> this field of stars
> in a frost that slows
> the blood
>
> we are the dark.
>
> We hold in a creel
> of air
> what's human
>
> and stretch out
> our fingertips
> to the whorl of galaxies
>
> to feel for what's not there.

In this poignant image of hands stretching up and out into the night sky 'to feel for what's not there', Atkin suggests a night sky tentatively held in common, containing 'the many pasts and yet-to-comes that surround us' (Tsing et al. 2017: G6). *The Dark Farms* invites us to think of dark skies not just as an existential realm from which we all materialise and return to, but as the thick unfolding *now* that we live in and through. While dark sky advocates are cognisant that 'the distinction between a supposedly pristine natural world and the sphere of human activities has ceased to be useful, both in society at large and in tourism' (Fayos-Solá, Marín and Jafari 2014: 664; see also, IDA 2021c), further research is needed into how international dark sky designation is differently expressed and enacted in 'localized nightscapes' (S. Pritchard 2017: 320; see also, Challéat, Lapostolle and Milian 2018). With reference to key research studies and arts-based research of IDSPs that elaborate the complexities of dark sky stewardship, the more-than-visual dimensions of visitor experience and the tangled socioecological histories of place, my discussion has also raised important questions around the *place* of IDSPs and the *placing of* the universe through dark sky discourse and practice. Situating this work in the interdisciplinary field of the environmental humanities, I have begun to tease out 'more thoughtful, reflective strategies' (S. Pritchard 2017: 324) for approaching

IDSPs as 'sites of presence, futurity, imagination, power, and knowing' (Tuck and McKenzie 2015: xiv), focusing on the need for representational practices – from the stories that IDSPs tell about the cosmos, to the conceptual and epistemological work that researchers do – that invite more nuanced, situated and involved relationships with place and planet.

## *Conclusion*

In their account of stakeholder practice in the Torrance Barrens Dark Sky Reserve in Canada, Silver and Hickey (2020) note cultural geographer Tim Edensor's praise of dark sky activists 'as pioneers in a small but growing movement to reembrace nighttime [sic] darkness (2640) by offering 'new ways to experience nocturnal space untainted by lighting' (Edensor 2017b: 218). Likewise, as this chapter has demonstrated, the increasingly interdisciplinary field of night studies and its various explorations of darkness and light may offer resource to dark sky activists, organisations and IDSPs by expanding and enriching the vocabulary through which dark sky values are imagined, articulated and practiced. In two parts, this chapter has brought recent scholarship on darkness, light and the night into critical conversation with international dark sky narratives and practices to explore their generative contact points. My discussion reflects the parallel development of international dark sky practice and the burgeoning field of night studies, teasing out key lines of enquiry and shared challenges, whilst noting points of tension where new or lesser-attended research questions and conceptual approaches might be pursued.

Cultural geographies and histories of the night have played an important role in elaborating the value of natural darkness and starlight, whilst offering critical spatiotemporal analyses of [our][21] perceptions of and relationships with artificial light. In the first half of the chapter, I discussed how the naturally dark night has been increasingly disenchanted in the west, through distinct but complex choreographies of light and darkness that position light as a common good and darkness as its foil. Drawing from spatiotemporal analyses of the night and sociocultural histories of light and darkness that depict the night as diversely experienced, practiced and contested, the scholarship engaged in this chapter explores the potentialities of darkness and light to deepen and defamiliarise practices of place, and to sensitise us to those with whom we share our everyday and every*night* worlds. Building a discussion around a 'sense' for darkness (how we sense it and how we 'make sense' of it), I have explored how

[21] Echoing Stéphanie Le Gallic and Sara B. Pritchard (2019: 3), I use 'our' tentatively, since research on light pollution and darkness continues to be under-represented beyond North America and Europe.

specific sociocultural practices and encounters can foster or diminish alternative understandings, values and inhabitations of the night, shifting the focus of my discussion from charting how light and dark is designed, controlled and appropriated in service of specific ideologies to a creatively-oriented exploration of what is gained by going dark(er). Rather than centre analysis on the detrimental impact of artificial lighting alone, the work I have reviewed asks: How do multiple darkness(es) and light(s) shape our everyday − and every*night* − lives and what *conditions of possibility* do dark(er) places facilitate for re-orienting our lives more creatively between day and night? (Gallan 2014: 56). Such theoretical work, I note, is largely situated in urban contexts, and so I expanded my conceptual engagements to include the wider ecologies of darkness and light by critically situating a sociocultural reappraisal of night within non-representational theories of landscape that de-centre the human within narratives of place and critically explore environmental relation. Drawing on scholarly and artistic engagements with darkness and light that centre embodied and site-responsive approaches to landscape research, I have considered how values and meanings of darkness and light are experienced, produced and re-worked through relational and situated practices that unsettle normative understandings of illuminated and dark spaces. Such approaches ask: How do natural darkness and starlight move us into other spatiotemporal imaginaries? What modes of environmental relation do they foster or even necessitate?

I have developed these enquiries through the second half of the chapter by engaging more directly with international dark sky discourse in order to bring the *practice* of dark sky values into critical conversation with the scholarship in which my research project is situated. My discussion has critically engaged with two key concepts of international dark sky discourse – *windows to the universe* and *terrestrial skies*, exploring how cultural narratives of dark skies are crafted, communicated and enacted through astrotourism, heritage and conservation practices on the ground. Throughout this discussion, I maintain a generative tension between claims that dark sky places transform visitors' environmental relationships and behaviours, and calls to address a tendency within dark sky discourse to reproduce social and environmental injustices (S. Pritchard 2017; Shaw 2017; Hamacher, Napoli and Mott 2020; Prescod-Weinstein 2021; Shewry 2023). This chapter has asked: Which environmental stories are reinforced by dark sky designation and accounts of dark sky practice and values? What kind of place relationships do IDSPs facilitate; what forms of environmental attention and inhabitation? To begin to answer these questions, I have situated my discussion in the trans- and interdisciplinary field of the environmental humanities, for which a critical and creative interrogation of environmental values and practices is a central concern. Challenging a tendency in dark sky advocacy and research to approach designation as a coherent

environmental policy instrument to be implemented and refined in different geographic locations, I have drawn on studies of dark sky places that engage with the situatedness of dark sky practice to elaborate a more critical imagination of an IDSP as an evolving assemblage of values, meanings and material practices, differentially situated and unevenly produced. Such an imagination demands more 'thoughtful, reflective strategies' for dark sky scholarship (S. Pritchard 2017: 324) attentive to the inscriptive-enactive possibilities of storying place. This, I have emphasised, is a concern that encompasses my research project and its account of the Galloway Forest Dark Sky Park. I have asked: What 'geographical formations' (Cameron 2012) and situated subjectivities (Ferretti 2020: 1666) are produced or diminished by our research accounts of dark sky places? How does our representational work – the details and agents we privilege or marginalise, the specific theories and epistemologies we mobilise in our knowledge-making practices – produce knowledge about dark sky values? I carry these questions with me into the next chapter, which introduces the methodology for my research. In attending to place as variously inhabited and practiced, the scholarly, artistic and literary works shared in this discussion offer speculative narrative inhabitations of dark landscapes. They have inspired and resourced the conceptual framing of my research and most notably, the aesthetic strategies and sensibilities I have mobilised in the crafting of methodology, the situated negotiations of fieldwork and 'writing up' of the research.

# Chapter 3
## *Field/work: a distributed methodology*

[T]he very way we define, or address, a practice
is part of the surroundings which produces its ethos.

———————

Stengers (2005: 187)

We hold that every place is telling the story of its own becoming, which is another way of saying that it is continually creating its own history and we join that conversation of place.

———————

Harrison and Harrison (2001: 14)

## *Introduction*

The Galloway Forest Dark Sky Park is a slippery thing. Drawn as a single boundary line on a map, it is precise enough in its geography; but as research subject it continually eluded my attempts to understand, interpret and represent. This is not to say that it remained out of reach, but rather 'showed up' in the research in ways I did not always anticipate (see also, Thomson 2013: 219). Navigating the Dark Sky Park as both field-site and research partner has been a process of durational attunement and precarious relation, marked as much by the stuttering rhythms of impasse and disappointment, as it has by periods of fluid and immersive engagement. How I presented this through the written thesis was critical. Would I aim for narrative cohesion and 'experiential unity' (Strathern 2005[1991]: xxiii) or would I invite the reader – presumably a researcher and practitioner like myself – to engage with the Park as I encountered it: lively, dynamic, challenging and generative?

In this chapter, I discuss key theoretical framings and the practicalities of fieldwork, woven through with critical reflection on two key areas of enquiry: the value and challenges of a creative interdisciplinary practice; and the importance of centring site in the account and analysis of this research. It continues through the chapters that follow as a *distributed methodology*, a formal intervention that appears as extended vignettes distributed throughout the thesis, each headed by a short title and visual icon. Linear in sequence but indented on the page so as to break the flow of the research narrative, these passages offer intervallic reflections on process *in-action* (Schön 1992 [1984]; see also, Candy 2019) and evoke the lively and mutable experience of doing research in and *with* the Dark Sky Park.

Fieldwork was composed of semi-structured and unstructured interviews, documentary analysis, observant participation, accompanied site visits, workshops, (auto)ethnography, and creative practice. These were adopted not as discrete methods, but as *modes of enquiry*, happening in parallel and often converging. I include a diagram that gives an overview of these activities across a two-year period (Fig. 3.1), through a visualisation that is chronological, but which also shows how specific methods and approaches connected to or diverged from one another. Additional annotations indicate where specific moments or 'sites' of fieldwork oriented the research to certain thematic enquiries, conceptual framings and research motifs.

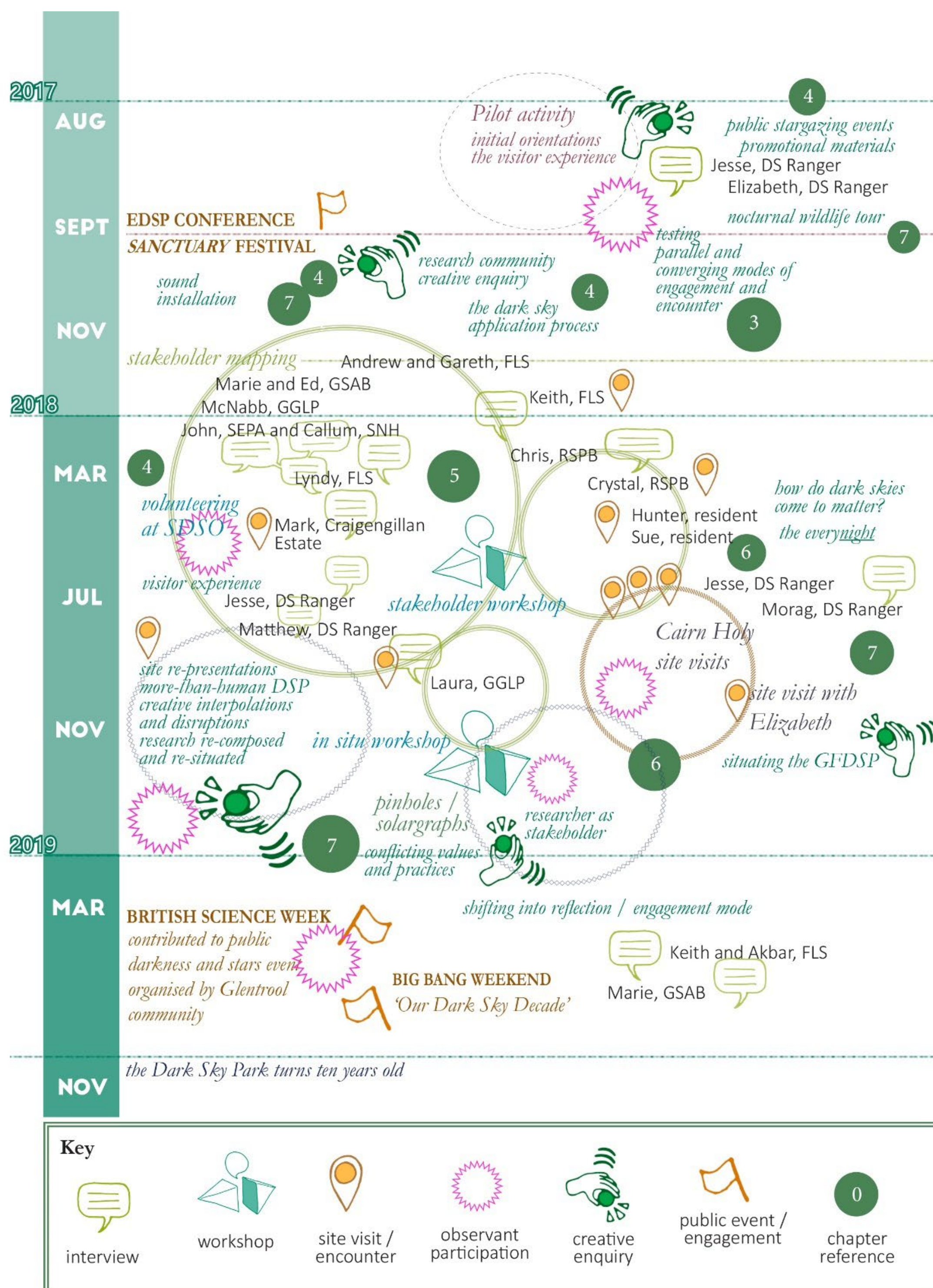



**Figure 3.1. Diagram of fieldwork across a two-year period.** The diagram shows key activities, events, modes of engagement, and enquiries arising from site encounters.

The title of this chapter 'field/work' is split through the middle to emphasise field practice as a negotiated and creative process between field and researcher, 'honoring the embodiedness and spatiality of one's labors' (Richardson and Pierre 2018: 1419; see also, Volvey 2016; Billo and Haskell, Linds and Ippolito 2002) and attentive to the presence of the more-than-human in the research process (Larsen and Johnson 2016; Bastian et al. 2017). Though this differs from a 'conventional' approach to writing up the research, it is no more of a construction. How we tell the story of our research is a choice, and of increasing importance to researchers committed to critically exploring the ways in which research is produced, communicated and engaged as part of a wider community of practice (Richardson 1994; Loveless 2015; Saville 2020).

A distributed methodology commits to an understanding of knowledge as partial, situated and co-produced (Haraway 1988; Latour 1991; Rose 1997), and a research practice that is 'responsive to people and place' as entangled, co-constitutive agents (Tuck and McKenzie 2015: 633; Thomas 2015; Sundberg 2014; Tsing 2005). It also reflects an understanding of meaning-making as iterative and durational, continuing on through the process of 'writing up' the research, as researcher and data become further 'enmeshed' (Mitchell and Clark 2021: 2). I think of a distributed methodology as 'writing with site'. It is a 'manoeuvre[s] of the imagination' within the research narrative that affirms – rather than obscures – the complex spatiotemporalities of fieldwork (Massey 2003: 76). In 'writing with site' I ask: what does it mean to keep ourselves and our enquiry *in-place*? (see also, Saville 2020: 101). This is of central importance to a project that has sought to explore a specific site – the Galloway Forest Dark Sky Park – as productive of broader dark sky knowledge and practice.

The following chapter begins with **Bearings: staging the enquiry through multi-modal practice**, which explains how fieldwork was devised in stages to create a structure that allowed for the iterative mixing of methods and developed a care-full receptivity to site. During an initial 'pilot' period of fieldwork, an evolving research practice was shaped by bringing different modes of enquiry and stakeholder engagement into close proximity. Here, I reflect on both their resonances and contrasts, before zooming in on one particular disciplinary intersection: bringing a lifeworld approach – informed by non-representational theory and arts-based practice – to my analysis of the GFDSP's stakeholders and stewardship.

My discussion of the generative overlaps between differing modes of enquiry is further developed through **Dark-adapting: an uncertain practice**, where I consider the precarious and unsettling contact zones between site, researcher and practice. I reflect on the tension I

experienced as I oscillated between an understanding of myself as 'attendant chronicler', committed to sympathetic representations of research site, and as 'critical friend', keen to agitate established thoughts and practices with a view to shaping future developments on the ground. Though this project is not explicitly practice-based, I have drawn resource from practice-led approaches, whereby knowledge production is understood as emergent, situated, and materially distributed (Bolt 2007; Barrett and Bolt 2007; Vannini 2015b; Thrift and Dewsbury 2000; Haraway 1988). A practice-led approach to fieldwork demands a self-reflexivity, with the understanding that our own methodological endeavours, theoretical commitments and personal experiences become intimately woven with and subject to revision by the places and practices we study (Saville 2020; Volvey 2016; Billo and Heimstra 2013). The rich possibilities of this are explored in the second half of this discussion, where I reflect on how the more-than-human Dark Sky Park increasingly interpolated my research process through both the intentional practice of aesthetic attention and through contingent encounters with other humans and non-humans.

The chapter is drawn to a close with **Mapping the values: notes on the form of the thesis**. Here, I describe the formal 'container' of the thesis, affirming writing as an integral part of research-creation (Mitchell and Clark 2021). I discuss my use of extended methodological vignettes, or 'cutaways', informed by an understanding of ethnographic fragments as contact zones in anthropological writing (Tsing 2005; Strathern 2005[1991]) and the use of gaps and discontinuities to encourage non-linear, collective and future-oriented interpretations of the Dark Sky Park (Bodenhamer, Corrigan and Harris 2015; MacKian 2011; MacDougall 2006; Clark 1964).

## *I / Bearings: staging the enquiry through multi-modal practice*

> When I am working I feel I am getting somewhere if I can sidestep the intellect and simply play with the materiality around me. This is where something breaks through and creates chaos; there's often a sensitivity to the conditions, a realm of contingency in the face of the unpredictable … for me this is improvisation… (Lavery and Whitehead 2012: 115)

Wishing to map the values of the Dark Sky Park as they are experienced and developed through practice, I decided to conduct fieldwork in stages, beginning with an exploratory visit

during August 2017 and participation in two events in September 2017, the experiences of which would inform the next stage of fieldwork. During these initial visits, I engaged in (auto)ethnography, observant participation, site-sensitive creative practice (photography, sound recordings, writing), document analysis, and informal conversation with those I crossed paths with.

The first visit took place across a period of four nights in and around the Dark Sky Park, primarily to conduct (auto)ethnographic research and observant participation. The second revolved around two events, which took place back-to-back during the last week of September: the inaugural European Dark Sky Places Conference (EDSP) hosted by the GFDSP and GSAB in Gatehouse-of-Fleet, and the 2017 edition of *Sanctuary*, a free outdoor arts festival located in Talnotry and running across a 24-hour period. Following a short reflective period in which I gathered my various notes and collected materials, I returned to the Park in the winter to engage with key stakeholders through semi-structured interviews and site visits.

The iterative and interwoven shape of this fieldwork forms a 'creative enquiry', a term that social scientist David Edwards and environmental artists Tim Collins and Reiko Goto use to describe an evolving research practice that is multi-modal and responsive, allowing for new and unexpected questions to be posed at any stage of the research (Edwards, Collins and Goto 2017: 324; see also, Elwood 2009; Collins, Goto and Edwards 2014; Pink 2015[2009]: 8). Such an approach is informed by my training in fine art practice and filmmaking and my ongoing practice as a socially engaged artist, oriented to process and co-production (Kester 2004; Barrett and Bolt 2007; Leavy 2020). A multi-modal approach was also driven by my aim to access and represent a richer imaginary of dark sky values and to better support the claims of the international dark sky movement (Blair 2016: 42; McGhie and Marr 2024). In the first part of the following discussion – **Modes of engagement: Exploring methodological possibilities** – I reflect on the layering of different disciplinary approaches and modes of engagement in this early stage of fieldwork, which through their various meeting points and divergences, helped me to build up a rich sense of the Dark Sky Park whilst exploring the methodological possibilities of the project. I develop these points further in **Who's in and how? A lifeworld approach to stakeholder analysis** – where I discuss the value of bringing the geographical concept of *lifeworld* into my analysis of the GFDSP's stakeholders.

❋

**Modes of engagement: exploring methodological possibilities *in situ* and in community**

During the first visit in 2017, I assumed the role of a visitor, exploring the Park on foot and by car with the guidance of interpretative materials, available to tourists online, on outdoor noticeboards, in café windows and visitor centre information displays. Heading to the recommended viewing points noted in the Park's visitor leaflet, I wished to see if and how these places were being visited and occupied after dark. Informed by my review of non-representational geographies and taking cues from the FES' visitor materials that encouraged visitors to '*discover the Park for themselves*', I employed a sensory (auto)ethnography that drew on my senses – what I saw, heard, felt, etc., and attended to how my experience of place was being shaped by the immediate environmental conditions and the presence of or contact with others (Paterson 2009; Pink 2015; Wilson 2016). Following Drysdale and Wong (2019; see also, Sumartojo and Pink 2017: 5; Volvey 2016), I engaged senses and sensations as both objects for analysis – how I experienced vision or the feeling of changing textures underfoot – and tools for gathering data – what did a sensation of thrill or surprise tell me about the social dimensions of the Dark Sky Park?

I carried this commitment to an experiential analysis into my participation in guided experiences and public events, where the practice of participant observation might be more accurately figured as 'observant participation' to borrow from geographer Nigel Thrift (Dewsbury 2011). The first of these experiences was a private nocturnal wildlife tour on the Threave Estate in Castle Douglas guided by Keith Kirk; the second was a larger public stargazing event at Kirroughtree Visitor Centre led by Biosphere Dark Sky Rangers Jesse Beaman and Helen Cockburn during the peak night of the Perseids Meteor shower. While my research interest in the GFDSP was made known to Keith and Rangers Jesse and Helen ahead of meeting them, it was not explicitly performed during the activities. I did not prepare questions, but rather aimed to be receptive to the 'occasion of experience' (Manning 2015: 61). Observant participation in this sense is closely aligned with arts-based and practice-led approaches to research, wherein the researcher remains open to the 'ongoingness of the world […] free to follow strands of interest that are generated by the place itself; that which is encountered, what is revealed' (Thomson 2013: 219; see also, Kester 2004: 24; Leavy 2020: 20). During my second visit that following September, the focus of my fieldwork explorations turned to the interdisciplinary practice of dark sky activism and how my engagement with dark skies was variously facilitated, developed or constrained by different research 'sites'. As a delegate and panel member at the European Dark Sky Places Conference *More than just light,*

my research interest in the Dark Sky Park and specific disciplinary approach was foregrounded as I engaged in dialogue with specialists and stakeholders attending the conference. Our panel of artists, writers and researchers – 'Cultural Experiences of Darkness: The Return of the Dark and the Importance of the Night Sky'[22] – responded to the theme of *More than just light* by holding a space in which the creative and cultural dimensions of natural darkness and starlight could be refracted through our respective personal experiences and creative practices. I also participated in the final session of the conference – 'Calls for Action'. This session assumed a workshop format, organising delegates into several multi-disciplinary groups around a series of questions[23] to elaborate possible future actions and forge cross-disciplinary alliances and collaborations.

At the close of the conference, I headed directly to Talnotry, a site in the Core Zone of the Dark Sky Park where I was to take part in *Sanctuary* festival as a contributing artist. This demanded a distinctly different kind of orientation to the Dark Sky Park involving physical negotiation and environmental attunement as I and my collaborator David Ashley, installed our site-specific artwork 'Hide (night moves)'.[24] Over the course of an afternoon and evening, we wove one-hundred-metre microphone cables from a wooden structure into and through a section of forest. Once the installation was ready, visitors were invited to sit in a temporary 'hide'[25] and listen to the sounds of the night-time forest through a mixing desk, which they were able to control themselves and produce a recording to take away if they wished. We remained close-by, demonstrating how to use the equipment and engaging in conversation with visitors about what they were listening to. Though somewhat distant from the main space of the festival, we found ourselves intermittently connected through the bobbing chains of red torchlight as visitors made their way from Murray's Monument where 'The Dark Outside FM' radio station was positioned, down along a track that joined up with our position. As visitors waited for their turn to interact with 'Hide' or, to simply pass on through to the main hub of the festival, we enjoyed listening to others' experiences of *Sanctuary* and the snatches of 'The Dark Outside' as it crackled from the various handheld FM radios carried by visitors. Through this, I experienced our artwork as part of a larger distributed sensory experience, tenuously

[22] The panel included Dr. David Borthwick, Prof. Hayden Lorimer, artist Laura M R Harrison, and artist and co-founder of *Sanctuary*, Robbie Coleman.

[23] These questions were: How to effectively encourage the development of dark-sky friendly lighting?; How do we make new lighting design accessible to all?; Are there opportunities for collaboration?; What is the future of the conference series?

[24] More information about the artwork and the festival can be found here: https://sanctuarylab.org/artists-2017/hide-night-moves/

[25] A hide is a structure that enables humans to 'hide' out of sight while observing animals at close range.

held together by those experiencing each of the artworks on display; a sense of the festival and the Dark Sky Park as creative environmental milieu.

While the two initial visits described above acted as a period of information-gathering in which I could accumulate a richer sense of the Dark Sky Park, they also prompted important reflections on the possibilities and limitations of the research through intersections of disciplinary methods and modes of engagement (Elwood 2009; Manning 2015), as well as the specific contexts and communities of practice in which my research enquiry was unfolding. At the conference, engagement in the panel on the cultural and social values of darkness offered a critical container for personal reflections and explorative, sometimes speculative takes on the place of darkness and starlight in our lives in conversation with other researchers, practitioners and stakeholders, whose individual perspectives I too was accessing through the programme of talks. This was further galvanised through the closing workshop, which assumed a more overtly problem-solving space where solutions and suggestions were solicited, and our conversations felt more pointed and urgent. By participating in a form of enquiry that encouraged group deliberation, ideas-generation and strategising, I experienced my research as situated within an interdisciplinary community of dark sky researchers and practitioners, each of us located in our respective disciplinary or sectoral domains but joined through shared questions and concerns driving our work. In contrast, at *Sanctuary*, the slow and receptive qualities of our artwork, the ways in which visitors engaged with it as well as the lively presence of the more-than-human agents of the Dark Sky Park, instilled a sense of the research, its questions, findings and communities of practice as emergent, contingent and site-specific.

**Who's in and how? A lifeworld approach to stakeholder analysis**

It was to the GFDSP's communities of practice that I turned my attention during the next stage of fieldwork between November 2017 and February 2018. I conducted a series of semi-structured interviews with 8 key stakeholders who were identified to me by Keith (FES) as 'people and organisations that might influence or be influenced by the designation'.[26] In this period of self-described 'organisational mapping', I sought to gain insight into the 'decision-making environment' (Grimble and Wellard 1997: 6; see also, Craggs, Geoghegan and Neate 2016) of the GFDSP and to understand how the designation intersected with existing projects and processes relating to recreation, conservation and land management. This approach was informed by stakeholder analysis (SA), a research tool that gained popularity during the 1990s

[26] Email correspondence with Keith Muir, November 2017.

in business and natural resource management contexts (Grimble and Wellard 1997; Grimble 1998; Reed et al. 2009) and which supports an understanding of the different individuals, organisations and communities that 'hold' an interest (stake) in a particular asset, organisation or decision-making process and how they relate to one another and the 'thing' at stake (Hare and Pahl-Wostl 2002: 51). Given that dark sky preservation involves 'substantial multi-stakeholder efforts' (Meier 2015: 177; see also, Silver and Hickey 2020), SA seemed an appropriate method to construct an initial overview of the GFDSP and generate themes with which to refine my research. Since the Dark Sky Park did not have a formal structure or organising committee as such, my intention was to talk to stakeholders about how and to what extent the designation entered their day-to-day management decisions, and to ascertain the value and impact of the designation from their particular organisational perspectives.

As interviews progressed however, it became clear that identifying 'who's in and why' (Reed et al. 2009) would not adequately capture the Dark Sky Park's stakeholdership, nor its myriad values. In Chapter 5, I discuss how interviewees struggled to explicitly declare a stake or connect their professional work to the Dark Sky Park, and yet most spoke with relative ease and enthusiasm about personal experiences of natural darkness and starry skies, often in ways that subtly referred back to their respective professional interests and responsibilities. Attending only to professional articulations of dark sky stakeholdership would not only miss perhaps 'one of the most essential components of interest in dark sky protection' (Heim 2020: 74), but also the way in which the Dark Sky Park comes to matter *beyond* the designation – the temporal dimension of stakeholder practice (Silver and Hickey 2020) that is often overlooked or underwritten in stakeholder analysis studies (Reed et al. 2009: 1935).

In response to the challenges of conducting stakeholder analysis and the increasing convergence of my parallel methods (sensory [auto]ethnography and creative practice), I decided to refract my method of mapping the GFDSP's stakeholders through the concept of *lifeworld*. Developed from Edmund Husserl's philosophical theory of lived experience, the lifeworld concept is closely associated with phenomenological work in human geography, stemming from Anne Buttimer's (1976: 277) framing of the lifeworld as the 'culturally defined spatiotemporal setting or horizon of everyday life'. A 'lifeworld approach' is, then, an epistemological orientation to knowledge as grounded in everyday experience (see also, Thrift 2004; Bondi 2005; Pink 2015[2009]; Sumartojo and Pink 2017). My engagement with the lifeworld concept was informed by non-representational theory, with its emphasis on the relational dimensions of lived experience, embodied practice and a critical understanding that

meaning, value and representation often exceed the human (Pink et al. 2014: 363; Dewsbury et al. 2002; Simonsen 2007; Kohn 2013; Wilson 2016).

In the context of the project, I came to understand that the various meanings, values and representations of the Dark Sky Park exceeded who and what I might identify as its stakeholders. In Chapter 5, I describe how a shift from 'revelations' to 'reverberations' in my analysis of interviews (Vannini and Taggart 2013: 65; see also, Bissell 2014), allowed me to tune into stakeholder relationships and practice *in-becoming*, something that might otherwise be omitted from normative and instrumental forms of stakeholder analysis (Reed et al. 2009: 1935). In practice, this involved drawing on other methods and approaches such as observant participation, arts-based enquiry and embodied practice, which, with their focus on process and the experiential, enable a rich mapping of 'the unfolding nature of social life' (Leavy 2020 [2008]: 22). This was further supported by '*think[ing] atmospherically'* about research site and participants (Sumartojo and Pink 2017: 4, authors' emphasis), whereby lifeworld, understood as 'the constitution of shared or collective affects' (Pink et al. 2014: 363; see also, Sumartojo and Pink 2017: 5), becomes an important theoretical frame for exploring how values emerge, are held, developed and practiced with others. In Chapter 6, I discuss the communal, everyday and idiosyncratic engagements that residents have with Galloway's dark skies, and through which its diverse values are coming to be known and shared. From a village community's convivial exploration of moths and glow worms to a decades-long daily routine of tending a neolithic site, this chapter affirms the value of a lifeworld approach in a context where stakeholder practice is not clearly legible, but in which a wider understanding of values and development of stakes is desired (EKOS 2013; Meier 2015, 2019; Heim 2020; Silver and Hickey 2020).

The emergent and processual dimensions of lifeworlds are not themselves separate from the research and representations that engage them. As Phillip Vannini notes, by attending to how 'data' emerges researchers increase their capacity to 'enact[ing] multiple and diverse potentials of what knowledge can become afterwards' (Vannini 2015a: 12). This is of particular significance to *Windows to the universe* as a project that involves interdisciplinary partnership work, the findings of which *matter* to participants (Bates 2018: 198). My research practice has embraced what sociologist Theodore Schatzki calls 'site ontology' (2003), wherein site is understood, not as a stable backdrop on which lives play out, but as a 'dynamic' *context* (Marston, Jones III and Woodward 2005: 425). A non-representational and site-ontological approach to fieldwork is concerned less with the deployment of discrete methods than with developing a research practice that is attentive to both the 'systemic orderings and open

creative events' (ibid.: 424) that compose all (eco)systems and communities of practice, including those of the researcher (Candea 2007; Manning 2015). The 'distributed methodology' is a formal strategy in this thesis through which I strive to pull site encounters firmly into the critical unfolding of the research narrative by continually returning the discussion to the 'aggregating, negotiating and *working* materialities' of site that 'sometimes enfold the labours of purposeful subjects' (Woodward et al. 2010: 273, authors' emphasis; see also, Wilson 2016). It is the experience and impact of the GFDSP's working materialities on my research practice that the following section explores.

## *II / Dark-adapting: an uncertain practice*

> [W]hy do we acknowledge only our textual sources but not the ground we walk, the ever-changing skies, mountains, rivers, rocks and trees, the houses we inhabit and the tools we use...? (Ingold 2011: xii).

How we orient ourselves to our field sites and to our 'data' matters (Vannini 2015a: 12). Feminist and postcolonial epistemologies have long contested a view of the field as temporally and spatially bounded, from which data is objectively extracted, and the researcher as a self-contained individual who enters the scene. In contrast, their work conceptualises fieldwork as spatially and temporally complex, co-constituted and political (Haraway 1988; Katz 1994; Kobayashi 1994; Rose 1997; Mullings 1999; Hyndman 2001; Collins and Bilge 2016). Critical explorations of the production of knowledge in science and technology studies (STS) and environmental humanities have further established that knowledge is always and already situated, partial and distributed (Sundberg 2016; Nagar 2014; Barad 2003; Haraway 1988; Latour 1991). Researchers must then consider their positionality within the larger framework of research ethics, attentive to the specific frameworks, modes of doing and relating that we bring "into" the field (McDowell 1992; Rose 1993). However, Gillian Rose notes that the idea of a transparent reflexivity is a bit of a paradox (Rose 1997: 313-316). While self-reflection is emphasised by feminist epistemologies looking to name and study the power relations at play in the production of knowledge this has often been adopted on the assumption that the "self" remains unchanged. Rather, Rose argues, the researching-self is under continual construction through fieldwork in a relationship of practice that is negotiated and co-constitutive rather than reflective (Rose 1997: 316). Fieldwork reminds us that our researching selves are continually arising from a 'withness' or 'betweeness', which 'cannot be reduced to positionality

(social identity)' alone (Volvey 2016: 103), nor detached from the sensibilities, skills, desires and experiences that travel with us or which we encounter through our research activities (Butler-Rees and Robinson 2020; Moser 2008; Mandel 2003).

In the discussion that follows, I orient towards a 'humble geography', framed by Samantha M. Saville as a practice that 'ground[s] us and our theories in place' (Saville 2020: 101) by emphasising 'interdependency, honest self-assessment' and a commitment to 'epistemologies that de-centre humans and take other species, places, and material things seriously' (ibid.: 100; see also, Sundberg 2014). In the first part of this discussion – **Between attendant chronicler and critical friend: researcher as stakeholder** – I share how, during a stakeholder workshop, my anxiety to 'accurately' represent and problem-solve, impacted my capacity to work with the Dark Sky Park's nebulousness as a resource for engaging in purposeful dialogue with stakeholders. However, through a sustained attention to the lived experiences and informal practices of stakeholders and inhabitants, I came to experience myself and my research practice as a valuable part of the GFDSP's stakeholdership. In the second part of this discussion – **Site sensitivities: Dark Sky Park as creative milieu** – I explore how aesthetic attention and site-sensitive creative practice increasingly attuned and oriented me to the particularities and presences – human and non-human – of the Dark Sky Park. Unexpected cues also came from the Park, which, through both contingent encounters and intentional practices of aesthetic attention, creatively interpolated the research with its own re-presentations, coming to 'matter in its particular way' (Stengers 2005: 192; see also, Buchanan, Bastian and Chrulew 2018; Wilson 2016; Larsen and Johnson 2016).

### Between attentive chronicler and critical friend: researcher as stakeholder

The identification of researcher as outsider is generally debunked within qualitative research literature (Dwyer and Buckle 2009; Mullings 1999). Researchers are instead encouraged to consider positionality, which does not assume an 'inside' and an 'outside', but rather engages critically and responsibly with the situated, partial and contingent dimensions of knowledge-production. Despite this, the figure of the outsider may arise nonetheless, whether explicitly identified or experienced by participants, or implicitly through field practice as the *felt* pressure to 'do your methods properly' (Law 2006[2004]: 9; see also, Billo and Hiemstra 2013). This pressure may intensify in research projects where collaborative and partnership work are central components, or where trans- and interdisciplinary research methods are to be engaged and developed, with particular impact on postgraduate students, often navigating this for the first time and with fewer resources (Fry 2003, cited in Peterson 2019; 73; see also, Lorimer

2015: 184). That participants had a 'stake' in my research findings as a Collaborative Doctoral Award (CDA) project (Bates 2018: 198), was both a consolidating and destabilising dimension of the project. Throughout the research, I found myself engaged in a dance between assuming the role of a "critical friend" who would agitate established habits of thought and practice (Sava and Nuutinen 2003: 517; Hawkins 2013: 156; Edwards, Collins and Goto 2016) and an "attentive chronicler", committed to making "authentic" and sensitive representations of the Dark Sky Park, its people, places and practices, aided by embedded ethnographic research. I experienced these "identities" or "modes" as two sides of the same coin: both suggest the intimacy of site entanglement ("attentive", "friend") but also presume the possibility of distance and detachment ("chronicler", "critical").

In Chapter 5, I describe how, faced with the apparent nebulousness of the Dark Sky Park as a novel designation in the region, I found myself grasping for representational clarity in my engagements with stakeholders even as I attempted to follow an ethos informed by the contingent and mutable qualities of darkness, starlight and landscape. During a workshop in which stakeholders were invited to engage with two mapping exercises, I presented myself as an outsider who could help insiders to problem-solve (a term that already frames a query as a problem and prescribes my role as one who would 'fix' it). Such a positioning, while appearing to privilege the needs of participants, may actually do the opposite, centring the researcher as meaning-maker and reducing their capacity to be in authentic exchange with participants (Candea 2007: 171). I consequently experienced a feeling of "groundlessness" within the research (Varela, Thompson and Rosch 1991, cited in Haskell, Linds and Ippolito 2002), an uncomfortable awareness that the production of knowledge can only ever be 'anchored with/in an unfolding of events which is perpetually adrift in relational motion' (Haskell, Linds and Ippolito 2002 [7]). Such awareness – and in the immediate presence of others to whom I felt accountable – made me grip more tightly to that which seemed clear-cut and stable: an understanding of myself as someone who could *bring in* an outside perspective to aid stakeholders.

Returning to my conceptual anchor points was key to exploring how my uneasy inhabitation of the research could be generative as well as challenging. I found most resource in arts-based research which identifies value in processual and iterative approaches to knowledge-making (Leavy 2020 [2009]; Duxbury, Garrett-Petts and Longley 2018; Sava and Nuutinen 2003; Hawkins and Wilson 2017), and in critical feminist conceptualisations of "fieldwork" and "site" in geography and anthropology that emphasise positionality, embodiment and situatedness as analytic tools for understanding knowledge production as messy, precarious

and complexly embodied and emplaced (Katz 1994; Volvey 2016; Billo and Hiemstra 2013; Richardson and St. Pierre 2018; Saville 2020, Butler-Rees and Robinson 2020), and of "the field" as 'an inherently unstable *space of betweenness*' (Katz 1994: 67; see also, Hyndman 2001; Mullings 1999; Butz and Besio 2004; Sundberg 2014). If the field is a space of betweenness and co-imbrication, then, as this work also argues, the researcher and their research – concepts, methods, worldviews, habits, modes of engagement – are equally mutable. Of her research into the experience of night shift workers at an outsourced call centre in Mumbai, India, Aparna Parikh (2019) discusses her 'fluctuating' embodiment of "insiderness"/"outsiderness" as she negotiates shifting boundaries with participants and research site through different modes of engagement (interviews, participant observation, autoethnography) and varying degrees of intimacy and distancing. To write of "insider/outsider-*ness*" offers a generative re-framing of the "insider"/"outsider" binary, by showing that it is not the researcher alone who realises the research, but also their changing social relations with site (Parikh 2019: 438; see also, Mullings 1999; Butz and Besio 2004). The researcher, then, is not a stable figure, able to enter and exit the field untouched, but rather involved in a relationship of practice that is continually negotiated and co-constitutive.

Similar concerns guide arts-based research practices, which 'draw on diverse representational forms from the arts such as creative writing, collage, sculpture, music, dance, film, among other mediums' (Leavy 2020: 4) and position such art forms not only as research outputs but as sites through which research is conducted and materialised (Barrett and Bolt 2007; Manning 2015; Hawkins and Wilson 2017). A focus on critical self-reflection, dialogue and process allows 'research questions to be posed in new ways, entirely new questions to be asked (Leavy 2020: 21). The value of an arts-based approach in a multi-stakeholder context is discussed in Edwards, Collins and Goto's (2016) article 'An arts-led dialogue to elicit shared, plural and cultural values of Ecosystems'. Drawing on art critic Grant Kester's theory of 'dialogical aesthetics' (Kester 2004), the authors – a forestry social scientist (Edwards) and environmental artists (Collins and Goto) – describe how an open-ended, dialogic process of co-investigation with stakeholders of the Black Wood of Rannoch '[becomes] 'the artist's "medium" and arguably [represents] the "artwork" itself (although it is unlikely to be referred to as such)' (Edwards, Collins and Goto 2016: 319; see also, Heim 2003: 187). In such a process, as described by Kester, the art object is dematerialised and the artist is decentred as meaning-maker. This necessitates 'an ethical communicative stance' from the artist who must learn to 'organize scenarios that maximise the collective creative potential of a given constituency or site' (Kester 2004: 24; see also, Hawkins 2013: 154). In the context of multi-stakeholder environmental decision making, Edwards, Collins and Goto argue that the mobilisation of a

dialogical aesthetics supports stakeholders to take 'topics or problems […] beyond their established boundaries and institutional settings into an ambiguous and uncertain space' (Edwards, Collins and Goto 2016: 323), allowing for overlooked and unexpected narratives to unfold, multiple outcomes to be materialised and stakeholder relationships to be strengthened through exchanges that test the boundaries of roles and responsibilities. Artist-led settings that emphasise process and dialogue:

> can shift research and community planning from a "reflective" stance to a more "future forming" orientation and practice, in which life is characterized in terms of "continuous becoming" and social change is implicated in "value based explorations" into what the world could be (Duxbury, Garrett-Petts and Longley 2018: 6, citing Gergen 2014).

A research practice informed by a dialogical or processual aesthetic, positions the artist-researcher not so much as a creator who makes use of available tools and materials to fashion distinct outputs or findings, but as a porous interlocutor, durationally enfolded in knots of meaning-making with participants and site (Bolt 2007; Hawkins and Wilson 2017). Of her research with FCS-managed forests, their stewards and stakeholders in northern Scotland, artist and researcher Amanda Thomson writes: '[W]orking *in* place to learn *about* the places of investigation actively incorporates perspectives that conceive of places as vital and ongoing' (Thomson 2013: 219). Indeed, 'incorporate' is an apt word for a process that is intensively phenomenological, the various (re-)orientations of site not only expanding our knowledge about a site, but also transforming the way we occupy field sites and enact our habits, values and practices as researchers.[27]

During a period in which my research felt unanchored and sticky, such critical reflections of field practice and participant engagement returned me to the relational and situated conditions of my research practice, a reminder that our research is always, already positioned within a 'social context' (Reed-Danahay 1997; Butz 2009). As James Clifford and George Marcus asserted amidst 'the cultural turn' in anthropology, researchers are 'always caught up in the invention, not the representation, of cultures' (Clifford and Marcus 1986: 2, see also, Emerson, Fretz and Shaw 2011: 403–431; Candea 2007; Law and Urry 2004). To conceive of one's own practice as emplaced and enmeshed in a stakeholder context builds an understanding of places

[27] My thinking here is informed by Sara Ahmed's (2006) critical exploration of sexual orientation as a phenomenological concern. Ahmed writes of orientation as a phenomenological encounter that 'take[s] [us] in a certain direction' as new 'objects' – resources, materials, agents – change the way we inhabit our world (Ahmed 2006: 545).

'as activated, revealed and made through living and working in them' (Thomson 2013: 219). In Chapter 5,[28] with reference to stakeholder interviews and non-representational approaches to research, I discuss how an increasing attention to not just the 'revelations' but also the 'reverberations' of research encounters – the implicit and tacit (Vannini and Taggart 2013: 65) – untethers meaning from that which is made explicit, spoken aloud or committed to transcript (MacKian 2011: 363), and instead follows meaning as it takes shape between agents and through situated experiences and practices (Lorimer 2005: 84; Ellingson 2012; Holton and Riley 2014; Lund 2012). In Chapter 6, I describe how through an increasing attention to the lifeworlds and *doings* of stakeholders and practitioners of the Dark Sky Park, I became sensitive to myself as a person conducting research among a distributed cohort of stakeholders and practitioners. Thinking this through the dialogical aesthetics of Kester and humble, messy, embodied geographies of feminist and postcolonial (auto)ethnographic research, I developed an understanding of my conceptual and methodological approaches as forms of socialising and exchange that shape the continuous becoming of site and research. Later in that chapter, I reflect on a second workshop held during twilight in Caldons Wood in the core zone of the Dark Sky Park, where I employed an arts-led dialogue as both stakeholder-engagement and speculative form of stakeholding itself (Edwards, Collins and Goto 2016). Inviting non-verbal and non-textual forms of engagement, the workshop emphasised receptivity and play as modes of possible stakeholder engagement to support participants to experience the 'landscape' of the Dark Sky Park not only as part of a professional discourse, but as something felt, experienced, embodied and shared (Macpherson 2009; Sumartojo and Pink 2017: 5). Drawing on the creative approaches I had been using to explore the Dark Sky Park, from sensory (auto)ethnography to long-exposure photography, I enacted what performance artist and activist Rosie Anderson describes as the '*re-presencing*' of [my] particular skills, experience and sensibilities (Anderson 2014) in the context of an "alternative committee meeting".[29] Such a positioning was reciprocal and negotiated with participants, who were also encouraged to *re-presence* modes of engagement and expression not normally explored in stakeholder management settings (see also, Edwards, Collins and Goto 2016) by inviting them to make contributions to the workshop "programme" (an impromptu talk given by Keith, FCS; a campfire activity facilitated by Elizabeth, BDSR), and to share – and embody – personal as well as professional connections to dark skies (Heim 2020: 74). While the experience of this workshop was no more or less challenging than the first workshop described, it offered an opportunity to explore "attentive chronicler" and "critical friend" as generative modes of relation-building, knowledge-making and stake-holding within the research (Parikh 2019). In

[28] See Chapter 4, *Peripheral vision: expanding the field focus*

[29] See, Chapter 6, *Co-holding the stakes: an exploratory workshop*

drawing more explicitly on my wider research practice, creative sensibilities and disciplinary methods, the workshop had offered an enactive space to participants that also extended to me (Haskell, Linds and Ippolito 2002), inviting me to experience myself as a stakeholder. Further, in situating the workshop in Caldons Wood during twilight, more-than-representational and more-than-human dimensions of the Dark Sky Park could also be *re-presenced* in our collective enactment of stakeholding. It is to these presences and the impacts they have on research and researcher that my discussion now turns.

**Site-sensitivities: Dark Sky Park as creative milieu**

During a field visit, around two years into my project, I hit a wall. I was struggling with data analysis, doubting myself and the methods I was using. All I could think to do was collect more data, the *right* data this time. But the interviews I had planned had fallen through and I had not given myself enough time to research new sites to visit. My desire to map an expansive and diverse set of values for the Dark Sky Park was beginning to feel like a Sisyphean task of striving towards depth and detail. Though I had been inspired and energised by examples of more-than-human and non-representational research in the earlier stages of fieldwork, I later came to find that a practice of being 'attentive, open, invitational, redistributive, informed, responsive, respectful, curious and humble' (Heddon 2017: 200) was often exhausting and not always within my capacities, depending on the situational and relational conditions of any one research encounter (see also, Butler-Rees and Robinson 2020).

Not wishing to ruminate and remembering a conversation with Dark Sky Ranger Jesse about the pleasure of making time-lapses in the forest, I decided to head out to a familiar place along with some trusted tools: a notebook, a flask of hot tea and a camera; my only plan, to sit, listen and observe. In Caldons, a small wood of ancient semi-natural oak and beech, I arrived at 'the benches'. Large flat boards and pale grey, they stood out, softly reflecting the fading light. The benches are part of a larger artwork called *Rosnes Bench* commissioned by Forestry Commission Scotland (FCS) and Scottish Natural Heritage (SNH) and designed by artists Dalziel + Scullion in 2013. *Rosnes Bench* comprises 30 individual pieces installed in 12 different locations across Dumfries and Galloway in a pattern that loosely resembles the Cassiopeia constellation (Dalziel + Scullion n.d.). The benches are designed to be sat or lain upon. Reminiscent of prehistoric recumbent stones, they feature a hollow at one end indicating where a human head might rest. 'Rosnes' reads as 'Sensor' in reverse. They are invitations to tune into a different sense of the landscape, through a slowing and intensification of attention (Morris 2015: 264), what the artists describe as "access[ing] the sensorial resources of a given site" (Dalziel +

Scullion 2021). There in the soft twilight, it was a relief to upend my body and lie motionless on the cool surface. Between my heels, I had placed a pinhole camera, shutter open and facing up through the trees towards the sky, beginning a long exposure.

Laying supine on the artwork *Rosnes Bench*, I was able to access a different route into fieldwork that came to shape my ongoing engagements with the Dark Sky Park. The benches offered an opportunity to step out of 'a verticality of action' (Harrison 2009: 989), acting as imaginative and material supports for a research engagement increasingly characterised by a receptivity to the aesthetic experience and agency of place (Kohn 2013; Tuck and McKenzie 2015; Larsen and Johnson 2016). My engagement with the *Rosnes Bench* sites reflects J.D. Dewsbury's (2011: 327) call for researchers to immerse themselves in field sites by way of gathering 'a portfolio of ethnographic "exposures" that can act as lightening [sic] rods for thought'. Dewsbury's metaphor of exposure connotes the act of recording with an appreciative focus on the performative and affective capacities of creative processes to draw researchers into relation with site in ways that foreground participation, vulnerability and self-reflexivity (ibid.: 326; see also, Barrett and Bolt 2007; Kester 2004: 24). In Chapter 7, I describe how the composition of long exposure photographs in the forest after sundown, attuned me to the Dark Sky Park as creative environmental milieu, as continually changing views and patternings of darkness, starlight and gloom unsettled '[the] authority of [the] art photographer as an autonomous creative agent' (Miles 2005: 346; see also, Hawkins 2013: 154). In this uncertain and decentred process of image-making that involved the presence of other re-presentational agents, I could begin to let go of a desire to make sense *of* the Dark Sky Park and instead, make sense *with* it, allowing the research to be 'guided by aesthetic experience' (Collins and Goto 2017: 113; see also, Rancière 2008: 185). It was a reminder, as Sarah Pink notes, that embodied ethnography is always already 'emplaced' ethnography (Pink 2015: 28).

This was made further manifest as the contingent and fleeting encounters I experienced with nocturnal others disclosed the agency of the Dark Sky Park to re-present itself (see for example, Kohn 2013; Wilson 2016). In the second half of Chapter 7, I reflect on the brief instances of contact and almost-contact that took place while driving and walking through the Park at night. I consider how visitors negotiate differing levels of comfort and agency as we encounter one another at close range or at a distance, from convivial chats with strangers whose faces I cannot see, to contentious uses of torchlight to hunt animals. I also describe how, while driving between different site locations, non-humans literally cut across my path, opening new spaces of enquiry in the imagined 'down-time' or 'between-time' of research practice. In these moments of encounter, the Dark Sky Park re-presents itself through diverse

nocturnal beings and doings, re-distributing, as Rancière (2004) might describe, the sensible conditions and possibilities of the research. As environmental artist Tim Collins affectionately states in relation to a landscape he has worked with for many years – the Black Wood of Rannoch, Scotland – research sites "sustain our enquiry as artists and researchers […] [it] necessitates a consistent reconsideration of what [you're] seeing" (Eden3 2014; see also, Buchanan, Bastian and Chrulew 2018; Rose and Wylie 2006: 479).

Returning to an understanding of research and researcher as always, already enmeshed in a social context, Chapter 7 extends an understanding of field site-as-social-context to field site-as-*ecological*-context. This is informed by more-than-human methodologies and critical place enquiry in the environmental humanities, which draw focus to the non-human agents who shape our research sites, methods, theories and findings (and re-situate the labour of fieldwork in the lively materialities and contingencies of site (Buchanan, Bastian and Chrulew 2018; Bastian et al. 2017; Tsing et al. 2017; Larsen and Johnson 2016; Tuck and McKenzie 2015; Thomas 2015; Woodward et al. 2010). This work is characterised by epistemological approaches that enact a slow and deep engagement with the more-than-verbal re-presentations of non-humans through aesthetic attention, situated dialogue and atmospheric attunement (Kanngieser 2015; Pink 2015[2009]; McCormack 2010). I mobilised these approaches as part of an intentional practice of moving towards the Dark Sky Park (learning more about it), but also as a condition of possibility through which the Dark Sky Park might move towards me (the Dark Sky Park re-presenting itself). In the next and final part of this chapter, I continue to think through creative re-presentations of a lively and complex research site through the form of the written thesis and the process of 'writing up'.

## *III / Mapping the values: notes on the form of the thesis*

> *What else might writing do except mean?*
> (Richardson and St. Pierre 2018: 1426, authors' emphasis)

In 'mapping the values' my fieldwork would identify those values upheld and celebrated under the mantle of the Dark Sky Park. It would also explore the ways in which values emerge, are co-constituted, sustained, and subject to re-visioning by focusing on how the Dark Sky Park is produced through everyday practice and lived experience. To map the Dark Sky Park was to identify and elaborate: to share findings and present a report that would prove useful to present and future stakeholders, a tool for collective reflection. A map is a tool for navigation,

for orienting oneself; we gather around maps to decide where to go next, we look for familiar landmarks, sometimes the map must be turned around before the way becomes clear. As I began to write up the research, I asked myself: how could the thesis show the 'lay of the land' but also function as a tool through which future actions might be explored?

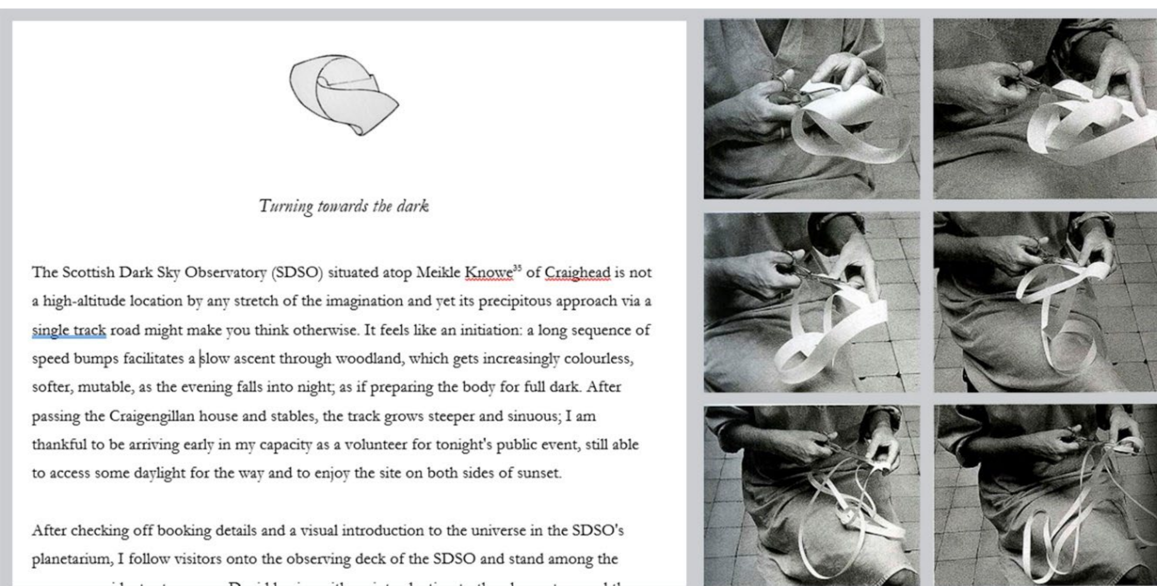
Established from the outset as a collaborative, site-responsive project and written with its stakeholders and practitioners in mind, this thesis is as much *for* the Dark Sky Park as it is about it. It is offered to stakeholders and practitioners as a critical and reflective enquiry that presents questions, challenges and propositions intended to resource the Dark Sky Park as it continues into its second decade. In this final section of the chapter, I discuss the writing of the thesis as an integral part of the research enquiry (Richardson and Pierre 2018; Mitchell and Clark 2021). I reflect on the aesthetic choices I have made regarding the structure, format and style of the thesis, but equally the ways in which site has interpolated my writing practice and the interpretative space between site, researcher/writer and reader. I close the chapter with some brief notes for the reader and a prompt.

**Cuts, folds and entanglements: a site-led ethnography**

The thesis is composed of a main body of text, a distributed methodology and a selection of images and notes accumulated over the course of fieldwork. With each chapter, I have sought to situate the research in the '*working* and aggregating materialities' of the Dark Sky Park (Woodward et al. 2010: 273, authors' emphasis). Like the forest, which composes so much of the GFDSP's designated landscape, this thesis is a site of intersecting views and lively entanglements that sometimes flow into open sky, and other times, disappear into dark, earthy knots. As Kim Mitchell and Alexander Clark describe in their review of writing as an integral part of research creation, the meaning of *Windows to the universe* as research text is 'formed through a fusion of horizons' (2021: 4), inclusive of site, participants, researcher, practice and readers.

Earlier in this chapter, I introduced the distributed methodology as a formal strategy within the thesis, distributed throughout the text as a series of extended vignettes, each headed by a short title and visual icon (Fig. 3.2). These are presented on a new page each time, creating a subtle break in the narrative flow without disrupting the overall direction of travel. Instead, they 'cut-away' momentarily to pull focus on specific research encounters. I borrow the term 'cutaway' from filmmaking: a cutaway shot interrupts the visual flow of the narrative by

inserting – or 'cutting away to' – a new shot before returning to the first. Initially introduced to correct visual continuity errors, the cutaway is now well-established as a visual technique for creating narrative disorientation, for transporting the viewer in time (as with a dream sequence or flashback), and for holding separate things – people, objects, places, etc. – together in time. The cut is, then, also a suture, creating a relation that expands the experience of the scene spatially and temporally. I draw on its affective language to demonstrate that '[E]very encounter may be considered as a method of enquiry' (Crowther 2018: 91).



*Turning towards the dark*

The Scottish Dark Sky Observatory (SDSO) situated atop Meikle Knowe[35] of Craighead is not a high-altitude location by any stretch of the imagination and yet its precipitous approach via a single track road might make you think otherwise. It feels like an initiation: a long sequence of speed bumps facilitates a slow ascent through woodland, which gets increasingly colourless, softer, mutable, as the evening falls into night; as if preparing the body for full dark. After passing the Craigengillan house and stables, the track grows steeper and sinuous; I am thankful to be arriving early in my capacity as a volunteer for tonight's public event, still able to access some daylight for the way and to enjoy the site on both sides of sunset.

After checking off booking details and a visual introduction to the universe in the SDSO's planetarium, I follow visitors onto the observing deck of the SDSO and stand among the

Figure 3.2. A distributed methodology. Left: an example of a methodological cutaway as it appears in the thesis, headed by a Möbius Strip icon, which references artist Lygia Clark's *Caminhando* (Walking) (1964) pictured right.

The icon design is a Möbius strip and gestures to artist Lygia Clark's *Caminhando* ('Walking') (1964), a participatory artwork that includes a long strip of paper, tape/glue and instructions, with which anyone can enact the work. To perform *Caminhando*, an individual must create a Möbius Strip and then cut into the strip and along in a straight line, which leads them to produce two interlinking paper loops bearing the same structure as the first loop (Fig. 3.2). For Clark, *Caminhando* was an artwork in which the artist was "no longer important". All that mattered was 'the act' and the experience it unfolded (Dezeuze 2016: 422). Clark conceived of the topological space of the Möbius Strip as a "surface-in-process" (loc. cit.). It is both inside and outside. As we make a cut, we are both maker and made, self and environment (Dezeuze 2013: 232; see also, Candea 2007: 180). I found this to be a resonant image for evoking the 'cut-away' action of the methodological vignette from the main research narrative, which

simultaneously thickens and interrupts that same narrative, prompting us to 'begin, again, and again, in the middle of things' (Tsing 2005: 2).

In Anna Tsing's *Friction* (2005; see also Strathern 1991), the ethnographic vignette or fragment is mobilised not as a reflection or illustration of an ongoing narrative, a 'scrap in a larger, unified pattern' (Tsing 2005: 271), but as a contact zone, through which the particularities and liveliness of research encounters may resonate with the reader. Similarly, filmmaker and ethnographer David MacDougall (2006: 245) advocates a 'cinematic imagination' within our ethnographic storyings, using discontinuity, gaps and sutures to create an interpretative space for the reader to enter into meaning-making through 'a multi-positional perspective that acknowledges the fragmentary nature of experience' (see also, Strathern 2005; MacKian 2011: 365). My use of site-led cutaways represents an effort within this thesis – which overall, *does* take a linear form – to disrupt the desire to 'advance an argument […] no matter how thick [our] descriptions or how evocative [our] language" (Bodenhamer, Corrigan and Harris 2015: 17). It introduces a level of 'humility' into the research narrative, keeping it 'open to new ideas […] and an awareness of a larger perspective' (Saville 2020: 98). In this way, the 'making-sense' of writing-up is not found in the act of ordering or fixing down meaning, but in the affective resonances of the research as it *touches* the researcher (Mitchell and Clark 2020: 2,3). As Lygia Clark instructs for *Caminhando*: 'Try not to know – while you are cutting – what you are going to cut and what you have already cut' (Clark 1964).

Chapter 4

# *Half the Park is After Dark*

Galloway is a queer kind of a will o' the wisp. It gratifies one continually, yet all the time it lures one on by developing beauty already seen, and by affording new prospects.

---

Andrew McCormick for Forestry Commission (1954: 3)

If you had to build a visitor attraction today from scratch, what could be better than the universe?

---

Fildes (2016: 240)

# *Introduction*

Going for International Dark Sky Park status was a bold endeavour. With only three other IDSPs in the world at the time, all of which were in North America, the small team at Forest Enterprise Scotland (FES) were stepping into the unknown. Years later, at a public event celebrating the ten-year anniversary of the Dark Sky Park,[30] host and Director of the local Wigtown Book Festival, Adrian Turpin, described the bid as "a real act of vision... a daring act".

In the first half of this chapter, I chart the process by which the Dark Sky Park was formally established in the region of Dumfries and Galloway. I describe the marshalling of resources, expertise and community support, and discuss how the value of the designation was conceptualised and communicated to a wider public. At the heart of this was the role that astrotourism would play in diversifying the Galloway Forest Park's tourism portfolio and enhancing an already existing regional asset, what the Dark Sky Park's application team described as "a natural Dark Sky Park all ready to go" (Barlow 2009). I also consider the impact of the designation on the region's inhabitants, its perceived values, and the various ways in which it has been interpreted and mobilised, from dark sky branding on local products to the expansion of leisure provision into the late hours.

In the second half of the chapter, I explore the various ways in which the Dark Sky Park is made navigable and meaningful to a visiting public, with an emphasis on self-led exploration and the engagement of non-specialist audiences. I discuss the importance of guides and gateways to the visitor experience of natural darkness, embodied in the figure of the Biosphere Dark Sky Rangers, a group of freelance practitioners whose individually devised activities and events include not only science communication but also emphasise the experiential, sensory and social dimensions of stargazing. I also discuss the efforts of the GFDSP's key proponent, Keith Muir (Head of Visitor Services and Communications at FES) to develop a more expansive imagination of Galloway's dark skies through interdisciplinary and creative engagements that centre exchange and exploration.

The title of this chapter – 'Half the Park is After Dark' – is taken from astronomer, artist and educator Tyler Nordgren's poster series advertising the US National Park Service's (NPS)

[30] This event was 'Our Dark Sky Decade', part of the *Big Bang Weekend* 2019 programme hosted by Wigtown Book Festival.

Night Sky Programme. In achieving dark sky status, the Galloway Forest Park and its proponents declared this underexplored half of the Forest Park – its pristine darkness – as something special, worthy of protection and engagement. Opening a 'window to the universe', international dark sky designation ushered in a different sense of place, one of planetary and cosmic proportions. As with all windows however, there is a contact zone through which two realms touch and intermingle. In this first site-led chapter of the thesis, I begin to develop a conceptualisation of dark sky preservation as situated practice, through which the values of an international movement are variously enacted.

## *I / How the Dark Sky Park got its stars*

### **Going dark: the application process**

The GFDSP's story is a little unusual in that its application for dark sky status was prepared by Forest Enterprise Scotland (hereafter, FES) acting as an agency of the Forestry Commission Scotland (hereafter, FCS),[31] an organisation, which otherwise had very little formal connection with the night sky (Fig. 4.1). When the low-down on the night-time activities at Clatteringshaws Loch was delivered to Keith Muir, Head of Visitor Services and Communications at FES, it did, however, make a lot of sense. Keith was well-acquainted with Galloway's dark skies, having walked many nights with his dog across the years, keenly following the path of the stars through his local woodland canopies. Very rarely would he encounter anyone else during these walks. The realisation that his lure was also someone else's – in fact, many others' – was wonderful news and presented a unique opportunity for the Forest Park to expand its vision and offerings. Keith remembered the initial application as an exciting and pioneering endeavour around which a community could form and be taken somewhere exciting: "Putting the slant on tourism and people power was a real adrenalin rush".

[31] In 2019, the Forestry Commission in Scotland became Forestry and Land Scotland through the Forestry and Land Management (2018) Act. I discuss the transition in Chapter 5.

Forestry Commission
Scotland

Galloway Forest District

Dark Sky Park

Application to the
International Dark Sky Association

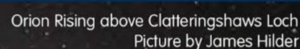



**Figure 4.1. Becoming a Dark Sky Park.** The cover page of the FES/FCS's application to the IDA for international dark sky status for the Galloway Forest Dark Sky Park.

Not too long after this in the early part of 2008, an email arrived in Keith's inbox from Steve Owens, then UK Co-ordinator for the International Astronomical Union (IAU)'s International Year of Astronomy (IYA), with an invitation to consider applying for international dark sky designation. The IYA 2009 was a UNESCO project that aimed to 'facilitate the preservation and protection of [our] global cultural and natural heritage of dark skies' (IYA 2009: 5), one element of which was the creation of the UK's first IDSP. "We [FES] started talking about it… it took 30 seconds for us to say: okay, let's go for it." The next 18 months were a whirlwind of activity and required careful planning and preparation to meet the IDA's stringent requirements for applying. The establishment of the GFDSP was part of the IYA 2009's cornerstone project 'Dark Skies Awareness', which sought to 'raise the level of public knowledge about adverse impacts of excess artificial lighting on local environments and help more people appreciate the ongoing loss of a dark night sky for much of the world's population' (IYA 2009b; see also, IYA 2009a: 5; Robson and Owens 2010). The application was supported by Steve Owens in the role of consultant, his first foray into consulting on IDSP applications, for which he is now internationally known.[32] If successful, the Dark Sky Park would be only the 4th IDSP in the world. This was no small thing. As stated on the IDA's website, applicants must demonstrate:

> exceptional dedication to the preservation of the night sky through the implementation and enforcement of quality lighting codes, dark sky education, and citizen support of dark skies. (IDA n.d.a).

At the heart of any IDSP application process is the creation of a 'quality comprehensive Lighting Management Plan' (LMP) (IDA 2018: 5). This would be a challenging task for the FCS, given the relative novelty of dark sky designation, the lack of a national legal framework on which the organisation could lean in support of its changes to lighting, and a dearth of research studies from which figures and concepts might otherwise be drawn (FCS 2009a: 4; Morgan-Taylor 2015). In its application to the IDA, the FCS notes that it 'has no jurisdiction in the area beyond [their] forest boundaries' and could therefore only make recommendations to 'how planners and engineers can help to maintain and enhance the Dark Sky Park' (FCS 2009a: 18). Working with the three council authorities (East Ayrshire, South Ayrshire,

---

[32] Since then, Owens has consulted on successful bids such as Exmoor National Park International Dark Sky Reserve, the Dark Sky Island of Coll and Northumberland International Dark Sky Park among many others in the UK and further afield (Owens 2011). In an interview on the Coffee and Quasars blog, Owens confirms that he has a business card bearing the title: 'World's Only Dark Sky Consultant' (Coffee and Quasars 2016).

Dumfries and Galloway) and lighting engineer James Paterson, Director of Lighting Consultancy and Design Service (LCADS), FCS identified the village of Glentrool as 'a case study for introducing a Dark Sky friendly lighting plan & fixtures' including the complete replacement of its low-pressure sodium lights (FCSa 2009; Paterson 2011: 58). Exceeding the requirements of the IDA, the decision to trial a full lighting re-fit in Glentrool was significant. Located only three miles from the park's Core Zone, the village would make a strong case for the implementation of dark sky friendly lighting beyond the boundaries of the Park[33] and, by involving local residents, – not just their thoughts on the matter, but their lived experiences – would demonstrate the comfortable coexistence of dark skies and human settlements (Dalgleish 2020; Meier 2015; Rodrigues, Rodrigues and Peroff 2015).

Alongside this, the IDA required the GFP to conduct a dark sky survey, which would provide sky quality meter (SQM) readings along with high quality photographic 'all-sky images' taken with a full-frame digital SLR camera and a fisheye lens (Owens 2010c). The data set was collected by members of the locally based Wigtownshire Astronomical Society (established in 1998) who took the 'all-sky images', alongside researchers from Edinburgh University who recorded the SQM night sky brightness readings. The SQM readings and photographs of the sky were taken in various locations across the Park. Figure 4.2 shows one of these images and the locations at which readings were taken along with their respective SQM measurements. Qualitative assessment was also made using the Bortle Scale (Bortle 2001), with a measurement of 2 in the Core Zone of the Park (FCS 2009a: 5). Previous WAS Chair Robin Bellerby describes going out with his son on a bitingly cold November night at a temperature of minus 7 degrees Celsius to take the photographs. They attached the camera to the top of the car roof and took a variety of exposures of differing durations. "There were some beautiful images," he recalled during our phone interview.

Letters of support were also included in the application from several agencies and organisations based in the region such as SEPA and RSPB, with others sent from beyond the boundary lines of the prospective Dark Sky Park such as the Glasgow Science Centre and the Royal Observatory Edinburgh. While FES delivered public talks across the region, local and national press generated interest and excitement by featuring established night sky resources such as WAS and local businesses with a specialist interest such as the Galloway Astronomy

[33] This was an aspiration that was met in 2015 when Dumfries & Galloway Council introduced dark skies friendly lighting into its Local Development Plan (LDP), soon to be followed by South Ayrshire Council in 2016 and East Ayrshire Council in 2017.

Centre (GAC), a bed and breakfast with its own 16-inch telescope, opened in 2004 and based around twenty miles from the Dark Sky Park in the southernmost part of the region (Fig. 4.3).

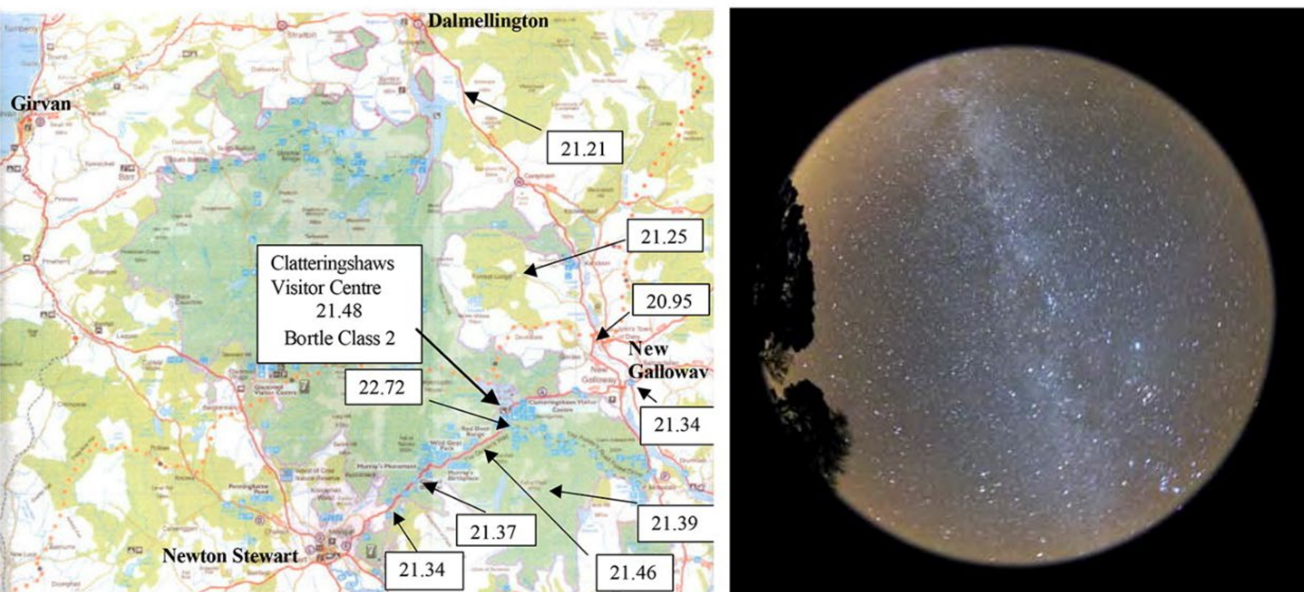
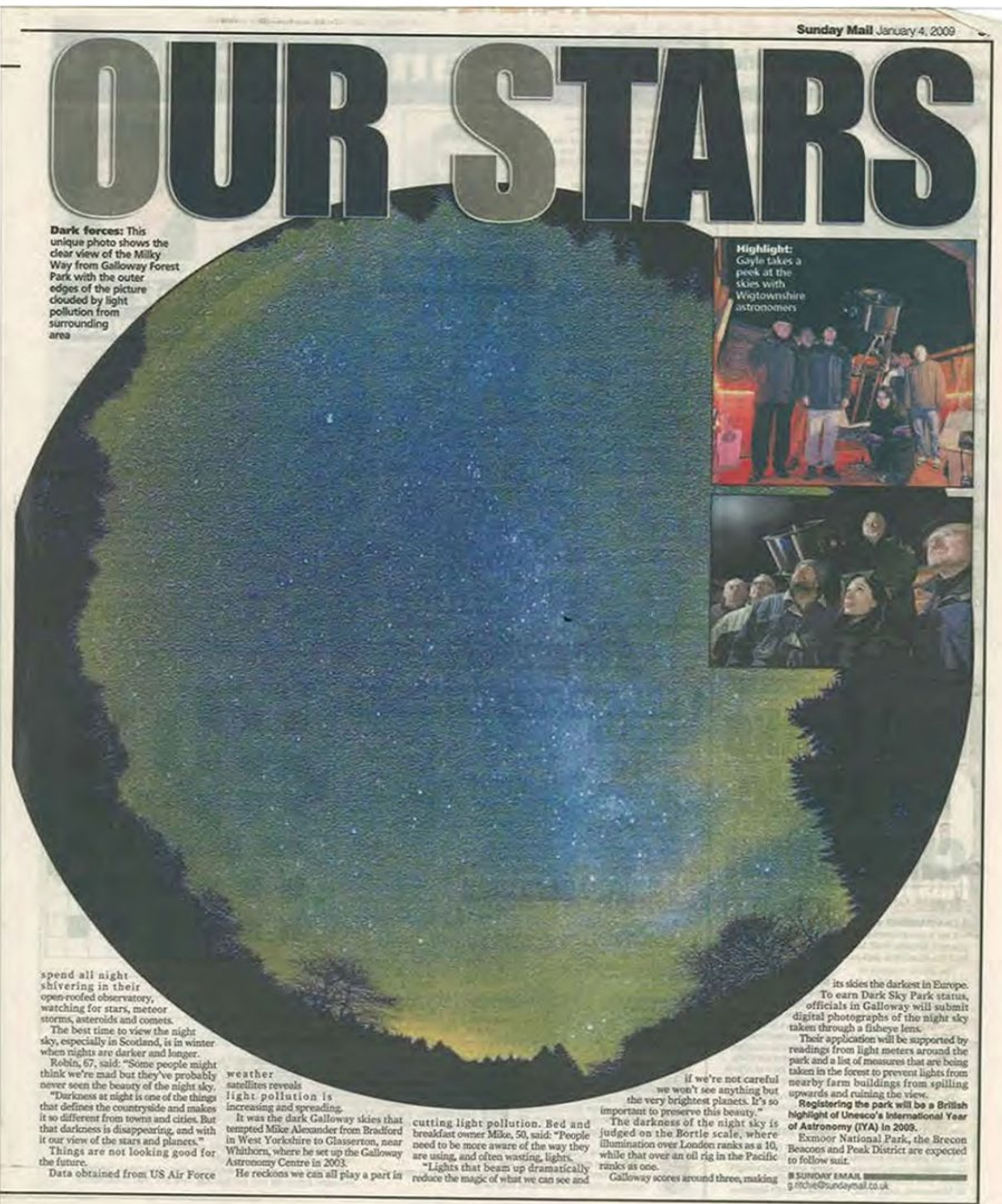



Figure 4.2. Conducting a dark sky survey. Left: SQM readings taken in and around the GFP. Right: an all-sky image taken by the Wigtownshire Astronomical Society using a wide-angle lens and full-frame digital camera. Both were included in the GFP's application for international dark sky status (FCS 2009a).

Additional support came from Dark Sky Scotland's outreach programmes, designed to make astronomy and stargazing accessible to community groups and individuals in all parts of the country, irrespective of access to pristine night sky locations (Hillier 2008). Such activities reflect the IDA's aspirations for international dark sky designation to be a process that actively involves community and promotes dark sky stewardship (IDA 2018: 3; see also IDA n.d.f). With stargazing firmly established, the designation presented a natural continuation and celebration of a much-loved feature of the region. Despite this, it would take some effort to communicate the value of a protected night sky beyond the interests of its more obvious advocates: astronomers. The specific lens through which the Dark Sky Park was to be presented to a wider audience is the focus of the following section.



Sunday Mail January 4, 2009

# OUR STARS

**Dark forces:** This unique photo shows the clear view of the Milky Way from Galloway Forest Park with the outer edges of the picture clouded by light pollution from surrounding area

**Highlight:** Gayle takes a peek at the skies with Wigtownshire astronomers

spend all night shivering in their open-roofed observatory, watching for stars, meteor storms, asteroids and comets.

The best time to view the night sky, especially in Scotland, is in winter when nights are darker and longer.

Robin, 67, said: "Some people might think we're mad but they've probably never seen the beauty of the night sky.

"Darkness at night is one of the things that defines the countryside and makes it so different from towns and cities. But that darkness is disappearing, and with it our view of the stars and planets."

Things are not looking good for the future.

Data obtained from US Air Force weather satellites reveals light pollution is increasing and spreading.

It was the dark Galloway skies that tempted Mike Alexander from Bradford in West Yorkshire to Glasserton, near Whithorn, where he set up the Galloway Astronomy Centre in 2003.

He reckons we can all play a part in cutting light pollution. Bed and breakfast owner Mike, 50, said: "People need to be more aware of the way they are using, and often wasting, lights.

"Lights that beam up dramatically reduce the magic of what we can see and if we're not careful we won't see anything but the very brightest planets. It's so important to preserve this beauty."

The darkness of the night sky is judged on the Bortle scale, where illumination over London ranks as a 10, while that over an oil rig in the Pacific ranks as one.

Galloway scores around three, making its skies the darkest in Europe.

To earn Dark Sky Park status, officials in Galloway will submit digital photographs of the night sky taken through a fisheye lens.

Their application will be supported by readings from light meters around the park and a list of measures that are being taken in the forest to prevent lights from nearby farm buildings from spilling upwards and ruining the view.

**Registering the park will be a British highlight of Unesco's International Year of Astronomy (IYA) in 2009.**

Exmoor National Park, the Brecon Beacons and Peak District are expected to follow suit.

SUNDAY EMAIL
g.ritchie@sundaymail.co.uk

Figure 4.3. 'Our Stars'. Press clipping from Sunday Mail, as reproduced in the GFP's IDA application (FCS 2009a). The smaller images show astronomers at the Galloway Astronomy Centre near Wigtownshire.

### "A natural Dark Sky Park all ready to go": the promise of astrotourism

The GFP was blazing a trail on the international dark sky scene, but it would not be easy. Broad community support was vital to the application's success, not only to meet the requirements of the IDA's Dark Sky Park Programme Guidelines (IDA 2018; see also, Zielińska-Dabkowska, Xavia and Bobkowska 2020), but to ensure that, if awarded, the Dark Sky Park could be meaningfully embedded in the region. To achieve this, Keith and his team

needed to communicate a tangible set of benefits and opportunities to prospective stakeholders. Keith recalls how the IDA application process was "exciting, but also business-like", requiring strategic thinking as to how to position the GFP within the IDA's International Dark Sky Places programme, despite a very different national context with regards to legal requirements and the environmental conditions within which dark sky status could be achieved (see also, FCS 2009a: 4, 18; Morgan-Taylor 2015):

> I suppose the biggest thing was that I had to develop a brand-new way of applying for the designation since the existing places [IDSPs] and the ones in the pipeline were all tackling it purely from a light pollution angle and controlling the lighting laws, which I couldn't touch.

The GFP's application to the IDA was prepared during a period in which the reciprocal relationship between dark sky designation and tourism was being widely studied and promoted (La Palma Declaration 2007; Weaver 2011; Rodrigues, Rodrigues and Peroff 2015; Bell et al. 2014), along with a growing awareness of dark skies as a new environmental asset for tourism in Scotland, which 'could be as important for tourism as the landscape' (Kelbie 2008; see also STFC 2010). Keith was particularly inspired by the Dark Sky Ranger programmes in the US National Parks, from which the IDSP model hails. Programmes such as those delivered in Bryce Canyon National Park (Utah) had been extremely popular, extending visitation hours after dark and throughout the 'shoulder months' of the year when the volume of tourists is usually at its lowest ebb (FCS 2009a: 5; see also, Meier 2015: 189). The prospect of increased visitation during these months was especially appealing to Keith and his team, since the GFP is located in one of the most under-visited areas of Scotland, often neglected by tourists who, on their way to the Highlands and Islands or travelling to and from Ireland, tend to bypass this 'lonely corner of southwest Scotland' via the A75 (Wade 2009; see also, Wild et al. 2017). Astrotourism encourages visitors to stay overnight, increasing the number of 'bed nights' booked with accommodation providers (Blair 2016: 59) since visitors may be stargazing into the small hours and unlikely to want to make a long drive back in the dark. Further, promotional materials and accommodation providers often suggest that guests stay on for more than one night to avoid the disappointment of bad weather, a common predicament for stargazers in the UK (Kelbie 2008; see also, Gallan 2014: 186). With a pristine night sky as a unique selling point (Meier 2015: 189; see also, EKOS 2013: 12; Gallan 2014: 181; Rodrigues, Rodrigues and Peroff 2015: 292) and the prestige of international designation, the Dark Sky Park could play a significant role in re-fashioning the region, helping to 'strengthen [the] delicate rural economy' (STFC 2010; see also, Wild et al. 2017).

Not only would international status bring greater numbers of tourists to the GFP, but it would also enhance and expand what it could offer (FCS 2009a: 4; see also, STFC 2010). In promoting visitor activities that emphasise intangible experiences comprising education, entertainment and environmental engagement (Bell et al. 2014; Rodrigues, Rodrigues and Peroff 2015; Fayos-Solá, Marín and Jafari 2014), dark sky designation would add cultural value to the Forest Park as a resource that the FCS has continually sought to open up to more diverse audiences and uses (see also, Tsouvalis 2001; Smout 2003; D. Pritchard 2009; Tabbush 2010). The GFP's application to the IDA states that the designation will support the FCS's vision of a 'diversified forest', a term articulated in the Galloway Forest District Strategic Plan 2009–2013 (FCS 2009b) as the integration of timber production with tourism and community through the region's various 'habitat networks' such as native woodland, mountain and moorland (FCS 2009b: 18). Dark skies were to be added to the Galloway Forest District's list of habitat networks in the next Strategic Plan (2014–2017), becoming one of several key features in a diversified forest landscape (FCS 2014: 16), a vision reflective of a broader commitment within European forest management to increase access for recreation and wellbeing (Torralba et al. 2020; D. Pritchard 2008; Tabbush 2010) and to promote multiple ecosystem services and values of forests, particularly cultural ecosystem services (CES), which are defined by the Millennium Ecosystem Assessment (MEA 2005: 40) as:

> [T]he nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and esthetic experience, including knowledge systems, social relations, and esthetic values.

The elaboration of CES has expanded conventional categories of ecosystem evaluation such as 'intrinsic' and 'instrumental', which tend to frame ecosystem values as fixed services or consumable resources (Himes and Muraca 2018: 9; Vreese et al. 2019). The aesthetic, cultural, social and spiritual experiences that CES captures are increasingly described by dark sky leaders, activists and researchers, who have articulated cultural values of the night sky that include: the quest for knowledge and understanding (Fayos-Solá, Marín and Jafari 2014; Gallaway 2015), personal wellbeing, spiritual growth, social connection (Bell et al. 2014; Blair 2016; Bogard 2008; Slater 2019) and cultural belonging (Hamacher, Napoli and Mott 2020; Prescod-Weinstein 2021). Such understandings of the cultural and social values of dark skies are further reflected in literature on dark sky tourism that promote the mutually beneficial and values-aligned relationship between dark sky tourism, environmental conservation and natural resource management (Dalgleish 2020; Meier 2015; Rodrigues, Rodrigues and Peroff 2015).

This is a position shared by Keith, who, in a newspaper article published in the months leading up to the final decision, reflects that the designation represented a natural next step for the GFP: "We have a natural Dark Sky Park all ready to go" (Barlow 2009). Keith's declaration suggests an understanding that the GFP and the wider region already possessed the qualities and values celebrated by the dark sky movement. This was echoed in my interview with Callum Sinclair, Operations Officer at Scottish Natural Heritage (SNH) noting that the Dark Sky Park would fit very comfortably in a region known for its unusual ideas:

> when I came down to Dumfries and Galloway [approx. 20 years ago], the area around about here was just tumbleweed, there was nothing there, the big employers had closed, the distillery, the creamery, it was not a very vibrant place. In my time, there have been two or three things that have kind of challenged people whether to accept that or do something about it. And one was Wigtown Book Town[34] which came about, was laughed at and ridiculed by many in the community— *what's that got to do with us?* But actually Wigtown is a changed place as a result of that initiative. And I think what that did was clear the path a bit for other quirky ideas like Dark Sky Parks and the Biosphere.

For the GFP and its surrounding region then, not only would international dark sky status enhance existing assets, but the beautiful night sky and natural darkness that it recognised, were already an integral part of the region, freely available to tap into. Speaking to BBC News on the occasion of the Dark Sky Park's ten-year anniversary, Keith reflects: "Seeing the night sky is the icing on the cake – but Galloway made the icing before the cake" (Rinaldi 2019). Keith's imagination of a Dark Sky Park 'ready to go' also reflects case studies of existing dark sky places which report that despite the considerable effort and capital required upfront, international dark sky designation offers excellent financial return on a 'free and infinite resource' (Dalgleish 2020: 6.20; see also, Fildes 2016: 240). Astrotourism, advocates argue, may be implemented 'at minimal cost, requiring minimal infrastructure', particularly if naked-eye astronomy is the focus of visitor experiences (Dalgleish 2020: 6.20). This view was reaffirmed years later at the inaugural EU International Dark Sky Places conference in 2017 when Keith Muir welcomed delegates with a short presentation on the GFDSP and noted that since the granting of the designation, revenues from the Park had doubled the initial

[34] Based on the model of Hay-on-Wye in Wales, Wigtown was officially designated as Scotland's National Book Town in 1999 as an innovative form of community and economic regeneration. The town now runs an annual book festival and the related festival 'Big Bang Week' which celebrates astronomical science and culture through author events and workshops. Both festivals are internationally recognised. For further information, visit: https://www.wigtownbookfestival.com/

investment in dark sky-friendly lighting in the region (see also, EKOS 2013). Importantly, this would not be at the expense of the environment, nor would it diminish existing environmental regulations and practices, he added. As Josiane Meier's comparative study of dark sky places notes, international dark sky designation is often granted to areas 'already under some form of environmental protection […] thus reinforc[ing] and complement[ing] existing mechanisms that are already in place to conserve an ecologically valuable area (Meier 2015: 179). The following discussion looks at how, in the years following the award from the IDA, the GFDSP's designation has been interpreted and mobilised as an important tool for environmental conservation and community development. Building on studies that explore 'the diversity of local configurations and territorial dynamics' of international dark sky practice (Challéat, Lapostolle and Milian 2018: 9), I begin to tease out an imagination of dark skies as regional and community resource (Meier 2019: 91; Blair 2016).

**Drawing down the stars: Dark Sky Park as regional resource**

On the northeast edge of the Park sits the Scottish Dark Sky Observatory (SDSO), overlooking the market town and former mining community of Dalmellington. Inspired by the newly awarded Dark Sky Park, the observatory was established in 2012 as 'a centre of excellence for astronomy, science and the environment' (ADS n.d. [2]). Designed by GD Lodge Architects, one of whom was a member of the Renfrewshire Astronomical Society (RAS), the 'state of the art' building features a traditional 5-metre dome with a 'roll-off-roof' that houses a 20" corrected Dall Kirkham telescope and a set of smaller telescopes available across the building for 'a more hands-on' experience on its elevated observing deck, as well as a lecture room, telescope control rooms, and a small museum and shop (Architecture and Design Scotland n.d. [5]; Craigengillan Estate n.d.b) (Figs. 4.4 and 4.5). The observatory hosts a busy public programme of stargazing and astronomy events, drawing an annual international audience of 8–9,000, with events often sold out months in advance.

Just like the designation of the Dark Sky Park, the SDSO was a distinct and bold undertaking, with strong local and regional interest and financial support gathered over a period of two years through local community grant awards and private donations (ADS n.d. [2]); see also, Owens 2012). With the leadership of Mark Gibson, owner of the Craigengillan Estate, in which the SDSO is located, a Board of five Trustees and a core group of volunteers was formed.

**Figure 4.4. View of the Scottish Dark Sky Observatory at night time, with stars visible.** Photograph by Dave Dubya. CC BY-SA 4.0. Available at: https://en.wikipedia.org/wiki/Scottish_Dark_Sky_Observatory#/media/File:Scottish_Dark_Sky_Observatory,_night_sky,_Dec_2017.jpg

The SDSO was made possible by the designation, explains Mark Gibson, owner of the Craigengillan Estate, a 3,000-acre estate in which the SDSO is located, and which he has been overseeing since 1999. Mark was central to the establishment of the SDSO, "mov[ing] heaven and earth to raise the funds and create a charity to build and operate the observatory" as he shares with me in an email. In early Spring of 2018, we walked and drove around the Estate as trees were coming back into bloom and various bits of work were being completed ahead of the holiday season. The Estate is home to two SSSI sites – Ness Glen and Bogton Loch – as well as riding stables, an organic sheep farm and holiday lets (Craigengillan Estate n.d.a). The observatory was envisioned as an additional income stream and point of interest to the Estate's visitors that would strengthen the business as a healthy competitor for tourism in the region. "No-one else was doing it," Mark reflects, "we knew there could only be one observatory in the Dark Sky Park". While the SDSO is storied here as an opportunity that needed to be seized, Mark also wished to emphasise the significance of the designation beyond tourism for a place such as the Craigengillan Estate, for which "environmental excellence" is a central guiding principle.

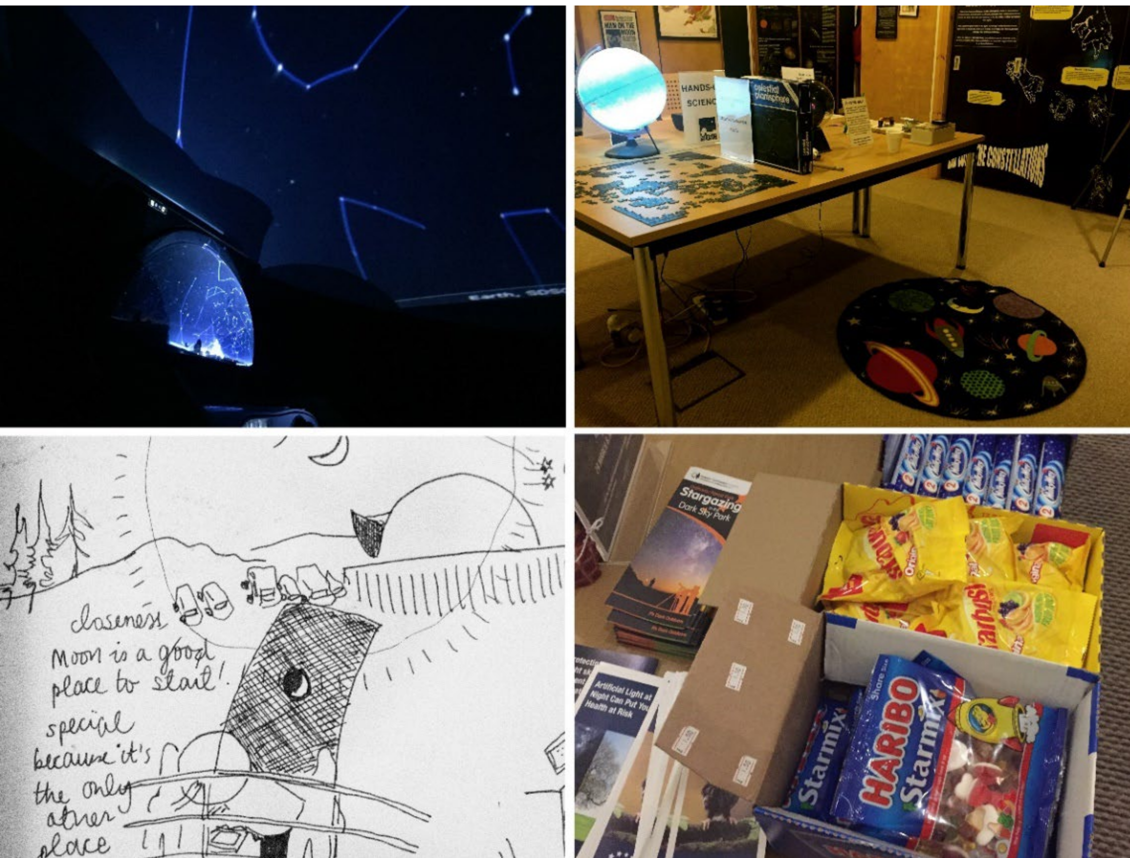



Figure 4.5. Inside the SDSO. Clockwise, from left: Constellations projected in the domed presentation room; the SDSO's public museum showcasing various astronomical artefacts such as meteorites and space travel memorabilia; star-related snacks in the visitor shop; quick sketches of exteriors and interiors, made whilst I volunteered at the SDSO in the Spring of 2018.

During our site visit, we drove up to a viewpoint, which Mark noted would give me a panoramic view of the whole estate and the wider Doon Valley area. As we climbed higher, hugging the estate boundary, I took in as much as I could through the open window and started to say "Oh… you'll be able to see the observa— but Mark chipped in with "—the windfarms… they're monstrous". It was an interesting rupture in our conversation, my thoughts on the prominence of the beautifully designed observatory up on its hill, and Mark's on the spectral presence of the turbines. At the viewing point, Mark explained that wind farm developments pose a threat to the natural environment of the Doon Valley "after an age of exploitation" and that dark sky designation held promise as a possible asset that could strengthen the case against such developments. He stressed that while dark sky preservation is important for humans, it should also be motivated by a need to care for wildlife and for the aesthetic beauty of the area. The Craigengillan Estate is exemplary of this, employing traditional conservation, forestry and farming methods such as hedge-laying and horse

logging, sustainable energy sources, as well as encouraging youth engagement in environmental stewardship through its employment programme (see also, Craigengillan Estate n.d.a). Now part of this configuration, the observatory is intended to reflect such values, from its low-carbon design (Architecture and Design Scotland n.d. [6]) to its longer term vision. Later, as my research drew to a close with the writing up of the thesis, Mark shared with me, a new 'Vision and 5 Year Plan' for the Craigengillan Estate (Craigengillan Estate n.d.b), in which a 'Dark Sky Field Centre' is proposed as a reflection of the Estate's commitment to environmental stewardship and a broader contribution to the Galloway and Southern Ayrshire Biosphere. The Plan describes a physical centre containing visitor information and interpretation, accommodation for rangers, a rural skills centre, a lecture room, a gallery, and field laboratory facilities, that would resource and bring together the 'growing number of people and organisations recording the natural world and undertaking research within the Biosphere and Dark Sky Park' (Craigengillan Estate n.d.c [7]).

Mark's articulation of dark sky status as encompassing and entwining environmental, social and economic opportunity reflects what Josiane Meier describes as the 'dual nature' of dark sky designation, which she breaks down into (1) the mitigation of light pollution (the conservative and restorative function of dark sky status), and (2) the wider effects of certification (what dark sky designation supports and the new opportunities that become possible) (Meier 2019: 64; see also, Meier 2015). Through the examples of local development policies, environmental impact assessment and community-led asset-mapping, the following discussion explores how the dual nature of dark sky designation has been interpreted by the GFDSP's stakeholders and communities, and considers how such engagements differently articulate and situate the Dark Sky Park as a regional resource.

Informed by the US National Park model, international dark sky designation presents a familiar instrument of environmental protection, its boundary-making function perhaps its clearest expression of the international dark sky movement's central efforts to limit light pollution and protect naturally dark landscapes. In the years following the designation, the GFP's three local councils, with the guidance of Keith Muir, introduced dark sky policies into their respective Local Development Plans (LDP) – Dumfries and Galloway in 2015,[35] followed by South Ayrshire Council in 2016 and East Ayrshire Council in 2017 – reflecting, as Josiane Meier observes, an increasing shift away from 'one or two governing bodies taking

[35] Dumfries and Galloway Council's updated policy 'Dark Skies Friendly Lighting Guidance' is nationally recognised, winning in the 'Plans' category at the 2017 Scottish Awards for Quality in Planning (DGWGO 2016).

decisions about uninhabited territory' to 'municipalities integrating and mainstreaming light pollution politics into their regulatory systems and planning practices' (Meier 2015: 193). Each policy requires planning permission on external lighting and signage of new developments and includes an introductory statement that affirms the GFDSP as 'an important and unique natural resource that should be protected', with explicit mention of the 'cultural, social, health and ecological values that appropriate lighting can preserve and promote' (DGC 2015; SAC 2016; EAC 2017). In 2018, Dumfries and Galloway Council made a further recommendation to expand their dark sky lighting policy beyond the Dark Sky Park boundaries to 'ensure new developments do not jeopardise this unique regional (and national) tourism asset and to support a dark sky environment *for the whole region*' (DGC 2018: 38, italics my own). Similarly, the South Ayrshire Lighting Development Plan (SAC 2016) identifies further opportunities beyond the Park boundaries that its LDP can support and from which the wider region can benefit:

> There is a considerable opportunity to boost tourism further and planning policies in the LDP encourage sustainable and sympathetic development to provide facilities for tourists and strengthen and expand rural businesses within the Park and an area of 10 miles outwith of [sic] the Park, referred to as the 'Transition Zone'. (SAC 2016: 2)

Such recommendations suggest an increasing understanding of dark sky designation as a tool for responsible and sustainable development (Rodrigues, Rodrigues and Peroff 2015: 292; Fayos-Solá, Marín and Jafari 2014: 665; Marín 2011; Dalgleish 2020). This is further reflected in the consultations, objections and public enquiry that took place regarding the Clauchrie Windfarm development, proposed by Scottish Power Renewables in 2019,[36] which would include up to eighteen turbines at a height of 200m and their associated infrastructure within the Buffer Zone of the Dark Sky Park and Biosphere Reserve. South Ayrshire Council's LDP and Supplementary Guidance on Dark Sky Lighting are included in the Clauchrie Windfarm Environmental Impact Assessment (EIA) documents published in 2019 (Scottish Power Renewables 2019), along with other lighting guidance materials such as the CPRE's explanations of different types of light pollution (ibid.: 5) and technical guidance from the Institute of Lighting Professionals (ILP) (ibid.: 4). These guidance materials were provided by FCS along with information about the IDA and dark skies more broadly, explains Andrew

[36] In August 2023, the Scottish Government posted its decision, refusing the proposed plans. The Dark Sky Park is frequently noted in the decision report, available here: file:///C:/Users/nmarr/Downloads/WIN-370-3%20Report%20-%20dated%208%20March%202023.pdf

Jarrott (Planning and Environment Manager), as he reflected on the impact of dark sky designation on regional land use and environmental practice. Alongside these documents, various comments and recommendations are included from SNH, with particular focus on viewpoints likely to be affected by the development (ibid.: 7). This informs a series of night-time photomontage visualisations that assess the visual impact of turbine lighting at a time 'approximately 30 minutes after sunset', which 'provides a reasonable balance between visibility of the landform and the apparent brightness of artificial lights' (ibid.: 5) (see for example, Figure 4.6).

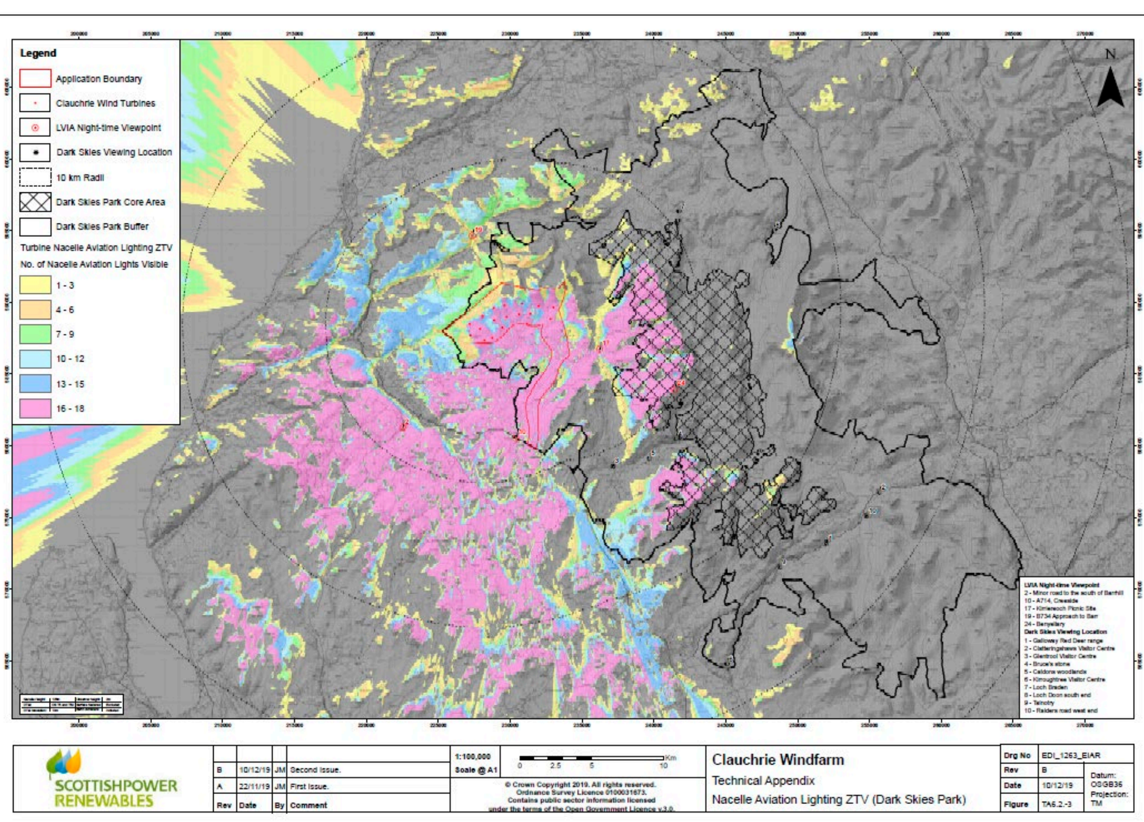



**Figure 4.6. Clauchrie Wind Farm Development.** A ZTV (Zone of Theoretical Visibility) map produced as part of the EIA for the Clauchrie Windfarm Development. This particular ZTV map indicates 'the areas from which the medium-intensity nacelle [body of the turbine] lights and low-intensity tower lights may be seen' (Scottish Power Renewables 2019: 8) with reference to the Core and Buffer Zones of the Dark Sky Park, and the ten stargazing viewpoints promoted by FLS in their visitor materials.

While the Clauchrie Windfarm development EIA shows how dark sky values are entering the language and practices of developers, its assessment of environmental impact is based on stargazing viewing locations and 'Forest Favourites' (the various Forest Drives that are open to vehicles during the spring and summer months) (ibid.: 12) as featured in FLS in its visitor materials, that frame the value of Galloway's dark skies primarily through the lens of tourism.

This is addressed by the Galloway and Southern Ayrshire Biosphere (GSAB) (who oppose the development) in their submission to the public enquiry of June 2021, where they state that while supportive of wind energy 'in principle', they are concerned by the negative impact of the development on:

> not only the ecology of the site but also on its *sense of place*: the character of the Carrick Forest, the landmark hills, the dark skies… in short, the sense of unspoilt seclusion and the meaning we ascribe to *our* knowledge and experience of these precious attributes (GSAB 2021, emphasis is my own)

Representing the concerns of emplaced communities, the GSAB foregrounds sense of place as a community asset likely to be impacted by the development. For the GSAB, the term 'sense of place' captures 'the emotions and experiences we associate with places. It's how places make us feel […] what gives an area its identity and makes it different from elsewhere' (GSAB n.d.: 5). Despite the inclusion of sense of place as an important category and concept in ecosystem services (Ryfield et al. 2019: 2; see also, Cantrill 1998: 302), it remains 'one of the most neglected cultural services' within environmental decision-making processes (Hausmann et al. 2016: 118; see also, Coleman, Hodges and Haggett 2014). By including dark skies within its framing of the region's sense of place, at risk of development, the GSAB articulates the Dark Sky Park beyond its value to tourism, positioning it as an important community resource that is 'life-enriching and life-affirming' (Ryfield et al. 2019: 2; see also, Blair 2016; Gallaway 2015). To do so in the context of a public enquiry into the Clauchrie Windfarm development, points to the perceived potential of international dark sky designation as 'a transition operator' (Challéat, Lapostolle and Milian 2018: 3), what Challéat, Lapostolle and Milian describe as a distinct mode of conceptualising and interacting with landscape that shifts land management practices from a 'territorial resource' approach to a social-ecological systems approach that emphasises 'the interdependence between development, land use planning, preservation of biodiversity and energy sobriety' (ibid.: 8).

The GSAB is exemplary of this approach, committed to promoting 'a more sustainable and balanced use of natural, cultural and social assets for the benefit of local communities and businesses' and 'build thriving sustainable societies in harmony with their natural surroundings' (GSAB 2016: 3). Whilst the GSAB does not have responsibility for developing the Dark Sky Park, it has been actively involved in promoting dark skies as part of it its work, offering thoughtful and nuanced articulations of dark sky values that are only touched upon in the policy and assessment documents discussed above. The organisation has sought to explore

a socio-ecological approach to Galloway's dark skies through a recent ecotourism and heritage project called SHAPE (Sustainable Heritage Areas: Partnerships for Ecotourism). SHAPE ran between 2017–2020 and involved the participation of seven Sustainable Heritage Areas (SHA), including UNESCO Biospheres, National Parks and World Heritage sites, with the purpose of developing 'innovative approaches for ecotourism initiatives which preserve, manage and create economic value from local assets' (Karelia University of Applied Sciences n.d.). Basing their activities in the Glentrool and Cree Valley area, the GSAB strand of SHAPE has focused its efforts on developing ideas for ecotourism that are designed and delivered by local people, with a particular focus on cultural heritage and storytelling. While SHAPE's scope is international and seeks to develop experiences for an external 'audience', it does so through processes that privilege the knowledge of local people and provides opportunities for participants to cultivate and strengthen relationships with each other. Participants engaged in group visits to key sites of interest and common resources such as the Newton Stewart Museum and contributed to workshops that mapped the tangible and intangible assets of the Biosphere, with 'Dark Skies' as one of the key headings alongside 'Nature-based tourism experiences' and 'Our Home, Our Heritage'.

Figure 4.7. Asset-mapping dark skies. Detail from asset mapping activity facilitated by SHAPE during a workshop held in Glentrool Village on 14 June 2018. Image credit: GSAB.

The workshops identified dark sky assets ranging from food tasting experiences after dark to storytelling and song in the Park's bothies and ruinous farmsteads. Participants were particularly keen to organise a local Dark Skies Festival (Fig. 4.7), Marie explained, as a means

of showcasing and testing out a diverse range of ideas and approaches that would necessitate the involvement of local knowledge and skills, and promote localised and communal production of dark sky experiences. By including dark skies as a key theme in its activities, SHAPE has also facilitated collective reflection on the role that the Dark Sky Park plays in residents' lives by animating connections between Galloway's dark skies and other experiences of heritage and place identity (see Chapter 6 for an extended discussion of this). The SHAPE project has been particularly satisfying for Sue, a Glentrool resident, who shared her view that despite the village's prominent involvement in the IDA application as the test site for dark sky friendly lighting (FCS 2009a: 6), it had since been "forgotten" as FCS concentrated its dark sky activities at Clatteringshaws and Kirroughtree visitor centres where it hosts regular stargazing events. The SHAPE project, and GSAB's engagement with the Dark Sky Park more broadly, speaks to the IDA's recent ambitions to adopt a 'values-centred' approach to light pollution abatement by attending to the significance of context in dark sky practice (IDA 2021a). Throughout this thesis, I will continue to maintain a critical tension between a Dark Sky Park that engages with an 'outside' audience and a Dark Sky Park engaged as a resource for emplaced communities. In Chapter 5, I discuss in greater detail, the complexities of stakeholder engagement with the Dark Sky Park and its values, before moving on to explore, in Chapter 6, stakeholders' lived experiences of Galloway's dark skies and the community-led and informal engagements through which they are deepening relationships to this shared resource. For now, in the second half of this chapter, my discussion will consider the various ways in which the Dark Sky Park and its values are envisioned, presented and enacted from the design and delivery of visitor experiences to more speculative explorations of the GFDSP's position within its broader international network of dark sky places, activists and researchers.

## *II / Stargazers Welcome: journeys into the dark*

### **"Quiet, dark exploration": first-hand experience and non-specialist engagement**

The email enquiries keep on coming. 'Where is the entrance? What time does the Park close? Where are the best sites to camp and see the stars?' Keith graciously keeps on top of it, thrilled at the level of interest and consideration from prospective visitors. His approach is unusual.

Rather than recommend specific sites, he suggests possible starting points, encouraging a sense of adventure, of crafting your own journey into dark:

> Head up the A714 or A713, A712... park your car somewhere where you feel safe... and then go out and walk, go somewhere...
> Find a place to park, switch off the lights and just enjoy.[37]

For many visitors, an International Dark Sky Place will offer the very first experience of a truly dark sky. While this is incredibly exciting for a visitor, it might also feel overwhelming. Once the domain of scientists and enthusiasts, these dark landscapes now host the uninitiated and the curious, as well as those encouraged along by eager family members and friends, perhaps sceptical and indifferent. These visitors may have heard of the Dog Star, of Orion's Belt and The Plough, but not the deep inky darkness that falls with such finality once the car is parked, vacated and locked. How do visitors find their feet in a place like this, and how does the GFDSP make its visitors feel ready to explore? Keith's approach is unusual, offering a little bit of information as requested, but mostly an invitation. I imagine this must be quite disarming for the average tourist. As the first of its kind in the UK and Europe, the GFDSP was blazing a trail for dark skies and while this posed a challenge, it also offered creative freedom. In a feature for Visit Scotland, Keith Muir describes the GFDSP as a place that has 'become synonymous with quiet, dark exploration' (Muir n.d.). The remaining part of this chapter explores the GFDSP's unique approach to crafting dark sky experiences and the diverse values that are articulated through its situated practices of dark sky tourism.

In a Visitor Experience Planning Form prepared in 2016, the Galloway Forest District team emphasise that stargazing should feel easy and accessible to visitors who are likely to be 'non specialists[sic]' (see also, Owens 2011: 4). The transmission of knowledge is not prioritised but rather listed among other visitor objectives that aim to promote feelings of inspiration and personal discovery: 'we want people to come and experience the dark skies *for themselves*' (FCS 2016a, emphasis my own). The 'first-hand' experience of standing under a sky full of stars is an important part of an IDSP's mission (Bogard 2013: 248; Meier 2019: 60). While astronomy tourism has a long and rich history (Collison and Poe 2013), the creation of IDSPs has brought the cosmos that little bit closer. Whilst historically, astronomy tourism has been 'largely limited to aurora-hunting and eclipse chasing, events that are best looked for outside the UK' (Owens 2011: 4; see also, Slater 2019), astrotourism and night sky appreciation can now be explored or even just 'given a go' in places that might be only an hour's drive away

[37] Walking interview with Keith (March 2018).

from home. IDSPs, then, play a pivotal role in the cultivation of new human relationships with the night sky and dark landscapes. Astronomer and artist Tyler Nordgren reflected on this distinctive quality as he toured a number of recently designated IDSPs in the US during the early 2000s:

> Nearly every astronomer I know, can point to a transformative moment as a child, be it a first look through a telescope, a meteor shower, or the sight of the Milky Way on a night spent camping under the stars. With no night sky to fire the imagination of potential young Einsteins or Sagans, where do the new scientists come from? (Nordgren 2010: 426; see also, Moore, Richman and Chamberlain 2011: 452).

Biosphere Dark Sky Ranger Matthew especially enjoys hosting people who have travelled from cities, reflecting that “it is a real honour to be with them when they see something for the first time”. Jesse, also a Biosphere Dark Sky Ranger, similarly expressed a respect for non-specialists, sharing an anecdote about the time his dad attended one of his public events and gave him one piece of advice: to play down his own amateurism (Jesse has no formal qualifications), to which Jesse replied:

> Well, no, I don’t really agree. I think if I were a customer, I’d find that reassuring because I would be a bit daunted by the night sky and the content being covered. […] So one of the main reasons I tell people I’m not a professional astronomer is to try and bring myself to their level, or bring them to my level to say basically we’re all in the same boat and it’s not actually that hard to understand. If I can do it, so can you, because I’m not a professional.

Similarly, in her study of astrotourists in the GFDSP during 2013–2016, Deborah Slater describes how participants ‘were encouraged by the rangers, to express their personal interests in the cosmos […] so that an appropriate pitch could be made to enhance the experience and fulfil the participant’s expectations’ (Slater 2019: 169). The significance of sociality in astrotourism is a key finding in Slater’s study. Building on Carl Cater’s (2010) typology of ‘space tourists’, Slater identifies ‘The Stellar Explorers’, tourists whose visit to the Dark Sky Park is primarily motivated by a passion to see the stars and planets (Slater 2019: 230). She also identifies an unexpected visitor ‘type’: ‘The Socialisers’ (ibid.: 228). These tourists are ‘not sure what they are going to experience but are happy to tag-along with friends and/or family in the hope that they might enjoy themselves’ (ibid.: 236). While they are not especially

invested in the Dark Sky Park, Slater includes them in her typology because 'they are developing an attachment to stargazing due to the transformational aspect of the experience' (ibid.: 228). While her empirical research focuses on the perceptions of visitors to the Dark Sky Park rather than practitioners, it affirms the GFDSP's aims to provide prompts and activities that encourage a slow unfolding of dark sky experience and the fostering of new relationships for non-specialists and the uninitiated.

The non-specialist is also conceptualised by practitioners as someone whose unfamiliarity does not necessarily pertain to the stars, but to the dark landscape below. This is another journey that must be supported by the Park's practitioners. Dark Sky Ranger Elizabeth takes an approach to fears and vulnerabilities by trying to "meet people where they are at" and by facilitating an experience that allows time for visitors to get comfortable: "Even just getting out of the car and experiencing that level of darkness for the first time is actually a lot for some people." When she devises a night walk, the first half of the route will be as straightforward as possible, often using evenly surfaced, wide tracks and paths that allow visitors to walk and stargaze at the same time without fear of falling into a ditch or tripping over tree roots. On the way back, she'll offer to repeat the route in reverse, or, if visitors seem to be enjoying themselves and are feeling a little more confident, to take a slightly different route that leads through a strip of woodland or along a winding path, where a different texture or sensation may be experienced.

In the 2019 Galloway Forest Park leaflet produced by Forestry and Land Scotland, visitors are invited to 'Go beyond your horizons […] enter an area of wonder and exploration' (Fig. 4.8); the Dark Sky Park is pitched not as the destination but as the beginning of a journey or quest. In her research study of astrotourists, Deborah Slater (2019: 5) notes a distinctive shift in attachment to 'place' for this emergent tourist group, whereby the Dark Sky Park becomes 'an enabler; a means to an end'. For the astrotourist then, cosmic space *is* the place. Astrotourists are not so much touring as voyaging, 'yearning for a destination that cannot ever be reached' (ibid.: 18). IDSPs are unusual landscapes then, not only because they feature unusual phenomena and experiences such as an unparalleled view of The Milky Way, but equally by acting as a vehicle for exploring novel forms of environmental appreciation and relation. All this without even taking your feet off the ground as the 2016 Visit Scotland video campaign for dark skies tourism attests: 'escape this planet without ever leaving it' (Visit Scotland 2016).

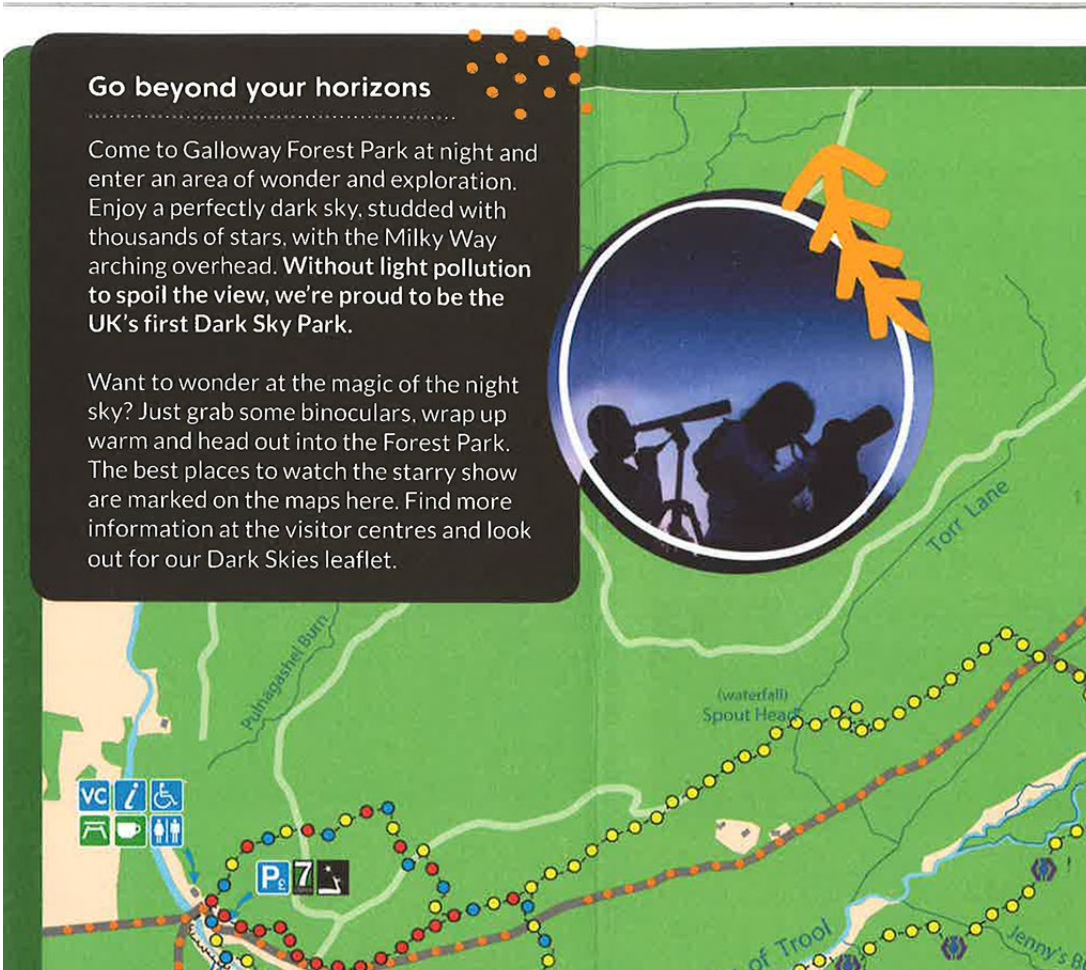



Figure 4.8. 'Go beyond your horizons'. Cropped section from visitor leaflet, picked up at Glentrool Visitor Centre. Printed by Forestry and Land Scotland 2019.

Slater's observation that the 'place' of the GFDSP is a 'means to an end' does not necessarily discount the significance of earthly environments in the tourist experience but speaks to the increasing trends of 'slow tourism' and 'experiential tourism', in which the mode of engagement and state of being while travelling arise from the experience of being in and *with* the destination (Shang, Qiao and Chen 2020: 171). Slow and experiential tourism organises itineraries around unusual and sensually rich experiences characterised by durational and immersive engagements that allow diverse meanings and values of place to arise (loc. cit., see also, Oh, Assaf and Baloglu 2016). By suspending the usual visual cues with which landscape is often 'read', darkness and gloom produce experiences that enable a reprieve from 'highly ordered space' and encourage the pursuit of 'sensual otherness' (Edensor 2018b: 914; see also, Edensor and Falconer 2015). As darkness obscures the ground beneath us, 'vision is drawn towards the sky' (Edensor 2013b: 455), animating the link between personal and planetary. This offers the possibility to experience time differently and to occupy it with greater attention, deliberation and mindfulness so that we might 'differentiate ourselves from the

dominant culture of speed' (Vannini and Taggart 2015: 645; see also, Shang, Qiao and Chen 2020: 172).

For Eduardo Fayos-Solá, Cipriano Marín and Jafar Jafari (2014), astrotourism is exemplary of more exploratory and considered travel experiences that support personal development. In their article 'No Requiem for Meaningful Travel' they describe the astrotourist as an 'explorer' characterised by an '*epistemophilia* that includes the compulsion for information, education, understanding and new solutions to deep existential questions' (Fayos-Solá, Marín and Jafari 2014: 664, authors' emphasis). The astrotourist takes time to understand and engage in activities that feel 'meaningful' as well as entertaining or recreational (loc. cit.). Similarly, Andrew Flack and Dolly Jørgensen describe how dark sky places as productive of 'a burgeoning emotional community in which a majority of people are unified by a sense of loss and an intense longing for the night sky and the kind of darkness that is necessary for it to be perceived' (Flack and Jørgensen 2022: 246). Such activities, dark sky advocates argue, can facilitate a more 'intimate knowledge of the universe' (Duriscoe 2001: 35) and offer 'clues to who we are and where we come from' (Nordgren 2010: 428; see also, Bogard 2013: 163; Blair 2016: 48, 106). As the following discussion charts, such clues are also offered by the Dark Sky Park's official guides, from the FES Recreation Team who have mapped key viewing sites, to the Biosphere Dark Sky Rangers who design and deliver a variety of visitor experiences from public stargazing events to campfire storytelling.

### Gateways and guiding lights: crafting dark sky experiences

An accommodation provider chuckles when I say that I am researching the Dark Sky Park: "We often get asked where the entrance is and what time the Park opens!" It would appear then that while visitors may be eager to go voyaging, the places from which they look up or 'set off' are an important part of their experience. I spoke with Laura Davidson, Experiential Tourism Coordinator for the Galloway Glens Landscape Partnership (GGLP) about crafting visitor experiences. Laura emphasised that though some of the most meaningful experiences are self-led, involved and fluid (as opposed to a more passive experience, where something happens *to* us), it is still helpful to have a 'container' for the experience:

> You don't want to switch people off completely, but if you can take away the logistic side of things that hopefully opens them up to enjoying the day a bit more because they know that everything is taken care of, and they can actually immerse themselves in what they're doing.

For many visitors, the journey will begin online. From the GFDSP web page (Forestry and Land 2021) (housed within the Forestry and Land Scotland website for the Galloway Forest Park), visitors can learn about the dark sky designation, watch a short film about light pollution, listen to a podcast sharing stargazing tips and download a map, which identifies ten locations from which to best enjoy Galloway's dark skies. The three Visitor Centres – Glentrool, Clatteringshaws and Kirroughtree – are also recommended as starting points. Once in the Dark Sky Park, visitors are further situated in the night sky through trails and stargazing viewpoints as mapped on a visitor leaflet. As is clear from the map below (Fig. 4.9), these viewpoints are located either in or close to car parks or not too far from a main road, providing safe and accessible options for visitors. There is also some suggestion of routes for those who want to and are able to go 'deeper' into the Dark Sky Park. Viewpoint 4 is located within the darker section of the map, and though it indicates rising terrain, it also suggests that the Park may be darkest here. A further two routes are included that either touch on the darker part of the map or cut through it: Raiders Road West Forest Drive (Viewpoint 10) and an unidentified track (Carrick Forest Drive) in the north.

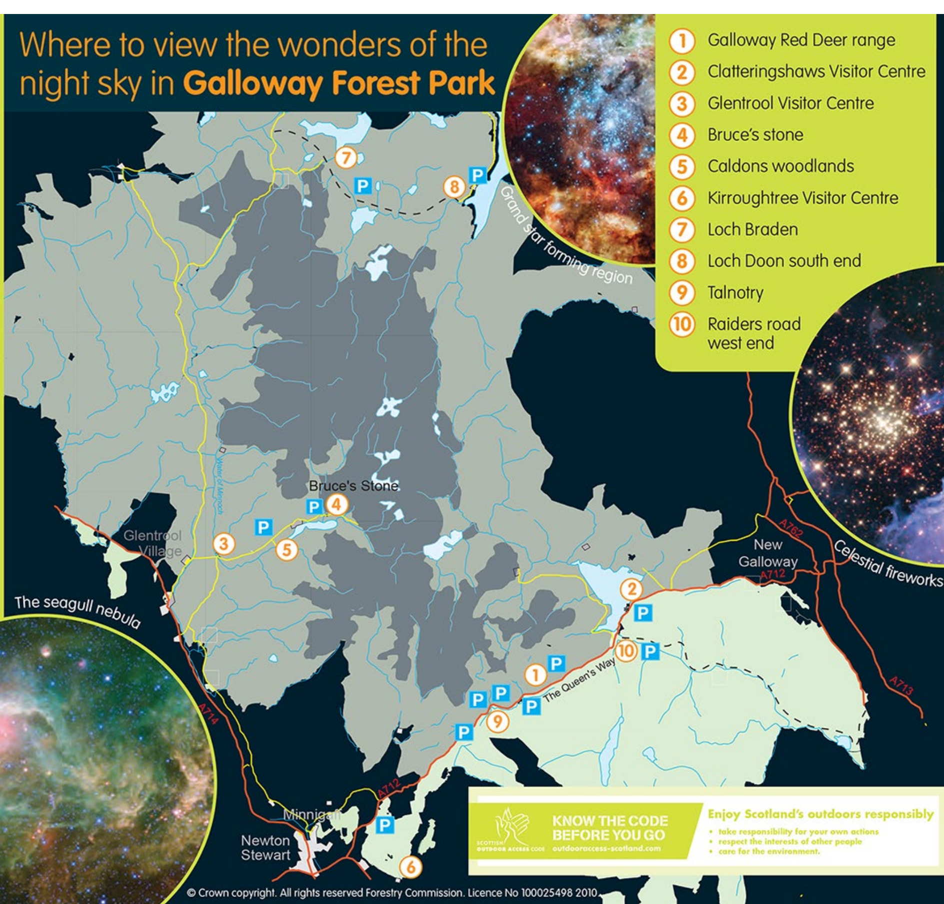



Figure 4.9. **Where to view the wonders of the night sky in Galloway Forest Dark Sky Park.** Excerpt from visitor leaflet: 'Galloway Forest Park: home to the UK's only Dark Sky Park' (2009).

Visitors can also interact with interpretation boards installed at each of the Visitor Centre car parks, which include a revolving mechanism that allows visitors to explore which constellations are visible at different times of the year. Keith explains to me however that once the boards were installed, it became clear that they were "not enough […] it's about creating a journey".

One additional resource was a 'Stargazers Welcome Pack' produced in 2010 by Steve Owens in collaboration with FES and with the support of the Science and Technology Facilities Council (STFC). This was presented at a workshop for local tourism providers to further encourage businesses to take advantage of the designation (Owens 2010a). The Welcome Pack (STFC and FESDSP 2016) is a comprehensive booklet that was supplied to accommodation providers to give to their guests. In doing so, it establishes hotels, B&Bs and other accommodation venues as starting points or 'gatekeepers' for the Dark Sky Park. The booklet even includes a blank page where accommodation providers can include a map of their site, on which they might mark their favourite spots to see the night sky. For Laura Davidson of the GGLP Biosphere Experiential Tourism Project, accommodation providers not only introduce visitors to the region but can provide a "personal service" that helps build meaningful connections with place. This has manifested through the provision of red-light head torches, blankets and planispheres[38] at hotels and B&Bs for guests, and in some cases, later breakfasting and check-out times for those guests who stay out into the small hours (see also, Meier 2019: 63). In this way, businesses − particularly accommodation providers − are not only first points of contact and sources of local knowledge for visitors but may also become caretakers of the dark sky experience. This further supports an ethos of quiet, dark exploration in that visitors can 'holiday' at a pace that allows their experience to unfold slowly, shaped and scheduled around their particular interest or passion. To support accommodation providers and local businesses in the initial years following the designation, Keith Muir and Steve Owens also delivered regular public talks and stargazing events at the GFDSP's visitor centres, while FES and GSAB ran semi-regular 'Star Tips for Profit' workshop events, which included tips on the wheres and whats of stargazing and astronomy tourism, and also sought to link up businesses with astronomy products and encourage collaborations with regional

[38] A planisphere is a simple hand-held device with a rotating wheel that enables users to accurately see what stars will be visible at different times of the year. Planispheres are designed based on geographic location.

stargazing services (for example, business partnerships between Biosphere Dark Sky Rangers and hotels).[39]

However, with the rising demand of a blossoming astrotourism sector, bolstered by touring dark sky outreach programmes and the awarding of a further four IDSPs in the UK and Ireland, it became clear that a different solution was needed; one that would ease pressure on existing staff and enrich the GFDSP's dark sky educational outreach, a key requirement of IDA status. In early 2015, the GSAB posted an advert, inviting applicants from across the region to become a 'Biosphere Dark Sky Ranger'. Inspired by the dark sky rangers of the US National Park programmes who 'protect and share *the other side* of the park' (National Park Service n.d.b., my emphasis), the Biosphere Dark Sky Rangers would facilitate relationships with the night – and would represent a stewardship of the planetary variety, communicating a care and concern for environment both underfoot and overhead.

Unpaid, the titles would be offered to four already established freelance business owners; people who knew the region intimately, and together would offer a diverse set of experiences through which to refract the Dark Sky Park and the Biosphere, both of which were proving to be difficult-to-grasp concepts for those living and working in the region (EKOS 2013: 21).[40] The Biosphere Dark Sky Rangers were to be communicators, not experts, emphasised in the role description, which stated (GSAB 2015):

> We are not looking for astronomers, we are looking for people who can bring a subject to life and explain in clear simple terms to visitors what a subject is about.

Over and above the transmission of knowledge then, was valued a capacity for 'passion-led learning that exudes enthusiasm about the Dark Sky Park and the Biosphere' (Biosphere Rangers Report 2016). In the unfamiliar dark of the GFDSP, Rangers would create meaningful ways in. Like bright stars, they would offer a point of connection and stable footing from which to access the night sky and dark landscapes below. For Keith Muir, they

---

[39] Biosphere Dark Sky Rangers Jesse Beaman and Elizabeth Tindal have both partnered with accommodation providers across the region. Rangers meet guests at their hotels and run group events onsite or collect guests to take them on a night walk or stargazing experience. At the time of writing, the GSAB is devising more general tourism packages that incorporate dark sky experiences as an outcome of a recent project, Sustainable Heritage Areas: Partnerships for Ecotourism (2017–2020) (this project is discussed in Chapter 6). A trial run was conducted in 2019 with a travel writer and the review shared on her website (Kamleitner 2019). The package included bike hire, a guided wildlife walk, self-contained accommodation and an evening stargazing experience with Biosphere Dark Sky Ranger Elizabeth.

[40] I discuss the Dark Sky Park and Galloway and Southern Ayrshire Biosphere as 'fuzzy', difficult-to-grasp concepts and geographies in Chapter 5.

are "the people that bring it to life for visitors, whether they're in the Dark Sky Park or the surrounding area". Keith's description asserts the diverse skillset of dark sky educators and the expansive possibilities of dark sky experiences. It is a view shared by Sébastien Giguère, Education Director at the IDA-designated Mont-Mégantic National Park in Canada: "we're sharing science. And science isn't only about equations and white coats, it's about the mystery of our presence in the universe and why are we here and why this is so fabulous" (Bogard 2013: 197).

Each of the Biosphere Dark Sky Rangers draws upon their existing relationship with the region. Morag is a photographer and artist who also leads workshops and tours on outdoor photography from Galloway to the Arctic circle. Elizabeth operates as 'Freelance Ranger' and draws on her background as a Country Ranger for Dumfries and Galloway Council by offering sensory 'Darkness and Stars' walks, fire-making workshops and activities designed for children (Fig. 4.10).

**Figure 4.10. 'Darkness and Stars' visitor experiences.** Left: Poster advertising a free event with Biosphere Dark Sky Ranger Elizabeth Tindal in March 2017. Right: Elizabeth and visitors enjoy stars and a fire pit at the Cairnsmore of Fleet National Nature Reserve. Image credits: Elizabeth Tindal.

Matthew is a storyteller, weaving myths, legends, personal tales, science and the occasional ghost story throughout his stargazing activities, which most often than not, take place around

a fire pit. At the beginning of my project, there was one other Dark Sky Ranger who ran a trekking business that incorporated stargazing and astronomy.[41] Around a year into the Ranger project, two new people were enlisted: Jesse and Helen, a couple who had recently moved to the area, attracted by the dark skies of Galloway and looking to carve out a space for their new astrophotography and stargazing business (Fig. 4.11).

Figure 4.11. Stargazing at Clatteringshaws Loch. Biosphere Dark Sky Rangers Jesse Beaman and Helen Cockburn guide visitors around the stars at the shores of Clatteringshaws Loch in July 2018. Image credit: Jesse Beaman and Helen Cockburn / Dark Sky Adventure.

Unsurprisingly, the Dark Sky Rangers focus on the development and delivery of public events and science communication, but they also cultivate a sense of wonder and mystery in visitors through a diverse range of 'interpretative activities' (Charlier and Bourgeois 2013: 194). Matthew shares that he "encourage[s] people to have a much more immersive experience of the night skies", often structuring his events around a journey from light to dark and featuring a warm campfire around which people can share stories and experience being together in the dark night, often for the first time. His approach reflects an increasing affirmation of the contributions that astrotourism makes to human development and wellbeing, through experiences that are unusual, participative and memorable (Fayos-Solá, Marín and Jafari 2014: 664; see also, Rodrigues et al. 2022; Gallaway 2010). For Elizabeth, learning does not have to

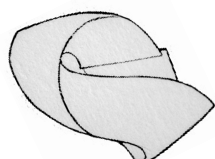
[41] Early into my fieldwork, Marie (GSAB) explained that this person had relinquished the title as it had not made a significant enough enhancement to their business. I did not speak to this person during my fieldwork.

be didactic. It should also be fun and memorable. She explains that overall, it is best not to state more than six facts since information becomes difficult to absorb after this. She will often place a light or set up a small campfire on the ground to represent the sun, and then invite her groups to act as the planets, positioning themselves in relation to the sun. Through this simple but effective formation, a group of stargazers can "experience" the mind-blowing vastness of the universe in a way that feels personal, grounded and fun. Similarly, at a public stargazing event, Jesse Beaman paused his introductory slide show presentation to ask the audience to use their hands as a stand-in for the Earth and the Moon to better understand the movement of one in relation to the other and why we never see the dark side of the Moon (Fig. 4.12).

Fig 4.12. Why we never see the dark side of the Moon. Field sketch from stargazing event with Jesse Beaman, Biosphere Dark Sky Ranger. Here, the right hand acts as the Earth and the left hand as the Moon, the palm a stand-in for the 'bright' side of the Moon and the back of the hand, the 'dark' side, not visible from Earth.

The Rangers do not simply transmit knowledge but support a more approachable and holistic experience of the night sky. Through interactions which weave together instructive *and* embodied modes of engagement, a "journey into darkness" encompasses an introduction to a dark night sky, but equally the new sensations and relationships that are fostered with natural darkness during these activities. Through activities that use the human body as a stand-in for celestial bodies (Elizabeth and Jesse's demonstrations), or which invite people to collectively assume an ancient form of sociality (Matthew's campfire stories), dark sky experiences can invite visitors to use and *feel* their bodies differently in place and in relation to others (Bondi

2005; Macpherson 2009). As Dark Sky Rangers set up imaginative, affective and embodied relations between above and below, visitors are *grounded* in the cosmos. The Rangers' respective commitments to the affective dimensions of stargazing reflect what educator and environmentalist Mitchell Thomashow describes as the 'subtle' educator, whose aim is 'not just to raise awareness [of the world around us], but to encourage perception and facilitate wonder' through a 'place-based perceptual ecology' that foregrounds the sensory and situated in the learning experience (Thomashow 2002: 3; see also, Dunkley 2018a). These are two aspects of dark sky experiences that remain under-explored in astrotourism literature, and which the following passage explores through a sensory (auto)ethnography of and observant participation in a stargazing event held at a public observatory in the Dark Sky Park.



### *Turning towards the dark: research re-situated*

Situated atop Meikle Knowe[42] of Craighead, the Scottish Dark Sky Observatory (SDSO) is not a high-altitude location by any stretch of the imagination and yet its partly precipitous approach via a single-track road might make you think otherwise. It feels like an initiation: a long sequence of speed bumps facilitates a slow ascent through woodland, which gets increasingly colourless, softer, mutable, as the evening dips into night. After passing the Craigengillan house and stables, the track grows steeper and sinuous; I am thankful to be arriving early in my capacity as a volunteer for tonight's public event, still able to access some daylight for the way up and to enjoy the site on both sides of sunset.

Visitors arrive in gentle waves of individual carloads, and after giving their booking details, look around the shop and museum areas, as the Resident Astronomer, David Warrington sets up

[42] While Meikle Knowe means 'great hillock', an 1851 Ordnance Survey report of the Craigengillan Estate (in which it is situated) describes it as 'a small rocky mound […] The term Meikle is not very applicable in this instance it is probably named in reference to some smaller elevation no longer known by any name.' (HES 2006).

the space. The event starts in the planetarium, chairs neatly arranged in lines that follow the curves of the dome. Videos of the solar system and the night sky are projected in front and above us, already encouraging an upward tilt of the body. Here, we learn about light pollution and our place in the universe through a short film, and then the planetarium comes to life as a view of the night sky seen from the observatory's point of view, is projected above and around us using free software called Stellarium. David points out constellations and areas of the sky where tonight, we will "hopefully… clouds permitting" be able to look at some distant stars through the telescopes.

After a breezy Q&A, its pace motivated by an eagerness to get outside, I follow visitors onto the observing deck of the SDSO and stand among the group as David addresses us with an introduction to the observatory and the Dark Sky Park. Among this crowd, I engage in observant participation and sensory ethnography (Stoller 1997; Howes 2003; Dewsbury 2011; Volvey 2016; Pink 2015), sensitive to the experience of my body within 'a collective social experience' (Morris 2011: 335). I attend to what geographer Mark Paterson calls 'the somatic senses' (Paterson 2009: 768), a term that includes sight, touch, smell, taste and hearing (commonly referred to as 'the five senses'), but also 'acknowledges the multiplicity and interaction between different internally felt and outwardly oriented senses' such as proprioception (a sense of one's body in relation to itself and its surrounding milieu) (loc. cit.). I am interested in how the experience is shaped by the SDSO and how it *feels* to be a visitor. What kinds of relationships are being encouraged by the SDSO's team and setting? Through what activities, narratives and spatiotemporal practices is the Dark Sky Park made *sensible*?

During the talk, our group seems to be learning how to tune in to our guide's voice while also keeping an eye out for the stars. We bump shoulders in the dark as we crane our necks and spin

on the spot, tracing invisible lines between stars. The quiet but constant sound of outdoor clothing suggests both the discomfort and excitement of waiting and wondering. For now, David maintains our connection with Earth, speaking of light pollution and the importance of preserving natural darkness. He guides our attentions to the North where we can see the brightly lit towns of nearby Dalmellington and the more distant Ayr, and further still, the city of Glasgow blinking back at us.

> "Now, if we turn to the South, we're looking directly into the Galloway Forest Dark Sky Park".

Figure 4.13. Light pollution beyond the hills. Sketch of view North from the Scottish Dark Sky Observatory's viewing platform.

I know this geography already, yet there is something in the turning − a clean 180 degrees − that *feels* significant; such a simple but effective manoeuvre. I find myself thinking of dark sky education beyond the satellite imagery of indiscriminately lit towns and cities, the disheartening facts and figures that detail a

lack of exposure to the Milky Way, the damage done to nocturnal wildlife. The observatory, with its open viewing platform, had planted us *in* the sky and shown just what a difference a designation might make, turning us first to the twinkling lights and skyglow in the North and then towards the soft, mute darkness of the Park. It is a tangible reminder for me, as both visitor and researcher, that our sensations and sense-making are both embodied *and* emplaced (Pink 2015: 28; see also Böhme 1993: 120).

The placement of the SDSO on this axis was not an element of its design but a happy accident, as Mark − the owner of the Craigengillan Estate − shared during our walking interview in the Spring of 2018. He was also delighted to discover, when looking through a first edition OS map and handwritten accounts of the estate some years after the opening of the SDSO, that there was in fact a smaller observatory built on the estate in the mid-19th century, of which there remain some traces of the foundations (see for example, Historic Environment Scotland 2006). The position of the observatory is ideal for astronomy and follows a long tradition of observatories being located at points of elevation (Challéat, Lapostolle and Milian 2018: 2), where the astronomical 'seeing' is much better, the air free from atmospheric turbulence and less likely to be affected by light pollution spilling out from neighbouring towns and cities. This has come to support a common assertion within astrotourism literature that the 'earthly surroundings' of a dark sky site are of no great importance to visitors, as observed by Deborah Slater (2019: 5; Ingle 2010). However, as we enacted the North-South axis of the SDSO's viewing deck by turning ourselves towards the dark, it was clear that the situated – whether intentional or not – played an important role in shaping visitor understandings of what the Dark Sky Park *means*, its value in enabling such encounters with the cosmos. An axis that symbolically divides urban and rural as a framing for dark skies, is not without its

problems of course. However, the enactment of its positioning oriented my enquiry more directly towards the ways in which the *place* of the GFDSP is variously deployed and performed as part of its discourse, and equally, how the 'environment' or 'situatedness' (McGhie 2020a) of the Dark Sky Park and its infrastructures shape visitor experience regardless of practitioners' intentions.[43] An (re)orientation to the situated and environmental at the SDSO suggests a more expanded imagination of the role that public observatories might play in the context of an IDSP, not only as physical structures for accessing specialist knowledge and education, but as atmospheric, emotional and affective sites through which our experience of being in and of the world is structured and creatively negotiated (see for example on the subjects of architecture and heritage, Pallasmaa 2005: 71; Sumartojo 2022; Edensor 2022: 122)[44] that can foster complex sensory relationships with dark skies and dark landscapes. This prompted me to attend not only to official narratives and visitor experiences as structured and performed by the Resident Astronomer and volunteer team, but equally to the less explicit, less tangible ways in which dark sky values become tangible as part of an environmental and experiential milieu. Further, it extended to my experience of knowledge-making, the (re)orientation to the observatory's axis as well as my experience of driving up to the site, a reminder, as Shanti Sumartojo and Sarah Pink (2017: 11) argue, that 'researchers and participants in projects live in, and as part of, atmospheres. Our 'knowing' is produced '*in* atmospheres' (loc. cit., authors' emphasis; McCormack 2010). The critical role of site in the shaping of dark sky knowledge would come to have an

[43] I explore the situatedness of the Dark Sky Park at length in Chapter 7.

[44] See also in this thesis, Chapter 6: *Sinking into it: an unlikely guide to Galloway's dark skies*, where I explore a Neolithic chambered cairn through a number of sensory and situated approaches, guided by a local resident.

increasingly central place in my research engagements with the Dark Sky Park.[45]

**"The stars are a bonus": social and environmental milieux**

"Knowing the names of the constellations is important, but also knowing the names of the cloud types that are ruining our view is handy too," Elizabeth laughs. The inclusion of these other details and forms of attention are not only enhancements to a stargazing event, but crucial to their success. While it is quite well-known that dark sky communicators will need to be able to offer excellent quality indoor events in the case of bad weather, the specific forms of engagement that they facilitate for visitors are deserving of greater consideration if we are to understand the visitor experience in the GFDSP. Both Elizabeth and Jesse noted that while high-resolution images used in marketing materials can stoke the imagination and entice people to visit (Charlier and Bourgeois 2013),[46] they may lead to disappointment during events when visitors discover that their eyes are no match for a diligent astrophotographer, a decent camera and editing software. In good jest, Elizabeth says: "The stars are a bonus". For this reason, she has increasingly focused on the "textures" of darkness, gathering her various night-time events and experiences under the title 'Darkness and Stars'. The social dimension of stargazing is an important focus of these experiences, often facilitated through the construction of a campfire, through which visitors can experience a sense of togetherness as they keep the fire warm for each other and through acts of sharing food, drink and stories. At the end of the evening, Elizabeth presents an empty tin, which she invites guests in turn to fill with water, pour over the fire and share a moment they enjoyed or any other reflection from the evening. Matthew also uses a firepit and storytelling to help anchor visitors in the cosmos. He explains:

> [I]t was through the storytelling of my grandmother that I first made a connection with the stars. […] I seek to carry on that tradition […] I always have a fire pit and we sit round this, in much the same way that our ancestors did when they looked up at the skies in millennia past.

[45] I explore in greater depth the significance of site to dark sky experiences in Chapter 7.

[46] See also, IDA's annual astrophotography competition 'Capture the Dark', which celebrates the importance of nighttime photography in the dark sky movement: 'A photograph of a naturally starry sky connects those who've never laid their eyes on the Milky Way to a universe hidden behind the veil of skyglow. It has the power to transport us, understand our place in the world, and inspire us to connect with, and ultimately protect, the night.' (IDA 2020).

Through the facilitation of experiences that are convivial and communal, a sense of place emerges and is sustained by a temporary social or emotional milieu (Morris 2011; Edensor and Lorimer 2015), as visitors are encouraged to share their own knowledge and memories of the night sky, each one a thread that forms a larger structure of belonging and meaningfulness (Slater 2019: 238). Public events in the Dark Sky Park often include hot food and drink, the activity of gathering around a serving table or toasting marshmallows over a campfire providing opportunity for visitors to reflect on their experiences together, often with strangers. At the events I attended, the delight that many visitors expressed when it was time to eat or to have a hot drink, fostered a sense of intimacy as we moved from the collective joy of looking at the stars to the shared satisfaction of a bread roll and warm soup. It is an experience further enhanced by the flickering light of a campfire, bringing the unknown faces of our companions into soft relief. As cultural geographers of the night have noted, the interplay of soft warm light and darkness fosters intimacy between strangers and can soften the hard edges of social anxiety and propriety (Falconer and Edensor 2015; Morris 2011; Bille and Sørensen 2007). The feeling of being out together at night, in the dark, may also offer a level of safety and camaraderie that enables personal fears of the dark to be assuaged. In Deborah Slater's study of astrotourism in the GFDSP, she observes, during a night walk, an increasing intimacy that is facilitated by the proximity between bodies as they pull close together to better negotiate the unlit path ahead. This 'resulted in stray touches, as people helped each other over rocks and other obstacles', adding 'these touches were reassuring and did not feel in anyway[sic] intrusive' (Slater 2019: 183).

At a public event hosted by Biosphere Dark Sky Rangers Jesse and Helen at Kirroughtree Visitor Centre, I observed the different ways in which the visitor experience unfolded as we moved from an indoor presentation to gather outside on a section of grass beside the Visitor Centre. While inside, we (an audience of approximately 50 people) sat in neat rows with our soup and hot drinks as Jesse gave a visual presentation on 'Our Place in the Universe' and answered questions from the audience. As we moved outside, the experience became more disordered, guests fanning out across the grass and talking quietly in small groups and pairs, some sitting together on picnic benches, others rolling out a raincoat or picnic blanket to lie on. Meanwhile Jesse and Helen set up their equipment, a very large pair of binoculars, several of which had been purchased by the Biosphere for use by the Rangers. Though disordered, I experienced the outdoor component as a more personalised and intimate mode of learning about the night sky. Visitors asked Jesse questions while looking through the binoculars, sometimes swapping places with Jesse and then back again, sometimes emboldened enough to

point things out to their friends or to tug on a companion's jacket to pull them closer, eager to share the view. Those who were in pairs or groups, seemed to enjoy watching the others as they looked for the first time, delighting in their companions' reactions and hungry to swap notes or confirm their experiences. Behind them, the eager queue performed a shuffling dance of quick glances up and around, while they waited for their own private moment with a planet or star or nebula, all the while speaking in hushed voices (see also, Slater 2019: 168).

And yet the 'main event' had not happened. We were there to watch the Perseids meteor shower, one of the most stunning and lively of celestial events with up to sixty meteors visited upon the Earth every hour during its 'show'. Luckily, the sky was clear without suggestion of cloud and the gibbous moon would not rise until much later in the evening. As the sky moved into its deeper darkness, we were furnished with small bursts of light, which registered palpably across our bodies in involuntary gasps, whoops and laughter, moving through us like electric current finding a path to earth. Experiencing others in this way felt thrilling and intimate. No, we were not suddenly on first name terms, but something akin to a closer knowing or appreciation perhaps, of our mutual interest and curiosity, our proximate sensations and feelings. Similarly, in his account of the participative public art installation *The Speed of Light*, Hayden Lorimer describes the 'unusually relational' feeling of being 'alone-together' and a sense of regret or loss at the end of the event as participants headed home (Edensor and Lorimer 2015: 11).

While stargazers may train their imaginations and eyes on stars and planets, their entire bodies are engaged in the experience, from the gentle adjustments of telescope equipment to the acute experience of cold setting into toes and fingers. Stargazers, tourism studies scholar David Weaver suggests, may be developing a keener sensitivity to landscape and atmospheric conditions, as the concern for good weather and 'nice' skies becomes less an 'augmentative backdrop' but rather more central to the visitor experience (Weaver 2011: 41). I felt this especially in our group's transition from being seated indoors looking at high resolution images of celestial bodies projected onto the café walls, to being outside in a surround whose slow but steady increments of atmospheric change gave me plenty to look at, but were also changing the way I experienced my looking; a reminder, as Chris Otter describes, that the eye is 'a sublimely complex interface between body and world' (Otter 2008: 23; see also, Ingold 2005). Engaged as such, stargazing bodies may experience the night sky as mutable, immersive and voluminous, and darkness as 'a nuanced and textured event' (Vannini and Taggart 2015: 638) in and through which multiple things – humans, non-humans, materials, weather, sensations, emotions – co-compose the experience and sense of place (Morris 2011: Lorimer

and Wylie 2010: Macpherson 2009; Dewsbury et al. 2002). Visitor offerings such as stargazing or 'naked-eye astronomy', which are 'more contemplative than technical' (Challéat, Lapostolle and Milian 2018: 2; see also, Blair 2016: 83) and more improvisational than instructional, gesture to an enactment of dark sky experience beyond astronomy and an understanding of dark sky values beyond the sometimes-instrumentalising language of knowledge and protection that is common within conservation and heritage imaginations (Prescod-Weinstein 2021; Vreese et al. 2019; Himes and Muraca 2018). The following section explores how the GFDSP's most passionate advocate and decision-maker, Keith Muir, has endeavoured to explore and promote a richer picture of the Dark Sky Park through interdisciplinary events and creative interventions.

**"The whole experience": a Dark Sky Park beyond astrotourism**

Promoting an understanding and experience of dark skies beyond astronomy has been central to Keith's efforts in developing the Dark Sky Park in the years since the designation. The following discussion considers two vehicles through which Keith has sought to explore what he calls "the whole experience" of Galloway's dark skies. The first is the inaugural European Dark Sky Places (EDSP) conference held in Gatehouse-of-Fleet in September 2017, and the second, *Sanctuary*, a semi-regular experimental arts festival that took place immediately afterwards in Talnotry, one of the darkest parts of the Park. The title chosen for the EDSP conference was 'More than just light', indicating the ambitions of Keith and the GSAB team to broaden an understanding of dark sky designation beyond light pollution abatement and to explore what IDSPs represent and what they might achieve and facilitate following designation. Ahead of the conference, Keith sketched out themes such as 'Regulation', 'Impact on Humans', 'Environmental' and 'Education', under which he listed various questions, from the evidence-based – 'do IDSPs have more variety of wildlife than in other places?' to the philosophical – 'why are the stars such a draw to humans given that so many have never seen the Milky Way?' The multi-disciplinary programme featured session topics from lighting design and policy to the cultural values of starlight and darkness. Interspersed throughout this were presentations from various IDSPs, each sharing their origin stories, the various ways they engage their respective visitors and how they resource their work. My research was also featured as part of the programme, through a poster presentation that introduced the project, its methods and intended outcomes and through a panel entitled 'The Return of the Dark and the Importance of the Night Sky', which I participated in along with my supervisory team, Dr. David Borthwick and Prof. Hayden Lorimer (as Chair), and artists

Laura M. Harrison and Robbie Coleman. Bringing together our respective research and creative engagements with darkness, the panel discussed the cultural losses arising from light pollution and a growing interest to revisit the dark through artworks, festivals and other forms of recreation and leisure. Our discussion brought the intangible values of darkness and starlight firmly into the conference space, generating questions and reflections from the audience that suggested both a keen appetite to enrich the language that the movement uses to communicate the importance of dark skies and intrigue in how creative practitioners 'work with' darkness and starlight. Such curiosities could be further pursued through the evening programme, which invited delegates to enjoy the convivial and enchanting dimensions of darkness and stars through a bat walk around the grounds of the hotel in twilight, an astrophysics-infused magic show, and the activity that many were itching to do − simply look at the stars together. The conference came to a close with a workshop entitled 'Calls for Action', led by IDA's IDSP Program Manager John Barentine who invited delegates to work together across disciplines on a set of key questions and challenges to be taken forward by the European Dark Sky Chapter. These questions ranged from the focused – 'How to effectively encourage the development of dark sky friendly lighting?' to the open-ended and collegial – 'Are there opportunities for collaboration?'. As such, the conference presented an opportunity to share challenges and opportunities, facilitate new collaborations, and broaden one another's horizons of practice.

From the perspective of Keith and his team, it also opened a speculative space for imagining what the GFDSP might achieve and facilitate at this stage of its development, eight years on from the designation. Though some of the questions included in Keith's initial planning document directly addressed the role of IDSPs (e.g. 'could dark sky places be the answer to rural development?'; 'can we use dark sky places to get people to slow down in an increasing world of speed and activity/inactivity'), many were pitched to the international dark sky community more broadly, suggesting a sense of the Dark Sky Park as an important vehicle through which the aspirations and challenges of international dark sky preservation might be addressed and explored. Such an aspiration was reflected in John Barentine's opening address to delegates, in which he affirmed that IDSPs "show what is possible" (see also, Gallan 2014: 175).

To position the GFDSP as such is to make a case for the inclusion of IDSPs and their stakeholders in the production of interdisciplinary research on dark skies, a position that continues to be overlooked by scholars and dark sky leaders whose call for interdisciplinary knowledge transfer is proposed only 'from night studies scholars to practitioners'

(Kyba et al. 2020: 4). Similarly, the Vision and 5 Year Plan for the SDSO, includes the establishment of a 'Dark Sky Field Centre' that could resource a growing community of researchers and organisations based in and visiting the Dark Sky Park and Biosphere: 'The field laboratory would provide not only a base but also a centre for sharing information and ideas' (Craigengillan Estate n.d.b [7]). Keith's direct involvement in the development of this PhD research project is one further way in which interdisciplinary research on dark skies can be conducted in collaboration with an IDSP (see also, Challéat, Lapostolle and Milian 2018: 13). He is interested in the creative potential of the Park, curious about how it might inspire others and what it can produce. This project, he explains, is one way through which such potentialities can be identified and shared.

Keith's aims to share the diverse possibilities of an IDSP were also realised through a programme that positioned the conference back-to-back with *Sanctuary*, a small arts festival which has taken place in Talnotry, a few miles west of Clatteringshaws Loch, on a semi-regular basis since 2013. While this made a great deal of logistical sense, considering that many delegates had travelled long distances to attend the conference, it also reflected Keith's ambitions to cultivate meaningful relationships between dark sky conservation and the arts. While the Dark Sky Park is home to a number of permanent artworks such as Dalziel + Scullion's *Rosnes Bench* (2012), Colin Rose's *The Eye* (1997) and Matt Baker's *Qorum* (1997), the arts as a vital communicative device for deepening public understanding of light and darkness in landscape have been explicitly championed by Keith Muir (see also, Slater 2019: 184). During a walk with Keith through Kirroughtree Forest in early 2018, we talked about the value of creative interpretation in a landscape context, how artworks can prompt new thoughts, feelings and sensations, taking us off the beaten path both literally and metaphorically. "Art", he notes, while gesturing to a peculiar sculpture ahead of us – a bike saddle attached to a tree like a shelf fungus – "makes you curious, it makes you ask questions, even if the question is just *What on earth is that!?*". The arts, then, are a suitable accomplice for Galloway's dark skies, helping both to amplify the beauty of the night sky whilst expanding visitors' experience of the Forest Park, a key focus for the GFP's Recreation Team.

*Sanctuary* is an excellent example of how this can be achieved for Keith. His professional backing of the festival, which takes place on FES-managed land has been crucial in enabling it to go ahead year after year, support for which lead artists Jo Hodges and Robbie Coleman have gratefully noted (Sanctuary 2015, 2017). The festival runs for a full 24 hours, usually in late September with most of its events and installations scheduled for the dark hours. *Sanctuary* aims to provide 'a temporary escape into darkness of all kinds' from the 'physical darkness'

made possible by the conditions of the Dark Sky Park, and the 'electronic darkness' of temporarily disconnecting from the devices that mediate our everyday experiences (Sanctuary 2017). This dimension of *Sanctuary* is partly necessitated by Talnotry's geography (driving into the festival campsite, my car radio would flicker and fail, as if crossing a threshold), and partly encouraged by *Sanctuary*'s organisers, who opened their 2015 edition of the festival with the provocation:

> In the future we imagine a need to designate places where we are free from being tracked, traced, and our data mined via our devices. Who will come to such places and what will happen there? (Sanctuary 2015)

**Figure 4.14. Various artworks and projects featured at *Sanctuary* arts festival.** Top left: Robbie Coleman's 'Enclosure', a 100ft circular neon sculpture, dramatising 'the contrast between urban light and the pure dark'. Top right: 'The Dark Outside FM', a 24-hour radio show of previously unheard music curated by Frenchbloke and accessed by bringing your own FM radio to the site. Bottom left: 'Tenebrous: Into the Darkness – Beneath the Light', which invited participants to don wetsuits and 'venture beneath the surface of Palnure Burn to create a sound and moving image installation'. Bottom right: A keepsake from 'Confiding Dark' by David Borthwick and Kirstin McMahon which invited people to share stories, anecdotes, memories, dreams of darkness and the night, one-to-one.

As the name suggests, *Sanctuary* is about refuge and retreat, but in framing itself as 'an experimental space' and 'temporary community' (Sanctuary 2015) it presents a reformulation of withdrawal and retreat as a conscious suspension of the usual rules of engagement and a commitment to exploring alternative ways of being in the world. Indeed, *Sanctuary* is described by Hodges and Coleman as a 'lab', a word often used by artists and interdisciplinary researchers to indicate creative experimentation, works in progress and the presentation of artworks that have a participatory element (Kester 2004; Barrett and Bolt 2007; Duxbury, Garrett-Petts and Longley 2018: 6). Examples of artworks presented at *Sanctuary* include spectacular pieces such as Robbie Coleman's 'Enclosure', performative and participatory interventions such as 'Tenebrous: Into the Darkness – Beneath the Light' by John Bowers and Alan Smith and 'The Dark Outside FM', and more contemplative, relational engagements such as 'Confiding Dark' by David Borthwick and Kirstin McMahon (all Fig. 4.14).[47] Visitors to *Sanctuary* seem keen to embrace the invitation to disconnect with usual ways of being, as noted by Deborah Slater in her study of astrotourism in the GFDSP. At the 2015 edition of the festival she observes the 'very unusual' behaviour of guests who did not seem at all anxious to attempt to capture their experiences through photographs or video, despite describing their experience as "profound". Rather, they were content to simply be in the experience (Slater 2019: 182). While dark conditions pose a challenge to the creation of photographic mementos, Slater's observation also speaks to how *Sanctuary*'s unusual atmosphere suspends habitual forms of event engagement and consumption (see also, Edensor 2012). With its invitation to visitors to engage in self-led, 'slow, dark exploration' (Muir n.d.), one does not need to make too great an imaginative leap to think of the Dark Sky Park as a close relative of *Sanctuary*, facilitating 'improvisational performances' of place relation and inhabitation (Edensor 2012: 76). *Sanctuary* and the EDSP conference reflect Keith's ambitions to promote a richer imagination and experience of Galloway's dark skies, in the sense of what people might think dark sky places are and what they offer, but also the different ways in which we encounter them. Such events also reflect a wider trend across dark sky places to include arts contributions in their cultural programmes, from temporary artist residencies (National Park Service 2022; King 2022) to workshops and events held at dark sky festivals (Mayo Dark Sky Festival n.d., An Lanntair 2022). Notably, both *Sanctuary* and the EDSP conference have created temporary community in which people – tourists, stakeholders and specialists – can experience and explore dark skies *together*, through one another's particular perspectives, fields of expertise and modes of engagement, provoking new experiences and values.

---

[47] In Chapter 7, I reflect on an artwork I produced for the 2017 instalment of *Sanctuary*.

## *Conclusion*

This chapter has narrated the creation of the GFDSP from the painstaking work of preparing an IDA application and gathering regional support, to the logistics and craft of engaging a new visiting public. I situate the newly minted GFDSP – the first of its kind in Europe – in an emerging international scene, in which tourism destinations such as National Parks and Nature Reserves are developing new relationships with the night sky and astrotourism through the IDSP model (Weaver 2011: 39; see also, Collison and Poe 2013). In the first half of the chapter, I describe the resources and expertise marshalled in support of the application and how the team behind it articulated the value of international designation as a unique selling point through which to enhance regional tourism and support a 'diversified forest', whilst also representing a natural fit for the region, already in receipt of dark skies and no stranger to unusual ideas.

I then discuss how the designation has been interpreted and mobilised as a regional resource through protective measures such as the inclusion of dark sky friendly lighting guidelines in local authority planning policies, to the creation of new public-facing ventures such as the SDSO and community-led asset mapping that tap into the promises of astrotourism to nurture sustainable development, whilst beginning to explore more expansive understandings of dark sky values. Introducing the Galloway and Southern Ayrshire Biosphere (GSAB), newly (re)designated four years after the GFDSP, I begin to elaborate an imagination of an IDSP as community resource (Meier 2019: 91; Gallaway 2010: 85) and ongoing process that intersects with existing practices on the ground (Challéat, Lapostolle and Milian 2018), the details of which I develop in the next chapter.

Turning then to the GFDSP's public-facing activities in the second half of the chapter, I chart how the recreational team initially envisioned and shaped the visitor experience, with a distinct commitment to engaging the non-specialist through promotional materials, guidance and public events that honour first-hand and first-time experiences. Most notably, the creation of the Biosphere Dark Sky Rangers has provided meaningful ways into a dark sky landscape through guided activities and experiences that impart knowledge about the night sky whilst encouraging personal exploration and conviviality. I explore how activities that bring into focus the sensory and situated dimensions of dark sky encounters reflect a wider development within IDSP practice to extend beyond an imagination of IDSPs as specialist enclaves that

focus on science communication to more explorative and open environments that facilitate diverse experiences of the night sky beyond the 'astronomical sublime' (Dunnett 2015).

Efforts to explore the possibilities of a Dark Sky Park beyond astrotourism are further discussed in relation to Keith Muir's commitment to include the arts and interdisciplinary research within the wider cultural programming of the GFDSP. With reference to the temporary arts festival *Sanctuary* and the multidisciplinary ESDP conference, both taking place in 2017, I discuss the ways in which key decision-makers are exploring the Dark Sky Park as both an important site of cultural encounter with dark skies and as a community of practice through which the aspirations of international dark sky preservation might be addressed and explored.

The chapter, then, begins to draw up an image of the GFDSP not just as visited, but as *peopled* and *practiced*, something I will continue to build upon in the chapters that follow. While the Dark Sky Park was promoted as a natural fit for the region and has been largely welcomed, its long-term integration has been more uncertain. In the next chapter, I shift the focus from a Dark Sky Park that *looks out* (to visitors, to its international community) to a Dark Sky Park that *looks in*, through a critical consideration of how key stakeholders and practitioners locate themselves in the 'narrative' of dark sky designation, and the various ways in which they hold and develop stakes whilst navigating structural changes and resource challenges.

# Chapter 5

## *Dark skies on the ground: stewarding the Park beyond the designation*

[B]eing designated the first International Dark-Sky Park is a reflection of more than what the park happens to have by virtue of its geography, it is also an acknowledgement of what [they] have chosen to do with it.

---

*Stars Above, Earth Below: A Guide to Astronomy in the National Parks* (Corky Hayes, quoted in Nordgren 2010: 417)

Stars, like thoughts, are not inevitable. Out of the diffuse disorder something may or may not coalesce.

---

*Things That Are* (Leach 2012: 142)

# *Introduction*

It made perfect sense in September 2017 that the inaugural European Dark Sky Places Conference − and the launch of an IDA chapter in the UK − would be hosted by the GFDSP, the first of its kind in Europe. Together, FCS and GSAB devised a programme around the theme of 'It's more than just light', a title that shifted the focus from the negative impacts of artificial light pollution to an exploration of what is gained by going dark. As a delegate at the conference, I experienced an enthused atmosphere and sense of purpose that travelled from session to session. Delegates spoke passionately about dark skies, engaged in cross-disciplinary exchange and shared experiences from their respective contexts. I was thrown, then, when shortly afterwards, I began conducting interviews to find that the Dark Sky Park, though eight years established, did not feature significantly in the day-to-day imaginations and practices of the region's conservation, heritage and environmental organisations and agencies. While the designation has boosted tourism during the winter months and inspired new ventures in and beyond the boundaries of the Park, its longer-term integration has been more uncertain, as those who might be considered its key stakeholders have struggled to engage with the Dark Sky Park in a professional capacity. This tentative stewardship of the Dark Sky Park has been further impacted by major structural change within Scottish Forestry, which highlights issues of leadership, co-operation and community ownership. After the dust has settled, how do stakeholders continue to orient themselves to their shared resource and its associated values? It is a question that is underexplored in DSS literature, despite the IDA's framing of dark sky designation as an evolving process that 'represent[s] the beginning of an ongoing relationship between the Park and IDA' (IDA 2018: 17) and which involves 'proactive protection' and development by 'Park leadership, staff, visitors, and the surrounding community' (IDA 2018: 3; see also IDA n.d.f; Blair 2016: 28).

This chapter, then, considers the challenges of stewarding and developing an IDSP beyond its designation. I discuss how the Dark Sky Park represents 'a new geography' for the region's environmental decision makers and land managers, and how its conceptual 'nebulousness' has proven difficult to engage with despite a tangible sense of pride and personal connection to Galloway's natural darkness and starry skies. Stakeholders share their concerns about a perceived loss of momentum and low community participation amidst structural changes and precarious leadership, but also identify potential stakeholder formations and assets that could more evenly distribute the benefits and opportunities of the designation whilst resourcing

broader participation and ownership. Through this, the chapter develops a richer understanding of dark sky stewardship in practice, showing how dark skies come to matter in different professional and community contexts, and how stakes are shaped by both personal and professional associations. As I explore the different ways in which stakeholders are making sense of the Dark Sky Park as shared resource, I also reflect on my research practice and its representational work. I return to the concept of *nebulousness* to tease out further insights on how the GFDSP as research site variously materialises through particular interactions, methods and epistemological framings.

# *I / Tuning in, ticking over: stewardship, stakes and structures*

**A new geography: a Dark Sky Park out of place**

Keith Muir (FES) referred me to an initial group of participants (8 individuals, representing 5 organisations − Andrew Jarrott (FES), Gareth Ventress (FES), Chris Rollie (RSPB), Marie McNulty (GSAB), Ed Forrest (GSAB), Callum Sinclair (SNH) and John Gorman (SEPA))[48] via email introducing them as "people and organisations that might influence or be influenced by the designation",[49] a description that captures a conventional definition of a stakeholder (Grimble and Wellard 1997; Wellard 1998; Reed et al. 2009). The purpose of these interviews had been to map the ways in which the Dark Sky Park was conceptualised, managed and engaged in professional practice; to understand the values attached to the Dark Sky Park by those with influence and decision-making powers. How did stakeholders describe the GFDSP? How was it understood in relation to the region's other designations and large-scale projects: a UNESCO Biosphere Reserve, multiple SSSI sites, a landscape partnership based along the Ken and Dee River catchments? To what extent were individuals and organisations involved in its activities and long-term planning? How would they like to see the Dark Sky Park evolve?

I invited participants to begin by telling me about their formal relationship to the Dark Sky Park and what it meant to them in their current role. I also asked to what extent they were involved in or remembered the application process for dark sky status, and if they could

[48] A list of participants is included in Appendix A.1.

[49] Email from Keith Muir on 2nd November 2017.

reflect on the impact of the designation several years down the line. From this, a conversation usually flowed, though I had my notebook on-hand with further questions and thematic prompts, some of which related directly to the person with whom I was speaking. I was referred to two further individuals (Lyndy Renwick (FCS) and Crystal Maw (RSPB)), and I also reached out to McNabb Laurie (GGLP) after meeting him at the EDSP Conference. One additional participant – Laura Davidson (GGLP/SUP) – was recruited at a later stage, after I saw her present at a public event. These 'organisational' perspectives set this chapter in motion. As the chapter continues, I position them alongside a wider constellation of voices and experiences that expand and trouble an understanding of what constitutes the Dark Sky Park's 'stakeholdership'.

"I'm not sure how helpful I'll be, but I'm happy to talk with you", reads the email reply from Chris, Area Manager for Dumfries & Galloway at the Royal Society for the Protection of Birds (RSPB). His response is echoed by others too, who seem curious and a little unsure about what my project will investigate. When I sit down with Chris in his office to introduce the project, he leans back on his chair and crosses his arms tightly over his chest, juts his chin forward as if listening for something: "Do animals look at the stars?... well, birds do." Chris touches on an important dimension that often gets lost in the human development and tourism imaginations of dark sky places: that the value of naturally dark landscapes exceeds the human pursuit of stargazing. Yet, he continues: "I don't know what to say really. The stars are very important to migrating birds, but I personally don't know an awful lot about that."

This would become a repeated sentiment throughout the interviews. While the application to the IDA had involved an intensive and successful programme of raising awareness and support across the region, it seemed that the Dark Sky Park was admired from afar and not actively engaged in the day-to-day practices and decision-making of my participants. FES Community Liaison Officer Lyndy enthusiastically supported and admired the endeavour but felt that she couldn't tell me much more about the application process: "Keith did all that. I thought the Dark Sky Park was a fantastic thing…" With a wide grin, she continued, shaking her head as if in disbelief: "I mean, I say that to Keith, it was inspirational." Her admiration was shared by John, Senior Environment Protection Officer at the Scottish Environment Protection Agency (SEPA), but again, there was a sense that the Dark Sky Park was something tucked away, at the periphery of stakeholders' day-to-day concerns:

> To be honest, personally, the designation just arrived out of the blue. I wasn't privy to the background conversations. I know the people that were, and they put an

> awful lot of work in, attending meetings to blow trumpets and court the politicians, to massage the wheels to make these things happen, so there was a tremendous amount of work behind the scenes.[50]

Keith's colleagues Andrew (Planning and Environment Manager) and Gareth (Environment Forester) confirmed that Keith oversaw the application but they took great pleasure in recounting the Dark Sky Park's origin story of strange goings-on of an evening by the edge of Clatteringshaws Loch, a story that had clearly raised some eyebrows among FES staff and had a great deal of mileage yet. The story came up on several occasions throughout the project, and as useful as it was in building rapport with stakeholders, I became increasingly aware of how it reinforced a certain peculiarity of the designation. Just like the amateur astronomers in Clatteringshaws Loch Visitor Car Park, it was something *out of place* − it would take some getting used to.

The peculiarity of the Dark Sky Park as a concept was noted by McNabb, Team Leader for the Galloway Glens Landscape Partnership (GGLP). He explained that while he was putting together the Heritage Lottery Fund (HLF) application for the GGLP, his efforts to thoughtfully incorporate light and darkness as a key thematic in the central project proposal, did not quite spark the imagination of the project partners:

> I was trying to push the consultants to see landscape in the broadest possible sense, what does an area make you feel… but there wasn't really any discussion about light and dark, which was probably a bit disappointing really. So, I've tried to shoe-horn that bit into this. It wasn't actually in the original plan.

Throughout our interview, McNabb depicts – with much dramatisation through gesture, sighs and shakes of the head – his commitment to exploring "a darkness point of view" as a bit wearing on his colleagues and partners across the region, framing his efforts to do so with phrases such as "I've tried to push that…" or "I've hammered that far too much…" While light and darkness contribute in a very special way to Galloway's 'sense of place', they are not immediately obvious as features of the landscape, McNabb explains. "Nebulous is a way to put it […] it's just, it is a difficult concept to get your head around." I admit to McNabb that I am impressed that he has made such an effort to engage an expanded imagination of the Dark Sky Park, given that the sky – let alone, light and darkness – remains underexplored within

[50] John, SEPA

landscape imaginations (Ingold 2011: 127; Blair 2016). Reading through the GGLP project proposal theme titled 'Inspiration – "light and dark"', there is indeed a tentativeness in the way that the region's relationship with light and darkness is storied. This is not for want of fascinating content or engaging writing, but more a feeling when reading along, of jumping between things and thoughts not quite coming to land. Artworks crafted in the area's unusual natural light are described alongside agricultural and scientific innovations, from the invention of deep ploughs to allow foresters to negotiate peatland, to James Clerk Maxwell's theoretical linking of electricity, magnetism and light (GGLP 2017: 63). The unique light and darkness of the region makes an impression but is tricky to pin down for the purposes of a landscape partnership project proposal.

Though a source of pride for people in the region, the Dark Sky Park's 'intangibility' as a feature of place remains a potential barrier to further engagement, as noted in a 2013 economic and social development report on the GFDSP, commissioned by FCS (EKOS 2013: 13). Though businesses "like to say they're close to it", they struggle to engage beyond this, Marie (GSAB) notes. A word that is often associated with the Dark Sky Park in the GSAB's 'Sense of Place' workshops is "imagination" but, Marie adds, "[I]t's difficult to know what to do with that". For Laura (GGLP), who had recently started her role as Project Officer for the GGLP-funded Biosphere Experiential Tourism Project, the Dark Sky Park was a curious concept:

> Laura: The window to the universe, how do you get hands-on with that?
>
> Natalie: It's very conceptual, right?
>
> Laura: It's quite far away you know, you can't touch the stars [laughs] so by its very nature you're quite passive because you are just looking at… so, thats a big question mark for me: how do you make that more immersive… *can* you, is there a way to do that?

This challenge is not unique to the GFDSP. The night sky remains an implicit, rather than distinct presence in natural resource management practice, its value to tourism more immediately accessible (Collison and Poe 2012: 6; Bell et al. 2014). Abraham, Sanctlebury and Zubidat (2018) and Lyytimäki (2013) note that natural darkness and artificial light pollution are rarely considered in ecosystem services valuation, despite their varied and complex effects on human and non-human biological processes and other 'ecosystem functions' (Lyytimäki 2013:

e47). Similarly, economist Terrel A. Gallaway has written of the hesitancy of policy makers and economists to engage with the intangible values of a dark night sky, whether the promotion of happiness, which may be 'too nebulous to lend itself to policy goals' (2015: 271), or 'the passive pleasures' of enjoying nature, which are 'perhaps easier to intuit than to articulate' (2010: 80–83). Such a challenge is reflected in debates around practices of re-wilding and access to 'wildness', wherein received cultural understandings of 'the wild' as a designated physical space protected from human interference (Cronon 1996; Heise 2008) are unsettled by critical conceptualisations of wildness as a quality of being and *worlding* which acknowledges the complexity of human-nonhuman relationships and the agency of nonhumans and ecological processes in landscape (Schulte to Bühne, Pettorelli and Hoffmann 2022; see also, Child 2021; Vannini and Vannini 2019; Prior and Brady 2017). Such understandings sit in tension with more traditional approaches to conservation that aim to protect and manage clearly delineated 'wild' land or individual species (Schulte to Bühne, Pettorelli and Hoffmann 2022; see also, Mathews 2016).

The nebulousness of the Dark Sky Park as a place or landscape concept was compared to the Biosphere, which participants often noted was also "taking a while to catch on". McNabb (GGLP) spoke only briefly about the Dark Sky Park as an entity and tended to refer to the GSAB throughout our conversation as if to suggest that they were kindred spirits, hitched together by the peculiar sense of place they evoke: one based not on discrete habitats, species and ecosystems, or distinct cultural landmarks and monuments, but a sense of the 'whole'. Indeed, at a public event[51] aimed at regional businesses, Ed Forrest, Director and Co-ordinator of the GSAB, describes the Biosphere as "very much a new geography". This seems an apt description for the Dark Sky Park, whose boundaries were often described by participants as "fuzzy" or "woolly"(see also, Challéat, Lapostolle and Milian 2018: 9) and seemed important to establish early in our interviews as if to get a grasp on this unusual entity:

> What are the boundaries of the Park again?[52]
>
> Is that Polmaddy? Oh wow, so it [the Dark Sky Park boundary] goes all the way up into Carsphairn.[53]

Tracing areas across a map, participants noted areas of geographical overlap, sites they

[51] 'Galloway is Special' was held on 4th October 2018 in Castle Douglas and organised by the GGLP.

[52] Chris (RSPB)

[53] McNabb (GGLP)

themselves dealt with; a way perhaps of finding common ground and firmer footing within our interview and within the 'idea' of the Dark Sky Park. Reflecting on this within the context of SNH where he works as Operations Officer, Callum shares:

> We've not been quite as good at lifting our head up, or actually turning our head down and looking underwater, so there's a lot of moves now for marine protection sites. Skywards is not really connected as part of that, other than an increasing recognition that these are all sums of the parts sort of thing.

Callum says 'skywards' rather than 'the sky'. It is a phrasing that de-emphasises the sky as a relatively stable landscape feature, instead suggesting a different way of thinking about landscape that expands or re-orients the existing practices of heritage and environment agencies towards the sky. As a "new geography" then, the Dark Sky Park presents new cues for landscape development and environmental decision-making. While the intangible qualities of natural darkness and starlight align closely with CES and have been incorporated into recreation and tourism planning in the Dark Sky Park (see Chapter 4), their integration into wider landscape development is less clear. The following section continues to think through these challenges in discussion with stakeholders. Expanding the field of focus to include informal engagements and personal associations, I reflect on how the Dark Sky Park and its values *come to matter*, and how dark sky stakes are developed through activities and associations that exceed professional roles and knowledge practices.

**Not enough at stake? How the Dark Sky Park comes to matter**

In early 2018, I walk with Keith along the Anniversary Cairn Trail in Kirroughtree, where we discuss the FES's recreation service's work and community engagement. The GFDSP was currently being featured in 'The Forest', a new BBC Scotland series 'revealing the hidden world of Galloway Forest, the country's largest afforested area' (BBC Scotland 2021). He was delighted at the press GFDSP was getting and how the show was helping – through a 'cast' of characters and reliable narrative devices of conflict and triumph – to share a side of the Forest Park "that a lot of people don't get to see – that this is a working forest". For Keith, this was not the only side of the Forest Park that would benefit from a closer look. Though the dark sky designation was a huge achievement and a source of pride in the region, he is disheartened by an apparent lack of wider ownership and engagement:

> It's [the Dark Sky Park] coming up all the time now, it genuinely is. It's coming up in the news, it's coming up in articles, people are talking about it and I'm thrilled about it, but… people don't understand what it is here, so there's a…
>
> Do you mean that they don't understand what the Park is?
>
> Yeah… well, a bit of both… appreciation yes, but what it actually *is* and what it *means*… there's more work to do.

"What it *is* and what it *means*…" Though the Dark Sky Park is certainly appreciated by a great number of people who live and work in the region, for Keith, its values must be upheld through sustained action and engagement. In the context of natural resource and ecosystem services management, such action is encapsulated in the term 'stake'. In stakeholder analysis (SA) theory, to have – or *hold* – a stake is to be recognised as an actor who affects or is affected by a decision or action, or, by a resource or entity, often categorised as 'impacts and benefits' (Grimble and Wellard 1997; Wellard 1998; Reed et al. 2009). To 'hold' a stake is to locate oneself or one's practice in the larger story of the thing at stake, and therefore describes a relationship of value, whereby the thing at stake has meaning and importance enough to motivate a stakeholder to act or respond (Reed et al. 2009; West et al. 2018). As anthropologist and activist David Graeber writes, value is 'something that mobilizes the desires of those who recognize it, and moves them to action' (Graeber 2001: 105).

While I have not used SA as a discrete method in this project, it informs my efforts to explore and articulate dark sky practice by mapping the multiple and diverse ways in which the Dark Sky Park is understood to be valuable to its stakeholders. A vast majority of dark sky programmes and designation projects have emerged through the efforts of astronomical societies and individuals with a passion for the stars (Owens 2011: 24; Charlier and Bourgeois 2013: 188; IDA n.d.b.; Nordgren 2010: 417; Fildes 2016) and individuals or groups who spend many hours outside at night as part of their work or personal interest (Meier 2019: 57). These stakeholders will have a strong personal relationship with the night sky and a 'working knowledge' of why it matters. However, dark sky designation increasingly involves a diverse range of stakeholders, each bringing their own particular language, concepts, values and practices to inform and shape the future of dark sky practice. In recent years, there have been a number of studies that have sought to map stakeholder perceptions and participation in dark sky conservation (Meier 2015, 2019; Heim 2020; Silver and Hickey 2020). Of these, Josiane Meier's (2015) study of three internationally designated DSAs has been particularly instructive

within DSS by identifying the varying ways in which different stakeholder individuals and groups 'orientate' to dark sky designation. Her dark sky actor typology maps the 'pre-existing interests' that influence DSA stakeholders; the familiar reference points that shape their imaginations of what dark sky conservation means and how they choose to participate in it (ibid.: 191). For example, stakeholders who fall into Meier's category of 'Heritage Preservationist', tend to use terms such as 'wilderness' and 'natural beauty', and link the pristine quality of an unpolluted night sky to a much older sense of the landscape, emphasising 'the relevance of protecting dark nights as part of protecting an intact historical setting […] to see and experience what it must have been like at night-time before the advent of large-scale artificial lighting' (ibid.: 188). Those stakeholders who are 'structurally related' such as business owners or politicians (ibid.: 191), are noted as being more likely to invest in the public dimensions of the designation: dark skies as a unique selling point for tourism and an opportunity to support regional economic development (ibid.: 189). Despite these differences in priorities, Meier reports that often one particular aspect of dark sky designation will meet the needs and expectations of multiple actors, despite their differing orientations. For example, increased publicity appeals to structurally related actors interested in increasing tourism, but it also appeals to the environmentalists wishing to raise awareness of the value of dark skies (Meier 2015: 192; 2019: 65) (Fig. 5.1).

While the GFP's application for international dark sky status was driven by the enthusiasms of starry-eyed individuals for whom the value of dark skies was clear (see also, Meier 2019: 57; Charlier and Bourgeois 2013: 188; Nordgren 2010: 417), what appears to be less accessible in the years following the designation are the ways in which stakeholders might become concretely and meaningfully involved in the continuing development of the Dark Sky Park. This is a view shared by Callum Sinclair, Operations Officer at SNH:

> I think folk have gotten used to the designation and are comfortable with it as well… it was just like bang, we've got this designation and it's wonderful and everyone should be excited about it and many *are*, but I think there's a lot of people walking about thinking, so it's dark [shrugs], it's always been dark. […] It's going to take a while for people to connect and figure out what's in that for them and what that means.

| Main Interests<br>✪ Core Interest // ◉ Pronounced Interest | Actor Groups | | | | |
|---|---|---|---|---|---|
| | The Astronomers | The Environmentalists | The Heritage Preservationists | The Politicians | The Business People |
| Conserving a window to the night sky | ✪ | | ◉ | | |
| Raising awareness for light pollution as a problem | ◉ | | | | |
| Reducing light pollution locally | ◉ | | | | |
| Protecting the night-time environment | | ✪ | | ◉ | ◉ |
| Increasing awareness for the park or region | | ◉ | | ✪ | ✪ |
| Supporting regional economic development | | ◉ | | ✪ | ✪ |
| Developing recreational qualities | | ◉ | | | |
| Preserving scenic/aesthetic qualities | | | ◉ | | |
| Protecting a historical setting | | | ◉ | | |

Figure 5.1. Dark sky actors. Josiane Meier's table showing 'Actor groups and their main interests.' Reproduced from Meier (2019: 65).

Towards the end of my interview with Callum and his colleague John, Senior Environment Protection Officer at SEPA,[54] I remembered to ask what their specific job roles were, to which Callum pretend-scowled: "I was enjoying the randomness of the conversation, now you've brought me back down to earth". With this, Callum took us full circle to the beginning of the interview, when he introduced himself by explaining that since SNH has no "legislative role or view in terms of the Dark Sky Park", he has engaged with the designation in a personal, rather than professional way. It was with this voice that he felt most able to speak about the Dark Sky Park.

His experience is shared by other participants who struggled to describe their *professional* relationships to the Dark Sky Park but spoke with ease and enthusiasm when sharing personal experiences of night walks, wild camping, nocturnal bike rides and group stargazing; indeed, these stories were offered without prompts from me. The value of the Dark Sky Park – what

[54] John and Callum share an office in Minnigaff, Newton Stewart and suggested that they were interviewed together.

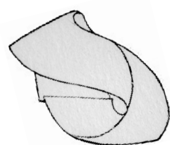
it protected and celebrated – was incredibly tangible as I listened to experiences recounted in richly-remembered detail. Though Chris Rollie, Area Manager for the Royal Society for the Protection of Birds (RSPB) in Dumfries and Galloway, was unsure if he could offer any valuable insights, he reflected that the darkness means a lot to him personally and he has a good knowledge of the winter constellations in the southern sky. He shared a memory – clearly a very cherished one – of visiting the Atlas Mountains in search of Ring Ouzel thrushes, a bird that used to nest in the Dumfries and Galloway region. He recalled sleeping outside at 8,000 feet with his companions, singing devotional Muslim songs and sea shanties, and looking at Saturn's rings through a telescope:

> There was a real connection, because we were all there and we were singing and sort of chatting and stuff, the sky became a sort of… because there was no light, just head torches and the fire, so there was the song, there was the chat and the rest of it, there was just the sky […] you spent quite a lot of time interacting with the sky.

Though able to fluidly link his passion for birds with the night sky through this memory, when our discussion returned to birds and Galloway's night skies, Chris seemed at pains to stress their awkward compatibility. He points out that the Core Zone of the Dark Sky Park is "quite bird-poor" and when discussing nightjars, he notes with a self-effacing shrug, "Nightjars tend to be at the shoulder of [your] period for stars because they're crepuscular […] The best time for nightjars is the worst time for stars". While personal experiences or 'takes' on the Dark Sky Park such as these were thoughtful and nuanced and articulated more-than-astronomical values of the night sky, practitioners presented them as distinct from their professional contexts and therefore marginal to the development of the Dark Sky Park as an asset for regional tourism.

In her study of dark sky practice in the town of Stanley, Idaho, Jessica Heim also found that despite an approach to stakeholder motivations informed by Meier's typology, her interviewees 'did not fit easily into distinct boxes' (Heim 2020: 67). Rather, the 'manifold' reasons that participants had for supporting dark sky protections 'often diverged from what was expected, based on their professional or public role' (loc cit.). Further, Heim notes, 'the continued ability to have personal experiences with and develop a connection to the night sky may be one of the most essential components of dark sky protection' (ibid.: 74). While Meier's (2015, 2019) actor typology for dark sky stakeholding is valuable for exploring differing 'orientations' and overlapping stakeholder interests, her analysis emphasises roles and

identities (the Astronomer, the Heritage Preservationist, the Politician, etc.) over context (Heim 2020: 67), stakeholder dynamics and power relations. Heim's critical exploration of Meier's typology demonstrates that a focus on stakeholder identities may not be the primary route to understanding how different actors become involved or remain involved in dark sky stewardship. The following vignette explores a development in my analysis of stakeholders and their values, as I shift focus from an explicit identification of stakes to a more speculative exploration of stakeholdership as emergent and situated.



### *Peripheral vision: expanding the field of focus*

Having approached the interview as a way of holding the Dark Sky Park in focus, I was thrown by the Park's apparent nebulousness for those who had been identified to me as key stakeholders. What was I missing? Geographer Sara MacKian notes a problematic tendency when it comes to interview analysis, of assigning significance and meaning to that which is made explicit and repeated, spoken aloud and committed to transcript (MacKian 2011: 363). Meanwhile I had been spending my evenings developing an autoethnography, which was invested in and shaped by the tacit, partial, and contingent qualities of darkness and starlight. Somehow, I had decided that the methodological container of 'autoethnography' would be suitably fluid as an approach to researching the Dark Sky Park, whereas the container of 'interview' would need to be coherent in its representations, particularly in this early stage of 'organisational mapping'. Despite beginning fieldwork with a commitment to an interdisciplinary practice, I had chopped up my research into discrete modes of enquiry, without giving due consideration to how they might be more effectively brought to bear on one another. This may be what Tim Ingold takes issue with regarding the term 'interdisciplinary'; for in conceptualising the *inter* as 'between-ness […] enquiry is still closed within

respective disciplinary territories' and rarely intersects (Ingold, cited in Crowther 2018: 64).

Stationary interviews tend to privilege explicit knowledge that constructs a linearity of place and time, whilst locating this knowledge in the contained figure of the individual. These narratives are often pre-rehearsed, habitual, and may also be filtered by participants who are anxious to share 'useful' information or 'tellable stories' with researchers (Riley and Holton 2016: 8). However, researchers also shape the data that is collected, whether during the interview or in post-interview analysis as they select what "counts" as data. Some data may not even be "read" as such, remaining imperceptible to researchers, whose specific approaches to facilitation and understanding of the context allow only certain kinds of information to register (Rose 1997; Collins and Bilge 2016). It was as my interviews moved outside to include routes walked together and visits to specific locations or landmarks, that I began to see how one mode of enquiry might generatively cut across another. During a walking interview with Crystal Maw, the regional Site Manager for RSPB Galloway, the nebulousness of the Dark Sky Park emerged again, though this time as a *felt* disruption experienced through the absence of words. Walking side by side or one in front of the other along the RSPB's Mill Hill trail, our conversation took the shape of a line; not straight, often doubling back or changing direction as the terrain demanded, but still the feeling of a line and a sense of flow as we got to know each other and Crystal explained her duties, gestured to various things around us – flight patterns of birds, signs of disease on a young ash tree, the difference between male and female catkins – and chatted about her passion for insects, notably the glow worm, which used to make a regular appearance in the area.[55] As we moved on to discuss the Dark Sky Park, Crystal often stopped in her tracks mid-way through a

[55] See Chapter 6 for further discussion on glow worms in the Dark Sky Park.

sentence or stepped to one side as if to gather her thoughts. I came to interpret these pauses not as an absence or lack of connection, but as affective indications or manifestations of an effort to form a relation; the discontinuous or speculative carried over into my body as I too paused to match Crystal's rhythm. In these periods of silence and stillness, thinking seemed to hang in the air, diffuse, mingled with the ambience of our surroundings. The value of mobile interviews in accessing participants' environmental perceptions and experiences is now firmly established within the geographic discipline (Kusenbach 2003: 461; Ingold and Vergunst 2008; Lorimer 2011). As Mark Riley and Mark Holton note (2016: 6), mobile interviews enable the conditions for tacit knowledge to be more openly expressed and articulated in the moment. In the context of her PhD research with FCS, artist Amanda Thomson has also written of 'ambulatory encounters' as a valuable method of coming into knowledge that is ecologically situated (see also, Ingold 2008: 1808; Lund 2012).

When I returned to a stationary interview 'setting', I was struck by the way I had been reading these spaces. I could see how this more 'controlled' setting (a private office or breakout room) – with its minimal disturbances or distractions – channelled my attention towards the participant and in particular to their voice; to *what* they were saying. That these settings were also 'professional' and outside of my own professional experience may have further encouraged me to be overly attentive to what was *said* in the interest of 'accurately' representing their perspectives. I also noticed a distinct difference in my notetaking. During a stationary interview, I would have my notebook close at hand. Assuming that everything I needed would be 'on tape', I noted down only a word or two here and there as an indication of significance, perhaps a term to look up or the name of a contact. In contrast, when interviewing outside or in motion, I would sit quietly in my car afterwards and write long passages, fragmented in their

chronology, but rich in detail. This writing would include specific turns of phrase, but also the gestures of the person, their 'style' of engagement, the things that caught their attention, and the ways in which they directed my attention and my movements. What I am describing, of course, are the kind of fieldnotes that compose an ethnography (Emerson, Fretz and Shaw 2011), but I also became interested in how fieldnotes helped me to increase my sensitivity to research as 'intersubjective process […] a conversation between (material) bodies' (Ellingson 2012: 534). My increasing use of a non-representational approach in interview contexts also enabled me to attend to these exchanges 'less as revelations and more as reverberations' (Vannini and Taggart 2013: 65; see also, Bissell 2014). While an interest in revelation strives for a distillation of human experience into coherent narrative through an attention to the explicit and the carefully thought-through, an interest in reverberation remains sensitive to the suggestive and evocative textures of experience (Vannini and Taggart 2013: 65). The idea of revelation presumes a clear separation between researcher and the participant who 'reveals' their knowledge, whereas an attention to reverberation remains open to knowledge as emergent, co-produced between researchers, participants and place.

Geographers David Butz and Kathryn Besio's work on 'autoethnographic sensibility' (Butz and Besio 2004; see also, Butz 2009) was another important resource for engaging with the reverberations of my research. With reference to autoethnography in anthropological practice as a situating of the [researching] self in the social context of fieldwork (Reed-Danahay 1997), Butz and Besio define an autoethnographic *sensibility* as a capacity that a researcher develops, to notice how particular settings, dynamics and activities (including those that the researcher facilitates, i.e. asking to meet at a certain site, using an audio recorder, taking notes in a book) not only impact the way that knowledge is shared and storied, but also

how it is received and understood by the researcher (Butz and Besio 2004: 354; see also, Rapley 2011[2004]: 3; Ellis and Bochner 2000).

As fieldwork developed and my relations with the Dark Sky Park and its stakeholders multiplied and deepened, I made a concerted effort to return to transcripts and field notes, sometimes annotating older field notes as I wrote fresh ones. I also returned to sections of the audio-recorded interviews to listen more closely for the way certain thoughts, concepts and feelings were expressed and how they emerged or disappeared throughout the conversation. Through this iterative and reflective process, the Dark Sky Park as research subject accumulated in a horizontal fashion; messy and unwieldy at times but allowing for different details, expressions and sensations to be woven through one another, or alternatively, to sit in tension. It became an intentional practice of attunement, through which I could cultivate different modes of enquiry and sense-making across a variety of research contexts and encounters, those already passed and those still to come.

This meant that my own developing relationship with the Dark Sky Park, the other ways through which I was engaging in research, were to increasingly pull into the interviews and how I analysed them. Returning to the audio recordings of interviews with a greater sensitivity to reverberation and the socioecological context of the research (Woodward et al. 2010: 273) produced an altogether different understanding of stakeholders' apparent lack of connection with the Dark Sky Park. I listened back to the recording of my walk with Keith along the Anniversary Cairn Trail in Kirroughtree, drawn to a particular sentence in the transcript: "people don't understand what it *is* here…what it *means*". In my field notebook for that day, I wrote:

*Park falling out of focus.*

*Disappointment (weary) that folk aren't*

*'getting it'.*

*communication is vital "flow of information"*

*New stories needed*

*(re-)familiarisation*

This last word – '(re-)familiarisation' – was underlined; I assumed it was Keith's word; it had a professional lilt to it. And yet, when I searched for it in the transcript, it was nowhere to be found. It stayed with me nonetheless; there was an interesting tension in the word, which spoke to a practical sense of better communicating the core values and opportunities of the Dark Sky Park – of re-orientating stakeholders – but also something more personal and intimate. As I listened back to my conversation with Keith, I turned my ear to our surroundings and the wider ecology in which our discussion unfolded. Through this, Keith's disappointment regarding stakeholder engagement became texturally woven with our in-situ exploration of trails and other forms of visitor interpretation. We spoke about the creation of views: how the FCS practice of thinning of trees "opens the forest up" and how permanent artworks such as the Rosnes Benches and the 'stanes'[56] of the 7stanes bike trails invite a sense of exploration and adventure by seeming a little out of place, catching the eye and creating a bit of mystery.

> Keith: It's really nice, it's open. You're getting glimpses beyond the edge of the paths...
>
> Natalie: And is that what you mean by "people are invited"...?

[56] 'Stane' is the Scots word for stone. The 7stanes are a series of sculptures commissioned by FCS in 2008 and produced by artist Gordon Young in collaboration with carvers Russel Coleman and Mark Powers. Each stone is located along one of the seven mountain biking trails in the region. For further information about the project and the individual stones: https://gordonyoung.info/7stanes. For further information about the 7stanes biking trails: https://forestryandland.gov.scot/visit/activities/mountain-biking/7stanes

> Keith: Yes, and it invites more wildlife, you begin to see more birdlife in here. And people might step off the path and have a wander. A lot of people think they can only go on this bit, and that's the whole risk thing. We want to get more people to explore and get out there and try things.

Through the reverberations of our wanderings (and wonderings) in Kirroughtree Forest, the troublesome nebulousness of the Dark Sky Park could be 'felt' not as absence or omission within stakeholder imaginations, but as something that required a little bit of interpreting, of way-making and crafting of invitations. Through this, a different sense of '(re)familiarisation' emerged within the research. As well as a revision of core values and guiding principles, could it also entail acts of exploration, of non-habitual engagement with a familiar place, concept or practice? The nebulousness of the Dark Sky Park was not simply a problem of imagination – of recognising how it might be valuable, but also of participation, of involvement. While the words were not always immediately available to describe or define the GFDSP, through an attention to knowledge as intersubjective and reverberant, it was nonetheless affectively present during interviews as participants attempted to orient their professional frameworks and practices to this new entity.

**Keeping the stars in view: lost momentum and infrastructural shifts**

In the summer of 2020 as I wrapped up fieldwork, I conducted a reflective interview with Keith, during which he referred to the GFDSP as "The Dark Skies Project", before correcting himself: "We've got to stop calling it a project. It's about getting our management signed up, that this is an asset that is worth keeping, that it is worth fighting for." As he looks back over the last decade, he is disheartened by how something that was once a bold and visionary endeavour inspiring many other IDSP applications in the UK and Ireland, is now "way down

at the bottom of the league table". He is concerned that the GFDSP is becoming lost amidst a flurry of other projects and partnerships, resigned to "tick over" while more pressing concerns hold the focus of day-to-day operations. Keith explains, as he and others have done on several occasions, that funding is a continuing challenge (see also, EKOS 2013: 11; Silver and Hickey 2020: 2635). There is no specific budget[57] for the Dark Sky Park; rather it is included within the overall Tourism and Recreation Services budget, reliant on the commitment of people like Keith to keep the stars in view.

The challenge of long-term structural integration and development of the designation became most apparent during the devolution of the Forestry Commission Scotland (FCS) throughout 2018 and 2019. At the beginning of this project, the Galloway Forest Park was managed by Forest Enterprise Scotland (FES) as an agency of the Forestry Commission. Following the Forestry and Land Management (Scotland) Act 2018, two new executive agencies were established: Scottish Forestry (SF), and Forestry and Land Scotland (FLS). FLS would take over from Forest Enterprise Scotland (FES) in managing the National Forest Estate on behalf of Scottish Ministers (FCS 2019: 38). An 'integrated regional structure' was implemented in late 2018, which entailed the reduction of 10 forest 'districts' to 5 'regions' (Fig. 5.2) to 'improve connections between national and local teams' (ibid.: 13).

The Galloway Forest Dark Sky Park would be managed by FLS[58] within the 'South' region. While Keith took on a new role as Business Manager, the responsibility for the Dark Sky Park was transferred to a new member of staff in the role of Visitor Services Manager, becoming one strand among many in their heavy workload. After some failed attempts at arranging a meeting, I heard through informal conversations with others, that this person had moved on quite suddenly, leaving a gap in leadership.[59]

[57] See for example, the FLS's 2020 Annual Report to the IDA. Available here: https://darksky.app.box.com/s/0ac4k6ewet25g25nshan555euo1v7p6e/file/722967454407 It is also noted in Steve Owens' (2011) report on 8 IDSPs in the United States and Canada, that many dark sky related projects rely on private donations and community-led fundraising to get off the ground. One example of this is the Dark Sky Island of Sark's custom-built observatory, its budget of £10,000 raised by members of the Sark Astronomy Society, itself formalised as part of the IDA application process (Blair 2016: 28-29).

[58] Hereafter, I will use 'FLS' in my references to the organisation, irrespective of the year.

[59] This person did not participate in the research and so I have omitted their name to maintain their anonymity.

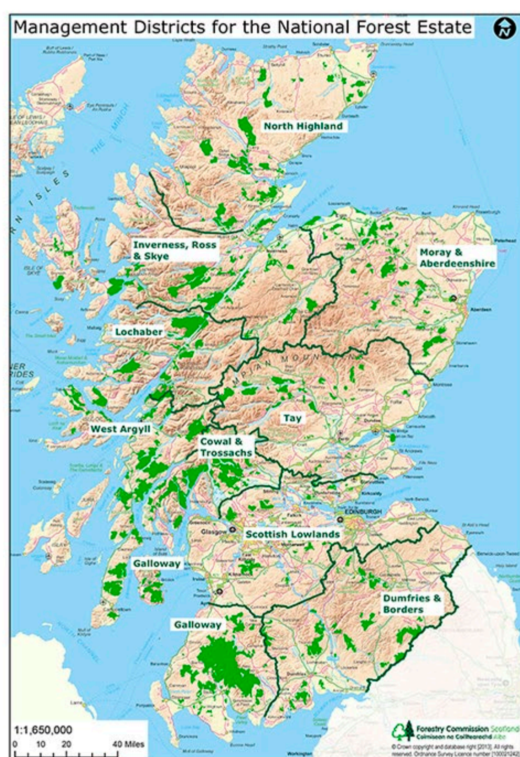


**Figure 5.2. Forestry Restructure.** Maps showing (left) the 'district' management structure used prior to the devolution of the Forestry Commission Scotland in 2018. Image credit: FCS 2014; and (right), a map showing the new 'regional' management structure. Image credit: FES 2018, cropped from Forest Enterprise Scotland Organisation Chart – Sept 2018 (FES 2018).

The precariousness of this handover was made symbolically evident to some, when, around the date of the GFDSP's ten-year anniversary (16th November 2019), it was reported that the FLS had failed to file its annual report to the IDA, resulting in the temporary removal of the Dark Sky Park from the IDA's public list of IDSPs (Stranraer Free Press 2020).[60] A forgivable oversight during a challenging period in the agency's history,[61] Elizabeth (BDSR) explained that, nonetheless, many people in the region felt "let-down" by what they considered to be the minimum requirement that FLS needed to meet regarding the Dark Sky Park's administration. What she seemed to be implying was that, had FLS been more proactive in developing the Dark Sky Park in the years since the designation, a "blip" such as this would have not caused the same level of consternation. That this oversight had coincided with the ten-year anniversary, for which no official event or public programme had been organised, was a

[60] In the IDA's 'International Dark Sky Park Program Guidelines', it states: 'IDA may suspend the site's IDSP status until the annual reporting requirement has been met' (IDA 2018: 17).

[61] In its 2018/2019 Annual Report (FES 2019) the FES notes that this is the most significant structural change it has experienced in the 100-year history of the FCS.

further disappointment.[62] In 2019, the FLS employed Akbar Zaman, as Recreation Ranger (FLS 2019), a new role, which, Keith explained to me, presented an important opportunity to recuperate dark skies as part of the agency's day-to-day recreation work:

> That to me was a major step forward, as opposed to one of these things that just gets wrapped up. It's mentioned in our job plan and it is there as somebody's role to support that.

I spoke with Akbar for the first time in the summer of 2020 along with Keith, the two of them split-screened on Google Meet, remote interviewing now a university requirement during the Covid-19 pandemic. Not long in the role, Akbar had invited Keith along 'because of his extensive knowledge of the subject matter'[63] and being a reflective conversation, which brought together two colleagues with differing levels of professional contact with the Dark Sky Park, we found ourselves frequently returning to the subject of how best to steward it going forward. Akbar chuckled nervously that now *he* is "Mr Dark Sky", and though light-hearted in tone, his comment gestures to the challenges of leaving the development of the Dark Sky Park to one or two individuals (see EKOS 2013 [p13] for a similar observation).

Keith's formal withdrawal from the Dark Sky Park during the course of this research has made particularly evident the significance of his leadership in stewarding Galloway's dark skies. His commitment to developing what he calls "the whole experience" of the Dark Sky Park (see Chapter 4) has extended the GFDSP's activity beyond the core remit of improvements to lighting in and beyond the Dark Sky Park (i.e. DGC 2015; SAC 2016; EAC 2017) to encompass ambitious and unusual ideas, events and ventures that raise awareness of the value of darkness and starlight 'in any appropriate way', as encouraged by IDA in its guidelines to prospective IDSPs (IDA 2018 7). Marie (GSAB) reflects that without Keith's passion and commitment to dark skies, which he shared and presenced through his position on the Biosphere Partnership Board, she believes "[we] would never have had the EU conference". His presence on the Board has raised awareness of the values of Galloway's dark skies among Biosphere colleagues and cemented it within their remit by making important conceptual connections between dark skies and the Biosphere's priorities such as sustainable

---

[62] One event that did take place that year and which directly addressed the anniversary, was held in March 2019 at the Wigtown Book Festival's partner event, 'Big Bang Weekend'. The event, 'Our Dark Sky Decade' was a conversation between Keith Muir and Lynn Cassells, Land Management Officer at the then-recently designated Glenlivet and Tomintoul International Dark Sky Park. The event presented an opportunity to reflect on shared experiences and the benefits and challenges of becoming an IDSP.

[63] Email correspondence.

rural development and education. Likewise, as an organisation that advocates for slow, participatory governance with a view to 'evolving, organically, into a much broader partnership and bottom up process' (GSAB 2011: np[1–2]; see also, GSAB 2022), the Biosphere afforded Keith the imaginative and developmental space to expand into, enabling a richer understanding of the GFDSP's values to be tested within a wider community of practitioners and extending the park's potential as a cultural asset and community resource (Meier 2015: 188; Charlier and Bourgeois 2013: 21). One notable way in which this has materialised is through the GSAB's creation of the Biosphere Dark Sky Ranger positions. For Marie and Ed (GSAB), the GSAB offers an appropriate structural container for the ongoing development of the Dark Sky Park, given that "the things that they [the Dark Sky Park] represent and talk about are so perfectly aligned with the Biosphere". What they suggest is the formation of a "sub-group" or "thematic group" within the Biosphere Partnership Board, whose diverse expertise (forestry, heritage, conservation, biodiversity, business, tourism and education) could maintain active links between dark skies and other landscape interests and practices both in terms of day-to-day decision-making and longer-term visioning.

An organisational framework that holds multiple views, expertise and practices also appeals to Callum (SNH) who sang the praises of the landscape partnership model, established by the Heritage Lottery Fund (HLF) in 2004 as part of a programme whose commitments to conservation and restoration of natural, built and cultural heritage in a specified landscape area are pursued through multi-stakeholder collaboration, local enterprise, community participation, access and learning, and local heritage skills training[64] (Clarke, R., Mount, D. and Anteric 2011). Drawing on the example of the GGLP, established in 2015, Callum describes how the partnership has enabled a "ragtaggle bunch of randoms" to develop "a cogent set of projects that hangs together". An obvious next step for the Dark Sky Park, he reflects, would be to submit an application to the HLF as the GGLP had done. This would enable a diversity of ideas and approaches to be gathered, and, he adds, it would also allow his organisation (SNH) to become involved by allocating additional funding not currently available in their budget. Callum explained that common practice in the region tends to see agencies and organisations consult on one another's individual projects, respecting and maintaining discrete values and practices (see also, Edwards, Collins and Goto 2016). The Dark Sky Park, he reflects, would benefit from an approach that provides opportunities for less habitual working relationships and which encourages aims and outcomes to be jointly defined and developed.

[64] For further information about Landscape Partnerships, visit: https://www.heritagefund.org.uk/our-work/landscapes-parks-nature/landscapes

Lyndy, Community Liaison Officer at FLS is also invested in the Landscape Partnership model. When I spoke with her in early 2018, she had been working closely with the Coalfield Communities Landscape Partnership[65] in East Ayrshire, a project in which the Dark Sky Park is featured as a key asset and brand that 'offers new, forward looking[sic] visions for the area and flexibility in terms of how [they] can be used to support a wide range of different projects' (FCS 2016b: 74). Her personal investment was palpable as she described the project's vision and the people, places and histories it has drawn together. She explained that in the years following dark sky designation, stakeholder involvement has been slow since dark skies are not seen as directly relevant to a specific community or project's agenda. She believes that through a structure such as a Landscape Partnership – which facilitates the exchange of ideas and experience relating to a shared landscape, while centring community ownership – the region's communities will come into greater understanding of how the Dark Sky Park might enhance their businesses or support wider community endeavours:

> Every single area wants to do their own thing, but if they could all work together to allow them to do their own thing, I think that would work really well. I think there's more chance of getting funding if it's seen as more of a collective than individuals. If you do this project here, then this can feed into this, which would allow...

Lyndy is animated but her thoughts trail off. While she is clear that a different approach is needed, exactly how is less certain. However, she is not too concerned about this. For her, what matters is bringing people together to explore what's possible. Each time the Dark Sky Park is presented as a possible asset to work with, its tangibility grows, and stakeholders become clearer on how it might support their individual projects and goals. This was reflected in a conversation with Scot Nicol, who manages the site of Threave Castle and Estate for Historic Environment Scotland (HES) and shared that the designation has changed the way he thinks about the site and how it might be interpreted and visited. He explains that in the years since the designation was granted, there have been an increasing number of enquiries about the ruins of Threave Castle – a compact but imposing 14th century structure located on a small island in the middle of the River Dee – as a possible site from which to view the stars and practice astrophotography. Guiding me through an imagined nocturnal experience, he notes the clear resonance of the jetty's old bell used to call for a boat, the mutable texture of the River Dee in moonlight, the delightful surprise of Daubenton bats as they dip down

[65] More information about the Partnership is available here: https://coalfieldcommunities.co.uk/

quickly to grab midges, caddisflies and other small insects resting on the water's surface, and the strange sensation visitors might experience of being suspended between a dark body of water below and the depth of the sky above, one dark mirroring the other (Fig. 5.3). The catch, Scot notes, is that Threave Castle can only be reached by boat and so if HES is to explore evening or night-based tours to the Castle, it will need to think carefully about how it can safely do so given the risks involved and to solicit input from others in the region who are darkness-informed. The ideas are there, he says, but he needs support in realising them.

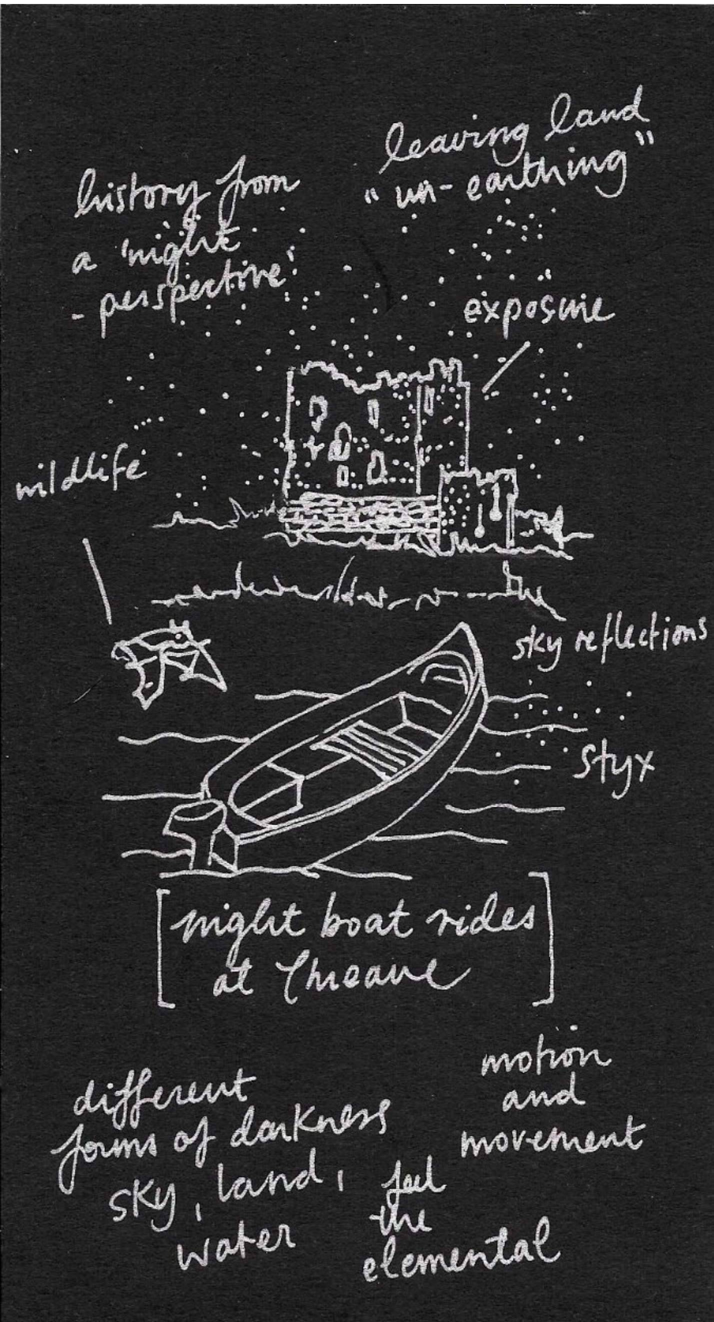



Figure 5.3. A boat trip at night. A sketch made in response to Scot's ideas for a dark sky experience at Threave Castle and Estate.

The aspirations shared by participants for more collaborative, partnership working around the Dark Sky Park recall scholar Barbara Gray's influential work on interorganisational stakeholder collaboration, which she defines as:

> (1) the pooling of appreciations and/or tangible resources, e.g., information, money, labor, etc., (2) by two or more stakeholders, (3) to solve a set of problems that neither can solve individually (Gray 1985: 912).

A key insight of Gray's work is her framing of pooled appreciations, not necessarily as the shared affirmation of certain values or benefits associated with the stakeholders' common interest (though this is an important dimension), but as a 'mutual acknowledgment' of the interdependence that such an interest or problem necessitates, (ibid.: 916–917). What she describes then, is a shared visibility of differing values, approaches, knowledges and skills as they make contact through social relations and are transformed in the process (see also, Edwards, Collins and Goto 2016: 326). In their study of how stakeholder values intersect with cultural landscape management practices, Moore and Tully note that stakeholders often have 'limited awareness' and 'misconceptions' of the values of other stakeholders (2018: 779–780). Creating opportunities for the Dark Sky Park's existing and prospective stakeholders to collaborate, to openly discuss and articulate their values and experiences of dark skies, 'may help break down barriers between "active" and "passive" stakeholders' (ibid.: 780). The following discussion continues to elaborate aspirations for a more connected stakeholdership by attending more closely to informal modes of stewardship and resources for pooling appreciations.

## *II / Constellations of practice: a distributed stakeholdership*

### Missed connections, crossed wires: stakeholder challenges

Keith has steered the Dark Sky Park from its early beginnings, combining his personal passion for dark skies with his professional capacity to extend the reach of the Dark Sky Park beyond astrotourism and the remit of the FLS, his love of the night sky and "stubborn, single-

minded[ness]"[66] driving the project forward. Throughout interviews with participants, the Dark Sky Park was frequently described as "Keith's project" or "Keith's baby", and while his 'lone rangerism' has helped keep the stars in view, the GFDSP does not currently have a dedicated stakeholder group or committee assigned to its development. Keith, more than anyone, is sensitive about the implications of this and anxious to instil a wider sense of ownership as the Park enters its next decade:

> The Dark Sky Park is there for everybody, it's not mine, it's not yours, it's everybody's. I'm just very proud that the Dark Sky Park now generates between 6 and 800,000 pounds locally, just from dark skies over the winter months, and I think that's a great testament to a project that had developed on its own in many ways and has an awful lot more to give. It just depends on where we want to take it.[67]

When I interviewed Marie and Ed (GSAB) during the first stage of fieldwork, the absence of a dedicated working group or committee surfaced as a kind of stuttering in the flow of our conversation:

> Marie: Obviously, we've done work as a Biosphere in terms of Biosphere Dark Sky Rangers. We had the conference, it was always on my plan, this is what we need to do, but in terms of its growth as an entity—
>
> Ed: —mmm [nodding]
>
> Marie: —there's not really anybody…
>
> Ed: There's no leads or drives on it… it's an interesting one in that actually I can't think I've seen a management plan for that…

The lack of a mechanism or network for the GFDSP's practitioners has led some to feel under-resourced and disconnected from one another. Concerns around resourcing and organisational support came up in my discussions with the Biosphere Dark Sky Rangers,

[66] Callum, SNH: "I think there's an organisational thing that was needed to make this happen and to give it a chance to grow and Keith had the right sort of energy: stubborn, single-minded about it."

[67] Keith speaking at the event noted above.

whose constellation of individual freelance businesses has shifted over the years as some Rangers took long absences while their freelance projects and other forms of paid work carried them further afield, and new Rangers were brought in. A key challenge they face is the competition that they represent to one another. There were no hard feelings here, but more a sensitivity to differing price points (for example, Morag tends to send people to Jesse and Helen because their prices are more accessible to tourists), transparency around business partnerships (with accommodation providers or the independently managed visitor centres for example) and a concern not to 'gate-crash' each other's stargazing events since there are certain sites that lend themselves so well to dark sky experiences. Despite this, the Rangers agree that there is plenty of room for everyone to run their business but would value the opportunity to connect with each other from time to time. Three of the five Rangers reported feeling "islanded" or "disconnected" in their work and expressed a desire for a support structure that would enable more opportunities to work together as a coherent group and to engage in both self-initiated and collaborative projects, resourced by the GSAB or FLS. This was also reflected in conversations with other stakeholder-practitioners such as Callum (SNH), who, with reference to the rich ideas and expertise that people have in the region, noted: "There's a cohort here that we could be connected to."

Throughout this project, only Elizabeth has remained a steadfast Ranger presence in the Dark Sky Park from the beginning, an experience which, she joked, has been quite convenient, but equally lonely. Her desire for a sense of community around her business has led her to get involved with a variety of projects, but she notes that she has had to work very hard to forge those partnerships, many of which take her long distances from her base in Creetown. She has also had to seek funding beyond the region in order to run public events that are free to attend.[68] While Morag does not share some of the other Rangers' concerns around resourcing and rather enjoys the freedom her title offers – no fixed hours or prescribed content – she, like Elizabeth, has had to follow work opportunities further afield, making it difficult to fully embrace her role or engage with a wider cohort of dark sky practitioners.

An excellent opportunity to consolidate this cohort and broaden community involvement had presented itself at the EU International Dark Sky Places Conference (EDSP) held in Gatehouse-of-Fleet in 2017. For SDSO Resident Astronomer David, this turned out be a missed opportunity, however. He explained that the individual ticket prices (£300) made the

[68] Since 2018, Elizabeth has co-run (with the Glentrool Community Trust) an extremely successful free stargazing event as part of British Science Week, which awards grants of up to £2,000 to 'community groups that work directly with audiences who are traditionally under-represented and currently not engaged in science activity' (British Science Week n.d.) These events have had a budget of £500 each.

conference less accessible to emplaced communities, including practitioners (the SDSO did not participate in the conference), and therefore missed out on involving the people who might learn the most from it and be actively engaged as stakeholders. Similarly, Elizabeth noted that if she had not been booked to lead a stargazing event for conference guests, she would not have been able to justify the ticket price, despite it being a hugely inspiring and helpful event for her business. Though the ticket price reflected the costs of running the event, more could have been done to extend access to a wider audience, whether that be through off-site partnered events or more affordable passes for individual sessions. While it generated a great deal of interest in the region, the conference, being largely directed at specialists, policy makers and academic researchers, did not actively involve the region in its storying of the Dark Sky Park.

I learned that this was not the only instance in which situated communities and stakeholders felt overlooked or excluded from the GFDSP's development. During a conversation with co-founders of the Wigtownshire Astronomical Society (WAS), Helen and Ian MacDonald, Helen explained that around the time of the application, she had stepped down from her position as Chair and so was not involved in the process. I asked her how it felt to hear the news, to which she replied:

| | |
|---|---|
| Helen: | I remember the day it was announced. My face ached because I was going about with such a big grin on my face all the time [laughs loudly]. I was so pleased, oh! But unfortunately, the AS [Astronomical Society] wasn't so pleased because they got inundated with telephone calls, it was awful for them. |
| Ian: | It was being broadcast all over the planet…they [visitors] expected an organisation to be there running this. |
| Helen: | It was just a wee amateur society and they weren't equipped to deal with this, and the Forestry [FLS] didn't help […] I really felt that the Forestry people should have been aware that this was likely to happen and they should have had a bit more forward thinking |

in taking steps so that people could call their phone number.

When I followed up with Robin, he was very clear in explaining to me that though the Society took on the name 'Galloway Forest' (Galloway Forest Astronomical Society, hereafter GFAS) following the designation, he wished in no way to be affiliated with FLS, adding "The dark skies have been here for a long time, and we can enjoy them with or without the status." His disenchantment with FLS cast a long shadow over our conversation. Though GFAS members were brought on board early in the application process to record high-quality wide-angle photographs of the night sky, Robin explained that members felt increasingly pushed out as safety concerns (i.e. the need for individual public liability statements) reduced the number of individuals who could be involved from 20 to 5: "We suddenly realised that we wouldn't be supported by Forestry" Robin shared with a great deal of gravitas. He also seemed baffled by the locations that members were sent to make their light readings, one of which was in the village of Carsphairn, "right by a street light! They just looked at a map and picked a few places." In the case of the GFDSP application, the process Robin describes appears to align with best practice for conducting a dark sky survey (Owens 2010c), in that its lighting inventory included locations across Core Zone, Buffer Zone and External Zone (later known as the Transition Zone) (FCS 2009a). However, in not sufficiently communicating this to its volunteers and subsequently losing contact with the Society following the designation, FLS appear to have weakened a stakeholder relationship. Further, the GFAS 2010-2011 Trustees Report (GFAS 2009) reflects that while international dark sky designation has had a positive impact on regional tourism, it 'has put a load on us [GFAS members] which some find unacceptable.' The report continues, 'Some members did not renew their membership and have said they don't want to be involved in the tourism side' (ibid.). Such a response is not insignificant in the context of the Dark Sky Park's ongoing development, given that the GFAS and its members represent what Meier and other researchers have identified as key actors in achieving and maintaining dark skies (Meier 2015, 2019; Silver and Hickey 2020; Heim 2020; IDA n.d.f).

Robin's experience reflects a common devaluation of volunteer and amateur participation in conservation policy processes. In their study of volunteer naturalist participation in UK biodiversity policy, Rebecca Ellis and Claire Waterton (2004) discuss how volunteers are often cast as 'a cartographically dispersed task force willing to impart their knowledge […] to serve a central mandate' (ibid.: 96), while other forms of knowledge are overlooked and undervalued

(ibid.: 98).[69] There was a sense in what Robin was telling me that a decision had been made – to put in a bid for international dark sky status – for which simple responses of agreement would be gathered from a diversity of stakeholders, rather than devising a multi-stakeholder programme or framework in which stakes could be variously identified and 'held'. Such an approach is at risk of producing a largely unidirectional flow of information from those officially responsible for an entity to those who are its presumed benefactors. This may subsequently deter stakeholders from participating in stewardship and development work since they cannot position themselves in the 'story' of such an entity – its future becoming, its possibilities. Similarly, in her study of dark sky practice in Stanley, Idaho, Jessica Heim reports that participants expressed a desire for more opportunity for dialogue and exchange within decision-making processes:

> [T]here needed to be opportunities for supporters of dark sky initiatives to share their ideas with the community in friendly, non-confrontational ways and for them to truly listen to any concerns others may have had, with the intention of devising win-win solutions. (Heim 2020: 72; see also, Owens 2011: 24; Gaw 2020: 168).

This became clearer to me as, later, after my phone call with Robin, I followed up on something he had mentioned very briefly: that one of his photographs was used in a Times newspaper feature on the Dark Sky Park bid. Reading this feature, I was surprised to see a short statement from Robin, taken in his back garden as he and the reporter looked up at the night sky together: "There will be a bit of pride if I can say I live in the dark-sky park" (Wade 2009). This did not sound at all like the Robin I had spoken with. This version of Robin seemed full of excitement and pride and could speak freely about his interest in the night sky and his affinity with the designation. I wondered, at what point did his enthusiasm dissolve into resentment, his pride into dismissal? And had the designation been a more co-operative process, would the Robin I spoke with over the phone have expressed a greater ownership and connection to it? Guided by reflections with stakeholders, I will now consider the different forms that a more participative stewardship of the Dark Sky Park might take, with an emphasis on increasing access to social and physical infrastructure and building capacity around collaborative approaches to dark sky stewardship and engagement.

[69] In Chapter 6, I discuss the value of amateur and informal stakeholder practices in the GFDSP.

**Infrastructures of appreciation: towards more relational and situated stakeholder formations**

A more open-ended and participative approach to developing the Dark Sky Park appealed to several participants. John (SEPA) and Callum (SNH) explained that prospective stakeholders may feel discouraged by the prospect of "endless committees", onerous paperwork, and the circulation of "the same faces, the same names". This was certainly a point of discomfort for Jesse, who shared that in his – self-described – limited experience of stakeholder decision-making and planning, formal meetings can leave him feeling frustrated and disheartened, and have often deterred him from making suggestions or pursuing more active involvement.[70] Group settings where he has felt more enabled and motivated have involved exchange, creative thinking and collaboration; a tangible sense of working alongside others and being physically connected to the 'thing' in question.

Though the absence of a stakeholder group or working group for the GFDSP seems a peculiar oversight, Daniel Silver and Gordon Hickey (2020) note in their report on the RASC-designated Torrance Barrens Dark Sky Reserve in Ontario, Canada (TBDSR), that it took 19 years to develop a dedicated multi-stakeholder group following the designation in 1999[71] (2639). Building on studies of dark sky stakeholder identities and perceptions, Silver and Hickey present a complex account of what dark sky practice looks like on the ground: the challenges, tensions and even failures as stakeholders negotiate their differing interests and orientations to the designation over two decades (see also, Challéat, Lapostolle and Milian 2018). In doing so, the study considers not just 'who's in and why?' (Reed et al. 2009; see also, Meier 2015) but a broader question of who's in and *how*? It is a perspective uncommon to DSS literature and similarly uncommon in stakeholder analysis more widely, which often 'fails to consider that stakeholders, organisations, interventions and issues can interact and change over time' (Reed et al. 2009: 1935; see also, Gray 1985). The report describes an ongoing struggle between dark sky activists and the local council, regarding the council's concerns around enforcing a municipal lighting byelaw that the activists felt was not being honoured, while the councillors expressed concerns about the resources required and what they saw as one issue among many, such as community access to water (Silver and Hickey 2020: 2635). At the heart of Silver and Hickey's study is a critical analysis of the 'socio-political' barriers that

[70] Jesse is not speaking specifically about his work in the Dark Sky Park, but more generally.

[71] An RASC profile of the Preserve is available here: https://rasc.ca/torrance-barrens-dark-sky-preserve

affect both stakeholder perceptions of dark sky designation and their willingness or capacity to participate in its ongoing stewardship.

While their focus on the controversies of regulation is not immediately reflected in the GFDSP's context, Silver and Hickey's emphasis on the need to develop richer stakeholder relationships through transparent and diverse mechanisms of exchange, offers insight into the GFDSP's tentative stakeholdership. In the context of the GFDSP, the implementation of the designation has placed emphasis on formal mechanisms such as lighting regulation (Councils, wind farms) and on engaging an external audience, whilst neglecting to explore how locally situated communities might build longer-term relationships with the GFDSP as a resource for recreation and community. Silver and Hickey suggest developing 'non-binding approaches' which encompass education and planning activities that 'are more amenable to diverse stakeholder groups and thus easier to employ in DSA [dark sky areas] communities' (Silver and Hickey 2020: 2640; see also, Schulte-Römer, Dannemann and Meier 2018: 187). While such approaches may not necessarily lead to the lighting requirements of the IDA or the RASC, nor 'realize tangible economic benefits from night sky recreation and tourism' (Silver and Hickey 2020: 2640), they are worthy of exploration, whether in pre- or -post-designation contexts, because they create opportunities for dark sky values – and the IDSPs that protect and promote them – to be more diversely practiced (loc. cit.). This is a point I discuss in greater detail in Chapter 6 as I follow community-led activities that are fostering meaningful links between dark skies, local heritage and ecology.

For Dark Sky Ranger, Jesse, the creation of a central observatory or dark skies base seemed a natural next step in the progression of the GFDSP, a valuable resource for the Biosphere Dark Sky Rangers as well as those who might more indirectly connect with Galloway's dark skies:

> I think that the Park would benefit enormously from a central observatory. Clatteringshaws would be the best location, or Kirroughtree or Glentrool… a popular tourist destination in the Park. […] the accommodation providers all around the Park would benefit from that, as would the local restaurants and tour operators who run day-time things as well, so yeah […] That would be a good way to move forward.

The value of a central base or several smaller bases was echoed by many other participants, who noted that it would allow practitioners and enthusiasts to share interests and resources

and deliver activities with greater ease across the region. This was particularly important to those living in less connected parts of the Park (e.g. Barr village) or areas in and beyond the 'Transition Zone' (within a 10-mile radius of the Park's boundary), since dark sky related activities often end in the dark, requiring greater preparation and planning with regards to travel. In almost all cases, the suggestion is a new public observatory in the centre of the Park,[72] whilst others, such as local resident and organising member of the Bargrennan and Glentrool Community Trust, Sue Clark and Biosphere Dark Sky Ranger, Elizabeth, propose a stargazing platform or alternative outdoor assembly point for stargazers and astronomers.

The observatory is a valued piece of infrastructure for an IDSP (Owens 2011; Fildes 2016), providing a tangible "gateway" to the cosmos and an iconic and charismatic symbol of discovery and exploration, enabling visitors – particularly non-experts – to stand shoulder to shoulder with professional astronomers and guardians of the night sky (Fildes 2016). As Dark Sky Rangers and other IDSP staff act as guiding lights to visitors (see Chapter 4), so observatories offer further anchoring with the promise of information, shelter, creature comforts, and company (Fildes 2016: 13; Bogard 2013: 194–195, 198), and therefore play an important role in drawing visitors to IDSPs (Blair 2016: 60), particularly those who are not as comfortable or experienced with self-led exploration. In an interview marking the eve of the GFDSP's ten-year anniversary, Keith shares that without a "tangible facility", the Dark Sky Park is at risk of "falling behind" other dark sky designations (Rinaldi 2019). Concerns over the absence of an observatory in the centre of the Park were largely located in a perceived loss of momentum and missed opportunity. This was made all the more conspicuous by the presence of the Scottish Dark Sky Observatory (SDSO) at the northeast edge of the GFDSP, so much on the edge, that the official boundaries of the Dark Sky Park were extended in 2012 to include this new venture:[73]

> We're crying out for an observatory! If Dalmellington can put its flag in the pole for an observatory, we should have one at Kirroughtree as well, that must be the next logical step.[74]

---

[72] An observatory had existed for some time closer to the centre of the Dark Sky Park in the back garden of Robyn, a previous Chair of GFAS, but was accessible only to members of the GFAS. It has since been dismantled and its various parts are now stored in the Newton Stewart Tennis Club under the watchful eye of the GFAS membership.

[73] Galloway Forest Dark Sky Park. Annual Report 2014. Available from: https://darksky.app.box.com/s/0ac4k6ewet25g25nshan555euo1v7p6e/file/239672812426.

[74] John, SEPA.

> We don't just want a northern edge and a southern edge – we want stuff happening in between.[75]

Likewise, the development of a Dark Skies Visitor Centre in the town of Kirkcudbright, several miles from the eastern edge of the Park was a point of friendly contention:

> We need to have some clear thinking, not just an opportunistic, who got that first. I think there's a risk here of thinking Kirkcudbright's doing something for the Dark Sky Park… but is it? Is that where that should be, is that going to get people quickly enough to what the Dark Sky Park's about if they're in Kirkcudbright?[76]

Though the KDSVC will act as an additional base for the Dark Sky Rangers and GFAS (Kirkcudbright Development Trust 2016: 10), a more centrally located observatory would allow people from across the Park to assemble together with greater ease. I discussed this with Glentrool local and amateur astronomer Hunter McCall during a walk we took on a sharp, clear day in March 2018 to visit a site he had identified as being ideal for a small community observatory. While it is possible for Hunter to drive up to the SDSO from Glentrool (about an hour's drive), he explained, a small observatory in the centre of the Park would be a welcome support for the often spontaneous and contingent nature of stargazing. He explained how challenging weather ("Glentrool is in the rain shadow"), while a hindrance, further enhances those nights when the clouds do part, and the stars can break through in their thousands.[77] The ability to go out at short notice is of great value to Hunter. Reliable access to an observatory or small store and viewing point in Glentrool would make that possible: "It's something that's always ready, no need to pack. If you can just get out of your bed at 2am [chuckles], there's no lifting of heavy parts into the back of a car." We made our way from Bruce's Stone[78] overlooking Loch Trool, through old oaks, up and along part of the Southern Upland Way, before turning right onto a Forestry track. We followed this for some time,

---

[75] Elizabeth, Biosphere Dark Sky Ranger.

[76] Calum, SNH.

[77] In the article 'Scotland sells star therapy to stressed out city dwellers' (Kelbie 2008), astronomer and GFDSP consultant Steve Owens explains that Scotland's infamously rainy skies are actually a boon to astronomers:

> I've studied the stars from remote areas all over the world ... Nowhere is the atmosphere so clear as in Scotland because the rain clears the skies and so, on a good night, the view is spectacular.

[78] Bruce's Stone is a popular viewpoint in the GFDSP and commemorates the Battle of Trool in 1307. For further information: https://forestryandland.gov.scot/visit/forest-parks/galloway-forest-park/bruces-stone-loch-trool

walking alongside the deep tracks made by forestry vehicles, bordered on both sides by dark, earthy land, shot through with white, grey and brown flecks of tree debris and the hairy masses of cluster roots. We stopped at an area where the track opened onto a large box-shaped slice of land designed for Forestry vehicles to turn around. Here, Hunter said, is where a small observatory could work very well, elevated in the dark heart of the Park with magnificent views across the loch.

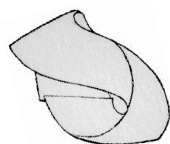
On another walk with related motivations, Dark Sky Ranger Elizabeth and I had followed tracks up the other side of the loch with guidance from Glentrool resident Sue, to scout out a possible site for either an observatory or sheltered platform for use by residents and visitors. Not invested in astronomy so much as the night itself, Sue shared that she would love to see a shelter or platform constructed, which would allow for stargazing but also act as a peaceful spot from which to enjoy the night sky and the feeling of being outdoors at night "without getting too battered by the wind". Her references for this include the aesthetic devotional spaces of James Turrell's *Skyspace* artworks[79] and the functional but cherished mountain bothy,[80] bringing together ideas of exposure, aesthetic attention, rest and shelter. Again, the location she had in mind was elevated, offering another stunning view across to the Loch and the hills beyond, but also a different sense of the sky, the air clearer, colder and sharper. Sue envisioned a resting place where an elemental sense of the night could be appreciated and *felt* with or without the spectacular views of sky above and land below, while still being sheltered enough to feel safe and welcoming. As with bothys and site-specific art installations, such a structure might offer resource to small groups wishing to enjoy the night together or facilitate quiet and friendly encounters between strangers as they individually explore the Dark Sky Park.

That Sue's idea for a shelter and Hunter's community interest observatory represent resources for dark sky engagement for which the value to tourism is peripheral rather than central, indicates a desire for shared spaces that enable local residents and practitioners to nurture their connections with the Dark Sky Park and with each other. While the SDSO and KDSVC act as valuable gateways for a visiting public and as prospective centres of research activity and exchange (Craigengillan Estate n.d.b [7]), they are not considered immediately accessible to the GFDSP's wider community. What perhaps seems like a fixation on permanent and public

[79] One example we spoke about was the 'Kielder Skyspace' created at Cat Cairn in the Northumberland National Park, UK (now, the Northumberland Dark Sky Park) in 2000, and located close to the same track that leads up to the Kielder Observatory.

[80] A bothy is a small structure (often a small stone house, or byre [barn]) that provides basic shelter for hill walkers, mountaineers and others in remote places.

fixtures of dark sky engagement to draw tourists deeper into the park, may rather indicate a shared desire for a holistic and co-ordinated approach to the GFDSP's development that could more evenly distribute the benefits and opportunities of the designation. Such wishes reflect the suggestions shared earlier in this chapter regarding alternative organisational 'containers' through which dark sky stewardship can take shape (for example, the landscape partnership model). However, by naming the value of communing under the stars and sharing a common interest through situated and social activity, they more clearly shift emphasis from the formal dimensions of stewardship to the *formative*. The next chapter continues to explore this notion of dark sky stewardship *in situ* and in community through various informal, contingent and community-led engagements with Galloway's dark skies that are strengthening stakeholder relationships and elaborating a richer vocabulary of dark sky values.



### *Fielding the Dark Sky Park: between problem-solving and creative enquiry*

Throughout fieldwork, participants often commented on my role as an "outsider" and how this might benefit the development of the Dark Sky Park: "You're someone coming in from the outside, so you'll be able to see things we can't".[81] There was a certain mobility to my work it seemed, in that I was able to meet with people based in opposite ends of the region as well as acting as an imaginative link between different sites, still unvisited by stakeholders but ever on their minds, if only they had the chance or the time to get to them. Further, as Dark Sky Ranger Elizabeth noted, I had the time and resources to keep up with dark skies research whether through access to journals or by attending conferences, as well as being able to visit other dark sky places in the UK and beyond, supported by institutional funding. My mobility, then, was perceived as physical, enabling me to "take in" more of the region and quickly build up a thick network of stakeholder informants, but also as a kind of freedom from the day-to-day responsibilities

[81] Keith Muir (interview).

and cultural norms that participants felt they must observe as part of their professional, voluntary or public-facing roles. Though the positioning of researcher as outsider is generally debunked within qualitative research (Dwyer and Buckle 2009; Mullings 1999), it is nonetheless a compelling identity and mode of engagement that researchers may find themselves performing as they interact with research site and participants. Keenly aware that research participants have a 'stake' in the findings of my research as an AHRC-funded CDA project (AHRC 2019; Bates 2018), its aims and objectives devised in partnership with the GFDSP, I found myself striving to embody the 'outside perspective' that stakeholders appeared to value. This occurred despite my orientation as a researcher to critical conceptualisations of fieldwork as situated and co-constituted (Katz 1994; Hyndman 2001; Kobayashi 1994; Rose 1997), and despite having already experienced the value of a processual, responsive approach to site through my use of autoethnographic and creative approaches.

I experienced the incongruence of this most acutely as I prepared and subsequently delivered a stakeholder workshop in the summer of 2018.[82] The workshop, which was structured around table-based visual mapping exercises and creative problem-solving, required a certain synthesis of research to date, so that our discussions would feel interesting and purposeful – or so I believed. I had been ambitious in my planning, researching a wide range of mapping examples and storytelling tools so that I could devise ones appropriate to the research. When it came to the week of the workshop however, my commitment to be thorough resulted in indecision as I jumped between different versions, working and re-working, never fully settling on any one tool. A note I made ahead of the workshop reads:

[82] The workshop took place on 1st June 2018 at the Old School, Glentrool Village.

*The workshop is too focused on gathering data, it doesn't really open up the research.*

The workshop, though not an unusual form in and of itself, was the first of its kind since the designation to bring together stakeholders from across the region to discuss what it meant to them and how they would like to develop the GFDSP in the coming years. I remember the frustration of wanting to create self-contained workshop materials through which the Dark Sky Park could be effectively 'mapped' by a larger group of participants, yet also wishing to facilitate a space in which they might feel some freedom to imagine possible futures for the Dark Sky Park and experience themselves as important actors in such efforts. A total of 10 individuals attended, including local residents, community representatives, staff members from FLS and GSAB, a Biosphere Dark Sky Ranger and a founding member of the Dumfries Bat Group.[83]

**Figure 5.4. Mapping the values with stakeholders.** Documentation from a stakeholder workshop held in June 2018, showing participants in discussion whilst responding to two creative exercises.

[83] See Appendix A.1 for list of participants.

The workshop included two exercises (Fig. 5.4). The first, a reflective mapping task whereby an abstract rendering of a night sky over the GFDSP served as the backdrop onto which participants added clusters (or constellations) of values they associated with the Dark Sky Park, with an understanding that these mapped points might represent 'guiding lights' or 'key stars' with which stakeholders could organise future actions around. The second exercise invited participants to collectively note down or draw pages to be included in a field guide for the Dark Sky Park and to discuss what its purpose might be. Prompts included: *What do we want visitors to notice and explore? What kinds of experiences and interactions are interesting or surprising? What information do visitors need?* Participants divided themselves into two groups and took turns with each exercise over the course of two hours.

As method, workshops can take a number of forms but usually involve the engagement of individuals in group exchange as a key formal element, and an intensive hands-on or discursive approach to problem-solving or ideas generation (Ørngreen and Levinsen 2017). In the context of my research, I shifted from individual interviews to a workshop to encourage exchange between different stakeholders, across the region and to begin to position myself and the research within this tableau as a possible route to co-producing the research. Despite these intentions however, I also experienced a strong drive to present and explain the research and to demonstrate my value as a researcher to the Dark Sky Park and its stakeholders as a person who 'acts upon—or intervenes in— [their] "possible or actual future or present actions"' (Besio and Butz 2004: 354, citing, Foucault 2000: 340; Kindon, Pain and Kesby 2007). I opened the workshop with an introduction that acknowledged stakeholders' concern over lost momentum and lack of resourcing and presented myself and the project as vehicles to

help 'insiders' problem-solve (a term that already frames a query as a problem and prescribes my role as one who would 'fix' it).

I did not explicitly mention the nebulousness of the Dark Sky Park. Despite it being a generative epistemological concept within my research practice, I felt nervous presenting it in such a way to stakeholders, who might find this framing confusing and possibly offensive, given the considerable efforts invested in achieving IDSP status. Rather than linger on the uncertain and open qualities of the research, I emphasised the ordering and clarifying affordances of mapping exercises, framing the 'sense-making' objective of the workshop in rationalising rather than exploratory terms.

I consequently experienced a feeling of 'groundlessness', what Haskell, Linds and Ippolito (2002; see also, Varela, Thompson and Rosch et al. 1991) describe as an uncomfortable awareness of the processual and contingent nature of knowledge production (see also, Butler-Rees and Robinson 2020: 2). I struggled to frame questions and prompts in the moment and momentarily retreated into my thoughts, not able to be fully present to the unfolding conversations. Despite efforts to be attentive and "useful", I experienced a tangible distance between myself and participants that I had not felt when conducting interviews or site visits. For Haskell, Linds and Ippolito, 'un-grounding' is always shared, happening between bodies, between things, a reminder that knowledge and learning are not fixed in place, but emerge through the 'shifting movement of experiencing' (2002: para 8). Despite its discomfort, the experience of groundlessness, Haskell, Linds and Ippolito argue, is of great value to qualitative research. By acknowledging and embodying groundlessness as a necessary 'state' of field practice that exceeds the individual body of the researcher, an 'enactive' space may be opened, through which alternative routes to 'knowing' can be tested and realised (ibid.: para 14). By choosing to frame the workshop in terms of the

project's possible outcomes and impacts rather than sharing where the research was currently at – what I had encountered, my questions, curiosities and challenges (what was 'at stake' for me) – I had missed an opportunity to practice what this enactive space might be.

It is important not to chastise oneself over doing methods 'properly' (Law 2006[2004]: 9). I include these reflections at this halfway point of my site-led chapters to re-situate myself within the 'social context' of my research site (Anderson 2014; Butz and Besio 2004; Reed-Danahay 1997; Clifford and Marcus 1986). In doing so, I orient towards a 'humble geography', framed by Samantha M. Saville as a practice that 'ground[s] us and our theories in place' (Saville 2020: 101) through 'honest self-assessment' (ibid.: 100), supporting us to understand how 'emotions, non-representational, embodied experiences, and affects can contribute to our understandings of processes and practices around us' (ibid.: 100; see also, Richardson and St. Pierre 2018: 1419; Parikh 2019; Volvey 2016). Such an approach also invites an 'expansive awareness of limitations' (Saville 2020: 101); bringing humility to our uncomfortable research edges, helping to build a felt sense of limitations as permeable boundaries through which a different kind of approach or concept might be materialised. I had come to understand and appreciate the Dark Sky Park as a nebulous configuration of different imaginations, values and practices that sometimes coalesce and sometimes do not, and to see great value in this. What might happen if I extended the same level of appreciation and trust for my own project, its concepts, methods and final form?

## *Conclusion*

This chapter presents a critical but sensitive exploration of how the Dark Sky Park is stewarded and developed beyond the initial designation, building on recent studies that explore dark sky stakeholding *in practice* (Silver and Hickey 2020; Heim 2020; Challéat, Lapostolle and Milian 2018). Drawing from interviews with managers and officers in forestry, conservation, tourism and land management, I open the chapter with an account of the Dark Sky Park as a "new geography" that, while indicative of a certain special quality possessed by the region, has proved difficult for stakeholders to engage with as part of their professional practice. While stakeholders admire the efforts required to achieve designation, they are unsure of their own role (or the role of their organisation) in the ongoing development of the designation. There is a shared sense that momentum has been lost and the Dark Sky Park has fallen out of focus, its myriad values overlooked and its full potential unrealised. Perceived as a "fuzzy" and "nebulous" concept, the Dark Sky Park has lent itself more readily to personal associations and experiences of the night sky, which stakeholders frequently drew upon during our conversations, sharing memories, anecdotes and curiosities with considerable enthusiasm, imagination and detail. Such conversations demonstrate a clear understanding of the various values that dark skies hold, suggesting that the Dark Sky Park's apparent nebulousness is less indicative of a disinterested community of stakeholders and rather a need for the GFDSP's managers to differently understand, engage and resource stakeholder participation. Efforts to do so have been compounded by the structural challenges arising from the devolution of Scottish Forestry in recent years, which has entailed a redirection of focus and redistribution of resources. However, as this chapter explores, such a process is not directly responsible for the Dark Sky Park falling out of focus, but rather highlights existing challenges around leadership, stakeholder engagement and a discontinuity between stakeholders' multiple values, concerns and knowledges, and the mechanisms and resources through which they feel able to enact them (see for example, Torralba et al. 2020: 2).

In reflection with practitioners and stakeholders, my discussion has identified possible infrastructures and stakeholder formations that may facilitate a broader sense of ownership and participation, whether through organisational structures such as a dedicated working group within the Biosphere Partnership Board, or looser configurations for asset development and stakeholder collaboration such as a landscape partnership. Key to my discussion is the inclusion of alternative configurations of stakeholder engagement from the perspective of those not officially involved in decision-making and management, but for whom the Dark Sky Park is nonetheless an important resource. Dark Sky Rangers, amateur astronomers and local

residents share their desire for physical infrastructure that facilitates a space for them to meet around a common interest, build relationships with one another and access shared resources such as viewing equipment. A shared recommendation is a more centrally-located observatory, but equally stakeholders are interested in less defined or public-facing gathering spaces as demonstrated by Glentrool resident Hunter's interest in constructing a small observatory that overlooks Loch Trool with arranged access for locals, or Glentrool neighbour Sue's wish for a permanent shelter or installation that both visitors and locals might use as a viewing platform or a quiet space in which to pause and connect with Galloway's natural darkness. Such suggestions, I argue, reflect a shared desire and need among the Dark Sky Park's wider community for a more holistic approach to the GFDSP's development that could more evenly distribute the benefits and opportunities of the designation, and, by valuing the diverse experiences and expertise that are distributed across the region, facilitate an increased sense of ownership and community around this shared resource.

This chapter, then, makes an important shift in the narrative of a post-designation GFDSP through a sustained exploration of dark sky stewardship *in formation* that asks not only who's in and why (Reed et al. 2009), but who's in and *how*. Central to my discussion is an exploration of the generative tension between the formal[ising] (e.g. official organisational structures and modes of engagement and decision-making activities) and formative dimensions (e.g. informal, open-ended, non-instrumental activities) of dark sky practice. As the methodological cutaways of this chapter reflect, this tension is also present in my research-making (see, Lorimer 2005: 84). At this halfway point of my site-based ethnography, I reflect on the challenge of navigating a desire to faithfully represent the Dark Sky Park and support its stakeholders through approaches that clarify and consolidate, whilst also wishing to embrace the generative potential of research engagements informed by arts-based and non-representational approaches that see value in process, open-ended dialogue and co-production (Kester 2004; Barrett and Bolt 2007; Duxbury, Garrett-Petts and Longley 2018: 6). My reflections begin to tease out a critical appraisal of *nebulousness* as key to developing a different 'sense' of what the Dark Sky Park means, how it comes to be meaningful to its various stakeholders (existing and prospective), and how it comes to be meaningful within the framings of a research project. This chapter, then, has sought to open up a speculative space of enquiry, exploration and exchange not unlike the spaces described in the chapter, where the perceptions, concerns and aspirations of a tentative and dispersed stakeholdership may be constellated. The following chapter will further develop an imagination of the Dark Sky Park and its stewardship in-formation through a closer exploration of informal, communal and situated engagements through which the diverse values of Galloway's dark skies are being materialised and shared.

# Chapter 6
## *The spaces between stars: lifeworlds of the Dark Sky Park*

To be well used, creatures and places must be used
sympathetically, just as they must be known
sympathetically to be well known.

---

What Are People For? (Berry 1990: 116)

We live in a constellation
Of patches and pitches,
Not in a single world

---

*July Mountain* (Stevens 1989)

# *Introduction*

At a Q&A following a presentation I gave on my research in the summer of 2019, a member of the audience shared how she had been visiting Galloway – Newton Stewart village specifically – for several years to see her son. She described how for her, there was a distinctly different "feel" to the place since dark sky status had been awarded, as if the presence of the Dark Sky Park was percolating into the day-time hours. Prompting her to elaborate, she replied that she couldn't put her finger on it; it was just a feeling, something she had noticed in the years since the designation was awarded. In describing a change in the feel of a place she knew very well, she touched on that nebulous and slippery thing that is often captured in the term *sense of place*. A charismatic mainstay of cultural geography, sense of place is variously understood as the ways in which we dwell in and form relationships with environments and places (Tuan 1974, 1977; Seamon 1979). It has been theoretically tied to the concept of 'lifeworld', understood at its core as the 'all encompassing horizon of our individual and collective lives' (Husserl, cited in Buttimer 1976: 285), the '*felt-world* of relations between people and place' (Lorimer 2019: 332, my emphasis).

In exploring the lifeworlds of the Dark Sky Park, this chapter aims to build on recent studies of situated dark sky practice (Heim 2020; Silver and Hickey 2020; Meier 2019; Blair 2016) to further elaborate 'how individuals and communities might be affected by the presence of cosmic immensities in their everyday lives' (Blair 2016: xv) and to explore the various ways that dark sky values are articulated and produced through communities of interest and more contingent arrangements of stakeholder engagement with Galloway's dark skies. In this, I take cues from Amy Leach's (2012: 142–143) playful re-telling of the Ursa Major (Great Bear) constellation. Leach deconstructs an enduring sky story to imagine its inner movements and multi-dimensional space, reconfiguring the Great Bear as a gathering of individual stars, each with their own trajectories and lively spacings in relation to one another:

> Many of the stars in the bear are leaving the bear: they belong to the Ursa Major Moving Group. If you saw an assortment of red berries in the air, all floating the same way and perfectly maintaining their configuration in relation to each other, you might surmise that they were all growing on the same invisible drifting hedge.

Continuing the story of the GFDSP, this chapter now looks to the *spaces between stars*: the social and situated relationships of stakeholders, the informal and contingent engagements and encounters that play an important but under-explored role in the shaping of dark sky practice.

This is reflected in the form of the chapter, which cumulatively builds a sense of the Dark Sky Park's lifeworlds, through a series of descriptive accounts that are informed by site and site-relations rather than by research theme or specific enquiry. I foreground a descriptive approach to stakeholder analysis, which, as Reed et al. (2009: 1935) note, is 'rarely conducted for its own sake, since it has no purpose beyond describing the relationship between a particular phenomenon and its stakeholders'. This is precisely the reason I employ it here, allowing me to shift my research engagement from stakeholder *identities* to stakeholder *doings* to further develop an understanding of dark sky values and stewardship as relational, situated and plural.

## *I / The everynight: informal and personal relationships with Galloway's dark skies*

### A field, a Park, a universe: living with dark skies

There is a field that lies across from Glentrool Village, sitting alongside a wide track that leads to the Glentrool Visitor Centre. You would be forgiven for overlooking it. I have driven past it so many times on my way to the hills or to eat a sandwich by the Waters of Minnoch. The track is wide enough to pass an oncoming vehicle, meaning there is no need to slow or stop. There are no easy entry points anyway. The field is fenced and bounded, quiet and private.
It cropped up in conversation as an intriguing location that held promise for a group visit. Marie mentioned it to me with regards to the SHAPE project she was working on with Glentrool residents. Her eyes were wide, and voice hushed as she told me that Sue, a resident, wanted to take some of us to visit a place close to the village during a full moon. "It sounds quite magical… do you think you'd be up for that?" Alas, a group visit was not to be, owing to thick cloud cover on the proposed night. However, a few weeks later I met with Sue to hear what she found so captivating about this particular spot. We sat together on a bench by the village green on a beautifully sunny day, wide blue skies all around and the gentle hum of spring filling the air. Sue had printed out a copy of my questions and sat quietly writing her answers, every so often stopping to look around or share a thought.

Of this special field, she wrote:

> *Late summer, esp. the reeds and grasses are in bloom, dew collects on the seed heads and becomes almost luminescent in the moonlight. It's the quality of moonlight that creates such a magical atmosphere at night – the shadows of trees in winter on the road – the tracery of branches against the intense prussian/ultramarine sky. Night birds – I saw a nightjar last Autumn/Summer. It came and inspected me – circled me and flew off, disappearing into the trees – truly magical. The sound of trees – the stream, the river, birds, wind. The feeling that I am on my own (apart from Jimmy the dog) – like meditation. Depending on time of year, the sound of migrating birds flying above my head – sometimes just the wing beats, sometimes the call of snipe (rain goose), geese… I've always loved the night, magical, enthralling, comforting, calming, being at one with nature. The Moon – hypnotising.*

Sue's account animates an imagination of the Dark Sky Park as landscape milieu (Edensor and Lorimer 2015). While it speaks of one field, it is woven with multiple spatiotemporalities and agencies, seasonal stages of growth and decay are woven together, as are seasonal inhabitants and wayfarers. She expresses the many aesthetic variations of its different dimensions – the shadows made by bare trees in winter, the wet glimmer of moonlit seed heads, the sounds of stream, wind, trees, birds. It is simultaneously spectacular and quotidian, evoking the drama of above and below, and the quiet comings and goings of the everynight. Reading Sue's account, I cannot help but think of John Berger's essay 'Field' – for the obvious affinity of course, but also for its cinematic storying of place as a *happening*, an unfolding event in which we ourselves are part: 'The field that you are standing before, appears to have the same proportions as your own life' (Berger 1980: 198). It is an imagination of place as medium rather than backdrop, and of environmental relation as depth wherein 'the body is both always already immersed in worldly spatiality, and also creative of that space' (Wylie 2007: 149; see also, Ingold 2008; McCormack 2017).

For this reason, Berger's notes on what makes an 'ideal' field for this kind of encounter (Berger 1980: 194) are momentarily perplexing, with their focus on specific physical details

and styles of confinement.[84] To insist on this seems an attempt to fix down the many different senses of field, from the more concrete – a bounded area of land (usually, worked) (loc. cit.) – to the more nebulous – the way attention is *fielded* from one event to another (ibid.: 196) (for example, the way the sound of migratory geese passing overhead can pull focus to cloud formations, to weather, or perhaps, to thoughts of dinner as you realise the geese are following the setting sun). The tension between these senses of field – as physical place, as way of looking, as open event – is an interesting problem to work with (as Berger himself notes), and one I have attempted to stay close to throughout this research project as I consider the impact(s) of Galloway's *window to the universe*, both as a signifying discourse of environmental protection and as a contact zone, through which the values of place arise from situated experiences, encounters and practices.

Participants and I frequently spoke about nightwalking as personal habit or intentional practice, often alone or with a dog. This activity – and others such as fishing or off-road cycling – allowed for a sense of perspective after a difficult day, a feeling of being closer to nature, an opportunity for quiet contemplation. These experiences are intimately related. Getting a change of perspective was about tuning into something *other*, to a different rhythm, to other bodies and *doings*; a reminder that we are always in relation, that this unquantifiable darkness above is large and steady enough to hold our difficult human situations, our complicated human feelings (see also, Blair 2016: 123). The GFDSP's residents frequently link slowness, remoteness and quietude to Galloway's night skies, the darkness itself supported by these same conditions (see also, Gaw 2020: 163). Participants found comfort in this, often expressed through a softening of their voice and gestures of release such as taking a long breath out or pausing for a while, their gaze straying as if lingering in a memory.

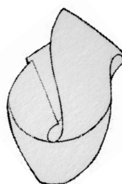
A change of perspective was also pursued (though, not always achieved) through expeditions to see specific things: a full moon, a comet, noctilucent clouds,[85] owls, glow worms; each of

[84] Sue's account offers a further corrective to Berger's dismissal of a field in winter (which we might also read as a field after dark) as characterised by 'inaction when the range of what is likely to happen is reduced' (Berger 1980: 194). This, of course, is an anthropocentric view of what counts as 'active'. I pick up this thread again in Chapter 7 where I explore encounters with the more-than-human Dark Sky Park through 'active' and 'inactive' states of being and doing.

[85] Noctilucent clouds form at high altitude (between 50 – 80km above the surface of the Earth) and reflect the sunlight after the sun has disappeared below the horizon in the summer months. They are strikingly bright and iridescent, earning the name noctilucent, which means 'night-shining'.

these requiring a particular temporal commitment. Sometimes these things appear anyway, unannounced: the nightjar that "inspects" Sue, pine martens at the side of the road picked out in headlights, a shooting star in the exact moment that you choose to look up. Sue tells me she has many fond memories of walking back from the pub (a mile down the road in Bargrennan) in the late summer with friends, their happy chatter punctuated by meteor showers overhead.

The accounts shared above reflect two forms of engagement identified by Ada Blair in her study of the Dark Sky Island of Sark and its resident community. Many of Blair's participants described 'purposeful act[s]' of looking at the night sky and keeping up to date with its goings-on, motivated by an already existing interest in the stars (Blair 2016: 106). Participants also shared moments of 'soft fascination', a term borrowed from environmental psychologists Stephen and Rachel Kaplan's work on the restorative benefits of nature, to describe a form of attention that is gently quieting; an enjoyment of nature 'without effort' (ibid.: 107). Blair writes that these moments usually happen 'in between doing other things', snatched glimpses on the journey home from work or a moment of pause to look up when stepping outside to collect wood for the fire. Though this may suggest, Blair writes, that dark skies are taken for granted by some (loc. cit.), it also touches on the less spectacular and informal ways that dark skies are sensed and acknowledged as part of a lifeworld; a kind of easeful awareness of what is 'always' there. This is not to suggest that dark and starry skies are an infinite resource that can be depended upon – indeed, Glentrool's residents are under no such illusion given the frequency of rain and cloud across the region – but that their localised darkness is, as Philip Vannini and Jonathan Taggart write in their study of off-grid dwellers in Canada, 'a climatic and cosmic re-occurrence' that shapes everyday lifeworlds (Vannini and Taggart 2015: 639; see also, Gaw 2020: 163–4). Speaking to the life-enriching qualities of Galloway's dark skies (see also, Heim 2020: 62) – both literal and imaginative – the personal experiences shared above intimate a more nuanced articulation of the GFDSP as stakeholder resource (see, Meier 2019: 91), animating relationships of value that need not be instrumentalised or refined for the consumption of visitors. Such accounts also encourage us to conceptualise and address the Dark Sky Park as less an 'object' of interest around which stakeholders assemble to identify values or make decisions, and rather something more akin to a medium in and through which stakeholder lifeworlds are composed.



*Sinking into it: an unlikely guide to Galloway's dark skies*

When you agree to meet someone for an interview or site visit, it goes without saying that arranging to meet on the hour or maybe half past the hour is perfectly reasonable and to be expected. When I first reached out to resident Joe to let him know that I was interested in visiting Cairn Holy, a Neolithic site in two parts,[86] his reply was detailed and site-specific in a way that disarmed but also delighted me:

I'm looking forward to your visit to Cairn Holy.

As you suggest, more than one could be good -- for more than one reason.*

Here's an extreme suggestion: Could you manage *three* over various days -- perhaps sunrise, midday, sunset and/or evening stars? (And there are fine moments between 5 & 6 as well. . .)[87]

He then suggested more specific timings:

Sunrise: Currently about 4:50 AM at sea level, a bit later at Torhouse,[88] and about 5:50 at Cairn

[86] Cairn Holy is comprised of Cairn Holy I, a striking 'horned' concave façade of tall pillar stones; and Cairn Holy II, said to be the tomb of the mythical Scottish king Galdus. I only visited Cairn Holy I with Joe. All instances of 'Cairn Holy' hereafter refer to this particular site. More information about both Cairns can be accessed on the HES website: https://www.historicenvironment.scot/visit-a-place/places/cairn-holy-chambered-cairns/ and their 'Statement of Significance' (Historic Environment Scotland 2018).

[87] Email correspondence, which continues below.

[88] Torhouse Stone Circle is another site Joe thought we could visit. Like Cairn Holy, Torhouse Stone Circle is managed by Historic Environment Scotland. It is a Bronze Age site, comprising 19 stones, and lies a few miles outside of Wigtown. More information about the site is available here:

```
Holy (due to the hills -- who are of course part
of the story).
It might be possible to catch two sunrises in an
hour -- starting at Torhouse and heading over to
Cairn Holy.

Crossing the Heart:[89]  7 - 8:30 (echoes of summer
solstice perfection still evident).

Noon:  Currently 1:24 at Cairn Holy[90]

Afternoon:   Recumbent crossing, with echoes of
summer solstice and hints of Lughnasa, around
3;  evening alignments about 5 - 6.

Sunset:  Currently about 9:45 at sea level (and
Torhouse) -- and an hour earlier at Cairn Holy,
followed by the twilight bow (opposite the sunset
-- glorious last night).

Stars:  The first emerge by 10:25 (Jupiter and
Venus earlier). In the light summer night, it
takes nearly an hour for enough stars to be
visible for us to clearly track their dance with
stones.
```

We settled on multiple visits across one day, beginning with sunrise (5:50am) on Friday 13th July and ending with a midnight visit (1:24am) on Saturday 14th. Tucked away just off the A75 near the village of Creetown and roughly ten miles

https://www.historicenvironment.scot/visit-a-place/places/torhouse-stone-circle/ As it turned out, we decided to spend the time we had at Cairn Holy I.

[89] Joe's emails are suffused with detail; too much for me to go into here, only to say that he has named specific transitions of light based on his recordings over the years, 'Crossing the Heart' being one of these.

[90] Joe's timings may seem a bit odd, but they are specific to the site, taking into consideration how proximate and distant landforms impact the on-site timings of sunrise and sunset. It is also a helpful reminder that our all-too-human sense of time is one sense among many. While many will mark midnight at 00:00, the term refers to the middle point of the current solar cycle.

from the Dark Sky Park, the Cairn Holy Chambered Cairns are reached by driving along a track which jauntily climbs uphill past the Kirkdale Burn, through trees and alongside farmland, until swinging round to a rough open spot where a few cars can park up. I arrived before Joe – by quite a stretch, which I later realised was probably his way of allowing me some time alone with the site. Indeed, when he appeared, he asked for my first impressions and smiled widely as I noted how unexpectedly small it was, and the uncanny way that the surrounding land seemed to be collapsing into the tomb, as if sucked in by some gravitational force. The sky was full of thick pale cloud, no sunrise in sight. This did not deter Joe, who offered that the most profound experiences are those under dense cloud cover, since there are fewer distractions of measuring and attending to light and shadow; instead, you get to know the place by "sinking into it". This sounded like a wonderful way to spend the morning, though I kept a safe distance from the sunken tomb.

I sensed that this would not play out quite as my other interviews had but began anyway with my usual informal chat to get a sense of Joe's history with the site, his particular relationship with it. Joe had other ideas however and quickly drafted me into a different kind of conversation – with Cairn Holy itself. Narrowing his eyes and softly clapping a hand to his face, he suggested we try a series of perceptual exercises and thought experiments. Joe is devoted to Cairn Holy and estimates that over the course of his twenty years living in Galloway, he has missed only one hundred days. He said this without arrogance; it was simply an observation. He explained that there are many different ways of reading a site – what he described as "entering its various overlapping levels", from its feat of engineering and artistry to the experience of simply

being with it in the here and now. For Joe, these levels are "keys" which may be turned or given over to turning if only we bring our full attention and respect:

> The more clearly we enter into each [level], the clearer others are revealed. As phenomena unfold (in the world, and in us), we do as well.[91]

Over the course of a few hours and with Joe's guidance, we attended to the site through a cascade of different approaches: observation (from different angles and distances, [Fig. 6.1] across 30 seconds, 2 minutes, 5 minutes), embodiment (embodying each stone in turn), movement (fast approach, slow approach), memory (Joe's, since this was my first visit), reference (what we know of Cairn Holy through secondary sources and expert studies), and finally, "riffing", a kind of speculative enquiry that included questions (what might it have been used for, why is this stone here and that one there?), immediate experiential impressions, and other responses or associations that came up.

[91] Email correspondence, prior to meeting.

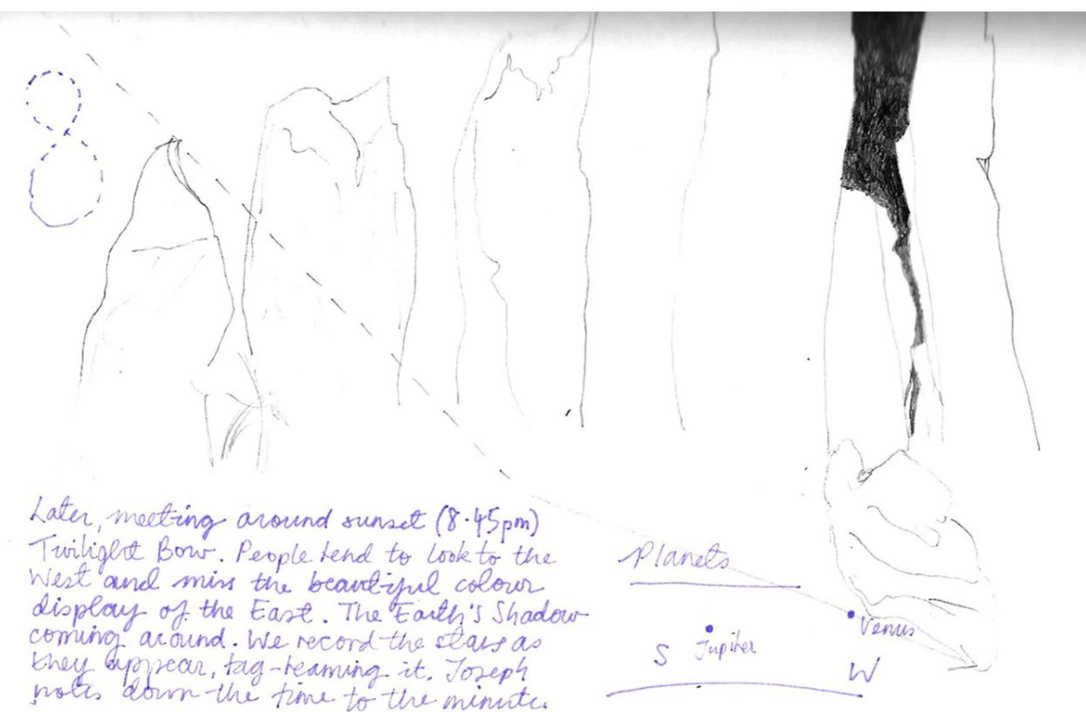



Figure 6.1. Exploring Cairn Holy with Joe. Sketches from midday visit to Cairn Holy and notes from our visit at sun-down.

Meeting again at sun-down and once more at midnight, Joe and I inhabited Cairn Holy with less intensity and intent, the subtle deepening of the summer sky inviting a softer gaze and slowing of activity. We talked about how twilight and shadow reveal further details and nuances of the site. The darkness does this too, Joe adds, by inviting us to look with our torches. The sharp contrast of artificial light close at hand and the deep darkness of the site reveal a cup mark on one of the orthostats, which is difficult to see in daylight, even if you know where to look. For Joe, this is all part of the site's "dance", what I came to understand as encompassing both the experience of moving physically, energetically and imaginatively *with* the site and its ever-transforming conditions, and the site's capacity to exceed or undo the impulse to settle its status and meaning. Similarly, art critic Lucy Lippard writes of ancient sites as:

> outlets for the imagination that can't be regulated, owned, or manipulated like so much contemporary art because so little is or ever will be known about them. Unlike a towering skyscraper, a towering standing stone in the landscape seems not so much to dominate its surroundings as to coexist sensuously with them. It confirms the human need to touch, to hold and to make, in relationship to natural forces and phenomena. (Lippard 1983: 8)

Figure 6.2. Cairn Holy by pinhole. Pinhole photographs exposed on 35mm photographic film negatives (scaled-up) composed by Joe and me at Cairn Holy during June 2018.

Touch is a recurring theme in Lippard's book *Overlay* (1983), which explores the relationship between contemporary art and

ancient sites. For Lippard, touch is not necessarily physical, but most certainly 'sensuous' (ibid.: 1; see also, Paterson 2009; Sedgwick 2003), an understanding that reflects recent scholarship on affect and atmosphere (Sumartojo and Pink 2017; McCormack 2010; Howes 2003). Touch, Lippard writes, is a form of 'socialising […] a sensuous dialectic between nature and culture' across 'distant and disparate times' (Lippard 1983: 1). In the moment of touch, what is *sensible* (possible to know) about a site is distributed between the one who touches and the one touched; indeed, who or what touches who is not clear (see also, Stewart 2011: 445). Joe's generous facilitation extends this experience of mutual sensing and socialising with site to my research. He often asks me questions and invites me to make suggestions for our shared exercises. It is his genuine interest in my own orientations to site that lead me to bring along my handmade pinhole cameras when we meet again at twilight. I show Joe how to use the cameras so that he can make his own images of Cairn Holy for me to collect at a later date and we discuss Goethe's colour theory. Joe is interested in what I might draw from the site – not as extractive practice, but more in the sense of how my sensibilities, references and modes of relating might invite the site to show – or, say – something different, to facilitate a conversation he had not yet had himself. Our companioned explorations of Cairn Holy give insight into how the Dark Sky Park comes to matter to its stakeholders through an accumulation of associations, qualities, values, sensibilities and relationships (see also, Gray 1985: 912). Each new association or experience does not just offer a perspective 'on' the Dark Sky Park, but also animates another line of connection, a different mode of address, a new question with which to extend the conversation.

**Value in relation: visionary amateurs and affective affinities**

Both Cairn Holy and Joe are peripheral figures in the Dark Sky Park's story of place. Cairn Holy is located outside of the Park's boundaries and therefore (presumably) not included in visitor materials relating to dark skies, despite being an enchanting site from which to view the stars, open 24 hours a day and entirely free. So too does Joe remain outside of official Dark Sky Park *doings*, moving at his own rhythm of place-relation and interpretation. Throughout our visits to Cairn Holy, Joe seemed thrilled at my willingness to join him in his endeavours. I am not his only disciple,[92] though I sense he does not have many. Joe's devotion to Cairn Holy has given him a reputation in the region for being eccentric and a "bit of a nuisance". The second admission he makes bashfully with reference to his neighbours, whose farmland sits adjacent to the two sites (Joe lives around ten minutes' walk from Cairn Holy), and also – though it was not all that clear – HES staff, the official guardians of the sites, having managed the land since 1957 (Historic Environment Scotland 2018). I had written to Joe after hearing about him from several different participants who referred to him as "Cairn Holy Joe" or as an "interesting" guy, where *interesting* clearly meant *a bit of a character*. These descriptions jogged my memory. I had met Joe once before. It was his respect for unusual ways of knowing that had encouraged me to approach him at an event about the 'creative collisions' between science and art one year earlier,[93] when, during the Q&A, he had challenged a speaker – in good faith – on their assertion that the arts are an excellent means of "illustrating" the complex ideas of science. Instead, Joe suggested, we need to think with more generosity about how creative approaches invite us to think differently about the universe.

Though expert theory exists on Cairn Holy's design and significance, as constructed through archaeological surveys (Piggott and Powell 1949), Joe's process of inhabiting site with curiosity, affection and creative speculation, offers something just as valuable in building an understanding of and appreciation for the site. He is, I believe, what Lucy Lippard refers to as a 'visionary "amateur"[s]', a role Lippard praises along with "professionals" in the introduction of her book-length study of the relationship between prehistoric sites and contemporary art

[92] Pete Style has written about his site visits with Joe on his blog 'Mountains of Meaning' and describes some exercises that are very similar to the ones I engaged in. Pete's blog post 'Cairnholy Joe and the Stones' can be accessed here: https://mountainsofmeaning.com/2015/07/21/cairnholy-joe-and-the-stones/

[93] Cosmic Collisions 2017, hosted by Crawick Multiverse, Sanqhuar. For information about the event, visit: https://ras.ac.uk/cosmic-collisions

(Lippard 1986: 3). Hayden Lorimer notes a similar quality of custodianship by 'The Keeper' of a seaside pet cemetery on the northeast coast of Scotland, whose 'preference for absolute freedom of expression' in how beloved pets are memorialised, has crafted a site that is 'resistant to easy or comfortable categorisation, and endlessly readable' (Lorimer 2019: 335). Rebecca Ellis and Claire Waterton's (2004) work on the overlooked and misunderstood knowledge practices and site-relations of volunteer naturalists and citizen scientists, is a helpful reference for articulating the value of Joe's engagement with the DSP, however 'unusual or awkward' his 'negotiations' with place may seem to those who hold more 'official' roles in the region (Choi 2020: 84). Ellis and Waterton advocate for the ways in which volunteer naturalists and citizen scientists are 'experientially engaged within the natural world' (Ellis and Waterton 2004: 98), arguing that conservation and biodiversity projects should value not just the things that individuals know, but 'the ways in which they know them' (ibid.: 95; see also, Choi 2020). Similarly, Craggs, Geoghegan and Neate (2016) advocate for the inclusion of enthusiasts as rightful agents within conservation practice, describing their contributions as 'enthusiasm-knowledge' (ibid.: 2). Enthusiasm, defined by Hilary Geoghegan (2013) as "an emotional affiliation that influences our passions, performances and actions in space" (cited in Craggs, Geoghegan and Neate 2016: 2), is productive of knowledge and socially transformative, an assertion shared by Helen (WAS) earlier in this chapter regarding the group activities of the Astronomical Society. Despite this, a discomfort with enthusiasm (and emotion more generally) in professional settings can obscure the important role it plays in making things (buildings, ecosystems, a Dark Sky Park) *matter* (ibid.). To do so, may not only alienate certain actors such as Joe from participating in conservation practice, but may also result in less obvious or less institutionally familiar values remaining unknown or intangible (Ellis and Waterton 2004: 96). In particular, the way people *feel* about place and how their feelings intersect with mechanisms of planning is underexplored in stakeholder analysis and community consultation when compared with studies of impact (e.g. benefits and detriments) (Coleman, Hodges and Haggett 2014: 11; see also, Craggs, Geoghegan and Neate 2016; Anderson 2014). Similarly, Andrew Flack and Dolly Jørgenson (2022) call for a more sustained exploration of the 'emotional regimes' and 'feeling communities' of environmental stewardship, inclusive not just of the values 'held' and emotions felt or expressed by human actors, but equally, the more-than-human agents and impacts that shape environmental relation and action (ibid.: 237).

Joe's form of place stewardship or custodianship recalls poet Wendell Berry's understanding of stewardship as 'fellowship […] characterised by sympathetic and affectionate knowing' (Garrard 2012[2004]: 123). Joe declares to me: "Everything I know about the world I am learning from Cairn Holy". That Joe sees Cairn Holy as a tutor for all aspects of his life, suggests an imagination of custodianship as a conversation with place, what Bram Büscher and Robert Fletcher describe as an 'affective affinity' (Büscher and Fletcher 2020: 161) that relinquishes the need to define and separate as the most reliable route to protection and preservation (ibid.: 160). Such an imagination finds value in the 'creative capacity' of local residents to variously participate in conservation (Ellis and Waterton 2004: 84). Similarly, Ria Dunkley describes how citizen scientists develop affective ties to local geographies through an unfolding process of attunement that does not rush to know or understand:

> [P]articipants within this study were less concerned with a final destination (scientific outcomes) and more attuned to the process of sensing, learning and becoming attuned to the environments that they explored through citizen science, as they went along. (Dunkley 2018b: 30)

What Dunkley describes is increasingly articulated in ecosystem services literature as 'relational values' (Vreese et al. 2019; Himes and Muraca 2018). Drawing on concepts such as kinship, stewardship, reciprocity, respect and care, relational values are 'embedded in desirable (sought after) relationships, rather than in things or beings' (Vreese et al. 2019: 1; see also, Chan, Gould and Pascual 2018: A6). Relational values arise from and are 'negotiated in particular contexts' (Chan, Gould and Pascual 2018: A5). They are enacted by 'multiple environmental subjects' (Choi 2020) and informed by 'specific socio-culturally embedded language[s] of valuation' shaped by 'shared narratives, institutions, norms, and habitualized practices' (Himes and Muraca 2018: 2). Relational values reflect a desire to be involved and an understanding that the things we encounter or experience in the world, have the power to affect and change us. In his report on the cultural values of forests, Paul Tabbush distinguishes between cultural capital that is 'held' in trees and forests (intrinsic value), and that which is embodied by people through their engagements with forests and woodland (relational or context-specific value). Further, he notes that the cultural services (read, *values*) of forests are 'identified and realised through community engagement, and that this [was] a distinct process compared with the more formal planning and decision making' (Tabbush 2010: 4).

While relational values are understood to be increasingly major motivators of stakeholder participation, they remain under-engaged in favour of the more traditional value categories used in ecosystem services such as 'instrumental' and 'intrinsic' (Himes and Muraca 2018: 9), which tend to frame ecosystem values as fixed services or consumable resources (intrinsic) flowing in one direction, and environmental decision-making as a rational and linear approach to making use of such resources (instrumental). This sustains a perceived binary between nature and culture, which, ES researchers and practitioners increasingly argue, does not reflect the relationships that managers, stewards and volunteers actually have with the sites they are engaged in (Ellis and Waterton 2004: 84; see also, Torralba et al. 2020: 2). An engagement with relational values represents an important shift towards an understanding of conserved landscapes as mutually actualising; not just to protect, manage or intervene, but to converse, to become involved with and to be prepared to learn from what we encounter (Child 2021; Büscher and Fletcher 2021; Dunkley 2018a). In the second half of this chapter, I explore the mutual actualisation of the Dark Sky Park through community-led and regionally focused activities that are thickening connections between dark skies, recreation, heritage and ecology, whilst also considering how such activities are transforming my working relationship with the GFDSP and its stakeholders.

## *II / Gathering grounds: coming into community with Galloway's dark skies*

### "[T]o see it, not just look, but *see* it!": shared enthusiasms and convivial explorations

Hunter is animated and light on his feet as we wander around the various pieces of an observatory-in-the-making in his back garden. The plan, he explains, is to open a small observatory able to accommodate up to 6 people and feature a live video feed from the telescope to his conservatory. The observatory structure has been donated to the Society by the daughter of an astronomer in Milngavie, Glasgow and Hunter, being an active astronomer, has offered to host it in his back garden. It has been a lot to take on, requiring a great deal of

research from selecting the telescope and astrograph[94] to measuring up and preparing a suitably sturdy foundation to safely support the equipment. Hunter clearly has the appetite for it and enjoys talking me through the different choices he has made.

He talks me through his vision of what it will be like once everything is set up and "open for business". Except it is not for business. Being a project of the GFAS, the planned observatory is already oriented towards a specific community, but Hunter is equally enthused by the prospect of welcoming neighbours and other curious locals who may not feel interested enough to join the Society but might like to "have a try". While it is possible for Hunter to drive up to the SDSO in the northeast corner of the Park (an hour's drive), his decision to host an observatory in his garden is motivated by the sense of community and spontaneity it will facilitate. His aim is to provide an informal and accessible space to explore the night sky and learn from one another over a cup of coffee at any hour, "though," he chuckles heartily, "I might regret those opening hours."

An informal gathering ground for astronomy enthusiasts and curious locals alike, Hunter's project speaks to the social dimensions of dark sky practice. This is largely unexplored in research studies of dark sky stakeholders, which tend to focus on the values that individuals hold and their motivations for supporting dark sky designation, without much consideration for the specific activities and interactions through which these values take shape (Blair 2016: 38). The importance of the social in forming relationships of value with the night sky was foregrounded in my interview with Helen, founder of the Wigtownshire Astronomical Society (WAS)[95] and her husband and fellow enthusiast Ian. Though Helen was not personally involved in the designation of the GFDSP, having resigned not long before, she was delighted at the thought that WAS may have planted a seed for the Dark Sky Park, adding that one of their reasons for setting up the society in 1998, was to encourage an appreciation of the night sky among local people:

[94] An astrograph is a telescope specifically designed to record images of 'deep-sky objects' (DSOs) such as star clusters and nebulae.

[95] In 2009, WAS changed its name to the Galloway Forest Astronomical Society (GFAS) to reflect the newly designated Dark Sky Park.

> to help them understand what they had was so wonderfully precious and beautiful, and you know, to see it, don't just look, but *see* it! Appreciate it and love it and stop all these folk shining their bright lights everywhere! [laughs]

To *see* it; not just to look, but to *see*. To look at the stars is to rely only on our eyes. To *see* in the way Helen appears to be suggesting, touches on a deeper experience of a look or a gaze; of allowing oneself to be affected by something, to form a relation. To gaze is to 'look steadily and intently, as with great curiosity, interest, pleasure, or wonder' (gaze n.d.) This gaze need not be long, but it is certainly a generous kind of looking that does not wish to remain separate (Otter 2008: 48) but rather seeks to meet, to make contact (see also, Blair 2016: 46−47). As geographer Yi-Fu Tuan writes: 'Perception is an activity, a reaching out to the world' (1974: 12). For Helen and Ian, this is an activity best supported − and most satisfying − in the company of others. There is a certain accountability that comes from looking together, an intensifying of the gesture *towards* the thing of interest. They are keen to emphasise the social aspects of stargazing − informal and unpressured learning, hours of unadulterated star-chat − but it is through their stories, richly described and exact in detail, from dates and environmental conditions to jokes shared and expressions on faces, that the nuance of Helen's comment on *seeing*, not looking, is brought to life. What stands out is a keen awareness of the value of looking up *together* as a way of building meaningful relations with the cosmos (see also, Blair 2016: 28).

Geographer Hilary Geoghegan's (2012; see also, Craggs, Geoghegan and Neate 2016) work on the social-spatial dimensions of enthusiasm in membership groups (and voluntarism and community activism more generally) is helpful for further unpacking this. In her study of the Telecommunications Heritage Group (THG) in the UK, Geoghegan describes how, in coming together around the object of their enthusiasm, members do not only 'uphold the values of the group' but are 'moved' by one another as they gather around the objects of their enthusiasm (Geoghegan 2012: 41). Enthusiasm is 'an emotional affiliation' through which values are affirmed, co-constituted and transformed by the presence of others as they interact with the object(s) of enthusiasm alongside and in relation to one another (ibid.: 40). Shared enthusiasm for the night sky has been an important resource for Helen, Ian, Hunter and others who value what Galloway's dark landscape offers them, but often feel some hesitancy heading out alone. Many of those I spoke to and spent time with expressed the value of

venturing out with others: wild camping, "moonbathing" on deck chairs, rolling out sleeping bags in the garden to take in a meteor shower, a campfire dinner with beers. Inhabiting the night in this way can be about sharing a – still – relatively rare experience, which can create "a sense of occasion" and act as 'a conduit for new forms of conviviality and camaraderie' (Gallan and Gibson 2011: 2514), through which individuals' enthusiasms and curiosities are reflected and reinforced by a community of kindred spirits (Geoghegan 2012; see also, Fildes 2016: 12). Enthusiasm, then, gathers through a relational milieu of agents, affects and interactions. In their study of enthusiasm within architectural conservation practice, Craggs, Geoghegan and Neate (2016) emphasise the emotional, embodied and non-linear qualities of enthusiasm. While these qualities may be considered too 'messy' or 'unpredictable' for policy making, to the extent that they are carefully managed and sometimes suppressed by decision-makers (ibid.: 3), the authors suggest that it is these same qualities that enable different forms of knowledge to be produced and a more diverse repertoire of values to be articulated through increased participation and the intersection of different modes of thinking and doing (ibid.: 5).

Assembling in this way may also expand the 'vocabulary' of an individual's existing relationship with the Dark Sky Park, putting them in touch with its unexpected values and affordances. Participants shared that just knowing that others habitually – and unashamedly – go out to "be with the night" encouraged or re-affirmed their own nocturnal wanderings. Elizabeth and Sue reflected that group activity can "give people permission to be out at night" (see also, Archibald 2019); an approach that informs Elizabeth's public events, but equally applies to the GFDSP's regular inhabitants, who, despite living in an internationally designated Dark Sky Park, are not always comfortable being *in it*. Knowing there are folk in the region who will be receptive to the idea of a "midnight picnic" or a "darkness test[96] walk" encourages further ideas to be shared and explored, supported by the comfort of knowing there will likely be someone who is willing to come along for the ride.

While out with Elizabeth on a site visit one day, she recalled with much animation of a recent night excursion with residents of Glentrool, the main purpose being to seek out glow-worms,

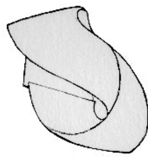
[96] For the purposes of designing a public stargazing event.

bioluminescent beetles whose (usually)[97] female adults emit a distinctive yellow-green glow to attract mates during the darker hours of summer nights. Until around 10–15 years ago, the glow-worms were a familiar sight around Glentrool and are fondly remembered by some of the village's older residents. Their disappearance may well be the impact of artificial light, which has been well-studied with regards to how the 'community composition' of glow-worms is considerably depleted by an increasingly fragmented night (Bek 2015; Ineichen and Rüttimann 2012). Glow worms had been coming up more and more in conversations with various people, Elizabeth explained, and so a small walk was organised in Glentrool in the summer of 2019 with the guidance of both a local bug enthusiast and historical records providing co-ordinates of previous sightings. Elizabeth shared how the group placed a series of small lights in gardens and near the Glentrool Visitor Centre to attract glow worms, as well as moth lures, which they would return to check after a short walk together.

As much as she enjoyed encountering the moths, it was the experience of being in the company of others that stayed with Elizabeth: "We didn't see any glow-worms, but it didn't matter anyway. It was just special to be out together at night. We spoke about quite deep things." As I listened to Elizabeth recount the evening and *felt* her sense of enchantment and community, I thought back to Helen Macdonald's (WAS) comment about seeing, not looking as a particular quality of experience afforded by communal stargazing. Though activities such as this are informal and contingent on participants' availability and initial interest or curiosity, they demonstrate how values and stakes are 'held in common […] formed and shaped through shared social processes' (Irvine et al. 2016: 185; see also, Kenter et al. 2014; Gray 1985). As Michelle Bastian notes, communal and participatory engagements with the more-than-human also highlight how nonhumans shape human lifeworlds, providing cues for how we might be 'differently human' (Bastian et al. 2017: 27). Though no glow-worms were seen that evening, the collective act of seeking out a creature not normally included in dark sky narratives – of being open to the possibility of that encounter and imagining the night-time of Glentrool as more-than-human – had offered a different way of being alongside each other that, in Elizabeth's recounting of the evening to me, was intimately entangled with her interest in Glentrool's glow-worm population. Her experience speaks to a celebrated quality of natural

[97] It is commonly thought that it is only the female adults who glow in order to attract male mates. However as various entomologists note (Bek 2015; Ineichen and Rüttimann 2012), both male and female glow-worms have the capacity to glow throughout their life cycle.

darkness and informal, mobile arrangements of lighting to create the conditions for conviviality and social connection (Bille and Sorensen 2007: 276; Edensor 2012; Edensor and Lorimer 2015). It also speaks to the role of dark skies in 'the recreation of community' as noted by Terrel Gallaway (2010: 85), not only in the sense of providing opportunities for unusual recreational activities, but as resource that composes and re-composes community through communal negotiations and enactments of place.



*Co-holding the stakes: an exploratory workshop*

"This is exciting" Marie says as she pulls on her headtorch. We assemble by one of the cars and form a small circle of red lights. It *is* exciting. Despite their mutual interest in the Dark Sky Park, this group of stakeholders and practitioners rarely get to spend time together *in the Park*, and even less so after dark. Keith rubs his hands together, a gesture to invite a bit of warmth on this cold and damp November evening, but also one that feels conspiratorial. Joining Keith are Marie (GSAB), Keith (FLS), Sue (Glentrool Village), Hunter (Glentrool Village and GFAS), and Elizabeth (DSR), participants with whom I had fostered close working relationships over the course of fieldwork. Also joining us was Laura (GGLP), who I invited along following our recent conversation about the experiential tourism project she was leading. We are here to engage in a workshop, which I will facilitate in Caldons Wood, a small semi-natural woodland on the shores of Loch Trool within the core zone of the Dark Sky Park, and where I have spent many evenings conducting autoethnographic fieldwork and creative practice. For this workshop, I will be sharing a little of this process by facilitating group exercises informed by my research encounters with the Dark Sky Park.

After the initial meet in the Glentrool Visitor Centre car park, we drive the two miles to Caldons Wood and walk together over the footbridge, following the track into the woods. I guide us left into a clearing where the pale forms of the Rosnes Benches welcome us. Just as I'm about to begin my introductory framing to the workshop, Keith strides purposefully over and launches onto one (Fig. 6.3), saying:

> This is what people usually do when they come across the benches. They jump onto them, maybe test them out a bit, try to figure out what they are. After a while, they get tired or bored and then realise they can sit down on them, and "ohh… actually, maybe I'll lie down… and ooh isn't that a nice view?"

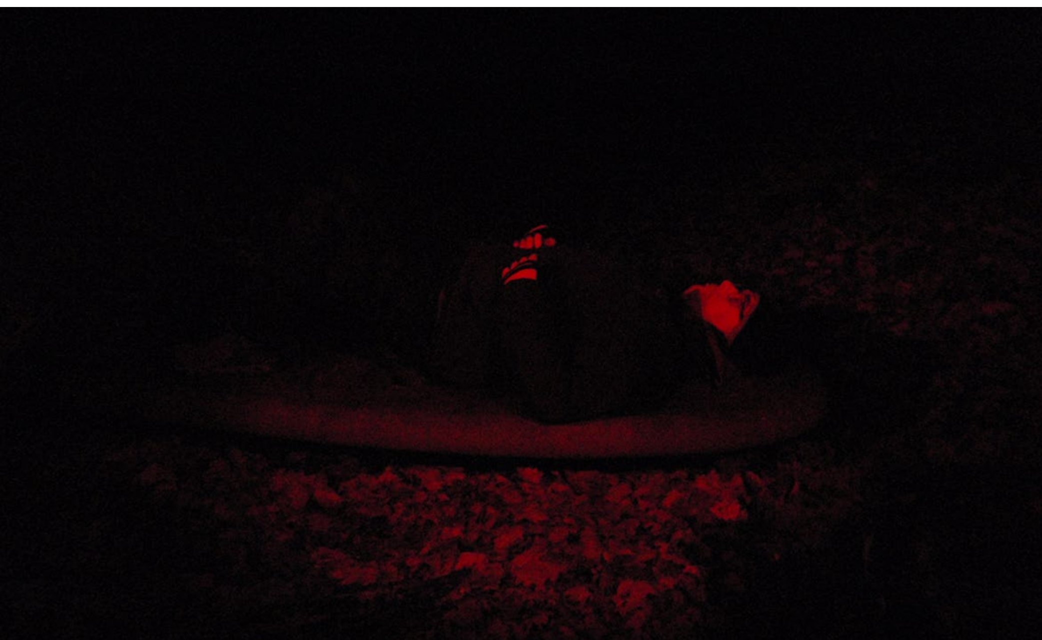


**Figure 6.3. An "alternative committee meeting".** During the workshop in Caldons Wood, Keith Muir, lit by our red torchlight as we listen intently, demonstrates how visitors interact with the Rosnes Benches, a permanent artwork created by Dalziel + Scullion.

Throughout this, Keith mimes and gestures, and though he is taking the workshop off the tracks, I welcome it. It was my hope that being together in this unusual stakeholder setting, would offer resource for our activities. As things come in and out of focus in the soft dark, so too might our thoughts and actions be solicited and come to shape the group experience. Keith's playful demonstration proves an excellent segue to my introduction. I frame the Rosnes Benches as an invitation to see, sense and situate otherwise in the Dark Sky Park and an excellent metaphor for the connection between sky and earth, above and below. I read a short passage composed of various pieces of writing from my research, which weave together notes on the reconfiguration of the eye during dark adaptation, the more-than-visual dimensions of dark sky engagement and an imagination of the Dark Sky Park as shared resource.

"We can think of this as an alternative committee meeting," I say. It is a light-hearted comment but sincere. Several interview participants have commented on the disconnect between the focus of their work and how and where their work is situated; often, an office or meeting room: "But how often do we get out in it?" I remember Callum (SNH) musing as we spoke with his colleague John (SEPA) about environmental decisioning making. This evening's workshop was an invitation to do just that: to 'pool[ing] our appreciations' (Gray 1985: 912, cited in Reed et al. 2009: 1944) as practitioners and stakeholders of the Dark Sky Park through a series of situated and embodied exercises. The following passages share these exercises in their original prompt form along with accompanying documentary materials and responses from the workshop. Following this, I share reflections from the group and discuss the significance of context in stakeholder practice and how the enactive space of the workshop

allowed me to critically position myself as a person with stakes, co-involved in the ongoing stewardship of the Dark Sky Park.

1

*Find a place nearby to position yourself. Sit down, stand up, lean against a tree, whatever feels comfortable in the moment. Let's start with our torches switched off and give ourselves a minute to feel into where we are. We each have a headtorch and for the next five minutes or so, I invite you to play with the light, switching it on and off, angling it in different directions, wearing it around your wrist, maybe your ankle, trying different lengths of illumination – think a very relaxed version of Morse code. I invite you to respond to the other lights. I invite you to illuminate different parts of your immediate surroundings (Fig. 6.4). Try holding the torchlight closer to a surface and then further away. Move the torchlight while you illuminate. Feel free to keep the light off for a while and witness the other illuminations.*

Figure 6.4. Sensory explorations in Caldons Wood. Sketch of our first exercise, in which we fanned out into the woods and proceeded to communicate with one another using our headtorch lights.

2

*Find a spot nearby to remain as long as is comfortable, up to ten minutes. What do you hear, smell, taste, touch, what touches you? What changes do you experience across your senses? What memories or associations come to mind? How do you feel? Using the blank cards provided, I invite you to make marks – write, draw, take an impression (Fig. 6.5).*

3

*While everyone is making impressions or simply resting in their chosen spot, I will set up a microphone at the Rosnes Benches that is designed to capture ambient sound. You can come at any point to listen through the headphones and you can change the direction and height of the microphone as you wish. What do you hear? What does it feel like to transition between these two different states of listening (with and without headphones).*

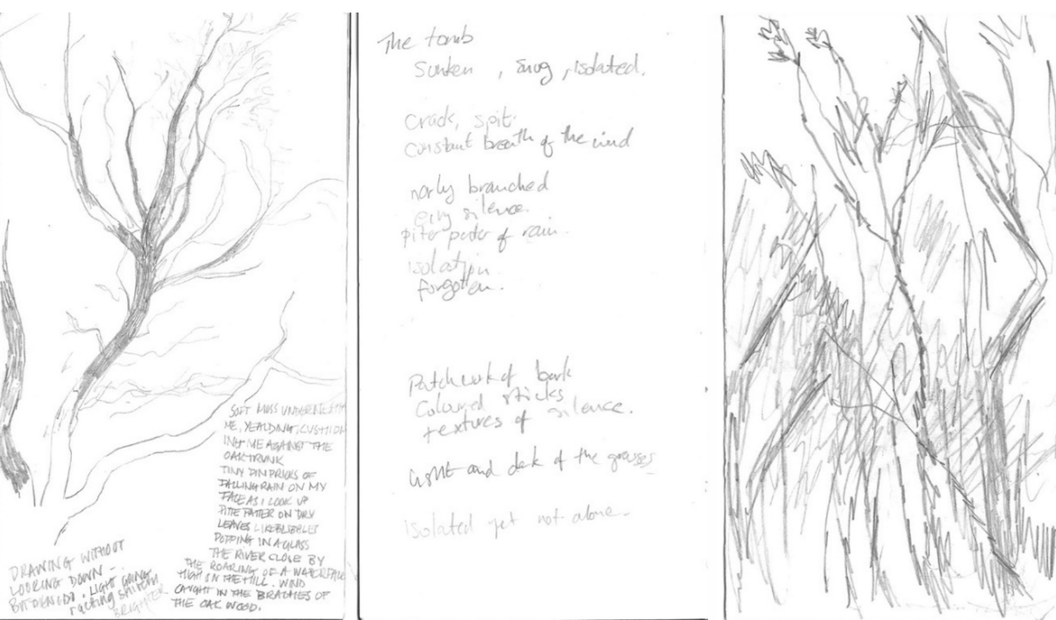



Figure 6.5. Deep listening and mark-making. Marks made by participants during the workshop.

**Figure 6.6. Reflections by the fire.** Elizabeth's firepit where we poured water whilst sharing our thoughts from the evening.

4

(facilitated by Dark Sky Ranger, Elizabeth)

*Now that we have returned from our time in the wood and we've enjoyed the fire and food (Fig. 6.6), I invite us all to take this tin can and fill it up with water from the barrel. We will use this to put the fire out one by one. As you pour your water on the fire, share something that you enjoyed or were surprised about this evening.*

With its focus on creative response, play and the multi-sensory, the workshop encouraged an understanding of stakeholding as communal, emergent and experimental. It included both individual and collective modes of encounter and engagement and, in response to the significance of personal encounters and associations with dark skies in initial stakeholder interviews,[98] aimed to invite both personal and professional responses within a shared experience of Caldons Wood. Situating us in the Dark Sky Park (both literally and imaginatively), the workshop invited participants to (re)familiarise with the designation, inspired by Keith's earlier comments regarding the remit of the Park's Recreational Services team to "open the forest up" and create "glimpses beyond the edge of paths" along the Kirroughtree Forest trails.[99] Through non-verbal and non-textual forms of engagement, the workshop emphasised receptivity and play as modes of possible stakeholder engagement, to support participants to experience the 'landscape' of the Dark Sky Park not only as part of a professional discourse, but as something felt, experienced, embodied and shared (Macpherson 2009; Anderson 2014). This demanded a level of creative uncertainty and suspension of habitual roles, relationships and references to allow something new to materialise. As Isabelle Stengers writes of [scientific] practice(s):

> The problem for each practice is how to foster its own force, make present what causes practitioners to think and feel and act. […] This is the kind of active, fostering 'milieu' that practices need in order to be able to answer challenges and experiment

[98] See, Chapter 5: Not enough at stake? How the Dark Sky Park comes to matter

[99] See, Chapter 5: *Peripheral Vision: expanding the field of focus*

> changes, that is, to unfold their own force. (Stengers 2005: 195).

I hoped not only to animate and thicken connections between stakeholders and the Dark Sky Park, but equally to enact our interconnectivity as individuals involved in the ongoing development of this shared resource. Enacting this interconnectivity *in situ* with cues that directed participants to the situated, sensory and more-than-human dimensions of Caldons Wood, the workshop exercises further sought to encourage an imagination of stakeholders and the activity of stakeholding as an important part of this same resource. By this, I mean that the Dark Sky Park as shared resource is composed of both its distinct qualities, values and conditions *and* the various activities and practices through which it is managed and experienced. This conceptualisation of resource reflects an increasing attention in ES literature to context-specific and relational values within environmental decision making processes (Vreese et al. 2019; Himes and Muraca 2018). It is also informed by my engagement with the lifeworld concept as it has been variously developed through non-representational geographies and their broader research trajectories that critically consider how lifeworlds and values are shaped through shared explorations and enactments of landscape (Edensor and Lorimer 2015; Morris 2011; Macpherson 2009; Sumartojo and Pink 2017). As artist-researcher Amanda Thomson reflects, our experience of place 'is affected and influenced by our movement through it, the tasks that we are engaged in, our frame of mind, who we are with, weather, temperature, time of day together with our histories and the knowledge we bring' (Thomson 2013: 196). During our workshop, the various experiential "envelopes" of our shared exercises and prompts structured the conditions for our reflections and responses

what was expressed, shared and received (Butz 2009; Sumartojo and Pink 2017: 5; Pink 2015[2009]: 8). These ranged from the explicit (reflections shared around the fire at the end of the night and enacted through the pouring of water over the embers), the tacit (our embodied engagements with the exercises, each other and our immediate environment) (Anderson 2014: 20; Paterson 2009: 766), and *both* (informal thoughts expressed to one another during and in between exercises and a more distributed sense of simply being in place together). A sense of the Dark Sky Park as creative milieu for stakeholder practice was further fostered by the mutability of twilight and the complex and shifting views and terrain of Caldons Wood, experienced together and apart (Edensor and Lorimer 2015: 11) through the exercises as the group variously fanned out or came back together in different configurations (see also, Jeffrey 2020: 25; Sumartojo and Pink 2017: 5).

As it came to my turn to pour a tin can of water onto the embers and share my reflection for the evening, I found myself echoing what others had said about the pleasure of being out together at night in collective appreciation of the Dark Sky Park. Another thought arose too, not much more than a feeling at that point, unexpressed. In the weeks following the workshop, it became clearer that what I had experienced was a feeling of involvement, a co-imbrication with participants and the Dark Sky Park that shifted an experience of myself as 'PhD researcher' to a sense of myself as an individual conducting research among and with a wider group of individuals, all of us variously engaged in the ongoing development of the Dark Sky Park. In drawing more explicitly on my own research practice, my creative sensibilities and disciplinary methods, the workshop had offered an enactive space to participants that also extended to me (Billo and Hiemstra 2013). Rosie Anderson's (2014)

reflections on her research into the emotional dimensions of policy work is particularly helpful for unpacking my experiencing of coming into a sense of myself not just as researcher coming from the outside (Parikh 2019; Mullings 1999; Katz 1994) but as stakeholder, co-implicated in the collective work of envisioning and developing the Dark Sky Park beyond its designation. In addressing the lack of research on emotional, interpersonal, context-specific and embodied knowledge within institutional ethnographies of policymaking (Anderson 2014: 17), Anderson describes how she actively drew on her background as an activist and theatre-maker to '*represenc[e]*' her disciplinary background, skills, sensibilities and conceptual references (ibid.: 18, author's emphasis). As a research strategy, *representing*, Anderson explains, involves both the disruptive, generative qualities of creative methods as they are brought to bear in a particular research setting (see also, Sava and Nuutinen 2003: 517; Duxbury, Garrett-Petts and Longley 2018: 6; Edwards, Collins and Goto 2016; Hawkins 2015: 156), but equally includes 'the way meanings about the practices of emotion and policy making [were] shared between [me] and other people' (Anderson 2014: 18). Anderson's embodied practice then, involves both making visible – and *sensible* – her researching 'self' as a body or agent composed from particular skills, commitments and frameworks, yet open to being re-composed through her interactions with participants (see also, Saville 2020: 99). In sharing more of the complex configurations and intersections that make up a self in the field with those we are engaged with (e.g. our research participants), the researcher might create a greater surface area or contact zone on which knowledge can be produced. In her research of night shift workers at an outsourced call centre in Mumbai, India, Aparna Parikh (2019) explores how her 'fluctuating' inhabitation of "insider" and "outsider" through various

'boundary-making' strategies involving varying degrees of intimacy and detachment, afforded or limited the kinds of data she could collect (ibid.: 439). It was my time with Joe earlier that year at his beloved site of Cairn Holy that had galvanised the idea of a stakeholder workshop *in situ*. My site visits with Joe had involved a creative, explorative exchange through which our different ways of looking and sensing place could be spontaneously and mutually workshopped. This was possible, not just because Joe is a passionate advocate for the site, but also, as I came to understand in the weeks following our site visits, because Joe's voracious interest in aesthetics, spirituality and literary imaginations of the cosmos had encouraged me to speak more openly about my creative training and interest in the less tangible dimensions of landscape and heritage.

In the following section of this chapter, I continue to explore collective imaginations and enactments of the Dark Sky Park *in-becoming* through community-led 'constellations of practice' that, in tuning into the wider spatiotemporal ecologies of Galloway's situated darkness, extend an understanding of stakeholding beyond the embodied and social, to the ecological.

**Overlays and constellations: voices come out of the dark**

"Wo-owww".

In the archive room of the Newton Stewart Museum, Elizabeth holds up a slide to the light, revealing a beautiful and surreal image: a glow worm! Its body is not all that dissimilar from a lightbulb, picking out details of its immediate leafy environment. A group of us gather around it in hushed appreciation. I was here with a group of around 10 residents as part of a SHAPE-facilitated[100] community visit to re-familiarise with the Museum's display pieces and look through two archives.[101] The archive in which we found the glow worm, the Lang slide collection, contains over two thousand 35mm photographic film slides taken by a local doctor across a 30-year period (Fig. 6.7). It is currently housed on the museum's mezzanine level in a long, narrow room stacked with maps, landscape paintings and leather-bound volumes of the local newspaper, and furnished with a delightfully retro carpet. The slides themselves are tightly packed in plain card boxes and accompanied by a typed reference list noting the names of each slide as per Lang's own titles and notes, directly hand-written onto the slide frames. Dr. Michael Lang ran a general practice in Newton Stewart during the 1970s and 80s and in his spare time, was a passionate and committed amateur photographer. His vast collection of slides holds 30 years of the region delicately between their card frames. His subjects include, among others, birds, plants, comets, farmstead ruins, a river flooding its banks, a village seen at night from a distance.

[100] I introduce and discuss the SHAPE project in Chapter 4. For further information about this project visit: https://www.shapingecotourism.eu/ and from the GSAB's perspective: https://www.gsabiosphere.org.uk/living-in-the-biosphere/biosphere-in-action/shape/

[101] For further information about the museum: https://sites.google.com/site/newtonstewartmuseum/

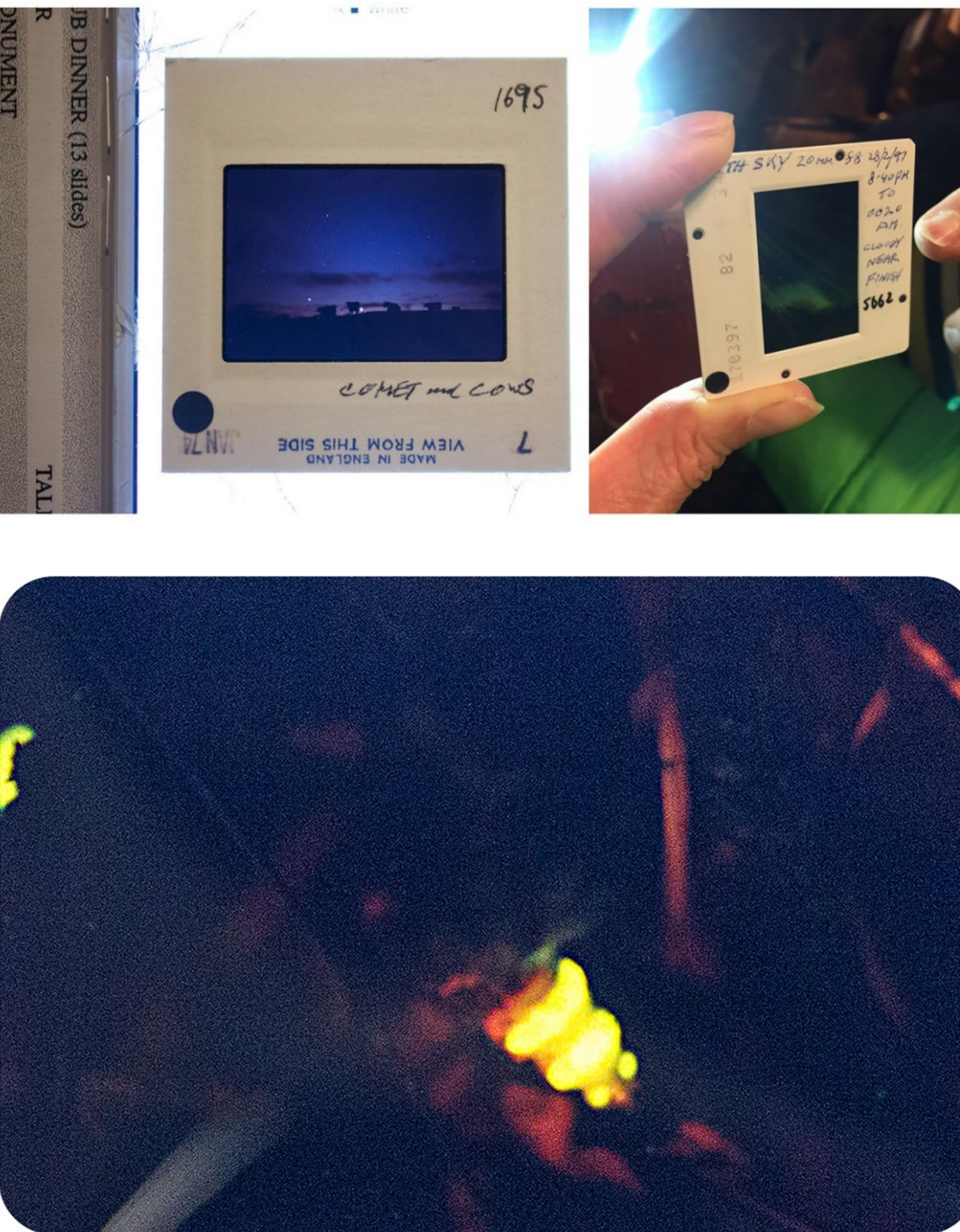



**Figure 6.7. 35mm photographic slides, shot by Newton Stewart resident Michael Lang.** Top: Comet and Cows film slide (1974) backlit by phone screen, with detail of catalogue list; North Sky (1997) film slide held by SHAPE participant. The slide frame includes Michael's notes on exposure and conditions (a 20mm lens with an aperture of f8, exposed between 8:40pm on 28th February to 00:20 on 1st March 1997 with cloud towards the end of the exposure). Bottom: Glow-worm, 35mm photographic slide, shot by Lang on June 14th, 1968. Image has been blown up for reproduction here. Images courtesy of the Lang Collection, Newton Stewart Museum.

Besides being endlessly fascinated by their range and level of detail, I was also impressed by the considerable level of skill they demonstrated. Film slides are notoriously tricky to expose in low light, usually having an ISO rating[102] of 100, a measure that is recommended for use in bright daylight or studio settings. Lang's collection is full of nocturnal scenes and celestial objects from the Moon over the river Cree, through to comets and planets. As our group looked through the slides together, it struck me that the collection (not yet publicly displayed), evoked sense of place through various moments and modes of aesthetic attention, inhabitation and environmental relation. These are fragments of the lifeworld which do not easily fit; they exceed linear timelines even if they can be historically 'placed' and their lack, or sometimes, specificity of detail, eludes easy location on a map.

In his research project on the heritage practices of an industrial landscape in the southern Peak district, George Jaramillo (2016) embraced the fragmentary, ruinous and forgotten as both content and form within his framing of *landscape as constellation*. This concept, informed by Walter Benjamin vis à vis cultural geographer Caitlin DeSilvey (2007), describes the way that the *then* and *there* of landscape co-exist in a 'critical constellation' (Benjamin cited in DeSilvey 2007: 405) with the *here* and *now*. Heritage, as Jaramillo conceptualises it, is enacted as a 're-membering' of landscape, through which those engaged in looking and gathering, are emotionally and affectively 'charged' by what they make contact with (Jaramillo 2016: 165; see also, Irvine et al. 2016; Fish, Church and Winter 2015). Writing from a similar context of industrial development in the Po Valley in Italy, and drawing both on Bateson's 'ecology of the mind' (Bateson 2000) and Berg and Dasmann's (1977) call for a greater ecological sensitivity within our dwelling practices, Serenella Iovino advocates for a 'narrative reinhabitation' that takes seriously stories, ideas and imaginings as material practices that "restore the imagination" of place' (Iovino 2012: 100; see also, Lynch, Glotfelty and Armbruster 2012: 13; Bennett 2001: 7-8). Stories become tasks or tools that 'stir up awareness of values and responsibilities' as we foster relationships with and of place (Iovino 2012: 106).

[102] The ISO rating of photographic film describes light sensitivity. The lower the number (80, 100, 200), the less light-sensitive the film is. Though higher-rated film (400, 800, 3200) is more light-sensitive, this comes with the downside of film grain (the visible silver halide crystals in film emulsion), and so photographic slides are mostly manufactured with low ISO ratings.

Biosphere Dark Sky Rangers Morag and Elizabeth see value in the re-telling and re-crafting of stories as a means of strengthening and developing relationships with the Dark Sky Park. Morag reflected how the designation and her associated training as a Biosphere Dark Sky Ranger has "revived" her interest both in Greek mythology "and the ways those tales can be related into tools for living in the modern day". Elizabeth is especially keen to develop a project on "star stories of Galloway", which would gather regionally specific interpretations of the constellations and offer a means to embed the night sky in Galloway's cultural and social histories. The material practice of storying entangles our current conditions and experiences with those of different places and times, different beings and doings. A group moth excursion evokes both memories of glow worms past and the possibility of their future return; a set of personal photographic slides provides visual talismans for new and revitalised ways of looking at a familiar place.

I encountered again this sense of story as a stirring up of imagination and responsibility in an original artwork shown to me by Glentrool resident and Community Trustee, Sue Clark. Previously an art teacher at a school in Newton Stewart, Sue was delighted to introduce me to *Voices from Glentrool and Merrick* (2008), a deeply thoughtful and beautifully presented work by the late artist Silvana McLean[103] and poet Mary Smith, gifted to the Glentrool & Bargrennan Community Trust and which Sue hopes to exhibit in the Trust's art gallery at some point in the future alongside other creative responses and regional stories. While the title 'Voices' refers to the oral histories that Smith and McLean collected from 'shepherds, farmers, forestry workers, walkers and hill climbers – for whom this land has special meaning', it also gestures to the more-than-human presences and agencies that co-compose a sense of place (Kohn 2013; Bastian et al. 2017: 27; Garlick 2018). Sue wanted to show me a particular poem-image – 'Silver Flowe'[104] (Fig. 6.8). It is composed of an etching that depicts a reflection of the night sky in a thick pool of bog water and the following text:

[103] A tribute to Silvana McLean by Mary Smith can be read here: https://marysmithsplace.wordpress.com/2019/02/01/marysmithsplace-remembering-silvana/

[104] The Silver Flowe is a 620 ha area of patterned blanket mire (bog) that 'constitutes the least-disturbed and most varied extent of acid peatland in southern Scotland' (Ramsar Sites Information Service n.d.; UK Man and the Biosphere Committee n.d.). It sits within the Core Zone of the GFDSP and the Merrick Kells Site of Special Scientific Interest (SSSI).

Silver Flowe
Living history charts
centuries of change, decay, re-birth.
Peat bog stirs genetic memories
binds us to ancestors
buried deep.

Stars in a richly textured sky
reflected in dark pools.

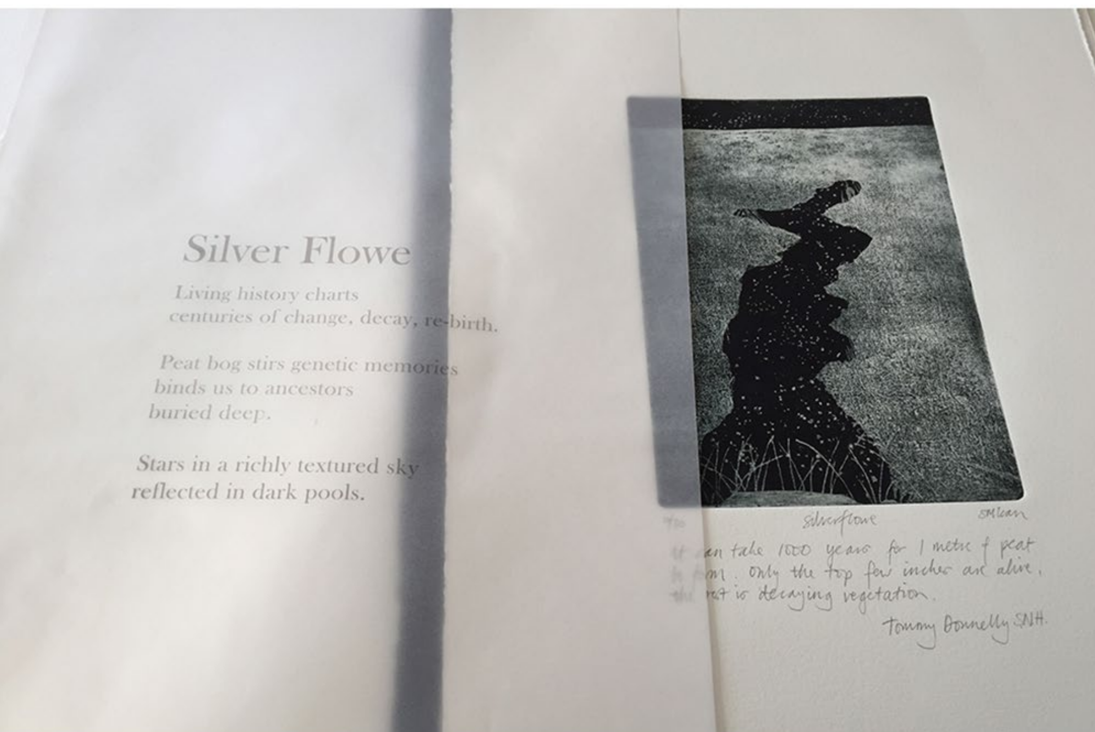



Figure 6.8. 'Silver Flowe'. From *Voices from Glentrool and Merrick* by Silvana McLean and Mary Smith (2008). McLean's etchings are presented on a heavy, textured paper stock and Mary Smith's poems are on light, transparent paper stock. Image taken with permission of Glentrool & Bargrennan Community Trust.

The voices of Silver Flowe are human and non-human. They 'stir' and 'bind' present and past, above and below. They are both traces and reverberations, communicating information from the past whilst also 'stir[ring]' up the present (see also, Lippard 1983). That both night sky and peat bog are layered here within the same slip of paper, offers an imagination of the night sky

as depth rather than backdrop, something in which we and our unfolding present are materially steeped. 'Silver Flowe' animates a sense of place as temporally and spatially open, suggestive of what Doreen Massey calls 'a simultaneity of stories-so-far' (Massey 2005: 9).

Leafing through the various layers that compose *Voices*, I was reminded of Jean Atkin's poetry collection *The Dark Farms* (2015), which had similarly gathered a portrait of the region through cultural objects, stories, environments and encounters. While the 'dark' of Aktin's collection gestures to the designation, it more pointedly refers to the decline of hill farming in the region and long-term depopulation. A poem titled 'Willie' is a form of oral place history and re-membering (Jaramillo 2016: 165). Willie recalls with pleasure, a time 'before the coming of the trees […] the Sitkas grip the soils / and make the windows dark' (Atkin 2015). The Sitka Spruce (*Picea sitchensis*) is the most intensively managed coniferous species in Europe (Boye and Dietz 2005, cited in Kirkpatrick 2016: 28; see also, Tsouvalis 2001: 112; Smout 2009). Planted very close together in regimented rows and grids, Sitka plantations not only block light from reaching other places but hold darkness and light in a way that can feel flat and uniform (see also, Maitland 2012: 254). Willie's 'spark / of memory' of Galloway pre-forestry is a tiny flicker of subversive light, like a comet of meteor perhaps; unpredictable and wild. What would it mean to refract the current Dark Sky Park through the region's histories and ecologies, its cultural and material practices? In the same way that a constellation as viewed from earth may have stars of wildly differing ages and structures,[105] how might the many different stories and storytellers of Galloway's dark skies constellate the continuing development of the Dark Sky Park, reconnect older relationships of place and foster those not yet engaged?

## *Conclusion*

From the 'everynight' encounters with celestial phenomena that stitch the night sky into a person's sense of place, to intentional practices of attending local sites through daily and

[105] For example, the Leo constellation contains the star Chort – θ Leonis (Theta Leonis), which is approximately 165 light years distant from our solar system. Another Leo star, Regulus – α Leonis (Alpha Leonis) is approximately 77 light years distant and is itself a four-star system. Among its many stars, Leo also 'houses' several galaxies (Constellation Guide 2021).

seasonal cycles of light and dark, this chapter has explored how Galloway's dark skies are experienced and acknowledged as part of personal and shared lifeworlds. While many of these experiences pre-exist the designation and inhabit the peripheries of what might be named official GFDSP stewardship, they offer valuable insight into the varied ways through which dark skies come to matter to different people, building on key studies of stakeholder motivations and participation in dark sky contexts (Meier 2015, 2019; Silver and Hickey 2020; Heim 2020). In mapping the affective affinities and relational values of informal stakeholder engagements, I argue that stakeholder *doings* – encounters, practices, skills and experiences – are as significant as stakeholder roles and identities in the articulation of dark sky values. My discussion of the SHAPE ecotourism and heritage project involving communities across the Glentrool and Cree Valley area, attests to the value of local knowledge in elaborating a richer vocabulary of dark sky values that can inform tourism provision whilst strengthening community ties to place and to one another. I also reflect on the value of informal but no less intentional practices of place relation to animate connections between dark skies and other forms of heritage and nature appreciation. Sue's richly detailed account of a nearby field through seasonal variations of darkness and starlight offers insight into the contingent and every*night* ways through which emplaced communities are coming into relationship with dark skies (see also, Blair 2016: iv). Similarly, as my site visits to Cairn Holy with local devotee Joe suggest, informal and habitual practices of place relation can animate connections between dark skies and other forms of heritage that are currently under-explored in the GFDSP's public programming for dark skies. Further, Joe's generosity in sharing his particular interpretations and inviting me to share mine allowed for us to 'pool appreciations' (Gray 1985: 912) and modes of engagement, mutually extending one another's horizons of meaning-making and place-inhabitation with regards to the Galloway's dark skies, landscape and heritage. Such practices – which, in the context of natural resource management, heritage and conservation practice – may be considered too amateur or insubstantial – expand what counts as dark sky stewardship by offering less prescribed ways of coming into relationship with dark skies (see also, Ellis and Waterton 2004; Irvine et al. 2016; Choi 2020).

That others may affirm and expand our own enthusiasms for a thing (Geoghegan 2012) is further explored in my conversations with founding members of WAS (now, GFAS) and Glentrool resident and amateur astronomer Hunter. We reflect on the qualitative difference of looking up at the stars *together* and how actions to create community-led and community-

serving dark sky resources are motivated by a desire to build meaningful relations with the cosmos and one another. Similarly, the exchange of personal experiences with Galloway's dark landscapes has increased the interest and capacity of others to explore the Dark Sky Park, whether through unaccompanied walks not normally entertained or through group activities such as the evening expedition led by Glentrool residents to seek out moths and glow worms. Such activities affirm an understanding of dark skies as a resource for community recreation (Gallaway 2010: 85; see also, Blair 2016), and in doing so, I argue, also encourage stakeholders – existing and prospective – to begin to situate themselves and their daily lives in the ongoing story of the Dark Sky Park.

The mutual actualisation of dark sky values and stewardship is further explored through the lens of my own practice. I reflect on a workshop I facilitated in Caldons Wood that, through exploratory, sensory and situated engagements drawn from my research practice – my ideas, references, methods and experiences – invited a small group of stakeholders to experience the Dark Sky Park not only as an asset or resource to be managed and developed, but as something felt, experienced, embodied and shared (Macpherson 2009; Anderson 2014). While such intentions were directed towards stakeholders, I reflect on how our accompanied explorations of Caldons Wood and the 'represencing' of my particular skills, sensibilities and orientations to site (Anderson 2014), encouraged me to see myself as a person with stakes, co-involved in the ongoing stewardship of the Dark Sky Park. This chapter then, evokes the GFDSP less as a fixed asset around which stakeholders organise and rather as an evolving assemblage co-composed through constellations of values, meanings and material practices (Irvine et al. 2016: 185; see also, Jaramillo 2016; Fish, Church and Winter 2015) as distributed communities of interest and practice engage in the situated and relational task of holding a resource in common. If dark sky values are shaped through situated practices and encounters, then the role of *place* – context, site, environment, atmosphere – in the development of the GFDSP and its stakeholdership deserves closer attention. It is to this that the next and final site-led chapter of the thesis turns, as I extend the discussion to the 'situatedness' of the Dark Sky Park and its more-than-human aesthetic experience.

Chapter 7

# *A contact aesthetic: Dark Sky Park as creative milieu*

To be in place here, in other words, is to be at the edge of something. It is to pull yourself into alignment with something tentative, ephemeral, incidental though powerfully felt.

Regionality (Stewart 2013: 276)

[I]t wasn't haunting. We weren't in a ghost story, the owls and I, and the forest wasn't a gruesome backdrop for some terrible tale. It was a rustling, moving world, hidden beneath the darkness…

*Dark Skies: A Journey into the Wild Night* (Francis 2019: 37)

## *Introduction*

Stargazers spend a lot of time outside, often waiting for weather to clear or for a planet to appear above a treeline. During this time, they may be engaged in discussion with companions, but they are also exposed to the elements: the changing quality and temperature of air; a sense of expansion or contraction with shifting cloud cover. Exposure may also come in the form of presences through the comings and goings of other nocturnal beings close at hand or further off in some unknown quarter: the "ke-wick" ("twit") and "twoo-wo-oo" ("twoo") call and response of tawny owls; subtle vibrations of air as bats whip closely overhead; and of course, that most unfortunate presence known well to many stargazers in Scotland – the tingly fuss of midges on bare flesh. On my first night in the GFDSP, I had joined Jesse for a one-to-one astrophotography session and a short interview as part of the film I was making at the time. Talking quietly at the edge of Loch Trool, a sudden light swept over our heads, jumping across the water to follow a second light over to the east. We ducked down into the long grass. "Probably lampers," Jesse noted with disapproval. He explained that 'lampers' are night hunters that use bright beams of light to momentarily stun deer and other animals, enabling them to deliver a quick and definitive shot. While night hunting is not illegal if licenses are in place and permissions from landowners granted (Wildlife and Countryside Act 1981; Deer (Scotland) Act 1996), Jesse explained that there are many who abuse the law and whose presence in the Dark Sky Park is troubling to others (see also, Ferris 1986). No shots were fired while we crouched in the grass. After a while the lights disappeared, but an unsettled feeling remained between us.

It is the unsettled and contingent values of the Dark Sky Park as they emerge through encounter and situated experience that this chapter explores. I turn first to the GFDSP's practitioners as they think through new narratives for dark sky tourism that include the dark landscape 'below', and consider sensations of thrill, fear and discomfort alongside wonder, excitement and belonging. Aesthetic experience is an epistemological focus of this chapter, which, following Gernot Böhme's atmospheric figuring of aesthetic theory, I engage as the experience of how a thing, phenomenon or encounter touches our senses *and* how it comes to 'make sense' to us (Böhme 1993: 114; see also, Paterson 2009; Pink 2015; Volvey 2016). I explore the aesthetic experience of the GFDSP as it variously registers, whether actively engaged as part of a site-sensitive creative practice composed of analogue lens-less photography, audio recording, night vision equipment and sensory (auto)ethnography, or

enacted, troubled and remixed through contingent encounters with other agents of the Park – human and non-human. My commitment in this chapter to the multi-agentive aesthetic experience of the Dark Sky Park speaks to night studies scholarship that engages with the lives of nocturnal and crepuscular nonhumans (Longcore and Rich 2004; Novak 2018) and the socioecological histories that address the marginalisation of nonhumans in production of knowledge about darkness and the night (Flack 2022a, 2002b). This chapter is resourced by more-than-representational and environmental humanities approaches to landscape, which conceptualise landscape as event-full transsubjective contact zones of diverse and complex meaning (Wylie 2004; Rose and Wylie 2006; Macpherson 2009; Tsing et al. 2017; Wylie and Webster 2018; Garlick 2018). Further, I draw on Kathleen Stewart's affective figuring of regionality as 'a state of emergent expressivity' (Stewart 2013: 278) and Bruno Latour (2009 [2003]) and María Puig de la Bellacasa's (2017) theoretical work on the relational and participative constructions and conditions of value to reflect on the potential of conceptualising International Dark Sky Places as landscapes of precarious attunement and care-full environmental relation through which dark sky values are shaped and negotiated.

## *I / Half the dark is in the Park: situating Galloway's night sky*

### **Views from below: Galloway's dark forest**

Jesse (BDSR) shows me some time-lapse footage he has recorded in and around the Dark Sky Park. Made using a camera and intervalometer,[106] time-lapse videos are constructed from a series of single images taken at regular intervals over several hours, then sequenced to create a final video. Besides their obvious value for marketing campaigns by IDSPs and tourism agencies (Charlier and Bourgeois 2013; Slater 2019: 118) these stunning images of the night sky act as calling cards for someone like Jesse, who makes his living through astrophotography

[106] An intervalometer is a device that counts intervals of time. When connected to a digital camera, it 'instructs' the camera to take a single frame (of specified exposure length, e.g. 30 seconds) repeatedly across a specified time period. The intervals between exposures are crucial, not only in demonstrating a transforming sky as the Earth moves on its axis, but for technical reasons too, allowing the camera to process and store the image to memory.

and guided stargazing. They demonstrate his technical abilities, but perhaps more significantly for his prospective clients, they indicate his access to specific locations, offering views of where he might take visitors and what they can expect to see in his company.

There was one video that I found myself completely transfixed by (Fig. 7.1). The view is from within woodland, looking directly up through the bare trunks of beech trees in the middle of the night. Across twenty-three seconds of video (roughly four to five hours of recording), the stars glitter fiercely as they appear to pass behind and between the upper branches. What struck me most were the trees. They dominate the composition, their trunks stretching into the sky from three edges of the frame. While the stars careen overhead, the trees bristle with their own activity. There is a strange charge to the footage as these two realms – above and below – appear to dance or jostle with one another.

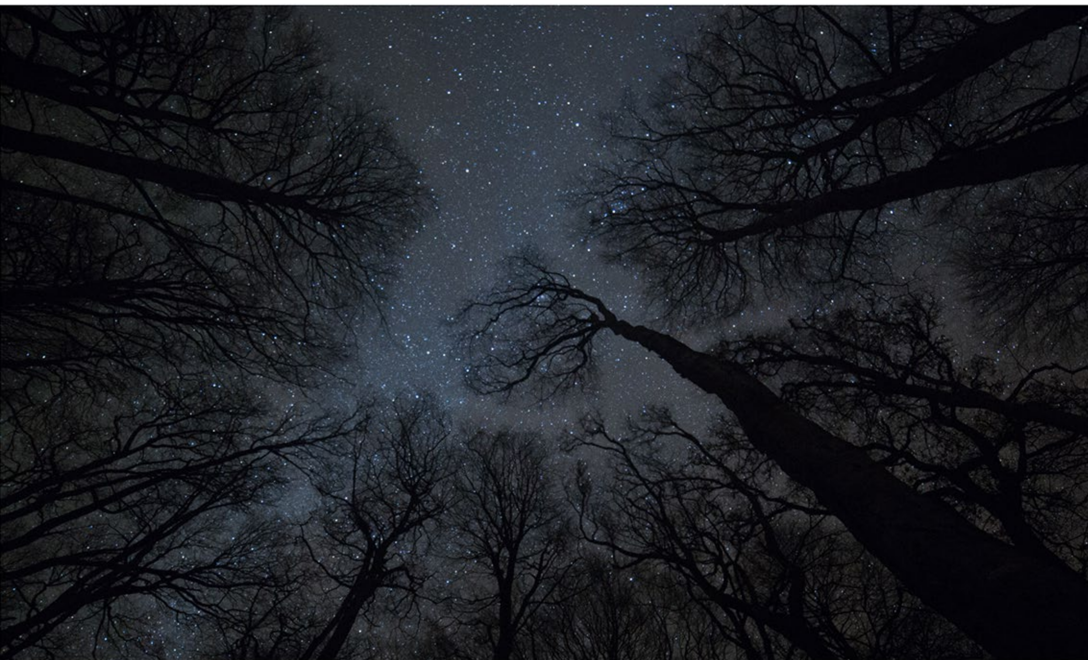


**Figure 7.1. Night sky in the forest.** Still image from digital time-lapse video shot by Jesse Beaman, recorded in woodland close to the Dark Sky Park. Image credit: Jesse Beaman.

While the environmental surround may be visible in photographic marketing materials used by IDSPs, it is often employed as a frame of reference or anchoring device for what is unfolding

above. "Sit back and enjoy the show", a 2009 FLS leaflet for the GFDSP invites.[107] This kind of visual storytelling conveys the vibrancy and materiality of the night sky, but it can also make an important dimension of IDSPs '(im)perceptible' (S. Pritchard 2017: 315): their situatedness. This refers not only to unique (physical) landscape features or landmarks, but to the experience of *being there*. As photographer and dark sky researcher Helen McGhie notes, there is 'often little or no trace of the observer' in astrophotography and cultural images of dark skies (McGhie 2020b). In these images, the view of the sky is paramount, to which all other senses of place – environment, atmosphere, the interpersonal and transpersonal – are supporting actors.

Jesse's time-lapse video offers a different view, enclosing us in woodland, a place where a lot of people still do not wish to be after nightfall. I found myself thinking back to the video a year later, during a meteor-gazing event run by Jesse and his partner Helen at Kirroughtree Visitor Centre (see also, Chapter 4). After a short presentation indoors, we moved outside onto a section of grass that ran alongside the building, from which signposts pointed the way to woodland trails. Jesse and Helen set up a large pair of binoculars while visitors milled about. As the sky deepened its colour and slowly revealed the lustrous patternings of stars and the Milky Way, the surrounding woods coalesced into mute blocks of shadow. Above me, the sky looked inviting. I could hook my eyes around individual stars and planets, jumping comfortably from one to the next. The dark woods below, on the other hand, had a different kind of depth, the kind that your gaze disappears into. It struck me then that it should feel so removed from our activities. At night, visitors drive along its edges, assemble in car parks and visitor centres, at bodies of water and points of elevation. The forest remains at a safe distance, peripheral, like a niggling doubt. I asked Jesse why this might be the case, to which he replied:

> I suppose during my workshops, the forest is at a safe distance, I guess Kirroughtree is the most forested location I would run a tour at. Usually, my first

[107] On return visits to the dedicated FLS webpage for the Dark Sky Park, I noticed that FLS has replaced a video ('Stargazing – Galloway Forest Dark Sky Park'), showing a mix of dark sky footage and talking heads, with a new single image, in which the forest is more prominent, not all that dissimilar from Jesse's photograph. The webpage and image can be viewed here: https://forestryandland.gov.scot/visit/forest-parks/galloway-forest-park/dark-skies [Accessed: January 7, 2022].

go-to location for a private tour would be Clatteringshaws because of the wide sweeping view and also because it is typically one of the clearer parts of the Park. Maybe it's to do with the physical shape of the landscape and the weather patterns surrounding it but if I'm at Clatteringshaws there's clouds climbing the hills over the loch and then it's clear overhead and the forest is all around us but it's very far away, which is a good thing, because we can see more of the sky.

Figure 7.2. The dark forest. Forest track and treelines at dawn on a particularly wet morning, Talnotry.

Though the Dark Sky Park emerged through the efforts of the FES/FCS, the forest is conspicuously absent from dark sky public events and interpretation materials. A lively landscape during the day with its famous 7 Stanes biking trails, extensive network of forest paths and site-specific artworks, it remains a shadowy presence after dark. As I steadily assembled a picture of the GFDSP through interviews, site visits and observant participation, I wondered if I too, was keeping my distance (Fig. 7.2). My hesitancy is shared by others. While researching for his book *Under the Stars*, Matt Gaw (2020) visits the GFDSP and

experiences great difficulty entering the Wood of Cree at night, despite his fondness for night walks:

> The entrance of the wood drips with night's shade. It is not so much a space to walk into but a hole to be fallen into. I pause and take a deep breath. I feel nervous. Anxious. Afraid of getting lost, afraid of being afraid. A paragon of ridiculousness: a night walker nervous of the night. My earlier confidence already seems misplaced. (ibid.: 48)

I appreciate Gaw's candid re-telling of his experience with Galloway's dark woods. There is no bravado here, no heroic Dantean descent into the dark night of the soul.[108] Instead, he is relieved when he can finally step out of it, experiencing a feeling of release and openness as he meets the sky once more: 'The night no longer feels suffocating, but almost welcoming' (ibid.: 55). This disordering of the senses and our usual ways of perceiving and navigating landscape is also considered in Nina Morris' (2011) account of the site-specific temporary art installation *The Storr: Unfolding Landscape*, of which the first part of the journey takes participants through woodland. Participants reflected that 'it was difficult to get one's bearings' and though torchlight enhanced their vision, 'the beam enclosed the individual within a circle of light which was very difficult to see beyond' (ibid.: 322; see also, Edensor 2013: 456). This, Morris writes, demands a 'visceral' attentiveness that stands in stark contrast to received notions of day-time woods as environments that inspire contemplation (Morris 2011: 322). The dark forest - *selva oscura* - withholds the view of the sky (Harrison 1992: 3-4). Its darkness is of a different order. Unlike an expansive night sky, forests do not readily allow for flow – rather they have come to represent the human separation from nature as suggested by Western origin stories (Harrison 1992: 3-4), or as trouble, ordeal, conflict, a test or trial, as in European fairy tales such as those recounted by the Brothers Grimm.

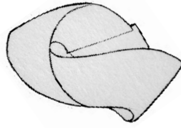
Yet, as Sara Maitland argues in *Gossip from the Forest: The Tangled Roots of Our Forests and Fairytales* (2012), our relationships with forests were never 'primarily antagonistic and competitive, but symbiotic […] [This] was not wild wood that had to be "tamed", but an infinite resource, rich,

[108] Alighieri, D. 1996. *The Divine Comedy* (P. Dale, *Trans.*). Oxford: Anvil Press Poetry. Canto I, lines 1-6.

generous and often mysterious' (ibid.: 5). The close engagement and negotiation that the forest requires of us, Maitland continues, carries into our fairy tales. As a 'vital cultural form', the fairy tale, she argues, is not merely the product of human craft and imagination but is also informed by our and our ancestors' relationships with landscape (loc. cit.). The forest demands close engagement and negotiation, a slow and knotted accumulation of knowing and relating over time (see also, Collins and Goto 2017). Even for Jesse, it has taken some time to feel at ease after dark in the Forest Park. Though his time-lapse video is shot from within woodland, it is just a five-minute walk from where he lived at the time. He could test out his compositions during the day and build up a strong familiarity with the wood and its individual trees, its terrain and seasonal changes. The rest of the Forest Park does not feel as immediately accessible to him:

> Jesse: It is hard, because even on a clear night, it's so dark in the forest, and... I always struggle to enter a forest actually, enter into the forest at night. I mean I *have* done recently – I went to Kirroughtree on a clear night with my camera and walked through the forest and I felt alright.
>
> Natalie: How was it?
>
> Jesse: It was great, actually, yeah… maybe I have got over that, hmmm.

I sense that Jesse's camera has acted as a kind of charm or talisman for this less familiar forest. As in many fairy tales and myths, a talisman or task – here, the task of making an image – supports conditions for endurance and perhaps even for enchantment. His practice of long-exposure and time-lapse astrophotography has been one way in which he has been able to build a relationship with Galloway's dark forest, requiring him to stay in the forest rather than pass through it. The activity of composing a photograph offers a way to 'see *with*' this landscape (Wylie 2007: 152), to incorporate its qualities and conditions into his professional practice and engagements with the GFDSP's visitors.



## *Selva o(b)scura: light-drawing with Galloway's dark forest*

Inspired by Jesse's photographic engagements with the Dark Sky Park, I head out with my cameras to the Wood of Cree, an RSPB-managed ancient semi-natural woodland that I was very familiar with and which, in its fairy tale-like qualities – its serpentine oaks, lush mosses, fungi and varying ground – seemed a version of 'forest' I could comfortably reside in after dark. Using twilight as a bridge, I arrive during the 'golden hour'[109] just before sunset when the landscape unfolds as if in a dream, all soft colours and long shadows. A trick of the light as it were – no need of courage when you have wonder. Photography, as it had been for Jesse, would offer a route into a durational sensory engagement with Galloway's dark forest, by inviting me to remain in the woods while waiting on the exposures. These would take longer than usual as I had chosen to use homemade lens-less pinhole cameras, so-called because of their minute apertures of between 0.1 – 0.3mm in diameter, made by pushing a pin or needle through brass shim or aluminium. Light-sensitive paper or film is placed against the back of the camera body directly across from the aperture, and is exposed by manually raising the shutter, usually crafted from a strip of card. A negative is produced, which can be chemically developed in a photographic darkroom. Owing to their narrow apertures, pinhole cameras require long exposure times. These are highly variable but generally within the range of a few hours at most in low light conditions.[110]

[109] The 'golden hour' is much-loved by photographers and filmmakers and describes a short period of daylight just after sunrise and just before sunset, when daylight is more diffuse and colours warmer.

[110] Photographic exposures in low levels of light over a longer duration have less effect than strong light levels over a short period of time, compounding attempts to estimate exposure times. What may have been estimated as a two minute exposure may now have to be a thirty-minute exposure. This is known as Reciprocity Law Failure or the Schwarzschild Effect (Balihar 2018).

While I hoped to record images, my keener interest was in what would *not* make it onto the film. So often, my photographs were made by going in, 'getting' the image and leaving. This process would require a different kind of engagement, a different kind of looking and framing. A key conceptual resource for my process was the philosopher Jean-Luc Nancy's formulation of photography as a dynamic sensory practice, 'not settling for capturing that which is bathed in light, but instead tracking its momentum and range' (Nancy 2006: 171). In contrast to a pervasive indexical theory of photography, wherein the photograph is conceptualised as a trace or imprint of the 'real' (see also, Kaplan 2010; Miles 2005), Nancy refigures photography as *ex-pository*, whereby 'the thing that or the one who "takes" the photo and the thing that or the one who is "taken" in the photo are suspended together' (Nancy 2005: 104), '"posed" […] in a relationship with the outside' (Kaplan 2010: 50).

I open the shutter and sit very still and quietly for a while, perhaps 30 minutes, letting my bones grow heavy, feeling the weight of my hips and ankles press gently into the soft ground. I imagine the Dark Sky Park as a camera obscura,[111] a dark chamber into which light collects and takes form on the backs of eyes and telescope lenses. It is tempting to visualise this dark chamber as a fluid and open space through which the universe pours in, touching us with its ancient light. But here in the dark forest, this experience is not available. Nor are the views that are typically available from a digital camera through its viewfinder and playback function. Through stutterings of

[111] A camera obscura is an image-making device, usually a darkened room (the term means 'dark chamber' in Latin) with a very small hole that admits light from the outside and acts as a lens, focusing light to form an image. Historically, camera obscuras were used by artists to make sketches ahead of a painting.

moonlight and tree, the forest pulls in and out of focus, 'enlac[ing]' me 'with its possible views and frames' (Rose and Wylie 2006: 479). Close at hand, light sharpens around the edges of trunks, makes lacework of overlapping mossy branches above. Further into the woods, it brushes the forest floor, clings to the surface of water, and shines in the eyes of forest creatures, suddenly disclosed and then quickly gathered back into the dark. Further still, light seems to gather softly, appearing like breath on a window, not moonlight anymore, something harder to name – only visible from the side of my eye. I feel it before I see it.

**Fig. 7.3. Camera o(b)scura.** Previous page: digital composite produced by layering a series of pinhole photographs together, exposed in Wood of Cree. I encourage the reader to spend time with this image, to look at it in different qualities and intensities of light and shadow, to fill their gaze with the image.

The practice of drawing with light (photo-graphy) in Galloway's dark forest became a practice of *drawing-together-with* light as the intentional act of 'capture' mingled with a sense of place not of my own making. In Nancy's photo-philosophy, he conceptualises the action of framing as a form of contemplation, drawing on the latin etymology *com-templum*: 'one comes into its *templum*, the time of its framing' (Nancy 2005: 99). 'Templum' refers to a sacred space of observation oriented to the cardinal points for divinatory purposes by the augurs of Ancient Rome (Nancy 2005: 7). The augurs would note what entered and crossed this frame (birds, for example), in which direction these things moved, and their behaviours. It is a frame in which things come to have significance, to *exert pressure* through 'the site of a concentration in co-incidence' (ibid.: 9). Templum is an image I will return to throughout this chapter as both aesthetic frame and co-implicated practice, as I consider different moments and modes of encounter with the more-than-human Dark Sky Park. While Nancy's photo-philosophic conceptualisation of templum maintains a sense of purposeful and thoughtful observation through the act of framing, it also reminds us that our 'views' of the world are continually shaped by the forceful materiality of other agencies (see also, Sullivan 2014; Kohn 2013; Ingold 2008, 2000; Bennett 2010; Whatmore 2002). This was particularly resonant as I experienced anxiety about the direction and impact of the research and my desire to 'accurately' represent the Dark Sky Park and its practitioners, despite committing to a more-than-

representational approach to fieldwork. Leaning into the tactile and ambivalent qualities of a dark landscape was important for interrupting the impulse to know and define, and encouraged me to remain open to the aesthetic experience of the Dark Sky Park beyond my own representations of it. An existing artwork in the Dark Sky Park, *Rosnes Bench* (see Chapter 3), became a supportive device (literally and metaphorically) that I regularly returned to during photographic nights out. Long flat forms with a hollow at one end to rest a human head, the benches invited me to step out of 'a verticality of action' (Harrison 2009: 989) long enough to allow something else to come forward in the research narrative. Laying supine like this, I could imagine myself as a slip of light-sensitive film making contact with the Dark Sky Park. As the artists of *Rosnes Bench* have stated, in drawing the body into a receptive pose, the benches invite us to "access the sensorial resources of a given site" (Dalziel + Scullion 2021) rather than try to *make sense* of it.

Drawing on the work of philosopher Fréderic Neyrat, AM Kanngieser (2015: 82) describes how a practice of 'strategic deactivation' composed of slower forms of attention and environmental relation, might 'build[ing] the different ecologies necessary for political attenuations to forms of life and matter, which are not of the human […] a different realization of time'. Here, 'slower' refers to a change in quality of engagement as well as speed, a suspension of the representational impulse, a willingness to be encountered by others and to be changed by these encounters. 'Such sensitivity', Kanngieser writes, 'can show what is at stake in making the imperceptible perceptible, or representable' (Kanngieser 2015: 82). It is a practice of environmental relation that urges a different kind of thinking, indeed, re-composes us and our research in place (Thomson 2013: 219; Dewsbury 2011: 327). The aesthetic experience of

the Dark Sky Park, as I came to understand it through this practice of slow and intensified attention (Morris 2015: 264), encompassed my creative orientation to the Dark Sky Park through long-exposure lens-less photography, the various aesthetic details that were registering through my senses – changing light and shadow, sounds, smells, disturbances, periods of thick, woolly silence, presences and absences – and the various ways in which the forest re-presented and *placed* darkness and starlight through its particular situated form. Similarly, process philosopher and dancer Erin Manning describes the artist's technique not as a masterful (and consistent) application of skill, but as that which 'touches on how a process reveals itself as such' (Manning 2015: 64). 'Technicity', Manning continues, 'would be the experience of the work's opening itself to its excess, to its more-than' (loc. cit.; see also, Pink et al. 2014: 354, Sumartojo and Pink 2017: 11; Simonsen 2007: 170).

I further explored the possibilities of this by using the pinhole cameras to make solargraphs, photographic images that are made with much longer exposures to chart the path of the sun through the sky across several days, weeks or months. The light from the sun chemically reacts with the surface of the photo paper to create a single line for each day of the exposure. As the sun moves lower in the sky during the winter or higher during the summer, these lines stack together, forming a bow shape that makes tangible a larger temporality. A final image is produced by digitally scanning the exposed paper or film and colour-inverting the image to produce a striking view of the world in twilight hues. These deep blue colours are not an 'accurate' depiction of the world, but rather the product of chemistry as silver halide particles in the photo-paper react with light to produce warm colours – ochres, browns, reds – that

become their opposites on the colour wheel when converted in post-production. I installed five individual cameras in different locations in the Dark Sky Park across 2-3 month periods during late 2018 and early 2019. Normally made with a drinks can or similarly water-proofed container, I instead made the cameras intentionally porous, using cardboard reinforced with black paint and duct tape that would be just enough of a casing to endure the winter, but would allow some light leakage and elemental intervention (Figures 7.5 and 7.6). When collecting the cameras, they were either full of syrupy rainwater or slick and grimy with various detritus and creatures: bark, lichen, pine needles, insects, slugs (Fig. 7.4). Two of the cameras had been removed and another I found with its pinhole poked through – presumably by an enquiring beak, nose or paw – overexposing the paper and making the image unsalvageable. Such interruptions are tangible in the final images, which themselves, are not 'final' at the point of being digitally scanned since the photographic paper will continue to react to light if not sealed away.

**Figure 7.4. Weather-worn pinhole cameras.** Top: A pinhole camera in situ, set up for a solargraph exposure. Middle and bottom: Pinhole camera material interpolated by nonhuman agents and phenomena.

Figure 7.5. Solargraph. Exposed in Caldons Wood, Glentrool during 2018-19.

Figure 7.6. Solargraph. Exposed close to The Martyrs' Tomb, Glentrool during 2018-19.

The solargraphs are striking alternatives to the pristine imagery used in dark sky promotional materials. They do not comfortably position the viewer in a scene of cosmic encounter, but rather in the midst of something dense and mutable, 'a dark largely undifferentiated realm that thwarts the usual sense that the landscape broadens out from the observer' (Edensor 2013: 455). One image (Fig. 7.6) bears the thick stacked bands of sun so typical of solargraphs, yet these same marks are interrupted – by changing cloud cover and details of the immediate environment –their impressions coalescing and overlapping with the forms of trees, light leaks and elemental interactions. Sealed together on a single slip of photographic paper, such marks and impressions gesture to the wider ecologies of the Dark Sky Park; its seasonality, its more-than-human agencies and complex temporalities. Though light-writing is a specialist practice, photographer and art critic Melissa Miles writes, it is also 'a force of multiplicity and inclusion' (Miles 2005: 346; see also, Irigaray 2004: 174). As light moves 'through time and space', it makes contact with surfaces and is interrupted, reflected and refracted in 'productive relation to [the] photographers, objects, photographic equipment, viewers and discourses' (Miles 2005: 346). Conceptualised as such, light is less 'a stable and revelatory agent' that creates clear definitions between self and world, and more an ambivalent, excessive materiality that *touches* our senses, pulling us into relation (Irigaray 2004: 174; see also, Sumartojo 2021: 198; Otter 2008: 29; Pallasmaa 2005: 46; Tanizaki 2001 [1933]: 26). As I looked at the solargraphs (and continue still to look at them), I felt myself moved, re-situated, *touched* by impressions, meanings and sensations not of my own making; a sense of the Dark Sky Park as creative environmental

milieu through which my research practice, its impressions and representations, were being composed.

**Enfolding dark: transforming visitors' relationships to darkness through situated experience**

While dark landscapes are part of their everyday life by choice, the Dark Sky Park's practitioners are keenly aware of the trepidation that many first-time visitors may feel and the importance of enabling access to experiences that feel thrilling and unusual, but equally safe; particularly where forests are concerned. Along with the complex entanglements of mythology, personal memory and cultural experience, Elizabeth (BDSR) explained that the practical realities of being out in the woods at night pose a considerable challenge when devising visitor experiences. Access is greatly reduced and there is a higher possibility of injury or accident, owing to varying ground levels, uneven surfaces and other hazards, what Elizabeth describes as being *in* and *up against* the environment:

> If I'm bringing visitors to a spot in the woods, I try to go earlier in the day to check for hazards like branches sticking out, or exposed roots on the ground. In the daytime, it's really easy to just move a hanging branch out of the way, but in the dark, even with a torch, you can't see everything around you. It ends up being a lot of work to make sure people can be and *feel* as safe as possible.

Elizabeth's preparations reflect recent cultural histories of darkness in Europe that describe how fears of the dark were intimately entwined with 'the very real perils that pervaded a pre-illuminated world after nightfall' (Edensor 2013: 448; see also, Ekirch 2005: 123). Our encounters with darkness today, Edensor writes, may contain the 'residual intimations' of these prior experiences and cultural understandings (Edensor 2013: 449), lingering in memory and imagination, but also triggered by the affective and relational qualities of a given situation (Thrift 2004; Bondi 2005; Bille, Bjerregaard and Sørensen 2015). Reflecting on her own residual fears of the forest at night ("I know I've been sat there with my bike light thinking, hmm if this light goes out, what's happening then [laughs]"), Morag (BDSR) wondered if the

role of a ranger or guide could allow for an acceptable level of fear, low enough that its sensation might instead alchemise as thrill, adventure or personal autonomy:

> It would be interesting to enable people to experience the idea of being “safe” in the outdoors at night as both things seem to trigger a feeling of fear, especially in women. When you strip away everything we’ve been taught, being alone in the Galloway Forest Park at night is likely to be a very empowering and enlightening experience.

Similarly, Marie (GSAB) is keen to explore how the fear and vulnerability that visitors experience or anticipate can be refigured by finding a different language to help communicate some sense of what the dark *feels* like – to help visitors anticipate it, and perhaps even look forward to it. Her suggestion could be considered a form of ‘artialisation’, an evocative landscape narrative or visualisation, which inspires emotional connection and a sense of *being there* already (Charlier 2018; Husson 2017). Rather than place a prospective visitor in a specific visualised landscape, as in promotional photographs, Marie’s idea would instead situate them in something akin to a sensation or feeling:

> Could we capture the kind of feeling that it might give [you], you know like going into the dark […] that kind of vulnerability... do you know what I mean? It gives [you] a different kind of feeling...

When reflecting on additional training for the Rangers and offerings for visitors, Morag fondly recalled a field trip made with three foresters as part of a book project she and her partner were working on, that would compile pictures of the Dark Sky Park in daylight and dark, “interwoven with mythology, geography, flora, fauna, place names – all those aspects of the Park.” She described their walk with an intensity of feeling:

> God, they were just the most amazingly interesting people. We were on a walk with them, to understand the landscape, how it was formed, where the place names came from, the legends associated with them, and all the flora and fauna, it was just incredible. It was such a wonderful experience. […] *To me, it should all tie in.* (my

> emphasis)

This, she juxtaposes with the initial training that the Biosphere Dark Sky Rangers received on being appointed in 2016. While the training was "brilliant and eye-opening", Morag reflects that it did not directly cover ideas for engaging with the forest, instead limiting their training to the exposed and elevated spaces of the Cairnsmore of Fleet National Nature Reserve (NNR) and to astronomy-focused activities. Morag suggests taking on a Dark Sky Ranger trained in forest lore and with knowledge of flora and fauna. What Marie and Morag describe, with their interest in story, experience and scene-setting, recalls Sara Maitland's literary project of entangling forests and fairy tales as a practice of reanimating old relationships and fostering new ones (Maitland 2012), or of Serenella Iovino's practice of 'narrative reinhabitation' (Iovino 2012), both modes of ecologically-sensitive place-engagement that use stories to situate differently.

I have the opportunity to see this storying of site in action, when I join Elizabeth on a recce ahead of one of her Darkness and Stars group walks. On an afternoon made gloomy by the threat of incoming rain, we turn off a familiar road and park the car off-road, gently tucking its front end into bracken. No sooner have we set off and Elizabeth points to the path underfoot. At first it is unremarkable: a tarmac track presumably made by the Forestry Commission, rough and crumbly along the edges. But then she points out pale fragments – lots of them – all different shapes and sizes.

> When we start our walk tomorrow, the group won't see these, but on the way back after the moon rises, they'll catch the light. They're scallop shells, dredged up locally, shucked and sold to the farmers. The Forestry Commission have been using them for a while. It's nice if you're walking out to a specific spot and then coming back on yourselves, you notice something different.

Some of the fragments are well-preserved, other bits have been ground into a fine powder. She adds: "I'm always looking for different textures for my walks. The cyclists hate them, but for my walks they add something to the experience." (Fig. 7.7). Elizabeth recalls something else, gesturing to the side of the track at some scrappy undergrowth: "It's not the right time of year for it, but in the summer, I take people over here and ask them what they can smell." I

immediately sniff the air of course and look at her, curious. Grinning, she is wondering if I know already. "…the honeysuckle. It gives off a lovely scent at twilight. That's how it attracts moths." At this point in our walk, we have not moved very far along the track. The boot of the car is still visible, and passers-by will be able to see us through their car windows. There is so much to engage with in such a short distance. These details form a kind of score for the experience, catching us across our senses, offering moments of pause and contrast and drawing attention from the vastness and verticality of the cosmos to the tiny lifeworld of a crepuscular pollinator.

**Figure 7.7. Textures underfoot.** Illustration based on scallop detail from the site walk with Elizabeth.

The gloom invites a lateral attentiveness that tethers us to the earth even as our eyes continue to be drawn up to the sky (Edensor 2013: 457). These are not set pieces for Elizabeth; the moon is not wheeled on from stage right, nor honeysuckle wafted in from behind the audience. As we go on, it becomes clear that Elizabeth's offerings are designed as much through improvisatory and sensorially diverse attunements, as by her personal take on darkness and the stars. Elizabeth calls this "putting the universe in context". Her approach is reflective of what authors Gunnar Thór Jóhannesson and Katrín Lund describe as a 'poetics of making' (Lund and Jóhannesson 2016: 654), a proposed approach for tourism development

that refuses the rhetoric of economic expansion, opting for 'improvisation rather than innovation' (ibid.: 655, see also, McLean 2009). Where innovation privileges 'newness' and centres the human as the designer of meaning, improvisation is a practice that responds to what emerges in the moment and with what is available, as musician David Toop writes (2016: 16–17); often demanding the one who improvises 'to find meaning in an aesthetic that may not be [my own]' (ibid.: 2; see also, Manning 2015; Thomson 2013: 219).

Elizabeth's practice and Morag and Marie's proposals for differently situating visitors in the Dark Sky Park are reflective of what Challéat, Lapostolle and Milian (2018: 5) describe as visitor experiences that are not just 'in the night' in that they happen to occur during this time, but are 'of the night', whereby the night is employed as a 'specific resource' productive of distinctive experiences. This speaks to Tim Edensor and Hayden Lorimer's conceptualisation of 'landscapism' as an experience of place that can be '*enacted* as much as *installed* in place' (Edensor and Lorimer 2015: 14, my emphasis). Whilst installation speaks to human design, enactment captures a sense of landscape as 'experimental and atmospheric milieu', wherein multiple agents – humans, non-humans, earth, weather – co-compose the experience (ibid.: 1; see also, Dewsbury et al. 2002; Heim 2003; Ingold 2008; Macpherson 2009; Garlick 2018). In terms of Elizabeth's 'Darkness and Stars' walks, the more-than-human creative co-composition of the dark and starlit landscape is enacted through Elizabeth's invitations and cues to sense and situate differently in place, performing what Edensor and Lorimer describe as an 'alternative patterned aesthetics' of environmental relation (Edensor and Lorimer 2015: 14) that also sits comfortably within the framing of ecopedagogy, a 'spatially and temporally attuned practice' of learning (Dunkley 2018a: 117) that, through 'tactile, embodied encounters with different ecologies' animates connections between the personal and the environmental (ibid.: 118; see also, Thomashow 2002). Through these embodied, emplaced, *enactive* approaches, participants learn *in-place* rather than learn everything they can about a specific location. In the context of dark sky tourism, approaches such as this offer a welcome interruption of the pursuit of the 'astronomical sublime', often performed through activities of spectacular encounter and consumption that may actually hinder the IDA's aspirations for IDSPs to be places of transformative environmental encounter (Avery 2024; Ingle 2010; see also, Challéat et al. 2018: 9; Gallan 2014: 189).

I also see in these approaches, a means of interrupting or refiguring visitors' experiences or anticipations of fear and danger in the dark by animating additional and contrasting relationships with the dark night, whether that be a deepening appreciation of the quietude offered by Galloway's night or by sparking interest in nocturnal wildlife in such a way that shifts the focus of the mind from thoughts of danger to curiosity about if and what visitors will get to see. Similarly, reflecting on her PhD research, Amanda Thomson writes about how her method of accompanying forestry workers and stakeholders as they went about their daily tasks and routes, not only increased her knowledge and appreciation of the Abernethy Forest, but also changed the way those places feel when she is on her own:

> I no longer worry about getting lost, nor do I have issues about safety, through being a woman alone in a forest. The atmosphere of a place shifts because of being in company, the camaraderie associated with collective working on specific tasks and the conversations that take place. (Thomson 2013: 56)

Thomson's description speaks to the 'intercorporeal negotiation' between the landscape as apprehended and landscape as symbol, as described by geographer Hannah Macpherson in her framing of landscape as 'intercorporeal emergence' (Macpherson 2009: 1045; see also, Rose and Wylie 2006). For Macpherson, intercorporeal emergence describes 'how the body is lived out and spoken about with other bodies and our own embodied past at the levels of both practice and discourse (Macpherson 2009: 1044; see also, Morris 2011). These bodies need not be only human, and their utterances need not be only verbal. Each landscape encounter, then, is a (re)inhabitation in and of place (Iovino 2012; see also, Lynch, Glotfelty and Armbruster 2012: 13), variously structured and composed with multiple others, and complex in its spatiotemporalities. While the research discussed above focuses only on practitioners' approaches to shaping situated experiences of the GFDSP for visitors, it speaks to claims made by dark sky advocates that IDSPs are places that transform our sense of place and planet, expand our sense of community and cultivate different ways of being in the world (Nordgren 2010: 405–406; Fayos-Solá, Marín and Jafari 2014). Whether the richly situated experiences that Elizabeth currently delivers, or the ambitions of Marie and Morag to craft less fearful, more curious relationships with dark landscapes, this discussion has reflected on the potentiality of alternative perceptual encounters of IDSPs to reshape entrenched understandings of darkness and light. In the second half of this chapter, I further develop an

understanding of the emergent, intercorporeal and transpersonal experience(s) of the Dark Sky Park through the conceptual motifs of more-than-human aesthetic experience and encounter, exploring how the Dark Sky Park re-presents itself through creative and precarious forms of relation and practice.

## *II / Meeting the Park halfway: aesthetic experience and contingent encounters*

### Night vision: becoming sensitive to nocturnal others

We meet Keith Kirk in the Threave Castle car park. The boot of his car is open, and he hovers by the equipment, a relaxed face framed by a thick woolly hat. Having previously worked for Dumfries & Galloway Council as a ranger for over three decades, Keith has extensive knowledge of wildlife in the region. In recent years, he has set up this business, using thermal imaging cameras to bring people closer to the region's nocturnal inhabitants from bats to badgers. Remotely sensitive to temperature distributed on the surfaces of bodies, these cameras can detect creatures as small as rabbits up to 300 metres away (Dumfries and Galloway Wildlife Review 2015: 2) and are considered to be a non-invasive method for surveying animals (Cilulko et al. 2013; see also, Allison and DeStefano 2006). The cameras we use with Keith have a low resolution and are not designed to record accurate temperature measurements, but rather visualise contrasts in temperature in order to help users quickly identify animals using the 'black heat' or 'white heat' settings (see Fig. 7.8). Experiences such as Keith's tours offer 'a sense of adventure upon entering a realm people do not typically inhabit and the opportunity to view species and behavior not normally encountered during the day' (Wolf and Croft 2012: 164).

Though Keith explains the equipment and talks us through the kinds of creatures we might see, their nightly habits and predilections, the quality of our experience hinges on these very same beings. Unlike stars that, all being well with weather, can be relied upon to be in a specific time and place, celestially speaking, this evening's encounters are not guaranteed and

will require patience and concentration to maintain conditions conducive to animal appearance. We move along the footpath ever so quietly and slowly. There is a lot of pausing as we get used to the strange sensation of the camera. Through the viewfinder, the world looks milky, soft, airy. It has a dreamy, ethereal quality – flattened but not settled, like a recently finished watercolour or a wet-collodion photograph. There are things that make sense to me in these scenes: the familiar silhouette of a hare's head; the way heat is distributed in the animal bodies we see. But there is also imagery that makes me forget what I'm looking at, details and forms that disarm: the thick texture of the river, mercurial; the moon as a black disc, both solid and empty; the tiny body of a mouse snoozing in the forked trunk of a bush.

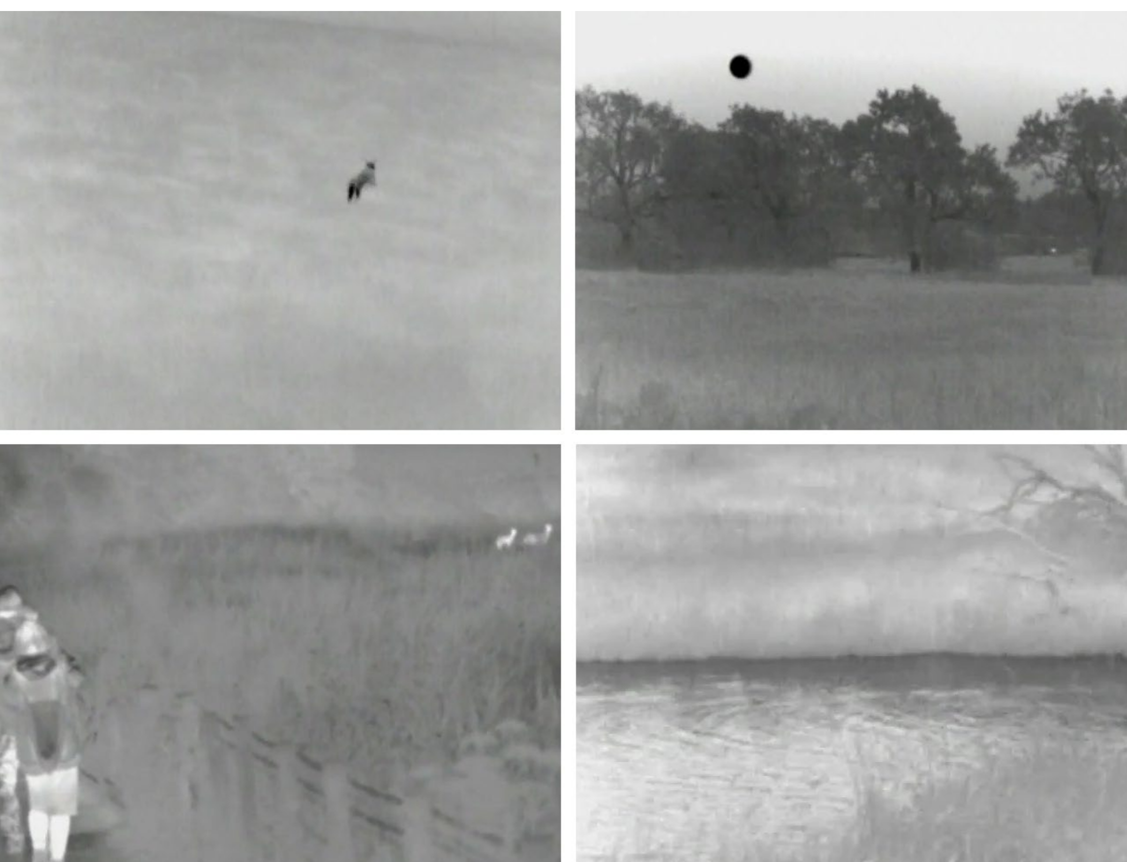


Figure 7.8. Night vision. Stills from night vision footage recorded as part of Keith Kirk's Nocturnal Wildlife Tours. The cameras allow the user to toggle between 'black heat' (top images) and 'white heat' (bottom images) and adjust brightness and contrast levels.

In his research on osprey hides on an RSPB reserve on Speyside, Scotland, Ben Garlick describes these devices that enable humans to 'hide' out of sight (and to a certain extent, also

mask their smells and noise) as 'less invisible presences' peering in on the lives of non-humans, but rather 'negotiated, conditional proximities' (Garlick 2018: 228). The hide then, is conceptualised as more than a technology of (human) looking, but as a 'technology of *involvement*' (ibid.: 230, my emphasis) that organises that which we look at within a given frame, whilst simultaneously orienting our senses to the ones we look at, what Garlick describes as 'a more-than-human, phenomenal landscape in process' (ibid.: 229). Similarly, Keith's thermal-imaging camera offers an intensive framing that draws me into the time of the other (Nancy 2005: 99) and into the time of my own otherness as the continuous stream of world visualised through thermal signatures gets me thinking about the heat of the sun as it circulates through different bodies and matter: tree, hare, deer, soil, river, human. We are beings steeped in darkness and starlight together.

I am so taken by this experience of the world that I forget to take a break as Keith warned us to do, explaining that the single eyepiece produces a strange physiological effect. While one eye is engaged in viewing and bathed in light, the other eye is 'unseeing', resting against the body of the camera. Take the camera away and that first eye floods with darkness. No, it's quicker than that. It is exactly like seeing the shutter close on a camera. Meanwhile the other eye has been dark-adapting, its pupil large and relaxed. The effect of the two together is nauseating and I can't walk forward. It is a visceral reminder that our sensing of the world is at once anchoring and estranging. We name things in the world, recognise their outlines, speak about their behavioural traits and habits (Garlick 2018: 229; Choi and Park 2021), and yet there is so much that remains at the edge of our understanding. Aesthetic attention crafts a relation, whilst undoing it at the same time, disrupting the impulse to capture, to name and define or rather, reminds us of the desire, the attempt to do so even as we strive for 'authentic' relation. The encounter with the other, Grant Kester writes, is 'a relation without relation'. It has 'no ontological "payoff"' (Kester 2004: 199–120; see also, Bennett 2001: 196). I was to explore the aesthetic experience of non-attunement (Wilson 2016: 465), later that summer as part of the arts festival *Sanctuary*, where I presented 'Hide (night moves)' – an installation and participative artwork inspired by field recordings made in and around the Dark Sky Park, and a response to one of the festival's key themes of 'communication networks […] that may involve people rather than technology as their main element' (Sanctuary 2017). With 'Hide

(night moves)', we[112] were interested in how the non-human experiences of the night-time forest might be communicated to the festival's visitors. From a listening station on the edge of the festival site, we ran 200m lengths of cable into the surrounding forest to three individual sites, where highly sensitive omni-directional microphones were secured in place (Fig. 7.9). These microphones, along with a handmade sonic bat-detector as a fourth channel, were connected to a small mixing desk at the station, with which visitors could isolate separate channels, assign individual volume settings and save a recording to file to take away. The listening station (a modified garden arbour) provided space for two people to sit side by side and face into a section of the forest through a large opening in the structure, the mixing desk directly above their knees. The piece 'opened' at dusk and ran into the middle of the night. 'Hide (night moves)' invited visitors to 'eavesdrop' on the night-time forest from a distance, allowing visitors to experience nocturnal others in a way that would not be possible if they were to be physically present in the forest.

While a conventional bird hide may offer clear and close views of animals (further enhanced using binoculars and telescopes), here, we only had sounds to work with, sounds that, visually and spatially detached from their original source, constituted what composer Pierre Schaeffer described in the late 1940s as '*objets sonore* ('sound objects') that were the sonic equivalents of photographs' (Toop 2004: 67). Schaeffer would appear to be referencing an indexical understanding of the photograph as described earlier in this chapter, whereby the sound object acts as a 'trace' of the original source. However, as David Toop notes in his discussion of sound objects, the film theorist and composer Michel Chion interprets Schaeffer's concept in a way that aligns more closely with the ex-pository approach discussed earlier in this chapter (Nancy 2005; Kaplan 2010), whereby the thing that is heard need not be defined or known, but whose sound 'opens up a world of previously unimagined questions for those who hear it' (Chion cited in Toop 2004: 67). At 'Hide', while some were able to isolate familiar sounds such as the call of an individual owl, the accumulation of sounds through multiple channels was strange and disarming. The focus (and pleasure of the experience) became less about identifying *what* exactly (though this was certainly a common response, i.e. "What *is* that? What could that sound be?"; "Oh, that was strange, did you hear that too?"), and more about

[112] This piece was created in collaboration with Dawn Celeste Ashley.

the act of listening itself – what it does to our bodies and how it re-situates us in a shared field of sound (see for example, Oliveros 2022 [2010]).

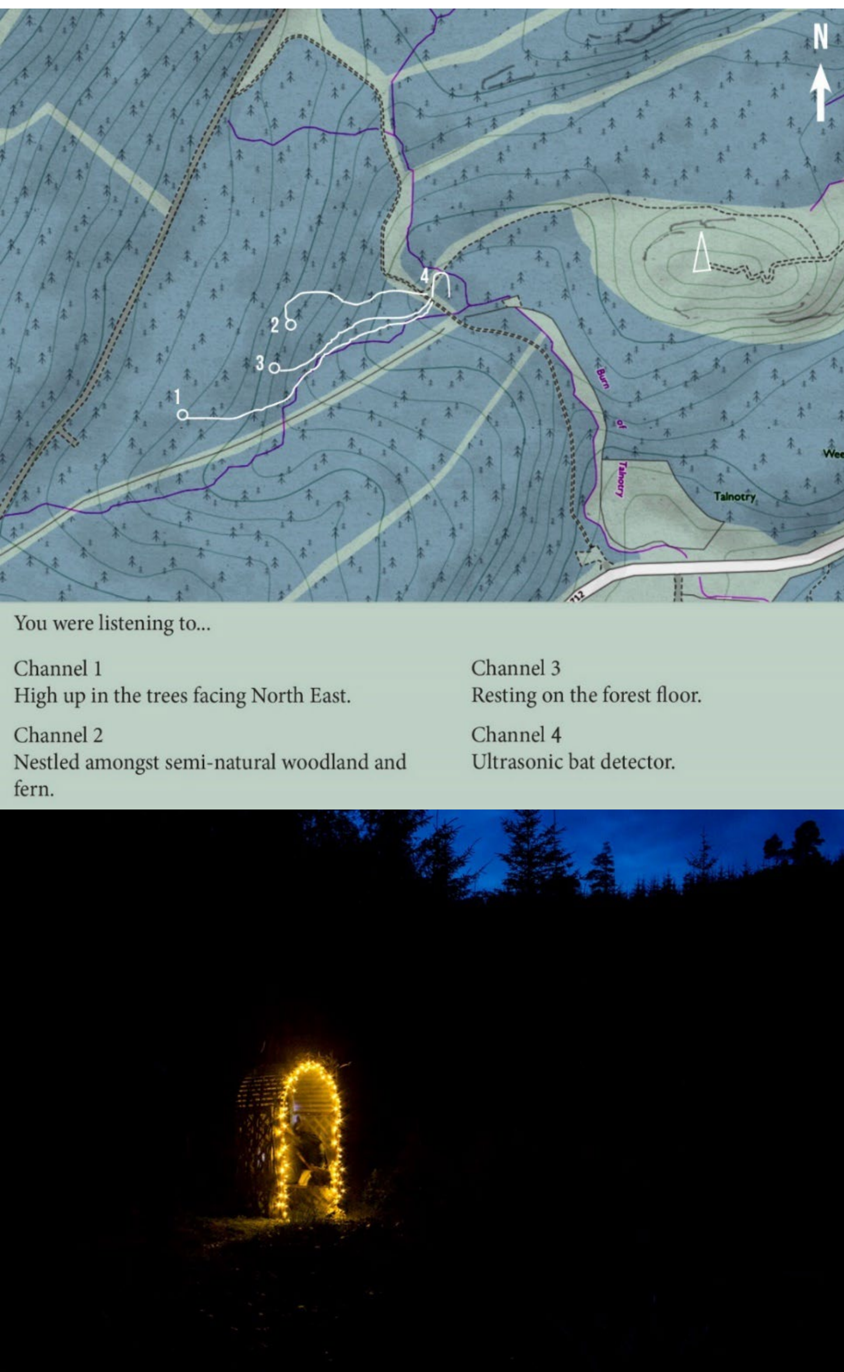
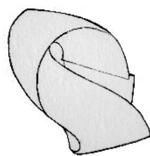



Figure. 7.9. *Hide (night moves)* Top: Visitor materials for *Hide (night moves).* Bottom: Documentation of the artwork. Image credit: Natalie Marr and Dawn Celeste Ashley.

Both Keith's tour and the 'Hide' installation are included here as examples of what geographer Harriet Hawkins calls 'site-sensitive' [arts] practices of landscape engagement (Hawkins 2015: 58) that centre aesthetic experience as it unfolds between differing agents of place. Informed by the 'site ontologies' of Woodward et al. (2010), Hawkins' term 'site-sensitivity' offers a different articulation of the more widely used 'site-specific', in that it emphasises the relational and processual qualities of meaning-making over and above enduring or 'characteristic' details of a 'local position' in which an artwork is made (Kaye 2000: 1). In the context of the Dark Sky Park, Keith's tours and the 'Hide' installation make tangible the dark landscape 'below' and 'around', reminding us that our sensing and sense-making of the world are always situated within an environment that is shared and co-produced with others. Though Keith's tours are not devised as artworks, they nonetheless situate and sensorialise acts of looking and seeing in and with landscape, using equipment that increases sensitivity to a world shared with others, whilst making tangible the embodied, partial and situated qualities of landscape engagement (Macpherson 2009; Morris 2011; Flack 2022a, 2022b). Sometimes however, nocturnal others do not wait for us to assume a different mode of sensing or situating. The following section continues to explore the aesthetic experience of nocturnal others through the brief, unexpected and contingent encounters I experienced whilst travelling between research sites in the Dark Sky Park, and the impact these moments of contact and *almost*-contact, attunement and non-attunement had on the representational work of the research.



## *Unsettled refrains: re-framing the research encounter*

On the way up to Bruce's Stone one night, the gentle certainty of my car along this now-familiar track, is broken by a cascade of soft pale light that sweeps across the windscreen. Enchanted, I press more firmly on the brake pedal and bring the car to a slow rolling stop. Music pours out of the CD player, but I am

draped in quiet as if a heavy blanket lies over me. Inside this imagined den, I blink the memory of the owl fainter and fainter.

It is the sound of my breath that breaks the spell. I reach out to lower the volume, rolling down the window with my other hand. Some of my most enchanting field encounters have happened whilst driving; this brash but necessary, troubling but trusty means of getting around the 300 square miles of the Dark Sky Park (Fig. 7.10). The world outside the car is narrowed in the headlights, revealing wet eyes and noses testing the edges of roads; flutterings of feathers, wings, tails; small sections of animal bodies disappearing into hedges, over fences. All this plays across the windscreen like cinematic reveries.

As a framing in which bodies are suspended in relation momentarily, the enchantment of my windscreen feels like a kind of 'templum' (Nancy 2005), but one whose framing is not my own, 'a meeting with something that [you] did not expect and [are] not fully prepared to engage' (Bennett 2001: 5). I do not step into the time of the other so much as I am *drawn into* it. With their 'lived attachments to place', animals, Ben Garlick writes, are 'geographical beings' who create 'refrains' for our experience, apprehension and inhabitation of landscape (Garlick 2018: 218). The figure of 'refrain' as a qualitative component of lived experience and encounter is explored in Derek McCormack's (2002) 'A paper with an interest in rhythm'. Drawing on the work of dancer and musician Gabrielle Roth and her 5Rhythms movement practice, and the theoretical work of Gilles Deleuze and Félix Guattari, McCormack elaborates an understanding of refrain as the delineation of a 'territory' that momentarily 'holds together' heterogeneous elements (ibid.: 476–477; see also, Stewart 2013: 275).

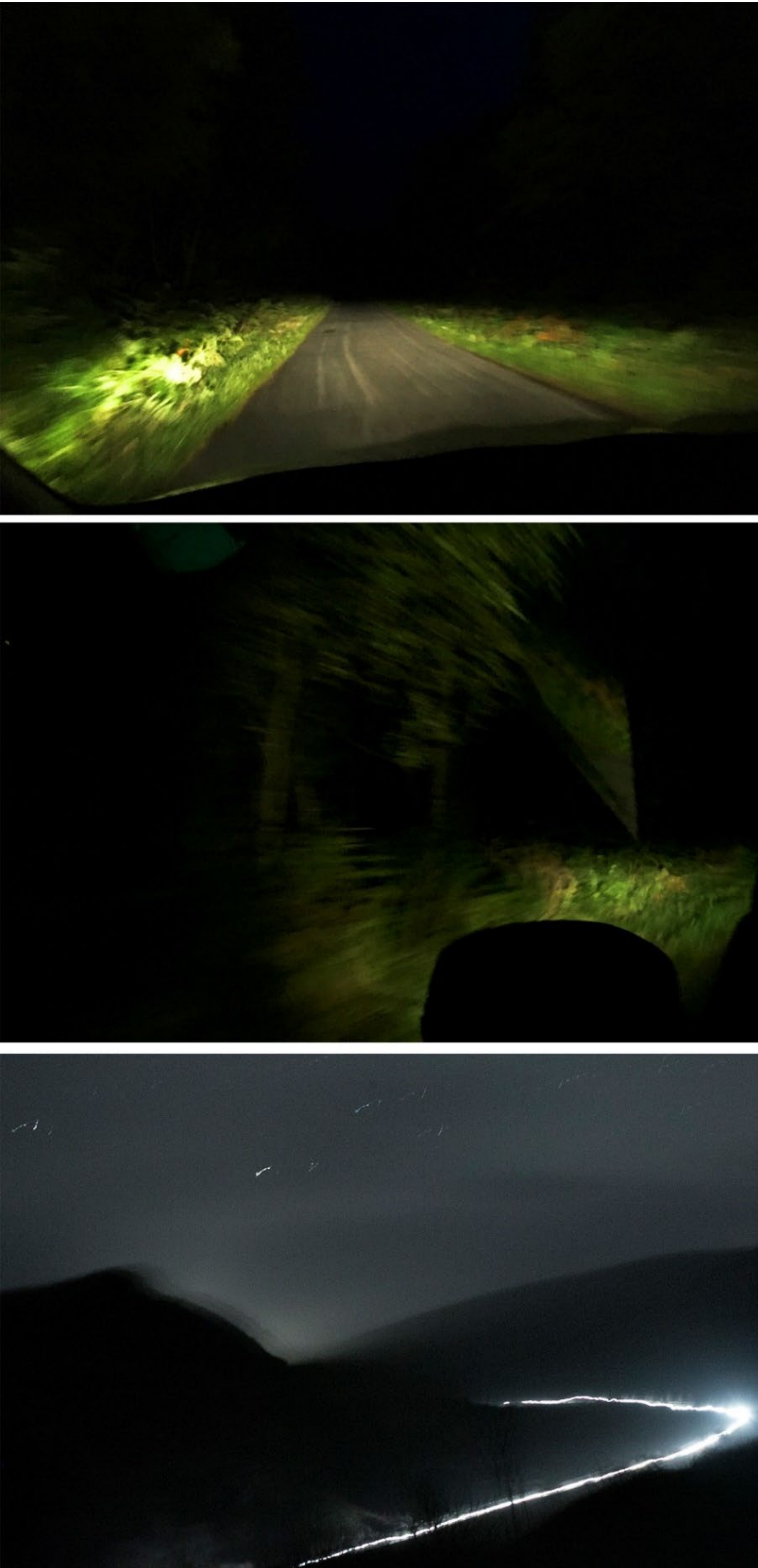


Figure 7.10. Driving at night in the Dark Sky Park.

Refrains are defined not just by their 'functional components' – their repeatability for example (as in a song or dance performance) – but by their 'expressive qualities', which 'emerge in the rhythmic interplay between milieus' (McCormack 2002: 476). Refrains, then, are improvisatory and emergent, drawn from a rhythmic "infrastructure underlying all our experience, a living language" (ibid.: 472, citing Roth), a language that is not so much observed and possessed as it is a state of being open to adjustment by our own actions and by the actions of others, a 'multiplicity of non-subjectifying relations that bridge and open onto a multiplicity of ways of thinking, feeling, and perceiving' (ibid. 475; see also, Toop 2016: 42; Manning 2015). Each of us in these encounters – humans and non-humans – as anthropologist Eduardo Kohn describes, are 'waypoints in the lives of signs —loci of enchantment' (Kohn 2013: 90). The flight of the owl across my car orients me to the night as softness and mystery, to dark corners of barns, to the artistry of silent murder. But also to night as momentary illuminations and contingent encounters, to the calcifying cast of car headlights and the radical unknowability of the almost-seen and almost-collided-with.

Encounters change what is meaningful. They are simultaneously organising and disorganising (Wilson 2016: 458). Encounters attune us 'to the event-ness of the world' (Latham and Conradson 2003: 1902; see also, J. Lorimer 2010) and encourage us, as researchers and ethnographers, to embody 'a witness stance to the unfolding of situated action, and [be] open to the unsettling copresence of bodies affecting each other in time-space' (Vannini 2015b: 321; see also, Thomson 2013: 197). However, as geographer Helen Wilson argues, a keener critical attention must be brought to bear on how the 'meaningfulness' of a given encounter is framed and engaged by researchers (2016: 461). For whom is the encounter meaningful and why?

What are the conditions that allow an encounter to be meaningful, or conversely, that restrict or divest its (potential) meaningfulness? To ask such questions begins to locate the meaningfulness of an encounter beyond a specific 'moment' of contact or affect – what Wilson identifies within recent humanities and social sciences scholarship as an intensive preoccupation with the 'fleeting', 'momentary', 'passing' or 'ephemeral' qualities of encounters that are often described in such a way as to suggest they are 'free from history' (ibid.: 462). Instead, she urges, we might follow the 'multiple temporalities' that co-compose each encounter (loc. cit; see also, Marston, Jones III and Woodward 2005). When reflecting on the meaningfulness of the encounters that took place while I was driving between research locations in the Dark Sky Park, my conceptual understanding was one of rupture and creative interpolation, whereby I understood the encounter as having interrupted the 'flow', breaking my attention and re-directing it elsewhere. A line from my field notebook reads:

> ***The Dark Sky Park plays itself in these moments, it re-presents itself.***

This term 'plays itself' refers to the essay film[113] *Los Angeles Plays Itself* (Andersen 2003). Over the course of the film, a voiceover dissects the many different cinematic representations of the city of Los Angeles (LUX 2021), but it is the audio-visual accumulation of film clips – of which there are many across its 170-minute duration – that builds a sense of the city, its people,

[113] Essay films (also known as video essays or audiovisual essays) are a form of contemporary film criticism and scholarship that variously re-use and re-mix existing audiovisual materials to compose an essay or thesis (see for example, Corrigan 2011).

places and histories, as an expressive subject that 'plays itself' in excess of its various cinematic framings. To say that the Dark Sky Park plays itself is to reflect on the ways in which it exceeded my own re-presentational framings, my 'ideas' about its values and meanings. With each encounter, these framings were alternately troubled or expanded, thickening my understanding of the GFDSP and shifting the focus of the research to lesser attended agents, sites and modes of engagement. This was particularly highlighted in periods of research 'downtime' or 'between-time' such as driving between locations or heading back to the hotel for the night, when my 'researching body' was not consciously active or 'ready' to gather and record. However, such a reading again stresses the 'fleetingness' or 'surprise' of encounter, as well as prioritising the active dimension of meaning-making, evoked as a moment of 'appearance' or 'revelation' by the other (Wilson 2016: 546, citing Abrahamsson and Simpson 2011: 336). Reading these field encounters through Wilson's critical appraisal whilst also tracking back to an epistemological consideration of reverberation versus revelation in data collection (Vannini and Taggart 2013: 65; discussed earlier in Chapter 5 *Peripheral vision: expanding the field of focus*), calls for greater attention to the multiple temporalities and wider ecologies that fold in – and out – of each encounter.

In the context of this research project, an attention to the wider ecologies of field encounters reconceptualises the Dark Sky Park as a material affective site through which knowledge about dark skies was continually emerging and transforming through various expansions and contractions of capacities, (re)sensitising me to the conditions of research-making and re-presentation as 'the labored viscerality of being in whatever's happening' (Stewart 2013: 282; see also, Wilson 2016: 465; Woodward et al.

2010: 273; Crowther 2018: 91). This shifts the emphasis from the 'moment' in which meaning is 'created' or 'revealed' to a more expansive consideration of how meaning emerges and becomes sensible through shared becoming and ex-posure (though by no means is this sharedness even) (Nancy 2005: 104; Wilson 2016: 461). Further, whilst my reading of the research encounter acknowledges the agency of the Dark Sky Park to make its own re-presentations, it does not address the particular conditions of fieldwork that make certain encounters possible or not possible, sensible or not sensible (Wilson 2016: 455). For example, how the speed I was travelling at affected the rhythm of my thoughts and what I was able or unable to perceive or the strange intimacy of a small torchlight which necessitates proximity to things in order to see them whilst closing out other details of the environment (see also, Morris 2011: 316; Edensor and Lorimer 2015: 9). I found myself reflecting too on the small knife and emergency alarm that I carried close at hand, an uncomfortable reminder of what was at stake in inhabiting the Dark Sky Park alone at night as a woman. This attempt to increase safety and a sense of security was not a condition that directly emerged from inhabiting the Dark Sky Park at night, but rather stemmed from personal and cultural experiences as well as responding to my institution's requirements for risk mitigation. Such details remind us of the complex sociomaterialities of *doing* research (Richardson and St. Pierre 2018: 1419; Parikh 2019; Billo and Hiemstra 2013). I remember vividly an encounter with a man that took place around noon in the centre of Newton Stewart. Initially a friendly interaction through my car window as I was waiting to pull out into the road from a parking space, his final greeting took the form of an objectifying comment, delivered with a smile and sense of detachment that immediately changed the atmosphere. Feeling unsettled by this encounter, I changed my evening plans for a

site visit from a location I had not been to before to a more familiar spot where I knew I would likely cross paths with other nightwalkers. Conversely, in being alongside others in the dark, through small greetings and exchanges, I too felt I could experiment with what felt safe and socially acceptable, to enact and claim my particular mode of inhabitation, my self-made legitimate presence in the night (see also, Chapter 6: "[T]o see it, not just to look, but see it!"). The research gave me 'a reason' to be there. It was helpful in placating the concerns of those who might ask "are you not scared being out here by yourself?" and also offered a novel topic to talk about, an invitation for others to lean into, to feel more comfortable with being out at night themselves.

The encounters I describe here may be understood as what Jacques Rancière calls 'meaningful situations' through which 'given perceptual forms' are reconfigured and redistributed (2004: 63) through 'aesthetic acts' enacted by variously positioned subjects or agents (ibid.: 9). In framing the meaningfulness (what is sensible) of field encounters as *re-distributed*, I do not wish to evoke a sense of seeing the Dark Sky Park through the eyes of an *other*, but rather of how the Park's various refrains continually 'enlace[s] [the researcher] with [their] possible views and frames' (Rose and Wylie 2006: 479; see also, Stewart 2013: 276). Such refrains make sensible a consistency of habits, practices, experiences and desires of the Dark Sky Park that may be captured by the researcher, yet in their diverse repetitions, however ephemeral or fleeting, change the larger structure of the research project's meaningfulness. Through these various encounters then, what is known or can be known about the Dark Sky Park and how the research project is developed over time, its theoretical, epistemological and analytical dispositions and manoeuvres, are continually

composed and re-composed with the wider ecologies, temporalities and multiple agents that constitute the Dark Sky Park. In the final section of this chapter, I discuss what is at stake for dark sky practitioners and advocates in accounting for the complex and sometimes less-than-harmonious encounters of visitors that nonetheless co-compose the Dark Sky Park and give valuable insight into how dark sky values and meanings are experienced, negotiated and expanded.

**Contact, concern and care: embracing a Dark Sky Park of many meanings**

A striking encounter takes place on a late summer's evening as my partner and I drive into Bruce's Stone Car Park. We pass two small tents pitched up, a shadowy figure in the entrance of each. As we walk over, the figures rise, taking up more space, and we become aware of a dog, its wet eyes visibly bobbing in the darkness as it too shifts to an upright position. After initial greetings, we laugh about our mutual suspicions of one another and talk for a while about my research, which they find a little perplexing, teasing me about the strange act of observing people after dark: "Oh, so that's what you mean by human geography…" The men explain that they met earlier in the day while hiking up Merrick Hill. Not only did they get along well, but they had also discovered many similarities between their lives and decided to camp out together overnight. After a while, our conversation fizzles out and we walk back to the car to collect our backpacks. We become aware of them again, hearing their uneven shuffle on the gravel not far behind us. We seem to have stirred in them the desire for a wander. "Enjoy your evening!" one shouts. As they pass by, they mark us with two quick sweeps of torchlight one way and then the other. It is a gesture that feels both playful and threatening. I laugh nervously. It feels like a betrayal after our jovial conversation, but later as we're driving back, I wonder if it was a just rebuke for turning up unannounced and disturbing their quiet, dark evening.

In the dark, Edensor writes, 'the imperceptible presence of others may be both pleasing and alarming' as the boundaries between our bodies and others, and our shared surroundings become less distinct, less certain (Edensor 2013: 456; see also, Shaw 2018: 104; Morris 2011). At Bruce's Stone Car Park, the question of "Why are you here?" hung in the air between us, a

mix of confusion and curiosity manifest as a slight tremble in the voice or involuntary laughter. As two people used to drawing on what we can see, the gloom disrupted our reliance on reassuring facial expressions, or the identification of non-threatening body language (Edensor 2013: 456). The two men, at least, had tents and beers. All we had were ourselves, strangely stark, stripped of meaning and purpose, no obvious cues to suggest legitimate presence. Gloom and darkness make conflicting and troubling claims to space and time more pronounced in some ways. The legitimacy of night-time inhabitations and uses of the Dark Sky Park comes up often in interviews with participants and less formal conversations with people I encounter during my night walks. I hear about teenage raves, needles found in bracken, the nuisance of late-night quad bikers and illegal hunting, and even a story about a solider on night exercises discovered crouching behind someone's bins.[114] I also hear about a witches' coven and of groups of friends who semi-regularly secret themselves away to a cabin in the woods to party. Sometimes, there are only the traces of nocturnal activities discovered in the daytime. Fire pits adorned with cigarette filters and empty cans. Plant and flower sections arranged ceremonially, not yet blown away or dried out (Fig. 7.11). A forgotten flask or single glove in a lay-by.

In her article on contested recreational uses of the Cairngorms National Park in Scotland, Katrina Brown describes how the inscription of surface matter from repeated footfall and other forms of landscape use 'shape[s] the moral and legal legitimacy of particular subjects to make spatial claims' (Brown 2015: 677). While paths created by the repeated impressions of walkers are considered an acceptable level of place inscription, other traces of wayfaring and inhabitation such as mountain-biking are 'deemed *polluting*' (ibid.: 662).

[114] Interview with Helen and Ian Macdonald. The Galloway Forest Park is used by the British Armed Forces as a training area. Soldiers are not permitted to be on private property and so the instance described by Helen and Ian would be considered an anomaly.

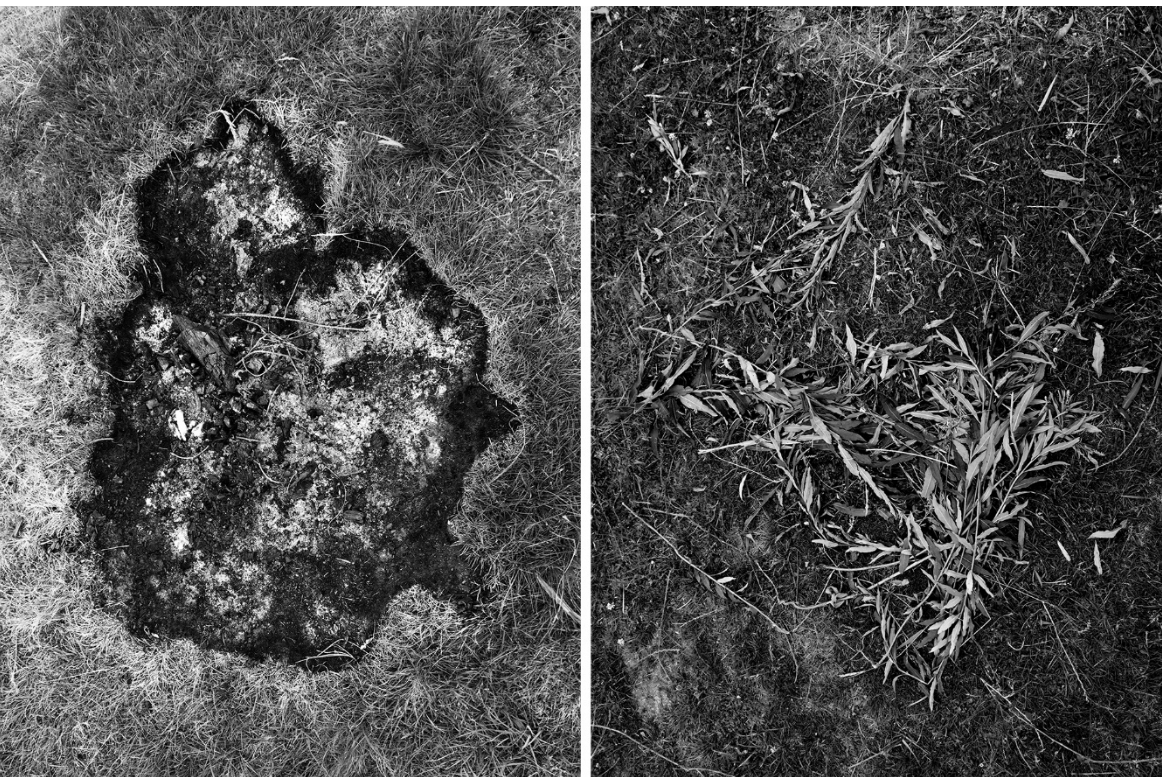


Figure 7.11. Nocturnal presences/absences. A firepit and an offering.

One significant way in which the landscape of the Dark Sky Park is inscribed, is through differing choreographies of artificial light, from the towering façades of lights on building-sized goods vehicles hurtling to and from Stranraer Port on the A75, to the soft red light of a head torch, flickering like morse code as a stranger makes their way towards you in a dark wood disappearing and reappearing between trees. While the use of light can be creative, personal and dynamic (Edensor and Lorimer 2015; Edensor and Millington 2009), in the context of dark sky places, its perceived 'indiscriminate' or 'irresponsible' uses can provoke much consternation among residents, stakeholders and other visitors. At a public stargazing event hosted by the Glentrool and Bargrennan Community Trust (GBCT) as part of British Science Week 2019 (see Chapter 6), one visitor brandished a torchlight as large as those used by night hunters, intermittently waving it about and switching it on and off. This bothered me and others too, provoking furrowed brows and "tsks" from those caught in its illumination. *Why would someone bring such a light to a 'Darkness and Stars' event?* I am wary of writing encounters like this because, like the lights themselves, they may break the spell, the last thing that the GFDSP's award-winning darkness needs. However, these encounters touch on the different

ways in which diverse values of the Dark Sky Park are engaged, experimented with and disrupted through situated practices that are always in relation with others. Similarly, in Alice Oswald's long-form poem *Sleepwalk on the Severn* (2009), a cast of characters – both human and non-human – come in and out of focus through the sometimes delightful, sometimes non-harmonious moments of night-time encounter, as their various inhabitations of the River Severn and its surrounds cause sparks to fly, and individual interests and motives to become unsettled:

> *Enter a bicycle. A Birdwatcher with infra-red telescope. Off bicycle. Sets up telescope. Trains it on reeds. Sighs. Checks with the naked eye. Makes bird calls. Shakes head. Returns to telescope. Swears.*
>
> birdwatcher — No long-billed dotterel!
>
> *Watches sharp, sea-wittled, mud-bred birds quite spaced out, walking away along the tide-line. BANG! Enter Articled Clerk with a gun.*
>
> articled clerk — Miserable weather. Bitterly bitterly cold.
> *Go away.*
> No feeling in my fingers.
> *Please. This is a nature reserve.*

Returning to Katrina Brown's work on inscriptions in a conservation context, a more capacious approach to the unwelcome presence of lights in the Dark Sky Park can be engaged. Wishing to decouple mark and movement (Brown 2015: 663; see also, Lorimer 2011; Lorimer and Lund 2008), Brown explores surfaces and their inscriptions less as symbolic referents – marks made *on*, associated with the immediate or distant past or representative of something external to site – and more as marks made *with*, in perpetual motion (see also, Ingold 2008, 2011; Miles 2005). Inscriptions are manifest not only in what gets left behind or laid down, but equally in and through 'practices, emotions, thoughts, memories and non-visual sensations' that have complex and open spatiotemporalities (Brown 2015: 668). Surfaces then, are conceptualised as 'relational-recreational ecologies […] hybrid assemblages encompassing bodies, technologies, matter, inscriptions, movements and affordances' that make tangible the

continuing co-production and commoning of place (ibid.: 668; see also, Lund and Jóhannesson 2016). Later that night on the journey back to the hotel, I think of the delight that children take in discovering how they can manipulate objects or set something in motion, and so they do it again and again, not just for the sake of it, but to test and affirm personal agency, to explore how they are related to their surroundings. It's not often we get to play with extreme contrasts of light and dark, given that cities and towns are so full of light. Perhaps this person's use of the light at the event was not borne of arrogance, but an attempt to fend off the strange dark and install a moment of personal comfort.

An encounter such as this is disruptive to those nearby, but beyond this, it also troubles the widely held assertion that IDSPs transform – or 're-enchant' – entrenched beliefs about light and darkness with immediate effect and with few complications. In their discussion of lighting conflicts and regulation, Nona Schulte-Römer and Andreas Hänel (2015) consider how the associated values and meanings of artificial lighting are changing. Following the work of Bruno Latour (2009 [2003]), the authors argue that received perceptions of artificial lighting (lighting as public good, lighting as safety, etc.) are considered less and less as taken-for-granted truths divorced from their context, what Latour describes as 'matters of fact'. Rather, they are increasingly perceived and articulated as 'matters of concern', which 'question existing relationships, established institutions and shared knowledge and produce preliminary, untested or unstable new connections' (Schulte-Römer and Hänel: 102). In the context of light pollution and dark sky preservation, matters of concern disrupt and expand the perceptual fields of artificial lighting and natural darkness, what they mean in our lives and how we choose to live with them. For Schulte-Römer and Hänel, this raises questions about what constitutes "good lighting" and has far-reaching consequences for future legislation and 'new institutional arrangements' (loc cit.). In doing so, they assert the important role of international dark sky places in transforming these matters of concern into 'new matters of fact'.

Where Schulte-Römer and Hänel seem keen to conceptualise IDSPs as novel environments that create new matters of fact around lighting and natural darkness, I wish to linger in the liminal space of matters of concern, where there are 'no clear boundaries, no well-defined essences, no sharp separation between [their own] hard kernel and [their] environment' (Latour 2009 [2003]: 24). To do so requires a closer attention to the complex and plural ways in which dark sky values are articulated and expressed through situated encounters and how

the intersections of these values may produce both affirming and troubling experiences (Morris 2011: 316). It requires that we speak about dark sky values not from 'above' in terms of policy, planning and communication, which locate values within individuals or institutions, but rather from 'below', as they are co-produced and refigured through the 'taking-place' of experiences and encounters (Wilson 2016). Philosopher María Puig de la Bellacasa's distinction between Latour's 'concern' and the concept of 'interest' is particularly helpful in elaborating what this might mean in a stakeholder context. Puig de la Bellacasa describes interests as things we may feel called to 'own' or 'preserve' as if they were stable properties of one's worldview. In contrast, a concern unsettles, it 'alters the affective charge of the thinking and presentation of things with connotations of trouble, worry, and care' (Puig de la Bellacasa 2017: 35). Concerns require that we orient to another's way of experiencing the world, to another's stakes, their needs and desires (ibid.: 44). We do not acknowledge a concern so much as experience it. To register the concern of another entails a certain level of porosity or sharedness that, for Puig de la Bellacasa, can and should lead to 'getting further involved in [their] becoming' (ibid.: 66). This capacity to not only 'respect' concerns, but to become *involved* in them, constitutes 'matters of care', a refiguring of Latour's concept that emphasises the *doing* dimension of scientific work, and by extension, the diverse ways in which we make worlds together (see also, Barad 2007; Haraway 2016). Puig de la Bellacasa's conceptualisation of care as involvement is key here. Care is not solely about the love or fondness of a thing, but about our relations/hips (past, present, future) with a thing and an awareness of how things themselves produce relationality (Puig de la Bellacasa 2017: 66). To 'care for a thing' Puig de la Bellacasa writes, 'we should strive to count and include *all* the concerns attached to it, all those who care for it' (ibid.: 44).

In the context of international dark sky places, practicing matters of care would entail an attentiveness to the range of emotions that people experience and the memories and associations they draw upon as they access, use and inhabit dark sky places (Morris 2011; see also, Flack and Jørgensen 2022; Heim 2020; Blair 2016), as well as the ways in which these differing associations, experiences and values *make contact* with one another to produce dark sky values. To conceive of dark sky values as matters of care entails not just the affirmation of the international movement's core values and ambitions, but a richer elaboration of how dark sky values are experienced in situ and how they come to matter in very particular ways. Such an understanding reflects recent engagements within ecosystem services research regarding

relational values, which 'do not refer to things but derive from "relationships and responsibilities to them"' (Himes and Muraca 2018: 2). This also resonates with Jane Bennett's critical framing of enchantment as being not just about the experience of awe and wonder at a thing or experience, but crucially, the quality of and extent to which it shapes our ecological ethics and action (Bennett 2022: 497). To approach dark sky values through such conceptualisations then, will support the IDA's aims to better understand and respond to the needs, curiosities and concerns of the dark sky movement's various 'feeling communities' – its visitors, advocates and practitioners (Flack and Jørgenson 2022). So too, can it more robustly resource the work of practitioners like Marie (GSAB), Morag and Elizabeth (BDSR) in crafting visitor experiences that disrupt entrenched perceptions of light and darkness and cultivate richer and more *involving* relationships with dark skies and dark landscapes. Further, matters of care as an ethico-aesthetic intervention in the conceptual framing of IDSPs, their practitioners, inhabitants and visitors, calls for an imagination of international dark sky designation as less a practice of assigning value from above – an inscription, a signification (Brown 2015; see also, S. Pritchard 2017) – and more as a composition in-becoming, variously shaped and articulated from 'below'.

## *Conclusion*

From the crafting of visitor experiences that more directly incorporate Galloway's dark landscapes 'below' to the contingent encounters that occur between different agents in the park at night, I have considered how the GFDSP holds and fosters multiple meanings, experiences and understandings of dark skies which, in turn, are shaped by the various encounters and practices of those who visit, live and work there. Through a sustained engagement with the aesthetic experience(s) of the Dark Sky Park, I evoke an imagination of the GFDSP, not as a stage or backdrop for dark sky encounters – a regionally specific window to a shared universe – but as a creative environmental milieu through which dark sky values and relationships are continually shaped and negotiated.

The chapter opens with a reflective discussion on the situatedness of the Dark Sky Park from the perspective of the park's practitioners as they think through the challenges and possibilities of "putting the universe in context". Returning to some of the themes explored in Chapter 4

such as non-specialist experiences and the more-than-visual dimensions of dark sky encounters, we discuss the tangible absence of forests and woodlands in the park's visitor materials and explore how Galloway's dark skies might be meaningfully re-situated through the crafting of new stories and visitor experiences. As my site visit with Dark Sky Ranger Elizabeth attests, such experiences are made *in* and *with* place, directed as much by the particularities of site as they are by the Park's more obvious agents of interpretation. Similarly, my participation in a nocturnal wildlife tour led by Keith (Kirk) using night vision equipment considers how the unusual experience of 'negotiated proximit[y]' to animals not normally encountered during the day (Garlick 2018), may extend a sense of nocturnal community beyond the human (Bogard 2013: 191; Duriscoe 2001: 35), that simultaneously troubles enactments of dark sky landscapes as wild backdrops for an all-too-human encounter with the cosmos (Ingle 2010; Fayos-Solá, Marín and Jafari 2014).

Negotiated proximities and their meaning-ful affects are further explored through a consideration of the diverse nocturnal practices and encounters that human visitors, residents and practitioners participate in. While such accounts of ambivalent encounter, conflicting values and troubled associations may seem counter-productive to the efforts of dark sky advocates and researchers, I have proposed that they give valuable insight into how dark skies and dark landscapes come to matter to different visitors (whether tourists or locally-situated). Drawing on the conceptual frameworks of 'matters of concern' and 'matters of care' as developed by STS scholars Bruno Latour (2009 [2003]) and Maria Puig de la Bellacasa (2017) respectively I develop an understanding of dark sky places as important sites of cultural encounter that do not only communicate knowledge *about* the values of dark skies but prompt visitors to *feel* and *negotiate* these values in their bodies as they engage in unusual ways of inhabiting and performing place. I conceptualise dark sky designation then, as an inscriptive-enactive process in 'a state of emergent expressivity' (Stewart 2013: 278). Such a process is further explored in this chapter through a sustained critical reflection on my creative practice. Drawing on the conceptual motifs of 'templum' (Nancy 2005) and 'refrain' (McCormack 2004; Stewart 2013), I have held a generative tension between intentional arts-based interventions such as my analogue photographic practice and a sound installation for the 2017 *Sanctuary* festival, and an aesthetic attention to 'the labored viscerality of being in whatever's happening' (Stewart 2013: 282; see also, Wilson 2016: 465; Dewsbury 2011: 327; Lorimer 2005, 2007) as the more-than-human Dark Sky Park creatively interpolated my research practice, frequently

re-directing its representational focus and form (see also, Sullivan 2014; Kohn 2013). Such reflections explored how the development of the research project, its theoretical, epistemological and analytical dispositions, framings and manoeuvres, were continually composed and re-composed with the wider ecologies, temporalities and multiple agents of the Dark Sky Park (see also, Marr et al. 2022). Further, written in a style attentive to the aesthetic experience of place (Cameron 2012; Vannini 2015b), I have sought to evoke an imagination of the GFDSP as creative environmental milieu, through which knowledge about dark skies and their values might be explored, negotiated and co-produced. In the following and final chapter of this thesis, I critically reflect on the shape, significance and potentialities of the knowledge produced in the contact zone between this research project and the Dark Sky Park.

Chapter 8

# *Project reflections, contributions and propositions*

It's a darkening, but a darkening that suggests there's more. It's like the terra incognita, the unknown land on the map. I think that's what the darkness is: We have places within us which can never be mapped.

---

Eric G. Wilson in *The End of Night* (Bogard 2013: 169)

## *Introduction*

We set out just the two of us, Elizabeth and I, a quiet celebration to mark a decade of dark skies over Galloway. At Bruce's Stone, we wait a little while to greet anyone else who might show up. The only people that appear are a group of young men dressed in camouflage print, small torches strapped to foreheads and each holding a can of beer. A boys' retreat in the wild. They are not here to mark our occasion but all the same, their presence affirms the unusual darkness of the Park as something worth spending time with. Even on this night of thick, persistent cloud, they are *here* and not in their tents, curious to see what else the dark night might offer.

After a quick exchange of hellos, Elizabeth and I head off along the track that leads through oak trees and up to a private farmstead. For most of the way, we walk quietly in each other's company, the sound below of our boots gently negotiating tracks threaded with tree roots and above, the hushed crackling of leaves moving in the breeze.

Later, in a gravel area near the spot I have been calling 'Elizabeth's creaky trees', we light a fire in the pit, cook vegetables in foil and mull apple juice from a carton with cloves and cinnamon. Bird calls off in the distance mingle with the pleasant crackling of the fire, our appreciative sounds as we eat and the intermittent chattering of teeth when we step away from the fire to get supplies from the car. Not far from here, was Caldons Wood, where a year before, we had gathered with other stakeholders for the workshop. We talk about how refreshing and fun that was, and what a shame that more folk couldn't join us tonight. We light ten candles on a small birthday cake and take a photo before blowing them out and sounding a playful cheer for the Dark Sky Park. It is a quiet celebration, but a celebration it is.

⁕

*Windows to the universe* is a research project that explores the values of dark skies, what they mean to different people and the diverse ways in which they come to matter. In the window of time that this thesis represents, the GFDSP celebrated a decade of dark skies and pushed forward into the next. Conducted between 2016 and 2023, this research project has sought to:

— Explore the values of the GFDSP through in-depth qualitative research and creative enquiry that examines stakeholder perceptions and practices and remains attentive to the agency of place.

— Investigate the impact of the designation on this region and its communities and to critically explore how the Dark Sky Park continues to be imagined, practiced and developed in the years following its designation.

— Examine the cultural phenomena of stargazing and dark sky appreciation and to write an ethnography of the social lives, landscapes and values that co-compose the Dark Sky Park.

— Critically reflect on the challenges and potentials of the designation in Forestry Commission properties and landscapes, and environmental governance and tourism more broadly in a UK context.

In this final chapter, I outline key contributions of my research through three thematic discussions that map onto the initial commitments of the thesis, shared in Chapter 1. I situate the findings of this research in the context of international dark sky preservation, the increasingly interdisciplinary field of night studies and the various disciplinary containers that have shaped my thinking and practice, namely: cultural geography, arts-based research and the environmental humanities. I discuss how distinct conceptual and methodological engagements have been mobilised and developed throughout the thesis and critically reflect on my research practice as it has evolved over the course of the project. I also consider the various challenges, missteps and limitations that necessarily compose a research project and its contributions. Such reflections offer 'conceptual [and epistemological] openings' (Dowling, Lloyd and

Suchet-Pearson 2017: 823) to researchers and practitioners engaging with my work. These openings act as both critical reflections of research completed *and* as propositions for future research and practice, showing how 'potential modes of knowing, relating and attending to things are already somehow present in a state of potentiality and resonance' (Stewart 2007: 3). Finally, I return to the night of the GFDSP's ten-year anniversary, offering one final proposition to the reader.

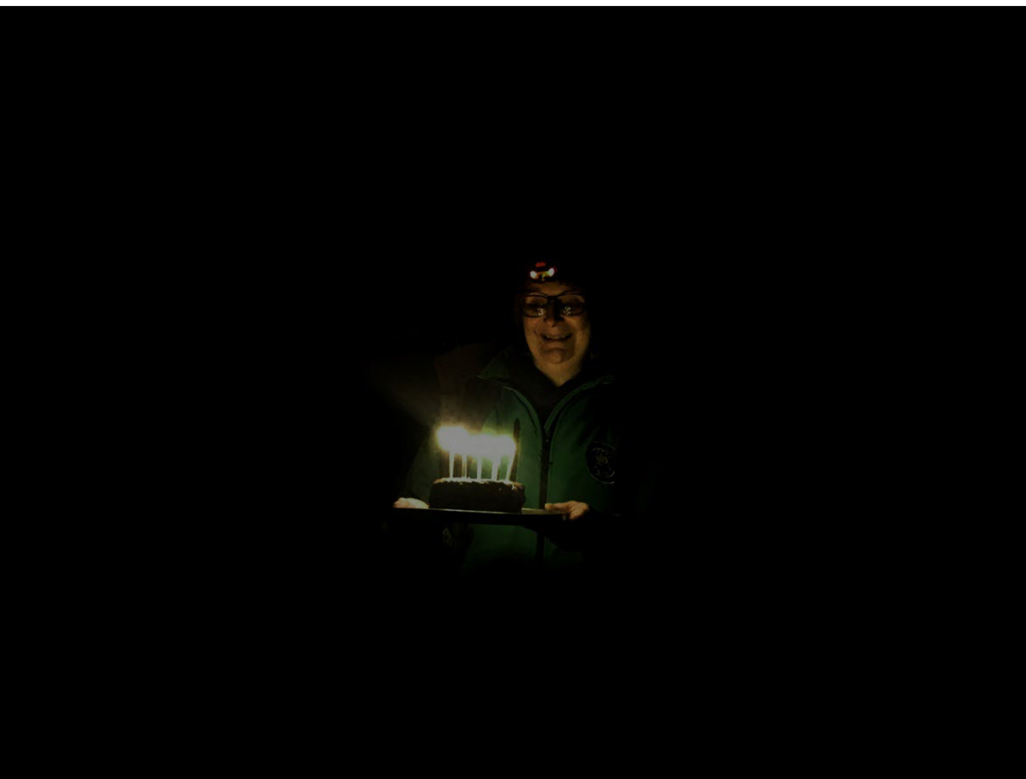


Figure 8.1. Happy Birthday Dark Sky Park! Elizabeth carries a homemade birthday cake I made to celebrate the ten-year anniversary of the Dark Sky Park.

## *Contributions and Propositions*

In the first of these thematic reflections, **A richer darkness: expanding the vocabulary of dark sky values and environmental practice**, I share how an interdisciplinary approach to the study of a dark sky place has elaborated a richer set of social, cultural and ecological dark

sky values that affirm the claims of dark sky advocates, whilst extending narratives of environmental action, care and relationship beyond an astronomical sublime. Conceptualising dark sky values as emergent, co-produced and situated, and attentive to the more ambivalent and contingent ways in which dark sky places are experienced and negotiated, I argue that my research positions IDSPs as sites of important cultural, social and ecological encounter with the night sky and darkness.

I develop this discussion in **Enchanting the designation: a situated account of dark sky practice**. In mapping the Dark Sky Park as an evolving assemblage of actors, places and practices, my research frames international dark sky designation as variously situated and diversely practiced, providing insight into how dark sky values and practice(s) intersect with, complement, and potentially challenge existing environmental decision-making and planning processes on the ground. Further, through a sustained engagement with stakeholder lifeworlds and an analytic focus on practice, this research has not only identified *why* dark skies matter to different people, but has also given insight into *how*, with particular focus on informal, personal and communal modes of stewardship and engagement.

In the final thematic discussion, **Site matters: the Dark Sky Park as creative crucible for interdisciplinary research**, I discuss how this thesis has endeavoured to think critically and imaginatively *with* an IDSP as a site that is productive of dark sky knowledge, to offer thoughtful provocations for interdisciplinary research and partnership work in the emergent field of night studies and in cultural geography and the environmental humanities more broadly. Further, I outline the approaches, lessons and tools that have emerged from the study and their potential applicability to other dark sky places, and to conservation and heritage contexts more broadly. I also discuss how the project's commitment to a site-ontological and non-representational approach to the study of a dark sky place, demands a critical reckoning with the *doings* of research. As such, I take time to reflect on the missteps and limitations of the research, positioning them as valuable components in the production of this thesis and its contributions.

⁕

**A richer darkness: expanding the vocabulary of dark sky values and environmental practice**

Through in-depth qualitative research, this project has elaborated a rich vocabulary of dark sky values that affirms the aims and ambitions of the IDA's IDSP programme, whilst also deepening understanding of why and *how* dark skies matter culturally and socially. My work contributes to recent and emerging studies of dark sky tourism within a wider cultural 'return' to the dark for which visitor perceptions, motivations and experiences of dark(er) skies and landscapes are central lines of enquiry (Weaver 2011: 39; see also, Collison and Poe 2013; Fayos-Solá, Marín and Jafari 2014; Slater 2019). I augment this work by bringing an interdisciplinary approach to the analysis of such experiences and their associated values. Drawing from conceptual and epistemological approaches in cultural geography, environmental humanities and arts-based research, I have attended to the experiential, social and situated dimensions of stargazing and other forms of nocturnal recreation in the GFDSP to develop a critical and tangible sense of dark sky encounters beyond 'the astronomical sublime' (Dunnett 2015; see also, Ingle 2010; McGhie 2020a).

While my analysis of dark sky experiences and their associated values is informed by sensory (auto)ethnography and observant participation at public events, it is developed in conversation with the practitioners who design and deliver them, offering a perspective that is largely absent from studies of dark sky tourism and preservation (Bogard 2013; Nordgren 2010). Our conversations provide insight into the values that have guided the GFDSP's official visitor materials such as personal discovery, first-hand experience and quiet contemplation, as well as a wider palette of values that the GFDSP's freelance Biosphere Dark Sky Rangers and other practitioners choose to foreground, drawn from their respective professional backgrounds, interests and skills. A rich ethnography of visitor offerings such as 'Darkness and Stars' guided walks, campfire storytelling and nocturnal wildlife tours as well as the GFDSP's hosting of the European Dark Sky Places conference and art festival *Sanctuary* bring personal, social, cultural and ecological values into sharper focus.

While my research maps forms of nocturnal recreation and experience that exceed stargazing (night walks, nocturnal wildlife tours, campfire storytelling), I also explore how the non-

specialist pursuit of naked-eye astronomy – which often takes place outdoors in spaces that are less structured and defined – can be an incredibly embodied, social and situated practice, promoting feelings of togetherness, contemplation, freedom and creativity (see also, Slater 2019; Blair 2016). Further, in attending to the experiential and atmospheric qualities of dark sky experiences, I include other forms of celestial and terrestrial attention such as moonbathing, the witnessing of a sunset at a familiar site, or the quiet and contemplative practice of time-lapse astrophotography in a wood in the early hours of the morning.

In exploring the situatedness of dark sky encounters, my work does not just identify a broader set of values that might be promoted or 'applied' in different dark sky contexts but explores how dark skies come to matter for different people through specific activities, framings, experiences and sites and the diverse skills, interests and expertise that dark sky practitioners might draw upon when devising their offerings. My research then, is valuable to IDSP practitioners and managers wishing to reach a wider public through more diverse programming that is attentive to the various ways in which people form attachments to the night sky and to dark(er) landscapes, whilst also being responsive to the particularities of their respective contexts. My work also demonstrates the value of creative methods in night studies research, which remain both undersung and underexplored in this scholarship, despite calls for more interdisciplinary approaches (McGhie and Marr 2024) and a critical awareness of the role that visual and literary representations play in shaping popular attitudes towards light, darkness and environment (S. Pritchard 2017; Dunnett 2015; Bach and Degenring 2015).

In mapping how dark sky values are shaped *in place*, my work critically engages the 'landscape dimension' of dark sky discourse (Marín 2009: 451; see also Charlier and Bourgeois 2013, Nordgren 2010: 405–406; Bogard 2013: 248), attending to dark sky landscapes not as scenic backdrops against which activities are staged (Ingle 2010; Dunnett 2015), but as an integral part of the experience (McGhie 2020a). My work has drawn on non-representational approaches to landscape and place in cultural geography and critical engagements with environmental relation in environmental humanities work to elaborate the 'less evident landscape features, qualities, practices and representations' (Edensor 2017a: 599) that shape dark sky experiences. This has included *thinking in* the circumstantial, atmospheric and more-than-human to my analysis of dark sky values (Edensor and Lorimer 2015; Sumartojo 2015; Edensor 2012; Morris 2011; see also, McCormack 2016; Garlick 2018; Kohn 2013).

Accumulating such details, sensations and agents in my account of an IDSP, urges an engagement with dark sky values beyond the framework of tourism, which all too often, centres on human interests, needs and concerns, even if these same concerns lead to meaningful environmental behaviours (Duriscoe 2001; Bogard 2013: 185). Rather, my work, articulates relationships of value that do not hinge on environmental protection narratives or technofixes that perpetuate dualisms such as nature/culture and rural/urban (S. Pritchard 2017; Shaw 2017; Dunnett 2015), but open out onto other forms of environmental relation and inhabitation such as informal practices of care-taking and attending local sites throughout the seasons, communal explorations of darkness and starlight and the creation of shared spaces and tools, all of which evoke a sense of IDSPs as community resources that contribute to quality of life and sense of place (Blair 2016; Heim 2020).

My exploration of dark sky values and relationships *in-becoming*, has also included ambivalence and conflict as much as it has curiosity and enchantment. My accounts include reflections on contingent and precarious encounters with other visitors or 'presences' in the GFDSP at night, which suggest that the values expressed and enacted in dark sky places do not always align with the core aims of the dark sky movement or the aspirations of IDSP managers and practitioners. Keenly aware that such accounts may undermine the efforts of dark sky preservation, I critically reflect on what they might reveal about understandings of darkness and light as they play out in the context of an IDSP and what the presence of ambivalence and conflict might facilitate within an account of an IDSP. As my research shows, this is also an area of interest for GFDSP practitioners as they consider how visitor materials and guided activities might more imaginatively engage with feelings of fear, uncertainty and thrill as starting points for meaningful dark sky experiences, an aspiration that also meets the IDA's aim to better understand the needs and fears as well as the motivations of people involved (or who may become involved) in dark sky contexts (IDA 2021a, 2021d; see also, Heim 2020: 72; Silver and Hickey 2020: 2640). Building on claims that dark sky encounters can transform 'existing relationships, established institutions and shared knowledge' about artificial light and natural darkness to 'produce preliminary, untested or unstable new connections' (Schulte-Römer and Hänel: 102), I make a critical connection with Bruno Latour's (2009 [2003]) theory of 'matters of concern' and Mária Puig de la Bellacasa's (2017) re-framing as 'matters of care' to propose that while international designation is an inscriptive geography representing a concentration of value *in place* (see, Tuan 1974: 12), its core values are subject to expansion

and revision as they overlap and sometimes clash with the various values, experiences and practices of those who visit, live and work there. As such, I evoke an imagination of the GFDSP in a 'state of emergent expressivity' (Stewart 2013: 278), a dynamic assemblage that holds and fosters multiple meanings, experiences and relationships of dark skies, dark landscapes and the night-time more broadly. The following section further expounds this approach through a consideration of the project's engagement with dark sky stewardship as evolving process and situated practice.

**Enchanting the designation: a situated account of dark sky stewardship**

Responding to calls for the analysis of dark sky preservation from the situated perspective of 'localized nightscapes' (S. Pritchard 2017: 320; see also, Lyytimäki and Rinne 2013), and building on recent studies of dark sky places and their communities of interest and practice (Meier 2015, 2019; Blair 2016; Heim 2020; Silver and Hickey 2020), this thesis presents a critical exploration of dark sky values as they emerge and are developed *in situ* in the years following its designation. While my research affirms claims that international dark sky designation is largely without conflict (Meier 2015; see also, Meier 2019; Fayos-Solá, Marín, and Jafari 2014; Dalgleish 2020) it has further explored how dark sky values and practice(s) intersect with, complement and potentially challenge existing environmental decision-making and planning processes and their conceptual frameworks (Silver and Hickey 2020; Challéat, Lapostolle and Milian 2018). Importantly, my account includes moments of disconnection and uncertain engagement as the GFDSP's managers and practitioners navigate a "new geography", for which the core function and values were clear, but the ways in which it might be further integrated into locally and regionally specific conservation and resource management practices were not. Such encounters with the GFDSP's apparent nebulousness led me to deploy the human geographical concept of 'lifeworld' (Buttimer 1976; Seamon 1979; Lowenthal 1961) within my analysis of the GFDSP's stakeholders and values, a novel approach within dark sky research that conceptualises dark sky values and *stakes* as not only 'given' or inherited from the dark sky movement, but emergent, understood as 'the constitution of shared or collective affects' (Pink et al. 2014: 363; see also, Sumartojo and Pink 2017: 5). To map the GFDSP's stakeholders through the lens of lifeworld, engages with dark sky stewardship, not as a series of specific decisions made by individuals in fixed roles that are 'self evident and self-construed' (Reed et al. 2009: 1937), but as an evolving process that is

multi-sited, relational and embodied, and often messy and complex (Silver and Hickey 2020; Challéat, Lapostolle and Milian 2018; see also, Vreese et al. 2019; Craggs, Geoghegan and Neate 2016). A lifeworld approach builds on Ada Blair and Jessica Heim's respective findings on the significance of personal relationships and communal activities in the shaping of dark sky stewardship (Blair 2016; Heim 2020). I contribute to this work through a 'close and respectful analytical attention to the practical knowledges and vernaculars of everyday sense-making' (Whatmore 2002: 162; see also, Ellis and Waterton 2004; Dunkley 2018a) and a sustained aesthetic attention to the 'situated and spatial dimensions of enthusiasm and environmental relationship. Shifting the analytical focus from stakeholder identities to stakeholders *doings* such as informal practices, community-led engagements and contingent encounters, expands who and *what* counts in the ongoing development of the GFDSP, demonstrating that such engagements are just as significant as professional practice in the fostering of dark sky values, stakes and relationships. I show that expanding the values of the GFDSP and its associated activities requires the participation of an expanded stakeholdership, not just in terms of who is involved, but *how* people are involved; their particular modes of engagement, habits, practices and relationships (see also, Silver and Hickey 2020; Ellis and Waterton 2004). I propose that such an approach not only fosters broader and more sustainable local and regional engagement with an IDSP but does so in a way that is responsive to the particularities of site and those who use and inhabit it. My research then, contributes to existing work that has explored how 'darkness is seen and employed as a resource' (Meier 2019: 91; see also, Challéat, Lapostolle and Milian 2018: 13), but extends these studies beyond uses for tourism and economic development to engage an imagination of a dark sky place as resource for community, contributing to sense of place, quality of life and the strengthening of socioecological relations (see also, Gallaway 2010: 85; Blair 2016: xv). As such, I develop an understanding of the GFDSP and its dark skies not just as visited but *lived* and *practiced* (Blair 2016). Holding this in tension with the reality that many IDSPs are managed as tourist destinations however, my research provides insight into how managers and practitioners might craft visitor experiences that are responsive to their unique contexts, and mutually supportive of communities of interest and communities of place.

As a situated account of dark sky practice, this thesis also re-situates IDSPs within night studies scholarship. Bringing IDSP practice into critical conversation with recent scholarship on darkness, light, landscape and social life, my work stages an orientation to the GFDSP, not

as a case study that applies a 'wider' international vision and mission, but as a site that is itself productive of international dark sky practice; an active and lively (re)configuration of what dark skies mean and facilitate. My research then, is less concerned with what international dark sky designation symbolizes but rather its conditions of possibility and its active, ongoing materialities. To position dark sky designation as such, I wish to critically recuperate IDSPs within night studies scholarship which, despite its troubling of cultural understandings of darkness and light, and night and day, continues to locate meaningful action for dark skies in urban contexts, which risks promoting an imagination of dark skies and dark landscapes as separate from social and cultural life. This should be of increasing concern to dark sky advocates and practitioners, given the dominant narratives that uncritically frame dark sky values from above, focusing on the geographic spread of light pollution and its necessary regulation through technofixes that are not sufficiently localised in their production and delivery, nor attentive to differing cultural contexts (S. Pritchard 2017; Shaw 2017; Hamacher, de Napoli and Mott 2020; Fox and Prescod-Weinstein 2019; IDA 2021a; IDA 2021c). As Sara B. Pritchard writes, 'more thoughtful and reflective strategies' are needed for dark sky research, if it is to achieve its goals whilst also contributing to more socially and environmentally just imaginations of place and planet (S. Pritchard 2017: 324; see also, Le Gallic and Pritchard 2019; S. Pritchard forthcoming 2024). In support of this, my ethnography of the Dark Sky Park is 'formed through a fusion of horizons' (Mitchell and Clark 2021: 4) that do not resolve or come to settle in a clear and coherent list of recommendations, but rather constellate to encourage new stories to emerge in the spaces between, for new questions to be asked, new actors to become involved, and alternative configurations of ideas and practices to be explored.

**Site matters: the Dark Sky Park as creative crucible for interdisciplinary research**

If an IDSP represents an evolving assemblage through which understandings of and relationships with dark skies are shaped and negotiated, what of the research project with which it is partnered? Orienting to site as creative crucible for interdisciplinary research, this project has engaged the Dark Sky Park as a site that is productive of dark sky knowledge. Such an approach reflects recent calls for more interdisciplinary approaches to night studies research but also seeks to extend its ambitions for knowledge exchange beyond the privileged realm of 'journals, conference series [...] research institutes, and university departments' and

beyond the unidirectional flow of knowledge 'from night studies scholars to practitioners' (Kyba et al. 2020: 4; see also, Challéat, Lapostolle and Milian 2018: 13). For dark sky research to be more interdisciplinary, transformative and participatory, it must do more to meaningfully include dark sky practitioners, sites and communities in its makings. With the possibility of sustained engagement across several years, a PhD project represents a valuable vehicle for such research to be developed. My research has been conducted within the container of a CDA, an AHRC-funded doctoral research project model that develops research in partnership with external organisations and supports interdisciplinary research training (AHRC 2019). Indicative of 'emerging research areas', CDAs extend scholarly research beyond the bounds of academia, engaging academics in 'promoting the study of popular response, legacies and affect' (Bates 2018: 198). While my thesis has not explicitly explored what a CDA partnership looks like in practice, it offers unique insight into how IDSPs participate in and are productive of knowledge about dark skies.

Throughout the thesis, I have employed the formal strategy of a distributed methodology to make tangible the various ways in which the GFDSP has shaped my research practice, continually re-situating the researcher and research (and reader) in the socioecological context of site, whose '*working* materialities […] sometimes enfold the labours of purposeful subjects' (Woodward et al. 2010: 273, authors' emphasis). Through a sustained engagement with the aesthetic experience and situatedness of the Dark Sky Park that encompasses both humans and nonhumans, I evoke a sense of the research as multi-sited, relational and *involving*, as other agents – known participants and unexpected presences alike – shape the various re-presentations that compose this thesis. Such an approach contributes to non-representational ethnographies of place within cultural geography and the environmental humanities more broadly. Taking cues from geographer Nina Morris, my thesis presents a written account of dark(er) landscapes that critically embraces the transpersonal and contingent dimensions of darkness, starlight and night within its writing (Morris 2011: 318). Similarly, I contribute to place-critical and site-ontological approaches to the practice and representation of field research through a distributed methodology that does not separate the researcher from the wider ecologies of their research (Tuck and McKenzie 2015; Larsen and Johnson 2016; Bastian et al. 2017; Buchanan, Bastian and Chrulew 2018; Marr et al. 2022).

Situating the research practice as such, this thesis has also proposed an understanding of the researcher as stakeholder, a positioning that will likely resonate with researchers engaged in PAR (participatory action research) (Kindon, Pain and Kesby 2007; McIntyre 2007), but which I consider here from the perspective of interdisciplinary research-making in the context of a partnership project. I have explored this position by weaving my own conceptual and methodological approaches with those of the GFDSP's practitioners and stakeholders, not privileging one over the other, but rather seeking to explore and animate their intersections and gaps as we collectively engaged in the shared task of exploring the Dark Sky Park, its values, achievements, impacts, challenges and potentialities. To position the researcher as stakeholder within the narrative of the research affirms not just the value of my findings, but also the value of my presence in the GFDSP throughout the project (see also, Anderson 2014), whether through informal conversations, bringing stakeholders into contact with one another's ideas and practices, contributing to the delivery of public events, or by making critical connections between practitioners' work and existing research studies. It asks: How does our representational work – the details and agents we privilege or marginalise, the specific theories and epistemologies we mobilise in our knowledge-making practices, the values, sensibilities and ethics we embody – contribute to dark sky practice on the ground? Such questions invite us to both acknowledge the myriad forms that research re-presentations take and to think more boldly about what they might *do* (Lorimer 2007: 89; Cameron 2012: 580; Lynch, Glotfelty and Armbruster 2012).

**Casting forward: approaches, tools, limitations, contexts**

Addressing the ongoing study and practice of dark skies, my work has produced not so much a set of findings or policy points, as a constellation of *conceptual and methodological openings* – or, to be more direct, a set of *approaches* and *tools* for thinking through and engaging with dark sky places and dark environments within social sciences and humanities research. A committed interdisciplinary approach that includes the "site" of the Dark Sky Park in its formation of knowledge production, contributes both to night studies scholarship and to dark sky practice on the ground, whilst building purposeful bridges between these two worlds and offering conceptual and methodological resources to related conservation and heritage contexts. The following section summarises the approaches, tools and lessons that have emerged from my research, considers its contextual positioning within contemporary research and outlines additional lines of enquiry for researchers and practitioners.

My work has been significantly resourced by cultural geographic work of the early and mid-2000s, which propelled artificial light, darkness and dark landscapes into the spotlight as part of a wider disciplinary orientation 'towards less evident landscape features, qualities, practices and representations' (Edensor 2017a: 599; H. Lorimer 2005, 2007). Drawing on cultural geographic engagements with place, landscape, materiality, atmosphere and affect, I have explored how situated practices and affective affinities actively shape and sustain certain kinds of environmental relation in the context of dark sky conservation and cultural engagement. While this contributes to Andrew Flack and Dolly Jørgenson's (2022) recent call for researchers to investigate the emotional regimes and feeling communities of environmental stewardship, there is more work to do with regards to mapping how emotional and affective encounters with dark skies and dark landscapes, shape the kinds of relationships and practices that stakeholders and visitors engage in (see also, Himes and Muraca 2018; Vreese et al. 2019, Craggs, Geoghegan and Neate 2016). Further, as Andrew Flack (2022a, 2022b) has argued, the more-than-visual and more-than-human continues to be marginalized in research accounts of dark places and stewardship. This, I have addressed in part through a sustained attention to the agentive role of site in the production of knowledge about dark skies, their associated values and practices. I have made the limits of this tangible in the form of the thesis, through a distributed methodology that continually ruptures the linear structure of the thesis, with the more-than-human creatively interpolating the flow of my narrative in Chapter 7 to affirm how encounters with the more-than-human might offer alternative cues for knowledge about dark environments (Flack 2022a, 2022b: 350) and '*ecologize* the way we think about ethical doing' (Krøijer and Rubow 2022: 376, my emphasis). That these cues arrive so late in my research narrative reflects the significant gaps in night studies research, whilst tangibly demonstrating the value of centring site, aesthetic experience and the more-than-human in the production and representation of dark landscapes.

Despite the significance of cultural geography in an intellectual reappraisal of the night, I noticed, during my study, a momentary lull in publications as other disciplinary fields such as urban studies and tourism studies continued to share research. As I neared the end of my project, journal articles, collected volumes and conference sessions on darkness and the night that spoke more directly to cultural geography's distinctive engagement with lived experience and environmental relation were being shared once more, perhaps indicative of a period of

research development, exchange and capacity-building. Much of this work is co-authored and cumulatively calls for more interdisciplinary approaches to the night and greater engagement with the multiplicity and situatedness of darkness and light (Le Gallic and Pritchard 2019; Kyba et al. 2020; Barentine et al. 2020; Dunn and Edensor 2021). More recently, Nick Dunn and Tim Edensor's book *Dark Skies: Places, Practices, Communities* (2024) has gathered together a critical mass of perspectives and practices across the social sciences and humanities that seeks to bridge the gap between research 'about' dark sky landscapes and their associated communities and practices, whilst also celebrating the value of interdisciplinary research in the production of dark sky knowledge and the fostering of more enchanted relationships with the night.

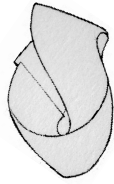
My work is positioned within this contemporary context of dark sky and night studies research and makes a further contribution by actively grappling with the affordance and challenges of doing interdisciplinary research that involves the participation of dark sky actors in the production of the research. By elaborating not just the what, who and why of dark sky values, but also the *how* (the ways in which dark sky values take shape and gather momentum, as well as the ways in which they are troubled or become diminished), my research has contributed to contemporary calls within night studies to elaborate 'the situated and plural nature' of dark sky landscapes (Dunn and Edensor 2021: 239; see also, Le Gallic and Pritchard 2019), whilst offering compelling and tangible concepts and tools for engaging with the *doing* of dark sky stewardship, supporting stakeholders to reflect on their diverse relationships with the Dark Sky Park – personal, professional, habitual, committed, responsive – and to see in this, a continuing, unfolding practice that is both individually and collectively actualised. This approach is particularly supported by a methodology that mobilises interdisciplinarity, not only to extend the possibilities of what can be "known" about dark sky landscapes but equally to enrich and capacity-build dark sky practice and community. Such an approach led to an understanding of myself as a stakeholder, co-involved in the ongoing development of the Dark Sky Park. With this also came a curiosity as to how the project might have developed had the nature of my partnership with the GFDSP been more explicitly explored at the beginning of my study, both in terms of consulting existing studies of interdisciplinary collaboration as part of a methods review, and in direct conversation with key stakeholders. How might this approach have differently resourced me during the more challenging periods, and would a more direct explicit co-production of the project have revealed or even eclipsed

certain kinds of findings? It is a loose thread that I offer to researchers and practitioners wishing to engage in interdisciplinary partnership work with IDSPs and their situated communities, or in related contexts where the co-production of research and the fostering of inter-/transdisciplinary practice are key goals.

To position my findings and insights as a set of approaches and tools that can be further developed and re-worked in partnership and/or community, reflects a commitment to the agency of site and to a distinctive imagination of dark sky designation as provisional and enactive. Whilst these approaches and tools arise from the specific "site" of the Galloway Forest Dark Sky Park, its places, communities and practices, they are not tied to it, and have bearing in related contexts such as heritage conservation, ecosystem services management, ecotourism and other forms of environmental engagement and recreation. A sustained exploration of the geographical concepts of lived experience, environmental relation, atmosphere and affect has expanded normative understandings of what environmental stewardship involves, drawing attention to the *how* as well as the who, what and why. An elaboration of personal attachments and affective affinities as they shape dark sky values and practice further contributes to current debates within ecosystem services regarding the need to elaborate relational and situated values that more accurately reflect the experiences, perspectives and practices of environmental actors (Vreese et al. 2019; Himes and Muraca 2018; Choi 2020). This has particular relevance in resource management contexts where sustained collaboration between stakeholders is key, but also with regards to the active fostering of diverse stakeholder constellations that value different kinds of knowledge and different ways of coming into relation with a shared resource. An expanded vocabulary of stakeholder values and *doings* encourages an understanding of designation, stewardship and heritage in contexts beyond dark skies, as enactive as well as inscriptive. My research thoughtfully frames a 'universal common heritage' of the night sky (IDA n.d.; Marín and Jafari 2007) as less a pure and stable foundation to which we can all return, and more a situated, creative process of nocturnal communing. My richly textured account of the Dark Sky Park's stakeholdership with its intersecting perspectives, habits and practices is a formal strategy of the thesis to make tangible heritage not as something fixed in the past, but as something lived out in the present, diversely peopled and practiced, subject to new interpretations and cultural resonances (Sumartojo 2022; Edensor 2022).

The project has also demonstrated the value of arts-based research and creative practice in a dark sky context that further translates into landscape engagement more broadly with particular resonance for heritage, environmental education and ecotourism. Whilst the arts are increasingly employed in these contexts to communicate and visualise information and to inspire and enchant visitors, artists and artist-researchers bring a different kind of language and set of approaches that can challenge normative practices of engagement which privilege the visual and spectacular and perpetuate dualisms such as nature/culture. Creative practice can enrich programming and widen access by expanding the potential ways in which visitors conceptualise, encounter, inhabit and build relationships with a particular landscape or phenomenon (Dunkley 2018a; McGhie 2020a, 2020b; McGhie and Marr 2024). My work also demonstrates the value of situating artists and interdisciplinary researchers in stakeholder contexts, their attention to process and practice making them uniquely placed to respond to the creative qualities already present in stakeholder processes, able to 'maximise the collective creative potential of a given constituency or site' (Kester 2004: 24; see also, Edwards, Collins and Goto 2016; Hawkins 2013: 154).

Returning to my starting point of cultural geography as it intersects with the study of darkness and the night, I am prompted to reflect on the extent to which researchers "allow" our research subjects and sites to *matter* in our disciplinary worlds, echoing *cultural geographies* journal editors' Caleb Johnston and Jamie Winders' recent invitation to more directly consider 'the practice or the doing of cultural geographies, not just the knowledges, insights, or perspectives associated with them' (2022: 129). How might a sustained research engagement with darkness, light and the night shape cultural geography, its current concerns and ambitions? In thinking and practising from the situated perspective of a dark sky park, my work speaks to the contemporary positioning of cultural geography within its wider interdisciplinary home of the environmental humanities, reflective of its continuing commitment to explore stories about the personal, social, cultural and ecological as 'productive, participatory, ontological interventions that might call into being alternative worlds' (Cameron 2012: 580; see also, Lynch, Glotfelty and Armbruster 2012; Lorimer and Parr 2014; H. Lorimer 2019; Flack and Jørgensen 2022).



*One last ex-posure*

I knew early on that I wanted to distribute the methodology throughout the thesis, adopting it as part of a reflective practice common to arts-based research and arts practice more generally (Schön 1992; Candy 2019; Leavy 2020) and as a formal enactment of a site-ontological approach to the research (Woodward et al. 2010; Marston, Jones III and Woodward 2005; Schatzki 2003). However, as I transitioned to the "writing up" phase of the project, I increasingly experienced these methodological vignettes or 'cutaways' as sites of (re)ex-posure that challenged me to engage with my writing practice as an integral part of the research process (Mitchell and Clark 2021), and to critically reflect not just on my inherited and chosen disciplinary tools, concepts and approaches, but also the spaces and institutions in and through which I have conducted my work (Foster and Lorimer 2007: 429; Hawkins 2019: 978; Saville 2020: 101). As such, this final cutaway in the thesis affords me a reflective space to ex-pose the space of writing up the research as very much a part of the site through which my research has been produced. My thinking is urged by non-representational approaches to ethnography (Vannini 2015b) that seek to trouble the 'academic habit of striving to uncover meanings and values that apparently await our discovery, interpretation, judgement and ultimate representation' (Lorimer 2005: 84). As the following reflection emphasises, such a commitment should concern not just the 'content' of our research narratives, but also our accounts of how we make our research narratives.

While details and agents of site pulled focus, disrupting and re-directing my research intentions and trajectories, so too did

feelings, personal memories and impulses; the frayed edges of research getting caught on the frayed edges of personhood (Moser 2008). I experienced this throughout the research process, but most acutely during the writing up of the thesis. This final cutaway has offered – *is* offering me – a space through which to reckon with such feeling, to write it through. In doing so, I can begin to situate this experience within its wider context, namely the practice of doing interdisciplinary and partnership research as a researcher-in-training, which, as noted by environmental humanities scholar Jesse D. Peterson, can be 'isolating and complicated, with the biggest "losers" often being post-graduates, who do not receive adequate training' or who are more likely to be working alone (Peterson 2019: 73; see also, Hawkins 2019). Of course, a PhD candidate is never completely alone in the crafting of their project, but this important reality can be hard to *feel* or access during the writing up process, as researchers secrete themselves away to 'get it done'. The 'alone-ness' I felt while writing up was, in many ways, of my own making. A personal habit of striving to 'do well' and 'get on with it', intensified by the task of wrapping things up and articulating the value of my research amidst an increasing sense of precariousness and uncertainty as I navigated personal and collective hardships including of course a global pandemic; and so, I strived harder, reducing my capacity to engage creatively with the work. To mention such experiences, feels self-indulgent even now as I commit to a critical consideration of the conditions through which research – inclusive of its "writing up" – is composed. Yet, in doing so, I wish to enact what Samantha M. Saville frames as a 'humble geography' (Saville 2020), which captures both a quality and practice of vulnerability within our research that 'orients us towards the world and others' by emphasising 'our own interdependence and the value of other ways of doing and

being' (2020: 99). Engaging with Saville's work and related scholarship has enabled me to look at the experience of making research with an analytical honesty that is sensitive to personal capacity, expectations and feeling, yet retains a level of criticality regarding how my researching 'self', its 'embodiedness' and 'labors' are composed through the multiples sites that constitute a research project (Richardson 2018: 1419; see also, Parikh 2019; Volvey 2016; Rose 1997). In the context of a project that has committed to non-representational practice, known for its intensive, restless, and performative qualities – 'to animate rather than simply mimic, to rupture rather than merely account, to evoke rather than just report, and to reverberate instead of more modestly resonating' (Vannini 2015b: 318; see also, Lorimer 2005) – my decision to include moments of impasse, disappointment, and exhaustion within my reflections on research-making, remains attentive to how the *more-than-ness* of non-representational practice (Lorimer 2005) registers on the researcher. It suggests that writing, like fieldwork can be a 'precarious and unpredictable practice' (Butler-Rees and Robinson 2022: 2).

And so, I have attempted to write the thesis – particularly its last corner – in such a way that feels 'habitable and animate' to use Kathleen Stewart's words (Stewart 2011: 3), a writer whose work I go to whenever I feel disconnected from my work and from the world. For me, such an approach has necessitated a level of humility and self-compassion that can feel both deeply uncomfortable and deeply revitalizing. It is a practice that is critical without losing its capacity to connect. It enacts, as Samantha M. Saville writes, 'an outwards perspective and expansive awareness of limitations' (Saville 2020: 101) that can offer our missteps, challenges and incommensurables as 'conceptual and [epistemological] openings' (Dowling, Lloyd

and Suchet-Pearson 2017: 823) for the research-makings and becomings of others.

## *A darkening that suggests there's more*

Our celebration of the ten-year anniversary would also be touched by sadness. Earlier that day we learned the news that Astronomer Royal for Scotland Professor John Brown had died unexpectedly of a heart attack. A towering yet extremely down-to-earth figure in astronomy, John was also devoted to dark sky activism and directly engaged in efforts at both Galloway Forest Dark Sky Park and the more recently designated Glenlivet and Tomintoul Dark Sky Park, where he had cut the ribbon at the public launch in November 2018. I met John at the EDSP Conference, whereupon hearing that I was a creative practitioner, spoke with delight – and some frustration – about his efforts to encourage dialogue between the arts and astronomy, reciting lines from David Whyte's poem 'Sweet Darkness' –

> The dark will be your home
> tonight.
>
> The night will give you a horizon
> further than you can see.

– not at all fussed by the pressure others in his field often feel, to maintain a safe distance between the two. John was also a talented illusionist, often using the playful astonishment of sleight-of-hand magic as another device through which to communicate the wonders of the universe. It makes perfect sense. When experiencing a truly dark sky for the first time – particularly that strange shimmering form of the Milky Way – there is that same feeling of 'something afoot' that we experience during a good magic trick; a disbelief but absolute joy in witnessing it and not knowing quite how it is done.

In *Spell of the Sensuous: Perception and Language in a More-Than-Human World*, David Abram (1997) draws on his skilled knowledge and experience of sleight-of-hand magic to talk about the 'participatory nature of perception' (ibid.: 44). Working with a silver dollar, the magician 'enhance[s] the animation of the object, generating ambiguous gaps and lacunae in the visible trajectory of the coin', which the audience's eyes then fill in as they follow the coin's movement (loc. cit.). The audience's imagination, Abram writes, is not 'a separate mental faculty' brought to bear on or make sense of the illusion but is 'rather the way the senses themselves have of *throwing themselves beyond what is given*, in order to make tentative contact with the other sides of things that we do not sense directly' (loc. cit., my emphasis). The magic cannot happen without the sensory participation of the audience, nor without the sensory ellipses momentarily held by the magician, which act as openings for something unexpected to take place. The magic happens, Abram suggests, in community, through both the doing and the experiencing.

To close this thesis, I offer one final proposition, or rather, an invitation…
Imagine the designation of the GFDSP – of any IDSP – as a magic trick, co-composed by managers, stakeholders, activists, researchers, visitors and residents through skill, appreciation, wonder and the enchanting alterity of its encounters and ellipses, its in-between spaces. Between the brighter stars of its guiding values, initial motivations and opportunities is "a darkening that suggests there's more" (Bogard 2013: 169). Imagine international dark sky designation is not only the naming and recognition of a pristine night sky and dark environment from which to look, but the ever-expanding and deepening conditions of its own becoming. Imagine dark sky practice, then, as both the rich darkness of our unknowing and the steadying responsibility of our shared terrestriality.

***

# Appendices

## Appendix A.1

List of Participants

| Name | Organisation or project affiliation | Role/Stakeholder category |
|---|---|---|
| Keith Muir | Forest Enterprise Scotland (FES) / Forestry and Land Scotland (FLS) | Head of Visitor Services and Communications (FES), Business Manager for South Region (FLS) |
| Ed Forrest | Galloway and Southern Ayrshire Biosphere (GSAB) | Director and Co-ordinator |
| Marie McNulty | Galloway and Southern Ayrshire Biosphere (GSAB) | Business Development Officer |
| Chris Rollie | Royal Society for the Protection of Birds (RSPB) | Area Manager for Dumfries & Galloway |
| Crystal Maw | Royal Society for the Protection of Birds (RSPB) | Site Manager for RSPB Galloway |
| Lyndy Renwick | Forest Enterprise Scotland / Forestry and Land Scotland | Community Liaison Officer |
| McNabb Laurie | Galloway Glens Partnership Project | Team Leader |
| Elizabeth Tindal | Galloway and Southern Ayrshire Biosphere / Individual business: Freelance Ranger | Biosphere Dark Sky Ranger, business owner |
| Matthew McFadzean | Galloway and Southern Ayrshire Biosphere (GSAB), freelance business | Biosphere Dark Sky Ranger, business owner |
| Sue Clark | Glentrool and Bargrennan Community Trust (GBCT) | Vice Chair, resident |

| | | |
|---|---|---|
| Hunter McCall | Glentrool & Bargrennan Community Trust, Galloway Forest Astronomical Society | Local resident |
| Merlin Currie | Barrhill Community Trust | Local resident and community member |
| Laura Davidson | Galloway Glens Landscape Partnership (GGLP) / Southern Upland Partnership (SUP) | Project Officer for the Galloway Glens Biosphere Experience project |
| Joe Proskauer | N/A | Local resident |
| John Gorman | Scottish Environment Protection Agency (SEPA) | Senior Environment Protection Officer |
| Callum Sinclair | Scottish Natural Heritage (SNH) | Operations Officer |
| Morag Paterson | Galloway and Southern Ayrshire Biosphere (GSAB), freelance business | Biosphere Dark Sky Ranger and business owner |
| Jesse Beaman | Galloway and Southern Ayrshire Biosphere (GSAB), freelance business (Stargazing Scotland) | Biosphere Dark Sky Ranger and business owner |
| Robin Bellerby | Wigtownshire Astronomical Society (WAS), Galloway Forest Astronomical Society (GFAS) | Previous Chair of WAS and GFAS |
| Helen MacDonald | Wigtownshire Astronomical Society (WAS) | Founder |
| Ian MacDonald | Wigtownshire Astronomical Society (WAS) | Founder |
| Dane and Faye Carty | Stables Guest House, Newton Stewart | Business owners and accommodation providers |
| Bob Crang | Glentrool and Bargrennan Community Trust (GBCT) | Resident |

| | | |
|---|---|---|
| Meta Maltman | Glentrool and Bargrennan Community Trust (GBCT) | Chair, resident |
| M. Mitchinson | Individual | Resident, Bargrennan |
| Mark Gibson | Craigengillan Estate, The Scottish Dark Sky Observatory (SDSO) | Estate Owner, local resident |
| David Warrington | The Scottish Dark Sky Observatory (SDSO) | Resident Astronomer |
| Andrew Jarrott | Forest Enterprise Scotland (FES) / Forestry and Land (FLS) | Planning and Environment Manager (FES), Planning Manager, South Region (FLS) |
| Gareth Ventress | Forest Enterprise Scotland (FES) | Environment Forester |
| Keith Kirk | Nocturnal Wildlife Experience | Business owner |
| Scot Nicol | Historic Environment Scotland (HES) | Site Manager, Threave Castle and Estate |

Appendix A.2

Participant Consent Form

**Skies Above, Earth Below:**
**Mapping the Values of the Galloway Forest Dark Sky Park**

We would like you to take part in a research project, run by the University of Glasgow. If you take part, you may be recorded using sound recording and writing (transcripts, notes).

You do not have to take part, and you are free to withdraw at any time, without giving any reason. If you wish, we will give you a copy of any recordings that we make of you. If there are parts you are unhappy with, we can remove them.

The research project is led by PhD researcher Natalie Marr. If you have any questions, you can contact her at n.marr.1@research.gla.ac.uk or on xxxxx xxx xxxx

---

**Consent Form**

By signing this form, I agree to take part in the research project and I consent to (delete as appropriate):

- have my voice recorded
- be written about
- the use of my name / pseudonym

I consent to the following use of any recordings made (delete as appropriate):

- in books and other publications, such as academic journals or newspapers
- in public exhibitions, such as in museums or galleries
- in talks or presentations
- in performances and artworks
- for teaching, such as in schools or universities
- on websites and social media
- in public broadcasting, such as TV and radio

By signing this form, I also confirm that I have read and understood the Information Sheet for the above study and have had the opportunity to ask questions.

Name: ______________________________ Signature: _____

Date: _________________________

# References

Abraham, H., Sanctlebury, D. M. and Zubidat, A. E. 2018. The loss of ecosystem-services emerging from artificial light at night. *Chronobiology International* 36(2), pp.296–298. doi: 10.1080/07420528.2018.1534122

Abram, D. 1997. *The Spell of the Sensuous: Perception and Language in a More-Than-Human World*. London, UK: Vintage Books.

Ahmed, S. 2006. Orientations: Toward a Queer Phenomenology. *GLQ: A Journal of Lesbian and Gay Studies* 12(4), pp.543–574. doi: 10.1215/10642684-2006-002

Allison, N. L. and DeStefano, S. 2006. Equipment and techniques for nocturnal wildlife studies. *Wildlife Society Bulletin* 34, pp.1036–1044.

Andersen, T. (Director). 2004. *Los Angeles Plays Itself*. Thom Andersen Productions.

Anderson, R. 2014. Playing the fool: Activists' performances of emotion in policy making spaces. *Emotion, space and society* 13, pp.16–23. doi: 10.1016/J.EMOSPA.2014.05.004

An Lanntair. 2022. *Hebridean Dark Skies Festival*. https://lanntair.com/creative-programme/darkskies/ [Accessed: November 12, 2023].

Archibald, C. 2019. *Space of Doglessness*. https://www.clarearchibald.com/space-of-doglessness

Architecture and Design Scotland. n.d. Scottish Dark Sky Observatory. Case Study produced by the A+DS Sust. Programme.

Arts and Humanities Research Council. 2019. Collaborative Doctoral Partnership: About Us. https://www.ahrc-cdp.org/cdp-consortium/ [Accessed: May 28, 2021].

Atkin, J. 2012. *The Dark Farms*. Dumfries, UK: Roncadora Press.

Atkin, J. 2017. *A Blog for 'The Dark Farms'*. https://jeanatkin.com/2017/11/03/a-blog-for-the-dark-farms/ [Accessed: February 20, 2018].

Atkins, S., Husain, S., and Storey, A. 1991. The influence of street lighting on crime and fear of crime. Paper No. 28, Crime Prevention Unit, Home Office, London.

Attlee, J. 2011. *Nocturne. A Journey in Search of Moonlight.* London, UK: Penguin.

Avery, D. 2024. Beauty won't save the starry night. Astro-tourism and the astronomical sublime. In (eds. N. Dunn and T. Edensor) *Dark Skies. Places, Practices, Communities.* Abingdon, Oxon: Routledge.

Bach, S. and Degenring, F. (eds.) 2015. *Dark Nights, Bright Lights: Night, Darkness, and Illumination in Literature.* Berlin: DeGruyter.

Bailey, J. and Biggs, I. 2012. "Either Side of Delphy Bridge": a deep mapping project evoking and engaging the lives of older adults in rural North Cornwall. *Journal of rural studies*, 28(4), pp.318–328.

Baldwin, P. C. 2004. In the Heart of Darkness: Blackouts and the Social Geography of Lighting in the Gaslight Era. *The Urban History Association*, 30(5), pp.749–768. doi: 10.1177/0096144204265

Balihar, D. 2018. Determining exposure times for pinhole cameras. Retrieved from: http://www.pinhole.cz/en/pinholecameras/exposure_01.html [Accessed: March 14, 2019].

Barad, K. 2007. *Meeting the Universe Halfway. Quantum Physics and the Entanglement of Matter and Meaning.* Durham, NC: Durham University Press.

Barentine, J., Boulanger, B., Bricker, K. S., Cleeves, J., Coles, K., Collison, F., Ganesan, V., Goldsmith, S. A., Hansen, J. M., Heim, J., Mendoz, D. L., Schuler, L. D. and Seth, A. C. 2020. An Introduction to the JDSS. *Journal of Dark Sky Studies: Prologue. Summer 2019.*

Barlow, E. 2009. Sky's the limit in tourism drive. *Galloway Gazette*. Friday, August 14, 2009.

Barrett, E. and Bolt B. 2007. (eds.) *Practice as Research: Approaches to Creative Arts Enquiry.* London, UK: I.B. Tauris.

Bastian, M., Jones, O., Moore, N. and Roe, E. 2017. *Participatory Research in More-than-Human Worlds*. London: Routledge.

Bates, R. 2018. Working with the National Army Museum: The Afterlife of the Crimea and the Benefits of a CDA. *Journal of Victorian Culture*, 23(2), pp.197–206. doi: 10.1093/jvcult/vcy004

Bateson, G. 2000. *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*. Chicago, IL: University of Chicago Press.

BBC News. 2009. Forest park given Dark Sky honour. http://news.bbc.co.uk/1/hi/scotland/south_of_scotland/8361244.stm [Accessed: October 30, 2019].

BBC Scotland. 2021. The Forest. Series 1(1–6). https://www.bbc.co.uk/programmes/b09m61c0

Beaumont, M. 2015. *Nightwalking: A Nocturnal History of London*. London: Verso Books.

Bek, R. J. 2015. Investigating the impact of artificial night lighting on the common European glow-worm, *Lampyris noctiluca* (L.) (Coleoptera: Lampyridae). Dissertation. University of Leeds.

Bell, R. , Irvine, K. N., Wilson, C. and Warber, S.L. 2014. Dark Nature: Exploring potential benefits of nocturnal nature-based interaction for human and environmental health. *European Journal of Ecopsychology* 5, pp.1–15.

Bennett, J. 2001. *The Enchantment of Modern Life: Attachments, Crossings, and Ethics*. Oxford: Princeton University Press. London: Routledge.

Bennett, J. 2022. Afterword. Look Here. *Environmental Humanities* 14(2), pp.494–498. doi: 10.1215/22011919-9712533

Bennett, J. and Chaloupka, W. eds. 1993. *In the Nature of Things. Language, Politics, and the Environment*. Minnesota: University of Minnesota Press.

Berg, P. and Dasmann, R. 1977. Reinhabiting California, *The Ecologist*, 7(10), pp.399–401.

Berger, J. 1980. Field. In, *About Looking*. [1st Edition]. New York, NY: Pantheon Books.

Berry, W. 1990. *What Are People For?* San Francisco, CA: North Point Press.

Berwick Street Film Collective. (Directors) 1975. Nightcleaners Part I. Berwick Street Film Collective.

Bille, M. and Sørensen, T. F. 2007. An anthropology of luminosity: the agency of light. *Journal of Material Culture* 12(3), pp.263–284.

Bille, M., Bjerregaard, P. and Sørensen, T. F. 2015. Staging atmospheres: Materiality, culture, and the texture of the in-between. *Emotion, Space and Society* 15, pp.31–38. doi: 10.1016/j.emospa.2014.11.002

Billo, E. and Hiemstra, N. 2013. Mediating messiness: expanding ideas of flexibility, reflexivity, and embodiment in fieldwork. *Gender, Place & Culture* 20(3), pp.313–328.

Biosphere Partnership Board. 2011. Galloway and Southern Ayrshire Biosphere Overview and Update Item 7. January 2011.

Bissell, D. 2014. Transforming commuting mobilities: the memory of practice. *Environment and Planning A* 46, pp.1946–1955. doi:10.1068/a130047p

Bissett, C. 2018. Whatever Gets You Through the Night. http://www.corabissett.co.uk/whatever-gets-you-through-the-night.html [January 9, 2021].

Blair, A. 2016. *Sark in the Dark*. Lampeter, UK: Sophia Centres Press.

Bodenhamer, D. J., Corrigan, J. and Harris, T. M. 2015. *Deep Maps and Spatial Narratives*. Bloomington, IN: Indiana University Press.

Bogard, P. (ed.) 2008. *Let There Be Night: Testimony on Behalf of the Dark*. Reno: University of Nevada Press.

Bogard, P. 2013. *The End of Night: Searching for Natural Darkness in an Age of Artificial Light*. London: Fourth Estate.

Böhme, G. 1993. Atmosphere as the Fundamental Concept of a New Aesthetics. *Thesis Eleven* 36, pp.113–126.

Böhme, G. 2013. The art of the stage set as a paradigm for an aesthetics of atmospheres. *Ambiences*. doi: 10.4000/ambiances.315

Bolt, B. 2007. Material Thinking and the Agency of Matter. *Studies in Material Thinking* 1(1).

Bondi, L. 2005. Making Connections and Thinking through Emotions: Between Geography and Psychotherapy. *Transactions of the Institute of British Geographers* 30(4), pp.433–448.

Bortle, J. 2001. Introducing the Bortle dark-sky scale. *Sky & Telescope* 101(2), p.126.

British Astronomical Association. The Commission for Dark Skies. n.d. All-Party Parliamentary Group of MPs for Dark Skies. https://britastro.org/dark-skies/cfds_appg.php?topic=appg [Accessed: February 3, 2021].

Brands, J., Schwanen, T. and van Aalst, I. 2013. Fear of crime and affective ambiguities in the night-time economy, *Urban Studies* 52(3), pp.439–455. doi: 10.1177/0042098013505652

British Science Week. n.d. Community Grant Scheme. https://www.britishscienceweek.org/about-us/grants/bsw-community-grant-scheme/ [Accessed: June 1, 2021].

Brody, A. 2006. The cleaners you aren't meant to see: Order, hygiene and everyday politics in a Bangkok shopping mall. *Antipode* 38(3), pp.534–556.

Brown, K. M. 2015. Leave only footprints? How traces of movement shape the appropriation of space. *cultural geographies* 22(4), pp.659–687.

Brown, J. C. and Wilson, R. 2019. *Oor Big Braw Cosmos. A Cocktail of Cosmic Science, Imagery & Poetry*. Edinburgh, UK: Luath Press Limited.

Browne, S. 2019. EVERYBODY'S GOT A LITTLE LIGHT UNDER THE SUN. Black luminosity and the visual culture of surveillance. *Cultural Studies* 26(4). doi: 10.1080/09502386.2011.644573

Brox, J. 2010. *Brilliant: The Evolution of Artificial Light*. Boston, MA: Houghton Mifflin Harcourt.

Buchanan, B., Bastian, M. and Chrulew, M. 2018. Introduction: Field Philosophy and Other Experiments. *Parallax* 24(4), pp.383–391. doi: 10.1080/13534645.2018.1546715

Buell, L. 1995. The Environmental Imagination: Thoreau, Nature Writing and the Formation of American Culture, London: Princeton University Press.

Büscher, B. and Fletcher, R. 2020 *The Conservation Revolution: Radical Ideas for Saving Nature Beyond the Anthropocene*. London: Verso.

Butler-Rees, A. and Robinson, N. 2020. Encountering precarity, uncertainty and everyday anxiety as part of the postgraduate research journey. *Emotion, Space and Society 37*. doi: 10.1016/j.emospa.2020.100743

Buttimer, A. 1976. Grasping the Dynamism of Lifeworld. *Annals of the Association of American Geographers* 66(2), pp.277–292.

Butz, D. 2009. Autoethnography as Sensibility, In *The SAGE Handbook of Qualitative Geography* (eds. DeLyser, Herbert, Aitken, Crang and McDowell). London, UK: SAGE Publications Ltd, pp.138–155.

Butz, D and Besio, K. 2004. The Value of Autoethnography for Field Research in Transcultural Settings. *The Professional Geographer* 56(3), pp.350–360. doi: 10.1111/ j.0033-0124.2004.05603004.x

Cameron, E. 2012. New geographies of story and storytelling. *Progress in Human Geography* 36(5), pp.573–592. doi: 10.1177/0309132511435000

Campaign for Rural England. n.d. NightBlight. Reclaiming our dark skies. https://www.nightblight.cpre.org.uk/?gclid=EAIaIQobChMIoMCks7zO5QIVzLHtCh0LMwR-EAAYASAAEgICy_D_BwE [Accessed: November 2, 2019].

Campion, N. (ed.) 2016. Heavenly Discourses. The Proceedings of the Heavenly Discourses Conference, Bristol, 2011. Ceredigion, UK: Sophia Centre Press.

Candea, M. 2007. Arbitrary locations: in defence of the bounded field-site. *Journal of the Royal Anthropological Institute* 13(1), pp.167–184. doi: 10.1111/j.1467-9655.2007.00419.x

Candy, L. 2019. *The Creative Reflective Practitioner: Research Through Making and Practice*. London: Routledge.

Cantrill, J. G. 1998. The Environmental self and a sense of place: communication foundations for regional ecosystem management. *J. Appl. Commun. Res*. 26, pp.301–318.

Casey, E. 1993. *Getting Back Into Place. Toward a Renewed Understanding of the Place-world*. Bloomington, IN: Indiana University Press.

Cater, C. I. 2010. Steps to Space: Opportunities for Astrotourism. *Tourism Management* 31(6), pp.838-845.

Cauquelin, A. 1977. *La ville, la nuit*. Paris, FR: Presses universitaires de Franc

Clarke, R., Mount, D. and Anteric, M. 2011. Evaluation of the Heritage Lottery Fund Landscape Partnership Programme 2011. Report prepared for the Heritage Lottery Fund.

Chakrabarty, D. 2009. The Climate of History: Four Theses. *Critical Inquiry* 34(2), pp. 197–222.

Challéat, S., Lapostolle D., and Milian J. 2018. The Night-Time Environment in French Mountain Areas. A Resource and a Transition Operator Towards Sustainability. *Revue de géographie alpine* 106(1), pp.1–16.

Chan, K. M. A., Gould, R. K. and Pascual, U. 2018. Editorial overview: Relational values: what are they, and what's the fuss about? *Environmental Sustainability* 35, pp.A1–A7. doi: 10.1016/j.cosust.2018.11.003

Charlier, B. 2018. "You Know the Pyrenees by Day - Come See Them by Night..." Reflections on *in visu* Artialisation of Nocturnal Skyscapes in the Pyrenees. *Journal of Alpine Research* 106(1), pp.1–24.

Charlier, B. and Bourgeois, N. 2013. "Half the park is after dark ". Dark sky parks and reserves: New concepts and tools to grant nature heritage status, 42(3), 200–212. *L'Espace géographique* 43(3), pp.200-212.

Chen, J., and Sampath, A. 2018. Structure and Function of Rod and Cone Photoreceptors. In, *Ryan's Retina* [Sixth Edition] (ed. A. Schachat). Edinburgh, UK: Elsevier Ltd.

Child, M. F. 2021. Wildness, infinity and freedom. *Ecological Economics* 186, 107055. doi: 10.1016/j.ecolecon.2021.107055

Choi, M-A. 2020. Multiple environmental subjects: Governmentalities of ecotourism development in Jeungdo, South Korea. *Geoforum* 110, pp.77–86.

Choi, M-A. and Park, B. S. 2021. Performing multispecies studies with trail cameras. Paper given at RGS-IBG Annual Conference. [Attended: September 1, 2021].

Cilulko, J., Janiszewski, P., Bogdaszewski, M. and Szczygielska, E. 2013. Infrared thermal imaging in studies of wild animals. *Eur J Wildl Res* 59, pp.17–23. doi: 10.1007/s10344-012-0688-1

Cinzano, P., Falchi, F., and Elvidge, C. D. 2001. The First World Atlas of the Artificial Night Sky Brightness. *Monthly Notices of the Royal Astronomical Society* 328, pp.689–707.

Clare, H. 2018. *The Light in the Dark: A Winter Journal*. London: Elliot & Thompson.

Clark, L. 1964. *Caminhando*, sculpture and performance.

Clark, N. 2011. *Inhuman Nature. Sociable Life on a Dynamic Planet*. London, UK: SAGE Publications Ltd.

Claudio, L. 2009. Switch On the Night: Policies for Smarter Lighting. *Environmental Health Perspectives* 117(1), pp.A29–A31. doi: 10.1289/ehp.117-a28

*Clean Neighbourhoods and Environments Act, The.* 2005. UK.

Clifford, J. and Marcus, G. 1986. *Writing Culture: The Poetics and Politics of Ethnography*. California: University of California Press.

Coleman, R., Hodges, J. and Haggett, C. 2014. A New Environmental Impact Assessment for Natural Scotland – Environment, Imagination and Aesthetics, in (ed. D. Griffith) *Imagining Natural Scotland*, pp.8–21.

Collins, P. H. and Bilge, S. 2016. *Intersectionality*. Cambridge, UK: Polity Press.

Collins, T. and Goto, R. 2017. The Caledonian Decoy. [Exhibition pamphlet]. *Centre for Contemporary Arts, Glasgow.*

Collins, T., Goto, R. and Edwards, D. 2014. *Future Forest: The Black Wood, Rannoch, Scotland.* Oxford: The Landscape Research Group.

Collison, F. M. and Poe, K. 2013. "Astronomical Tourism": The Astronomy and Dark Sky Program at Bryce Canyon National Park. *Tourism Management Perspectives* 7, pp.1–15.

Conservation Careers. 2020. Visitor Services Manager. https://www.conservation-careers.com/job/visitor-services-manager-3/ [Accessed: October 12, 2020].

Constellation Guide. 2021. Leo Constellation. https://www.constellation-guide.com/constellation-list/leo-constellation/ [Accessed: May 30, 2022].

Cook, M. and Edensor, T. 2014. Cycling through Dark Space: Apprehending landscape otherwise. *Mobilities.* doi: 10.1080/17450101.2014.956417

Corrigan, T. 2011. *The Essay Film. From Montaigne, After Marker.* Oxford: Oxford University Press.

Cosgrove, D. 1985. *Social formation and symbolic landscape*. Totawa, NJ: Barnes and Noble.

Craggs, R., Geoghegan, H. and Neate, H. 2016. Managing enthusiasm: Between 'extremist' volunteers and 'rational' professional practices in architectural conservation. *Geoforum* 74, pp. 1–8.

Craigengillan Estate. n.d.a. Conservation. https://www.craigengillan.com/conservation [Accessed: February 8, 2019].

Craigengillan Estate. n.d.b. The Scottish Dark Sky Observatory. https://www.craigengillan.com/sds-observatory [Accessed: February 8, 2019].

Craigengillan Estate. n.d.c. Craigengillan Estate. Where Nature's Magic Grows. Vision and 5 Year Plan. Unpublished document.

Crary, J. 2013. *24/7: Late Capitalism and the Ends of Sleep*. London and New York: Verso.

Crawford, J. 2020. The Trouble with Re-Enchantment. *Los Angeles Review of Books*. Published: September 7, 2020. https://lareviewofbooks.org/article/the-trouble-with-re-enchantment/ 1/17

Cronon, W. 1996. *Uncommon Ground: Rethinking the Human Place in Nature.* New York: W. W. Norton & Company.

Crouch, D. 2010. Flirtations with space: thinking landscape relationally. *cultural geographies* 17(1), pp.5–18. doi: 10.1177/1474474009349996

Crowther, R. 2018. *Wellbeing and Self-Transformation in Natural Landscapes*. London, UK: Palgrave Macmillan.

Dalgleish, H. 2020. Astronomy for development, *Astronomy & Geophysics* 61, pp.6.18–6.21.

Dalziel + Scullion. n.d. Rosnes Bench. https://dalzielscullion.com/works-entry/rosnes-bench/ [Accessed October 30, 2019].

Dalziel + Scullion. 2021. Presentation. *The Fine Art Society.* [Attended: February 6, 2021].

Daniel, J. 2008. In praise of darkness, in (ed. P. Bogard). *Let There Be Night: Testimony on Behalf of the Dark.* Reno, NV: University of Nevada Press, pp. 21–30.

Dark Sky Discovery. n.d. Dark Sky Discovery Sites. https://www.darkskydiscovery.org.uk/ [Accessed: April 25, 2021].

Dark Sky UK. 2024. Our work. https://darksky.uk/our-work/

Davidson, P. 2015. *The Last of the Light: About Twilight.* London: Reaktion Books.

de Certeau, M. 1984[1980]. *The Practice of Everyday Life* (S. Rendall, Trans.). Berkeley: University of California Press.

de la Cadena, M. 2015. Uncommoning Nature. *e-flux*. http://supercommunity.e-flux.com/texts/uncommoning-nature/ [Accessed: March 3, 2017].

Deleuze, G. 1992. Postscript on the societies of control. *October* 59, pp. 3-7.

Deleuze, G. and Guattari, F. 1987[1980]. *A thousand plateaus: Capitalism and schizophrenia* (Brian Massumi, Trans.). Minneapolis: University of Minnesota Press.

della Dora, V. 2011. Anti-landscapes: caves and apophasis in the Christian East. *Environment and Planning D: Society and Space* 29, pp. 761–769. doi: 10.1068/d3810

DeSilvey, C. 2007. Salvage memory: constellating material histories on a hardscrabble homestead. *cultural geographies* 14(3), pp.401–424.

Dewsbury, J. D. 2011. Performative, Non-Representational, and Affect-Based Research: Seven Injunctions, in (eds. DeLyser, Herbert, Aitken, Crang and McDowell). *The SAGE Handbook of Qualitative Geography.* London, UK: SAGE Publications Ltd., pp.321–334.

Dewsbury, J.D., Harrison, P., Rose, M. and Wylie, J. 2002. Introduction. Enacting Geographies. *Geoforum* 33, pp. 437–440.

Dezeuze, A. 2013. How to live precariously: Lygia Clark's *Caminhando* and Tropicalism in 1960s Brazil. *Women & Performance: a journal of feminist theory* 23(2), pp.226–247.

Dezeuze, A. 2016. Lygia Clark's *Caminhando*, in *Practicable From Participation to Interaction in Contemporary Art* (eds. S. Bianchini and E. Verhagen), pp.421–430.

DGC. 2015. Dumfries and Galloway Council. Dark Sky Park Friendly Lighting. Local Development Plan. Supplementary Guidance. August 2015.

DGC. 2018. Dumfries and Galloway Council. Local Development Plan 2. Dark Skies Friendly Lighting. Draft Supplementary Guidance. January 2018.

Dier, H. V. S. 1974. Forests and Plantations, in *Galloway Forest Park. Forestry Commission Guide.* [Fourth edition], pp.41–50.

Dixon, D. and Straughan, E. R. 2013. Affect, in Schein, R. and Johnson, N. (eds.) *The Wiley-Blackwell Companion to Cultural Geography*. Chichester: Wiley-Blackwell, pp.36–38.

Douglas, A. and Fremantle, C. 2016. What poetry does best: the Harrisons' poetics of being and acting in the world, In Harrison, H.M. and Harrison, N. (eds.). *The time of the force majeure: after 45 years counterforce is on the horizon*. Grantham: Prestel.

Dowling, R., Lloyd, K. and Suchet-Pearson, S. 2017. Qualitative methods II: 'More-than-human' methodologies and/in praxis. *Progress in Human Geography* 41(6), pp.823–831. doi: 10.1177/0309132516664439

Drysdale, K and Wong, K. 2019. Sensory Ethnography, in P. Atkinson; A. Cernat; S. Delamont; J. Sakshaug; R. Williams (eds.) *The SAGE Encyclopedia of Research Methods*. doi: 10.4135/9781526421036775965

Dumfries and Galloway Council. 2015. Dumfries and Galloway Council Local Development Plan Supplementary Guidance: Dark Sky Park Friendly Lighting.

Dumfries and Galloway Wildlife Review. 2015. https://swseic.org.uk/wp-content/uploads/2017/04/974_DGERC_Wildlife_Review_publication_lo-res.pdf [Accessed: March 16, 2019].

DGWGO. 2016. D&G Council Win Prestigious Planning Awards. Available at: https://www.dgwgo.com/dumfries-galloway-news/dg-council-win-prestigious-planning-awards/ [Accessed: March 16, 2019].

Dunkley, R. A. 2018a. Space-timeScapes as ecopedagogy. *The Journal of Environmental Education* 49(2), pp. 117–129. doi: 10.1080/00958964.2017.1417223

Dunkley, R. A. 2018b. Monitoring ecological change in UK woodlands and rivers: An exploration of the relational geographies of citizen science. *Transactions of the Institute of British Geographers* 44, pp.16–31. doi: 10.1111/tran.12258

Dunn, N. 2016. *Dark Matters: A Manifesto for the Nocturnal City*. Winchester, UK: Zero Books.

Dunn, N. and Edensor, T. 2021. *Rethinking Darkness Cultures, Histories, Practices*. [1st Edition]. Abingdon, Oxon: Routledge

Dunn, N. and Edensor, T. (eds.) 2024. *Dark Skies. Places, Practices, Communities*. Abingdon, Oxon: Routledge

Dunnett, O. 2015. Contested landscapes: the moral geographies of light pollution in Britain. *Cultural Geographies* 22(4), pp.619–636.

Duriscoe, D. 2001. Preserving Pristine Night Skies in National Parks and the Wilderness Ethic. *The George Wright Forum* 18(4), pp.30 –36.

Duxbury, N. Garrett-Petts, W. F. and Longley, A. 2018. *Artistic Approaches to Cultural Mapping. Activating Imaginaries and Means of Knowing*. London, UK: Routledge.

Dwyer, S. C. and Buckle, J. L. 2009. The Space Between: On Being an Insider-Outsider in Qualitative Research. *International Journal of Qualitative Methods* 8(1), pp.54–63.

EAC. 2017. Dark Sky Park Lighting. East Ayrshire Local Development Plan. July 2017.

Eaves, M. 2019. Travel trends for 2019: dark skies. *Lonely Planet.* https://www.lonelyplanet.com/articles/travel-trends-for-2019-dark-skies. [Accessed: July 2, 2019].

Eaves, M. 2021. Speed of Night: Racing to Protect Britain's Dark. *Nightscape* 104.

Eden3. 2014. Workshop Documentation. Text and Video Documentation from the Workshop. Video: 8. Tim Collins: Introduction II, Art and Cultures Contribution to Forests. https://eden3.net/2014/01/featured-post-about-future-forests/ [Accessed: May 23, 2022].

Edensor, T. 2012. Illuminated atmospheres: anticipating and reproducing the flow of affective experience in Blackpool, *Environment and Planning D: Society and Space* 30, pp.1103–1122.

Edensor, T. 2013a. The gloomy city: Rethinking the relationship between light and dark, in *Urban Studies* 52(3), pp.422–438.

Edensor, T. 2013b. Reconnecting with darkness: gloomy landscapes, lightless places, *Social & Cultural* Geography 14(4), pp.446–465.

Edensor, T. 2015a. Introduction: Sensing and Perceiving with Light and Dark. *The Senses and Society* 10(2), pp.129–137.

Edensor, T. 2015b. Introduction to geographies of darkness. *Cultural geographies* 22(4), pp.559–565.

Edensor, T. 2017a. Seeing with light and landscape: a walk around Stanton Moor. *Landscape Research* 42(6), pp.616–633.

Edensor, T. 2017b. *From Light to Dark: Daylight, Illumination, and Gloom*. University of Minnesota Press.

Edensor, T. 2018a. Moonraking in Slaithwaite: Making lanterns, making place. In (ed. Hawkins) *Geographies of Making, Craft and Creativity*. [1st edition]. London: Routledge, pp.44–59.

Edensor, T. 2018b. The more-than-visual experiences of tourism. *Tourism Geographies* 20(5), pp.913–915. doi: 10.1080/14616688.2018.1477172

Edensor, T. 2022. *Landscape, Materiality and Heritage An Object Biography*. Singapore: Palgrave Macmillan.

Edensor, T. and Falconer, E. 2015. *Dans le Noir?* Eating in the dark: sensation and conviviality in a lightless place. *Cultural Geographies* 22(4), pp.601–618.

Edensor, T. and Lorimer, H. 2015. "Landscapism" at the *Speed of Light*: darkness and illumination in motion, in *Geografiska Annaler: Series B, Human Geography* 97(1), pp.1–16.

Edensor, T. and Millington, S. 2009. Illuminations, Class Identities and the Contested Landscapes of Christmas. *Sociology* 43(1), pp103–121. doi: 10.1177/0038038508099100

Edwards, D. M., Collins, T. M., and Goto, R. 2016. An arts-led dialogue to elicit shared, plural and cultural values of ecosystems. *Ecosystem Services 21*(November), pp.319–328.

Ekirch, A. R. 2005. *At Day's Close: A History of Nighttime*. London: Phoenix.

Eklöf, J. 2022[2020]. *The Darkness Manifesto: How light pollution threatens the ancient rhythms of life*. (E. DeNoma, Trans.). London, UK: The Bodley Head.

EKOS. 2013. Dark Sky Park Report: Economic Impact and Potential. Report for Forestry Commission Scotland, Dumfries & Galloway Council, East Ayrshire Council and South Ayrshire Council. November 2013.

Elkins, J. 2009[2000]. *How to Use Your Eyes*. New York: Routledge.

Ellingson, L. L. 2012. Interviewing as embodied communication, in (eds. J. Gubrium, J. Holstein, A. Marvasti, and K. M. Marvasti) *Handbook of interview research* [2nd edition], pp.525–539). Thousand Oaks, CA: Sage.

Ellis, C. and Bochner, A. P. 2000. Autoethnography, Personal Narrative, Reflexivity. In *Handbook of Qualitative Research* [2nd edition], pp.733–768.

Ellis, R. and Waterton, C. 2004. Environmental citizenship in the making: the participation of volunteer naturalists in UK biological recording and biodiversity policy. *Science and Public Policy* 31(2), pp.95–105.

Elwood, S. 2009. Mixed Methods: Thinking, Doing and Asking in Multiple Ways, In *The SAGE Handbook of Qualitative Geography* (eds. DeLyser, Herbert, Aitken, Crang and McDowell). London, UK: SAGE Publications Ltd, pp.94–113.

Emerson, R. M., Fretz, R. I. and Shaw, L. L. 2011[1995]. *Writing Ethnographic Fieldnotes*. Chicago, IL: University of Chicago Press.

Emmett, R. S. and Nye, D. E. 2017. *The Environmental Humanities: A Critical Introduction*. Cambridge, MA: The MIT Press.

Falchi and Furgoni. 2020. A new way to look at light pollution: revealing the good, the bad and the ugly. *The Science Breaker* . https://thesciencebreaker.org/breaks/earth-space/a-new-way-to-look-at-light-pollution-revealing-the-good-the-bad-and-the-ugly [Accessed: November 12th, 2020].

Falchi, F., Cinzano, P., Duriscoe, D., Kyba, C. C. M., Elvidge, C. D., Baugh, K., Portnov, B. A., Rybnikova, N. A. and Furgoni, R. 2016. The new world atlas of artificial night sky brightness. *Science Advances* 2: e1600377.

Farquhar, A. 2005. *The Storr: Unfolding Landscape*. [1st Edition]. Edinburgh, UK: Luath Press Ltd.

Fayos-Solá, E., Marín, C., Jafari, J. 2014. Astrotourism: No Requiem for Meaningful Travel. PASOS. Revista de Turismo y Patrimonio Cultural 12, pp.663–671.

FCS. 2009a. Galloway Forest Dark Sky Park. Application to the International Dark Sky Association.

FCS. 2009b. Galloway Forest District Strategic Plan 2009–2013.

FCS. 2014. Galloway District Strategic Plan 2014–2017.

FCS. 2016a. FCS Visitor Experience Planning Form 2016. Unpublished internal document.

FCS. 2016b. North Kyle Masterplan.

FES. 2018. Forest Enterprise Scotland. Organisation Chart – Sept 2018.

FES. 2019. Annual Report and Accounts 2018/19. SG/2019/172.

Ferretti, F. 2020. Traveling in Lifeworlds: New Perspectives on (Post)Humanism, Situated Subjectivities, and Agency from a Travel Diary. *Annals of the American Association of Geographers* 110(6), pp.1653–1669. doi: 10.1080/24694452.2020.1715197

Ferris, C. *The Darkness is Light Enough*. London, UK: Michael Joseph (Penguin).

Fildes, G. 2016. *An Astronomer's Tale: A Bricklayer's Guide to the Galaxy.* London: Arrow Books Ltd.

Fish, R., Church, A. and Winter, M. 2016. Conceptualising cultural ecosystem services: A novel framework for research and critical engagement. *Ecosystem Services* 21, pp.208–217.

Flack, A. 2022a. Dark Trails: Animal Histories beyond the Light of Day. *Environmental History* 27(2), pp.215–241. doi: 10.1086/719285

Flack, A. 2022b. Dark Degenerations: Life, Light, and Transformation beneath the Earth, 1840–circa 1900. *Isis. A Journal of the History of Science Society* 113(2), pp.331–351. doi: 10.1086/719721

Flack, A. & Jørgensen, D. 2022. Feelings for nature : Emotions in environmental history. In (eds. K. Barclay & P. N. Stearns) *The Routledge History of Emotions in the Modern World.* London, UK: Routledge, pp.235–251.

Flanders, T. 2008. Rate Your Skyglow. *Sky & Telescope.* (Dec 5, 2008). https://skyandtelescope.org/get-involved/rate-your-skyglow/ [Accessed: March 12, 2021].

FLS. 2019. Annual Report 2019. https://darksky.app.box.com/s/0ac4k6ewet25g25nshan555euo1v7p6e/file/614373928562 [Accessed: May 11, 2020].

FLS. 2021. Galloway International Dark Sky Park. https://forestryandland.gov.scot/visit/forest-parks/galloway-forest-park/dark-skies [Accessed: April 12, 2021].

Forestry and Land Management (Scotland) Bill. 2018. Scotland, UK.

Forestry Commission. 1954. *National Forest Park Guides: Glen Trool.* [2nd Editon]. Edinburgh: Her Majesty's Stationary Office.

Foster, K. and Lorimer, H. 2007. Some reflections on art-geography as collaboration. *Cultural Geographies* 14(3), pp. 425–432. doi: 10.1177/1474474007078210

Foucault, M. 1978[1975]. *Discipline and punish: The birth of the prison* (A. Sheridan, Trans.). New York: Random House, Vintage Books.

Francis, T. 2019. *Dark skies. A Journey into the Wild Night*. London, UK: Bloomsbury Wildlife.

Franklin, A. and Dunkley, R. 2017. Becoming a (green) identity entrepreneur: Learning to negotiate situated identities to nurture community environmental practice. *Environment and Planning A: Economy and Space* 49(7), pp.1500–1516. doi: 10.1177/0308518X17699610

Fry, G. 2003. Training Needs for Interdisciplinary Research. In (ed. Tress) *Interdisciplinary and Transdisciplinary Landscape Studies: Potential and Limitations*. Wageningen, NE: Alterra.

Frasch, T. 2012. Tracks in the City: Technology, mobility and society in colonial Rangoon and Singapore. *Modern Asian Studies* 46(1), pp.97–118.

Galinier, J., Becquelin, A. M., Bordin, G., Fontaine, L., Fourmaux, F., Ponce, J. R., Salzarulo, P., Simonnot, P., Therrien, M. and Zilli, I. 2010. Anthropology of the Night: Cross-Disciplinary Investigations. *Current Anthropology* 51(6), pp.819–847. doi: 10.1086/653691?seq=1

Gallan, B. 2014. *Becoming Crepuscular: rethinking the human relationship to day and night*. PhD. University of Wollongong.

Gallan, N. 2015. Night lives: Heterotopia, youth transitions and cultural infrastructure in the urban night. *Urban Studies* 52(3), pp.555–570.

Gallan, B. and Gibson, C. 2011. Commentary: new dawn or new dusk? Beyond the binary of night and day. *Environment and Planning A* 43(11), pp.2509–2515.

Gallaway, T. 2010. On Light Pollution, Passive Pleasures, and the Instrumental Value of Beauty. *Journal of Economic Issues* 44(1), pp.71–88. doi: 10.2753/JEI0021-3624440104

Gallaway, T. 2015. The Value of the Night Sky, in (eds. Meier, Hasenöhrl and Pottharst) *Urban Lighting, Light Pollution and Society*. New York, NY: Routledge, pp.267–283.

Stranraer Free Press. 2020. In the dark about sky park's status. February 6, 2020.

GGLP. 2017. Galloway Glens Landscape Partnership. Stage 2 Project Application to the Heritage Lottery Fund. August 11, 2017.

Gandy, M. 2017. Negative Luminescence. *Annals of the American Association of Geographers*. 107(5), pp.1090–1107. doi: 10.1080/24694452.2017.1308767

Garcia-Saenz, A., Sánchez de Miguel, A., Espinosa, A., Valentin, A., Aragonés, N., Llorca, J., Amiano, P., Sánchez, V. M., Guevara, M., Capelo, R., Tardón, A., Peiró-Perez, R., Jiménez-Moleón, J. J., Roca-Barceló, A., Pérez-Gómez, B., Dierssen-Sotos, T., Fernández-Villa, T., Moreno-Iribas, C., Moreno, V., García-Pérez, J., Castaño-Vinyals, G., Pollán, M., Aubé, M., and Kogevinas, M. 2018. Evaluating the Association between Artificial Light-at-Night Exposure and Breast and Prostate Cancer Risk in Spain (MCC-Spain Study), *Environmental Health Perspectives* 126(4), 047011. doi: 10.1289/EHP1837

Garlick, B. 2019. Deceptive landscapes: Ornithological hide-work and the perception of ospreys on Speyside, 1957-1987. *GeoHumanities*, 5(1), pp.215–236.

Garrard, G. 2012. *Ecocriticism*. Abingdon: Routledge.

Gaw, M. 2020. Under the Stars: A Journey into Light. London, UK: Elliott & Thompson Ltd.

gaze, v., n.d. Collins English Dictionary. [Accessed: June 2, 2020]. https://www.collinsdictionary.com/dictionary/english/gaze#

Geoghegan, H. 2012. Emotional geographies of enthusiasm: belonging to the Telecommunications Heritage Group. *Area* 45(1), pp. 40–46.

GFAS. 2009. Report of the Trustees (Management Committee) to the Annual General Meeting. Saturday 12th September 2009. Unpublished document.

Graeber, D. 2001. *Toward an Anthropological Theory of Value: The False Coin of Our Own Dreams*. New York City, NY: Palgrave.

Gray, B. 1985. Conditions Facilitating Interorganizational Collaboration. *Human Relations* 38(10), pp.911–936.

Grimble, R. and Wellard, K. 1997. Stakeholder methodologies in natural resource management: a review of principles, contexts, experiences and opportunities. *Agricultural Systems* 55(2), pp.173-193.

GSAB. n.d. Sense of Place Toolkit. Available from: http://www.gsabiosphere.org.uk/business-in-the-biosphere/business-resources/sense-of-place-toolkit/

GSAB. 2011. Galloway and Southern Ayrshire Biosphere Overview and Update. Item 7.

GSAB. 2015. Biosphere Dark Sky Ranger. Role Description. Unpublished document.

GSAB. 2016. Strategic Plan 2017 – 2022.

SAB. 2021. Land, Turbines and Us. https://www.gsabiosphere.org.uk/land-turbines-and-us/ [Accessed: September 30, 2022].

GSAB. 2022. About Us. https://www.gsabiosphere.org.uk/about-us/ [Accessed: September 30, 2022].

Hamacher, D., de Napoli, K. and Mott, B. 2020. Whitening the Sky: light pollution as a form of cultural genocide. *Journal of Dark Sky Studies* 1.

Hansen, M. 2013. New geographies of conservation and globalisation: the spatiality of development for conservation in the iSimangaliso Wetland Park, South Africa. *Journal of Contemporary African Studies* 31(3), pp.481–502. doi: 10.1080/02589001.2013.807566

Haraway, D. 1988. Situated knowledges: The science question in feminism and the privilege

Haraway, D. 1991. *Simians, Cyborgs and Women: The Reinvention of Nature*. New York, NY: Routledge.

Haraway, D.  2016. *Staying with the Trouble. Making Kin in the Chthulucene.* Durham, NC: Duke University Press.

Hare, M. and Pahl-Wostl, C. 2002. Stakeholder Categorisation in Participatory Integrated Assessment Processes. *Integrated Assessment* 3(1), pp.50–62. doi: 10.1076/iaij.3.1.50.7408

Harrison, P. 2009. In the absence of practice. *Environment and Planning D: Society and Space* 27, pp.987–1009.

Harrison, R. P. 1992. *Forests: the shadow of civilisation*. London: University of Chicago Press.

Harrison, C. 2015. Extending the 'White Way': municipal streetlighting and race, 1900–1930, *Social & Cultural Geography* 16(8), pp. 950–973. doi: 10.1080/14649365.2015.1040060

Harrison, N. and Harrison, H. M. 2001. Knotted ropes, rings, lattices and lace: Retrofitting biodiversity into the cultural landscape. In W. Barthlott and M. Winiger (eds.) *Biodiversity. A Challenge for Development Research and Policy*. Berlin: Springer-Verlag, pp.13–31.

Haskell, J., Linds, W. & Ippolito, J. 2002. Opening Spaces of Possibility: The Enactive as a Qualitative Research Approach. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *3*(3), Art. 14. http://nbn-resolving.de/urn:nbn:de:0114-fqs0203145 [Accessed: May 21, 2019].

Hausmann, A., Slotow, R., Burns, J. K. and Di Minin, E. 2016. The ecosystem service of sense of place: benefits for human well-being and biodiversity conservation. *Environ. Conserv*. 43(2), pp.117–127.

Hawkins, H. 2013. *For Creative Geographies : Geography, Visual Arts and the Making of Worlds*, Routledge: London.

Hawkins, H. 2019. Geography's creative (re)turn: Toward a critical framework. *Progress in Human Geography* 43(6), pp.963–984. doi: 10.1177/0309132518804341

Hawkins, B. and Wilson, B. 2017. A Fresh Theoretical Perspective on Practice-Led Research. *The International Journal of Art & Design Education* 36(1), pp.82-91. doi: 10.1111/jade.12074

Heddon, D. 2017. Con-versing: Listening, speaking, turning. In, (eds.) Bastian, M., Jones, O., Moore, N. & Roe, E. 2017. *Participatory Research in More-than-Human Worlds*. London, UK: Routledge, pp.

Heim, W. 2003. Slow activism: homelands, love and the lightbulb. *The Sociological Review*, pp.183–202.

Heim, J. 2020. *Dark Sky Initiatives in Stanley, Idaho: An Exploration into a 'Dark Sky Friendly' LED Streetlight Retrofit & Community Experiences with Dark Skies and Dark Sky Advocacy*. PhD. University of Wales Trinity St. David.

Heise, U. K. 2008. *Sense of Place and Sense of Planet: The Environmental Imagination of the Global*. United States of America: Oxford University Press.

Heise, U. K. 2017. Introduction. Planet, species, justice—and the stories we tell about them. In, *The routledge companion to the environmental humanities*. (eds.) Heise, U. K., Christensen, J., & Niemann, M. Publisher, pp.1–12.

Henckel, D. & Moss, T. 2015. Towards a Brighter Future? Conclusions for Lighting Research and Policy, in (eds. Meier, Hasenöhrl & Pottharst). *Urban Lighting, Light Pollution and Society*. New York: Routledge.

Henery, C. 2019. Race and the Paradoxes of the Night. *Black Perspectives*. https://www.aaihs.org/race-and-the-paradoxes-of-the-night/ [Accessed: January 8, 2020].

Henty, L. and Brown, D. 2019. *Visualising Skyscapes. Material Forms of Cultural Engagement with the Heavens*. London, UK: Routledge.

HES. 2006. Craigengillan. GDL00111. https://portal.historicenvironment.scot/designation/GDL00111 [Accessed: November 30, 2018].

HES. 2018. Statement of Significance: Cairn Holy Cairns 1 & 2. Available to download from: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=571221d2-dd93-4bd4-8f1c-a74500b34cd0

Hillier, D. 2008. Dark Sky Scotland — End of Project Report. June 9, 2008.

Himes, A. and Muraca, B. 2018. Relational values: the key to pluralistic valuation of ecosystem services. *Current Opinion in Environmental Sustainability* 35, pp.1–17. doi: 10.1016/j.cosust.2018.09.005

Hölker, F., Moss, T., Griefahn, B., Kloas, W., Voigt, C. C., Henckel, D., Hänel, Kappeler, S., Schwope, A., Franke, S., Uhrlandt, D., Fischer, J., Klenke, R., Wolter, C. And Tockner, K. "The Dark Side of Light: A Transdisciplinary Research Agenda for Light Pollution Policy." Ecology and Society 15(4): 13. doi:10.5751/ES-03685-150413.

Holton, M. and Riley, M. 2014. Talking on the move: place-based interviewing with undergraduate students. *Area* 46(1), pp.59–65. doi: 10.1111/area.12070

Howes. 2003. *Sensual Relations: Engaging the Senses in Culture and Social Theory*. Ann Arbor, MI: University of Michigan Press.

Husson, J-P. 2017. *Artialising* the Vosges: Processes, Projections, Purposes. *Journal of Alpine Research* 105(2). doi : 10.4000/rga.3739

Hyndman, J. 2001. The Field as Here and Now, Not There and Then. *Geographical Review* 91(1-2), pp.262–272.

IDA. n.d.a. About the IDA. https://darksky.org/about/ [Accessed: November 22, 2019].

IDA. n.d.b. How To Become An International Dark Sky Place: https://www.darksky.org/our-work/conservation/idsp/become-a-dark-sky-place/ [Accessed: November 22, 2019].

IDA. n.d.c. How To Conduct A Sky Quality Survey. https://www.darksky.org/our-work/conservation/idsp/become-a-dark-sky-place/sky-quality-survey/. [Accessed: November 22, 2019].

IDA. n.d.d. International Dark Sky Communities. https://www.darksky.org/our-work/conservation/idsp/communities/ [Accessed: November 22, 2019].

IDA. n.d.e. International Dark Sky Parks. https://www.darksky.org/our-work/conservation/idsp/parks/ [Accessed: November 22, 2019].

IDA. n.d.f. International Dark Sky Places. https://www.darksky.org/our-work/conservation/idsp/ [Accessed: November 22, 2019].

IDA. n.d.g. Light pollution reduces our night sky heritage. https://darksky.org/resources/what-is-light-pollution/effects/night-sky-heritage/ [Accessed: November 22, 2019].

IDA. 2015a. *Nightscape. A Publication of the International Dark Sky Association* 90–91.

IDA. 2015b. World's First 'Dark Sky Nation' https://darksky.org/news/arizona-native-american-community-named-worlds-first-dark-sky-nation/ [Accessed: April 2, 2022].

IDA. 2017. World's First Transnational Dark Sky Park Receives IDA Accreditation. https://www.darksky.org/worlds-first-transnational-dark-sky-park-receives-ida-accreditation/ [Accessed: April 2, 2022].

IDA. 2018. International Dark Sky Park Program Guidelines. Official Document. June 2018.

IDA. 2020. Winning Submissions for Capture the Dark Photography Contest https://www.darksky.org/winning-submissions-for-capture-the-dark-photography-contest/ [Accessed: March 21, 2021].

IDA. 2021a. Board Policy on the Application of the Lighting Principles. https://darksky.org/app/uploads/2021/03/Values-Centered-Outdoor-Lighting-Resolution.pdf [Accessed: April 2, 2022].

IDA. 2021b. Earth Day: Because Every Day Needs a Night. https://www.darksky.org/earth-day-because-every-day-needs-a-night/ [Accessed: April 30, 2021].

IDA. 2021c. Real night no longer exists in hundreds of cities around the world. [Brochure]. Retrieved from: https://www.darksky.org/wp-content/uploads/2021/01/IDA-General-Brochure-English-01-2021r.pdf [Accessed: March 21, 2021].

IDA. 2021d. Vision and Values Update: Toward a More Equitable Dark Sky Movement. https://darksky.org/news/vision-values-update/ [Accessed: November 30, 2021].

Ineichen, S. and Rüttimann, B. Impact of artificial light on the distribution of the common European glow-worm, *Lampyris noctiluca* (Coleoptera: Lampyridae). *Lampyrid* 2, pp.31–36.

Ingle, M. 2010. Making the most of 'nothing': astro-tourism, the Sublime, and the Karoo as a 'space destination'. *Transformation: Critical Perspectives on Southern Africa* 74, pp.87–111. doi: 10.1353/trn.2010.0013

Ingold, T. 2005. The eye of the storm: visual perception and the weather. *Visual Studies* 20(2), pp.97–104. doi: 10.1080/14725860500243953

Ingold, T. 2008. Bindings against boundaries: entanglements of life in an open world. *Environment and Planning A* 40, pp.1796–1810.

Ingold, T. 2000. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. London, UK: Routledge.

Ingold, T. 2011. *Being Alive: Essays on Movement, Knowledge and Description.* London: Routledge.

Ingold, T. and Vergunst, J. *Ways of Walking: Ethnography and Practice on Foot.* Aldershot, UK: Ashgate Publishing.

Iovino, S. 2012. Restoring the Imagination of Place. Narrative Reinhabitation and the Po Valley. In, T. Lynch, C. Glotfelty and K. Armbruster (eds.) *The Bioregional Imagination: Literature, Ecology, and Place*, pp.100–117.

Irigaray, L. 2004. To Paint the Invisible. *Continental Philosophy Review* 37, pp.389–405.

Irvine, K. N., O'Brien, L., Ravenscroft, N., Cooper, N., Everard, M., Fazey, I., Reed, M. and Kenter, J. O. 2016. Ecosystem services and the idea of shared values. *Ecosystem Services* 21, pp.184–193.

Isobe, S. 1998. JD5 Preserving The Astronomical Windows. *Highlights of Astronomy* 11(1), pp.205–205. doi:10.1017/S1539299600020426

IYA. 2009a. International Year of Astronomy 2009. Final Report Executive Summary.

IYA. 2009b. Dark Skies Awareness: seeing in the dark. https://www.astronomy2009.org/globalprojects/cornerstones/darkskiesawareness/#:~:text=Dark%20Skies%20Awareness%3A%20seeing%20in%20the%20dark&text=The%20ongoing%20loss%20of%20a,security%2C%20economics%20and%20energy%20conservation [Accessed: March 9, 2021].

Jacobs, S., Dendoncker, N., Martín-López, B., Barton, D. N., Gomez-Baggethun, E., Boeraeve, F., McGrath, F. L., Vierikko, K., Geneletti, D., Sevecke, K. J., Pipart, N., Primmer, E., Mederly, P., Schmidt, S., Aragão, A., Baral, H., Bark, R. H., Briceno, T., Brogna, D., Cabral, P., De Vreese, R., Liquete, C., Mueller, H., Peh, K. S-H., Phelan, A., Rincón, A. R., Rogers, S. H., Turkelboom, F., Van Reeth, W., van Zanten, B. T., Wam, H. K., Washbourne, C-L. 2016. A new valuation school: integrating diverse values of nature in resource and land use decisions. Ecosyst. Serv. 22, pp.213–220. doi: 10.1016/j.ecoser.2016.11.007.

Jakle, J. 2001. City *Lights: Illuminating the American Night*. Baltimore: Johns Hopkins University Press.

Jafari, J. 2007. Terrestrial Outreach: Living the Stardome on Earth, in (eds. Marín and Jafari). *Starlight: A Common Heritage*, pp.55–57. Tenerife: Astrophysical Institute of the Canary Islands.

Jaramillo, G. S. 2016. *Extractive geographies: immersive lives*. PhD. University of Edinburgh.

Jeffrey, E. 2021. *Nightfalling*. PhD. Lancaster University.

Jeffrey, E. 2019a. *On the Patterns We Gaze*. Live performance, Grubbins Wood, UK.

Jeffrey, E. 2019b. Dancing in the dark. *People Dancing. The Foundation for Community Dance*. https://www.communitydance.org.uk/DB/animated-library/dancing-in-the-dark [Accessed: February 8, 2020].

Junta de Andalucia. n.d. *Declaration on the Use of Blue-Rich White Light Sources for Nighttime Lighting*. http://www.juntadeandalucia.es/medioambiente/portal_web/web/temas_ambientales/atmosfera/contaminacion_luminica/International_Declaration_on_Blue-Rich_Light_EN_v1Maquetada.pdf [Accessed: February 12, 2017].

Kamleitner, K. 2019. Eco-Tourism in Scotland: Visiting the Galloway and Southern Ayrshire Biosphere. URL: https://watchmesee.com/blog/galloway-southern-ayrshire-biosphere/ [Accessed: December 12th, 2019].

Kanngieser, A. 2015. Geopolitics and the Anthropocene: Five Propositions for Sound. *GeoHumanities* 1(1), pp.80–85.

Kaplan, L. 2010. Photograph/Death Mask: Jean-Luc Nancy's Recasting of the Photographic Image. *journal of visual culture* 9(1), pp.45–62.

Karelia University of Applied Sciences. n.d. 'The SHAPE project'. https://www.shapingecotourism.eu/about-shape/ [Accessed: March 10, 2021].

Katz, C. 1994. Playing the Field. Questions of Fieldwork in Geography, *The Professional Geographer* 46(1), pp.67–72. 10.1111/j.0033-0124.1994.00067.x

Kaye, N. 2000. *Site-Specific Art: Performance, Place, and Documentation.* London, UK: Routledge.

Kelbie, P. 2008. Scotland sells star therapy to stressed out city dwellers. *Guardian.* https://www.theguardian.com/uk/2008/nov/16/scotland-scotland [Accessed: March 1, 2021].

Kenter, J. O., Reed, M. S., Irvine, K. N., O'Brien, E., Brady, E., Bryce, R., Christie, M., Church, A., Cooper, N., Davies, A., Hockley, N., Fazey, I., Jobstvogt, N., Molloy, C., Orchard-Webb, J., Ravenscroft, N., Ryan, M. and Watson, V. 2014. *UK National Ecosystem Assessment Follow-on. Work Package Report 6: Shared, Plural and Cultural Values of Ecosystems.* UNEP-WCMC, LWEC, UK.

Kessler, E. A. 2012. *Picturing the Cosmos – Hubble Space Telescope Images and the Astronomical Sublime*. London: University of Minnesota Press.

Kester, G. H. 2004. *Conversation Pieces. Community and Communication in Modern Art*. London, UK: University of California Press.

Kindon, S., Pain, R. and Kesby, M. 2007. *Participatory Action Research Approaches and Methods: Connecting People, Participation and Place*. London, UK: Routledge.

King, M. 2022. *Ancient Light: Silver Gelatin Photographs, 2017-2022*. https://www.melaniek.co.uk/ancient-light-rematerialising-the-astronomical-image#! [Accessed December 12, 2022].

Kirkcudbright Development Trust. 2016. Kirkcudbright Dark Skies Visitor Centre: Business Plan. Unpublished document.

Kirkpatrick, L. 2016. Bat exploitation of Sitka Spruce plantations: Impacts of management on bats and nocturnal invertebrates. PhD. University of Stirling.

Kloog I, Stevens RG, Haim A, Portnov BA. 2010. Nighttime light level co-distributes with breast cancer incidence worldwide. *Cancer Causes Control* 21, pp.2059–2068. doi: 10.1007/s10552-010-9624-4

Knop, E., Zoller, L., Ryser, R., Gerpe, C., Hörler, M and Fontaine, C. 2017. Artificial light at night as a new threat to pollination. *Nature* 548, pp.206–209.

Kobayashi, A. 1994. Coloring the Field: Gender, "Race," and the Politics of Fieldwork. *The Professional Geographer* 46(1), pp.73–80. doi: 10.1111/j.0033-0124.1994.00073.x

Kohn, E. 2013. *How Forests Think. Toward an Anthropology Beyond the Human.* University of California Press.

Koslofsky, C. 2011. *Evening's Empire: A History of the Night in Early Modern Europe.* Cambridge: Cambridge University Press.

Krøijer, S. & Rubow, C. 2022. Introduction. Enchanted Ecologies and Ethics of Care. *Environmental Humanities* 14(2), pp.375–384. doi: 10.1215/22011919-9712456

Kusenbach, M. 2003. Street phenomenology: The go-along as ethnographic research tool. *Ethnography* 4, pp.455–485. doi: 10.1177/146613810343007

Kyba, C. C. M., Pritchard, S. B., Ekirch, A. R., Eldridge, A., Jechow, A., Preiser, C., Kunz, D., Henckel, D., Hölker, F., Barentine, J., Berge, J, Meier, J., Gwiazdzinski, L., Spitschan, M., Milan, M., Bach, S., Schroer, S. & Straw, W. 2020. 'Night Matters—Why the Interdisciplinary Field of 'Night Studies' Is Needed', *MDPI J:* 3(1): pp.1–6.

Lane, K.M.D. 2008. Astronomers at Altitude – Mountain Geography and the Cultivation of Scientific Legitimacy', in D. Cosgrove and V. Della Dora (eds) *High Places – Cultural Geographies of Mountains, Ice and Science.* London: I B Tauris, p.136.

Larsen, S. C. and Johnson, J. T. 2016. The Agency of Place: Toward a More-Than-Human Geographical Self. *GeoHumanities* 2(1), pp.149–166. doi: 10.1080/2373566X.2016.1157003

Latham, J. and Conradson, D. 2003. The Possibilities of Performance. *Environment and Planning A* 35, pp.1901–1906. doi: http://dx.doi.org/10.1068/a3646

Latour, B. 1991[1993]. *We Have Never Been Modern.* (C. Porter, Trans.). Cambridge, MA: Harvard University Press.

Latour, B. 2004. Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern, *Critical Enquiry* 30, pp.225–248.

Lavery, C. and Whitehead, S. 2012. Bringing It All Back Home: Towards an ecology of place. *Performance Research* 17, pp.111–119. doi: 10.1080/13528165.2012.712337

Law, J. 2006. After Method. Mess in social science research. London, UK: Routledge.

Law, J. and Urry, J. 2004. Enacting the social. *Economy and Society* 33, pp.390–410. 10.1080/0308514042000225716

Leavy, P. 2020 [2009]. *Method Meets Art. Arts-based Research Practice* [3rd Edition]. New York: The Guildford Press.

Lefebrve. 2004[1992]. *Rhythmanalysis. Space, Time and Everyday Life*. London, UK: Continuum.

Le Gallic, S. and Pritchard, S. 2019. Light(s) and Darkness(es): Looking Back, Looking Forward. *Journal of Energy History. Special Issue: Light(s) and darkness(es): Shifting historical relations*, pp.1–16.

Lee, A., Pantalony, D. and Buck, W. 2018– *One Sky-Many Worlds: Indigenous Voices in Astronomy*, travelling exhibition, first exhibited in Canada Science and Technology Museum, Ottawa, Canada, 2018.

Levy, D. 1998. Star Trails: Protector of the Night Sky. *Sky & Telescope* 96(3).

Levy, D. H. 2001. *Starry Night. Astronomers and Poets Read the Sky*. New York: Prometheus Books.

Lippard, L. R. 1983. *Overlay. Contemporary Art and the Art of Pre-History*. New York, NY: Pantheon Books.

Longcore, T. 2016. Artificial Night Lighting and Protected Lands Ecological Effects and Management Approaches. *Natural Resource Stewardship and Science*. Natural Resource Report for the National Park Service.

Longcore, T. and Rich, C. 2004. Ecological Light Pollution. *Frontiers in Ecology and the Environment* 2(4), pp.191–198.

Lorimer, H. 2005. Cultural geography: the busyness of being 'more-than-representational'. in *Progress in Human Geography* 29(1), pp.83–94.

Lorimer, H. 2007. Cultural geography: worldly shapes, differently arranged. *Progress in Human Geography* 31(1), pp.89–100.

Lorimer, H. 2010. Forces of nature, forms of life: Calibrating ethology and phenomenology. In: Anderson B and Harrison P (eds.) *Taking Place*. Farnham: Ashgate.

Lorimer, H. 2011. Walking: New Forms and Spaces for Studies of Pedestrianism. In (eds. T. Cresswell and P. Merriman) *Geographies of Mobilities: Practices, Spaces, Subjects*. London, UK: Routledge.

Lorimer, H. 2019. Dear departed. Writing the lifeworlds of place. *Trans Inst Br Geogr* 44, pp.331–345. 10.1111/tran.12278

Lorimer, H. and Lund, K. 2008. A collectable topography: walking, remembering and recording mountains. In (eds. T. Ingold and J. L. Vergunst) *Ways of Walking: Ethnography and Practice on Foot*. Aldershot, UK: Ashgate Publishing, pp.318–345.

Lorimer, H. and Parr, H. 2014. Excursions – telling stories and journeys. *cultural geographies* 21(4), pp.543–547. doi: 10.1177/1474474014547326

Lorimer, H. and Wylie, J. 2010. LOOP (a geography). *Performance Research* 15(4), pp.6–13. doi: 10.1080/13528165.2010.539872

Loveless, N. 2015. Towards a Manifesto on Research-Creation. *RACAR : Revue d'art canadienne* 40(1), pp.52–54.

Lowenthal, D. 1961. Geography, experience, and imagination: Towards a geographical epistemology. *Annals of the Association of American Geographers* 51, pp.241–260. 10.1111/j.1467-8306.1961.tb00377.x

Lund, K. A. 2012. Landscapes and Narratives: Compositions and the Walking Body. *Landscape Research* 37(2), pp.225–237. doi: 10.1080/01426397.2011.651111

Lund, K. A. and Jóhannesson, G. T. 2016. Earthly substances and narrative encounters: poetics of making a tourism destination. *cultural geographies* 23(4), pp.653–669. doi: 10.1177/1474474016638401

LUX. 2021. Los Angeles Plays Itself. https://lux.org.uk/work/los-angeles-plays-itself/ [Accessed: March 21, 2021].

Lynch, T., Glotfelty, C. and Armbruster, K. 2012. *The Bioregional Imagination: Literature, Ecology and Place*. University of Georgia Press.

Lyytimäki, J. 2013. Nature's nocturnal services: Light pollution as a non-recognised challenge for ecosystem services research and management. *Ecosystem Services* 3, pp.e44–48.

Lyytimäki, J. and J. Rinne. 2013. Voices for the Darkness: Online Survey on Public Perceptions on Light Pollution as an Environmental Problem. *Journal of Integrative Environmental Sciences* 10(2), pp.127–139. doi:10.1080/1943815X.2013.824487.

MacDougall, D. 2006. *The Corporeal Image. Film, Ethnography, and the Senses.* Princeton, NJ: Princeton University Press.

Macfarlane, R. 2007. *The Wild Places*. London, UK: Granta Books.

MacKian, S. 2011. The Art of Geographic Interpretation, In *The SAGE Handbook of Qualitative Geography* (eds. DeLyser, Herbert, Aitken, Crang & McDowell). London, UK: SAGE Publications Ltd, pp.359–372.

Macpherson, H. 2009. The intercorporeal emergence of landscape: negotiating sight, blindness, and ideas of landscape in the British countryside. *Environment and Planning A* 41, pp.1042–1054. doi: 10.1068/a40365

Maitland, S. 2012. *Gossip from the Forest: The Tangled Roots of Our Forests and Fairytales*. London, UK: Granta Books.

Mandel, J. L. 2003. Negotiating expectations in the field: Gatekeepers, research fatigue and cultural biases. *Singapore Journal of Tropical Geography* 24, pp.198–210.

Manning, E. 2015. Against method, in (ed. P. Vannini). *Non-Representational Methodologies. Re-Envisioning Research.* London, UK: Routledge, pp.52–71.

Marín, C. 2009, Starlight: A common heritage, in (eds. Valls-Gabaud & Boksenberg). *The Role of Astronomy in Society and Culture. Proceedings IAU Symposium* No. 260, pp.449–456.

Marín, C. and Jafari, J. (eds.) 2007. *Starlight: A Common Heritage*. Tenerife: Astrophysical Institute of the Canary Islands.

Marín, C., Wainscoat, R. and Fayos-Solà, E. 2010. "Windows to the Universe: Starlight, Dark - Sky Areas and Observatory Sites", in (eds. C. Ruggles, and M. Cotte). *Heritage Sites of Astronomy and Archeoastronomy in the Context of the Unesco World Heritage Convention. A Thematic Study.* Paris: ICOMOS.

Marr, N., Lantto, M., Larsen, M., Judith, K., Brice, S., Phoenix, J., Oliver, C., Mason, O. and Thomas, S. 2022. Sharing the Field: Reflections of More-Than-Human Field/work Encounters. *GeohHumanities* 8(2), pp.555–585. doi: 10.1080/2373566X.2021.2016467

Marston, S. A., Jones III, J. P. and Woodward, K. 2005. Human geography without scale. *Trans Inst Br Geogr NS* 30, pp.416–432.

Massey, D. 2003. Imagining the Field, in *Using Social Theory: Thinking through Research* (1st edition). (eds. M. Pryke, G. Rose & S. Whatmore). London: SAGE Publications Ltd., pp.72–88.

Massey, D. 2005. *For Space*. London, UK: SAGE Publications Ltd.

Mathews, A. S. 2017. Ghostly Forms and Forest Histories, In *Arts of Living on a Damaged Planet: Ghosts/Monsters* (eds. Tsing, Swanson, Gan & Bubandt), pp.G145–156.

Mayo Dark Sky Festival. n.d. https://www.mayodarkskyfestival.ie/ [Accessed: December 12, 2022].

McCormack, D. P. 2002. A paper with an interest in rhythm. *Geoforum* 33, pp.469–485.

McCormack, D. P. 2008. Thinking-Spaces for Research- Creation. *Inflexions* 1.1 "How is Research-Creation?" Available at: www.inflexions.com

McCormack, D. P. 2010. Fieldworking with Atmospheric Bodies. *Performance Research* 15(4), pp.40–48. doi: 10.1080/13528165.2010.539878

McCormack, D. 2017. The circumstances of post-phenomenological life worlds *Transactions of the Institute of British Geographers* 42(1), pp. 2–13. doi: 10.1111/tran.12146

McCormack, D. and Engelmann, S. 2018. Elemental Aesthetics: On Artistic Experiments with Solar Energy. *Annals of the American Association of Geographers* 108(1), pp.241–259.

McCormick, A. 1954. An Appreciation of the Glen Trool National Forest Park, in *National Forest Park Guides. Glen Trool.* [Second Edition], pp.1–12. Issued by the Forestry Commission. Edinburgh: Her Majesty's Stationary Office.

McGhie, H. 2020a. Stargazing at the 'Invisible': Photography and the Power of Obscured Light – A Research Partnership with Kielder Observatory: About. https://invisiblestargazing.blog/about/ [Accessed: April 16, 2021].

McGhie, H. 2020b. 'Observe, Experiment, Archive' #1 (Dark Adaptation). https://invisiblestargazing.blog/2020/02/10/observe-experiment-archive-1-dark-adaptation/ [Accessed: April 16, 2021].

McGhie, H. and Marr, N. 2024. Creative approaches to dark skies research. A dialogue between two artist-researchers. In (eds. N. Dunn and T. Edensor) *Dark Skies. Places, Practices, Communities.* Abingdon, Oxon: Routledge.

McIntyre, A. 2007. *Participatory Action Research*. London, UK: SAGE Publications Ltd.

McLean, S. 2009. Stories and Cosmogonies: Imagining Creativity Beyond "Nature" and Culture". Cultural Anthropology 24(2), pp.213–245. doi: 10.1111/j.1548-1360.2009.01130.x

Anthropology, 24, 2009, pp. 213–45. McDowell, L. 1992. Doing gender: feminism, feminists and research methods in human geography. *Transactions, institute of British Geographers* 17, pp.399–416.

McGinnis, M. V. (ed.) 1999. *Bioregionalism.* London: Routledge.

McLean, S. and Smith, M. 2009. *Voices of Glentrool and Merrick*. Commissioned by Scottish Natural Heritage.

McNally, D. and Morgan-Taylor, M. 2012. Dark skies in the UK. Astronomy and Geophysics, 53(3), pp.25.

Millennium Ecosystem Assessment (MEA). 2005. *Ecosystems and human well-being: synthesis.* Island, Washington, D.C., USA.

Meier, J. 2015. Designating Dark Sky Areas: Actors and Interests, in (eds. Meier, Hasenöhrl, Krause and Pottharst). *Urban Lighting, Light Pollution and Society.* New York: Routledge, pp.177–196.

Meier, J. 2019. *By Night. An investigation into practices, policies and perspectives on artificial outdoor lighting.* PhD. Technische Universität Berlin.

Meier, J. Hasenöhrl, U., Krause, K. and Pottharst, M. 2015. *Urban Lighting, Light Pollution and Society.* New York: Routledge.

Miles, M. 2005. The Burning Mirror: Photography in an Ambivalent Light. *Journal of Visual Culture 4*(3), pp.329–349. doi: 10.1177/1470412907078569

Melbin, M. 1977. The colonization of time, in Carlstein, T., Parkes, D. and Thrift, N. (eds.) Timing Space and Spacing Time. London: Edward Arnold, pp.100–113.

Melbin, M. 1978. Night as frontier, *American Sociological Review*, 43(1), pp.3–22.

Melbin, M. 1987. *Night as Frontier: Colonizing the World after Dark*. New York, NY: The Free Press.

Merleau-Ponty, M. 1962. *The Phenomenology of Perception*. London, UK: Routledge and Kegan Paul.

Mitchell, K. M. and Clark, A. M. 2021. Enhance Your Qualitative Analysis with Writing: Four Principles of Writing as Inquiry. *International Journal of Qualitative Methods*, 20, pp.1–5.

Moore, C. A., Richman, A. M., & Chamberlain, V. D. 2011. Finding Inspiration in the Face of Endangered Starry Skies. *The Inspiration of Astronomical Phenomena VI, ASP Conference Series* 441, pp.451–460.

Moore, K. D. 2008. The Gifts of Darkness, in Bogard, P. (ed.) *Let There Be Night: Testimony on Behalf of the Dark*. Reno: University of Nevada Press, pp.11-14.

Moore, T. and Tully, G. 2018. Connecting landscapes: examining and enhancing the relationship between stakeholder values and cultural landscape management in England. *Landscape Research* 43(6), pp.769–783, doi: 10.1080/01426397.2017.1360471

Morgan-Taylor, M. 2015. Regulating Light Pollution in Europe: Legal Challenges and Ways Forward, in (eds. Meier, Hasenöhrl & Pottharst). *Urban Lighting, Light Pollution and Society.* New York: Routledge, pp.159–176.

Morris, N. J. 2011. Night walking: darkness and sensory perception in a night-time landscape Installation. *Cultural Geographies*,18(3), pp.315–342.

Morris, N. J. 2015. Exhibition Review: Dalziel and Scullion, *Tumadh: Immersion. The Senses and Society* 10(2), pp.261–66, doi: 10.1080/17458927.2015.1042250

Moser, S. 2008. Personality: A new positionality? *Area* 40, pp.383‑392. doi: 10.1111/j.1475-4762.2008.00815.x

Moss, C. 2009. Mind how you go! Night tourism. *Time Out London* 127. April 9–15, 2009.

Muir, K. n.d. Galloway Forest Dark Sky Park. Why protecting our darkness is so important. https://www.scotland.org/business/conferences-in-scotland/legends/space/galloway-forest-dark-sky-park#:~:text=Galloway%20Forest%20Dark%20Sky%20Park,synonymous%20with%20quiet%2C%20dark%20exploration.&text=It%20took%20one%20of%20its,go%20and%20look%20in%20wonder. [Accessed: November 30, 2017].

Mullings, B. 1999. Insider or outsider, both or neither: some dilemmas of interviewing in a cross-cultural setting. *Geoforum* 30(4), pp.337–350. doi: 10.1016/S0016-7185(99)00025-1

Nagar, R. 2014. *Muddying the Waters: Coauthoring Feminisms across Scholarship and Activism.* Champaign, IL: University of Illinois Press.

Nancy, J-L. 2005. *The Ground of the Image.* New York City, NY: Fordham University Press.

Nancy, J-L. 2006. *Multiple Arts. The Muses II.* Redwood City, CA: Stanford University Press.

National Park Service. n.d.a. Night skies. https://www.nps.gov/subjects/nightskies/wilderness.htm [Accessed: January 4, 2023].

National Park Service. n.d.b. A Canyon Alight With Stars: A Brief History of Astronomy at Bryce Canyon National Park. https://www.nps.gov/brca/planyourvisit/astrohistory.htm [Accessed: April 30, 2022].

National Park Service. 2022. Imma Barrera. https://www.nps.gov/acad/getinvolved/air-barrera.htm [Accessed: January 5, 2023].

Nordgren, T. 2010. *Stars Above, Earth Below. A Guide to Astronomy in the National Parks.* Chichester, UK: Praxis Publishing Ltd.

Novak, A. 2018. The 9/11 Tribute In Light Is Helping Us Learn About Bird Migration. *All About Birds*. https://www.allaboutbirds.org/news/9-11-tribute-in-light-birds-night-migration/ August 30, 2018 [Accessed: May 20, 2021].

Nye, D. E. 1990. Electrifying America: Social meanings of a new technology, 1880–1940. Cambridge, MA: MIT Press.

Oh, H., Assaf, A. G. and Baloglu, S. 2016. Motivations and Goals of Slow Tourism. *Journal of Travel Research* 55(2), pp.205–219. doi: 10.1177/0047287514546228

Oliveros, P. 2022 [2010]. *Quantum Listening*. London, UK: Ignota Books.

Ørngreen, R. and Levinsen K. 2017. Workshops as a Research Methodology. *The Electronic Journal of eLearning* 15(1), pp.70–81.

Oswald, A. 2007. *Sleepwalk on the Severn*. London, UK: Faber and Faber Ltd.

Otter, C. 2008. *The Victorian Eye: A Political History of Light and Vision in Britain, 1800–1910*. Chicago, IL: University of Chicago Press.

Owens, S. 2010a. Stargazers Welcome. *Dark Sky Diary*. [online blog]: https://darkskydiary.wordpress.com/2010/04/07/stargazers-welcome/ (published April 7th)

Owens, S. 2010b. Britain's Best Stargazing Locations. *Dark Sky Diary* [online blog]: https://darkskydiary.wordpress.com/2010/06/07/britains-best-stargazing-locations/ (published June 7th)

Owens, S. 2010c. How to carry out a dark sky survey. *Dark Sky Diary* [online blog]: https://darkskydiary.wordpress.com/2010/12/18/how-to-carry-out-a-dark-sky-survey/ (published December 18th)

Owens, S. 2011. Astronomy Tourism in Dark Places. A Winston Churchill Travelling Fellowship Report. August – September 2011.

Owens, S. 2012. Scottish Dark Sky Observatory. *Dark Sky Diary* [online blog]: https://darkskydiary.wordpress.com/2012/07/18/scottish-dark-sky-observatory (published July 18th)

Owens, S. 2016. Coffee and Quasars. C&Q#1. https://coffeeandquasars.wordpress.com/2016/10/04/cq1-steve-owens/ [Accessed: June 1, 2021].

Pallasmaa, J. 2005. *The Eyes of the Skin: Architecture and the Senses.* London: Wiley.

Palmer, B. 2000. *Cultures of Darkness: Night Travels in the History of Transgression*. New York: Monthly Review Press.

Parikh, A. 2019. Insider-outsider as process: drawing as reflexive feminist methodology during fieldwork. *cultural geographies* 27(3), pp.437–452. doi: 10.1177/1474474019887755

Paterson, M. 2009. *The Senses of Touch: Haptics, Affects and Technologies.* Oxford, UK: Berg Publishers.

Paterson, J. 2011. The low down. *TL Magazine.* November 2011, pp.58–60.

Peterson, J. D. 2019. Doing environmental humanities: inter/transdisciplinary research through an underwater 360° video poem. *Green Letters* 23(1), pp.68–82. doi: 10.1080/14688417.2019.1583592

Petrova, S. 2017. Illuminating austerity: Lighting poverty as an agent and signifier of the Greek crisis. *European Urban and Regional Studies* 25(4), pp.360–372. doi: 10.1177/0969776417720250

Piggott, S & Powell, T. G. E. 1949. 'The excavation of three Neolithic chambered tombs in Galloway', *Proc Soc Antiq Scot*, vol. 83 (1948-9), pp.103-61.

Pillen, C. 2008. WPA Posters and the Mapping of a New Deal Democracy. *The Journal of American Culture* 31(1), pp.49–65.

Pink, S. 2015[2009]. Doing Sensory Ethnography. [2nd Edition]. London, UK: SAGE Publications Ltd.

Pink, S., Mackley, K. L., & Moroşanu, R. 2015. Researching in atmospheres: video and the 'feel' of the mundane. *Visual Communication* 14(3), pp.351–369. doi: 10.1177/1470357215579580

Plumwood, V. 2001. *Environmental Culture: The Ecological Crisis of Reason*. London, UK: Routledge.

Poméon, T. and Challéat, S. 2014. "And What do You do With Five-hundred Millions of Stars?" - Reflections on the Assessment of the Night and the Starry Sky through their Protection in the Territories. Paper Proposal for the RGS-IBG Annual Conference London – August 2014.

Powers, R. 2018. *The Overstory*. London, UK: Penguin.

Prescod-Weinstein, C. 2021. *The Disordered Cosmos. A Journey into Dark Matter, Spacetime, & Dreams Deferred*. New York, NY: Bold Type Books.

Pritchard, D. E. 2008. Artistic Licence. A review of the Forestry Commission's involvements in the arts, and options for the future. Consultant report for the Forestry Commission; in association with the Centre for Contemporary Art and the Natural World.

Pritchard, S. B. 2017. The Trouble with Darkness: NASA's Suomi Satellite Images of Earth at Night, *Environmental History* 22: 312–330. doi: 10.1093/envhis/emw102

Pritchard, S. B. forthcoming 2024. 'Memory Effects' and Dark Histories: Ecological Light-Pollution Research and Nazi Legacies at Lake Stechlin. *Environmental Humanities*, forthcoming 2024.

Puig de la Bellacasa, M. 2017. *Matters of Care. Speculative Ethics in More Than Human Worlds.* Minneapolis, MN: University of Minnesota Press.

Pullman, P. 1996[1995]. *Northern Lights*. London, UK: Scholastic Ltd.

Ramsar Sites Information Service. n.d. Silver Flowe. https://rsis.ramsar.org/ris/219 [Accessed: May 30, 2021].

Rancière, J. 2004. *The Politics of Aesthetics. The Distribution of the Sensible*. London: Continuum.

Rancière, J. 2008. Aesthetics against Incarnation: An Interview by Anne Marie Oliver, *Critical Inquiry*, 35(1), pp.172–190. doi: 10.1086/595633

Rapley, T. 2011[2004]. Interviews, in *Qualitative Research Practice* (eds. Clive Seale, Giampietro Gobo, Jaber F. Gubrium & David Silverman). doi: 10.4135/9781848608191

RASC. 2021. RASC Dark-Sky Sites. https://rasc.ca/lpa/dark-sky-sites [Accessed: March 8, 2021].

Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C. H. and Stringer, L. C. 2009. Who's in and why? A typology of stakeholder analysis methods

for natural resource management. *Journal of Environmental Management* 90(5), pp.1933–1949. 10.1016/j.jenvman.2009.01.001

Reed-Danahay, D. (ed.) 1997. Auto/ethnography: rewriting the self and the social. Oxford, UK: Berg Publishers.

Rich, C. and Longcore, T. 2005. *Ecological Consequences of Artificial Night Lighting.* Washington, DC: Island Press.

Richardson, L. 1994. Writing: A method of inquiry. In (eds. N. K. Denzin & Y.S. Lincoln), *Handbook of qualitative research.* Thousand Oaks, CA: Sage.

Richardson, L. and St. Pierre, E. A. 2018. Writing: A Method of Inquiry. In (eds. N. K. Denzin & Y.S. Lincoln), *Handbook of qualitative research* [5th Edition]. London, UK: SAGE Publications Ltd., pp.1410–1444.

Riley, M., & Holton, M. 2016. Place-based interviewing: Creating and conducting walking interviews. *SAGE Research Methods Cases.* doi:10.4135/978144627305015595386

Rinaldi, G. 2019. A decade of the UK's first Dark Sky Park in Galloway. https://www.bbc.co.uk/news/uk-scotland-south-scotland-50405389. [Accessed: November 18, 2019].

Robson and Owens, S. 2010. The International Year of Astronomy Round-up. *Astronomy & Geophysics* 51.

Rodrigues, A. O., Rodrigues, Á. and Peroff, D. M. 2015. The Sky and Sustainable Tourism Development: A Case Study of a Dark Sky Reserve Implementation in Alqueva. *International Journal of Tourism Research* 17, pp.292–302.

Rodrigues, Á., Loureiro, S. M. C., de Moraes, M. L. and Pereira, R. G. 2022. Memorable tourism experience in the context of astrotourism. *Anatolia* 34(2), pp.235–247. doi: 10.1080/13032917.2021.2015695

Roger A. 1998. *Court traité du paysage*, Gallimard, 199p.

Rose, G. 1993. *Feminism and Geography. The Limits of Geographical Knowledge.* Polity Press.

Rose, G. 1997. Situating knowledges: positionality, reflexivities and other tactics. *Progress in Human Geography* 21(3), pp.305–320.

Rose, D. R., van Dooren, T, Chrulew, M., Cooke, S., Kearnes, M. and O'Gorman, E. 2012. Thinking Through the Environment, Unsettling the Humanities. *Environmental Humanities* 1, pp.1-5.

Rose, M. & Wylie, J. 2006. Animating Landscape. *Environment and Planning D: Society and Space* 24(4), pp.475–479. 10.1068/d2404ed

Ruggles, C. L. N. (ed.). 2015. *Handbook of Archaeoastronomy and Ethnoastronomy*. Springer Science + Business Media, New York.

Ruggles, C. L. N. and Saunders, N. J. 1993. *Astronomies and Cultures*. Barnsley, UK: Ocarina Books.

Ryfield, F., Cabana, D., Brannigan, J. and Crowe, Tasman. 2019. Conceptualizing 'sense of place' in cultural ecosystem services: A framework for interdisciplinary research. *Ecosystem Services* 36: 100907.

SAC. 2016. Dark Sky Lighting. Local Development Plan. Supplementary Guidance. August 2016.

Sanctuary 2015. Sanctuary 2017 Programme Booklet.

Sanctuary 2017. Sanctuary 2017 Programme [Booklet].

Sandhu, S. 2010. *Night Haunts*. London: Verso Books.

Sava, I. & Nuutinen, K. 2003. At the Meeting Place of Word and Picture: Between Art and Inquiry. *Qualitative Inquiry* 9(4), pp.506–668. doi: 10.1177/1077800403254218

Saville, S. M. 2020. Towards humble geographies. *Area* 53, pp.97–105. doi: 10.1111/area.12664

Schatzki, T. R. 2003. A New Societist Social Ontology. *Philosophy of the Social Sciences* 33(2), pp.174–202. doi: 10.1177/0048393103251680

Schivelbusch, W. 1988. *Disenchanted Night: The Industrialisation of Light in the Nineteenth Century*. Oxford, UK: Berg.

Schön, D. 1991 [1984]. *The reflective practitioner: how professionals think in action*. Aldershot, UK: Ashgate.

Schulte-Römer, N. and Hänel, A. 2015. Introduction: Lighting Conflicts and Regulation, in (eds. Meier, Hasenöhrl & Pottharst). *Urban Lighting, Light Pollution and Society*. New York, NY: Routledge, pp.101–104.

Schulte-Römer, N., E. Dannemann, and J. Meier. 2018. *Light Pollution -a Global Discussion*, Leipzig, Germany: UFZ Helmholtz Centre for Environmental Research

Schulte to Bühne, H., Pettorelli, N., and Hoffmann, M. 2022. The policy consequences of defining rewilding. *Ambio* 51, pp.93–102. doi: 10.1007/s13280-021-01560-8

Scottish Power Renewables. 2019. Technical Appendix 6.2. Landscape and Visual Impact. Visual Assessment of Turbine Lighting. December 2019.

Seamon, D. 1979. *A Geography of the Lifeworld: Movement, Rest & Encounter*. London, UK: Routledge.

Sedgwick, E. K. 2003. *Touching Feeling Affect, Pedagogy, Performativity*. Durham, NC: Duke University Press.

SGSAH. 2016. AHRC Collaborative Doctoral PhD Studentship: Mapping the Values of the Galloway Forest Dark Sky Park. Available from: https://www.sgsah.ac.uk/e_t/past/headline_563233_en.html [Accessed: March 9, 2021]

Shang, W., Qiao, G. and Chen, N. 2020. Tourist experience of slow tourism: from authenticity to place attachment – a mixed-method study based on the case of slow city in China. *Asia Pacific Journal of Tourism Research* 25(2), pp.170–188, doi: 10.1080/10941665.2019.1683047

Shaw, R. 2017. Knowing homes and writing worlds? Ethics of the 'eco-', ethics of the 'geo-' and how to light a planet, in *Geografiska Annaler: Series B, Human Geography,* pp.128–142.

Shaw, R. 2018. *The Nocturnal City*. London, UK: Routledge.

Shewry, T. 2023. Many Nights: Poetry and Time Lapse of the Aoraki Mackenzie International Dark Sky Reserve. *Environmental Humanities 15*(2), pp.124–141. doi: 10.1215/22011919-10422322

Silva, F. P. and Campion, N. 2016. *Skyscapes The Role and Importance of the Sky in Archaeology*. Barnsley, UK: Oxbow Books.

Silver, D. A. and Hickey, G. M. 2020. Managing light pollution through dark sky areas: learning from the world's first dark sky preserve. *Journal of Environmental Planning and Management* 63(14), pp.2627–2645, doi: 10.1080/09640568.2020.1742675

Simonsen, K. 2007. Practice, Spatiality and Embodied Emotions: An Outline of a Geography Of Practice. *Human Affairs* 17, pp.168–181.

Simpson, P. 2021. *Non-representational Theory*. London, UK: Routledge.

Škvareninová, J., Tuhárska, M., škvarenina, J., Babálová, D., Slobodníková, L., Slobodník, B., Středová, H., Minďaš, J. 2017. Effects of light pollution on tree phenology in the urban environment. *Moravian Geographical Reports*, 25(4), pp.282–290. doi: 10.1515/mgr-2017-0024

Slater, D. 2019. *Towards an Understanding of the Astro Tourist: A Conceptual and Empirical Study.* PhD. University of Central Lancashire.

Sloan, J. 2015. Experiments in Urban Luminosity. *The Senses and Society* 10(2), pp.200–216.

Smith, M. G. 2015. Session 21.6: Preserving Dark Skies and Protecting Against Light Pollution in a World Heritage Framework. *Astronomy in Focus* 1, Focus Meeting 21. XXIXth IAU General Assembly, August 2015. doi: 10.1017/S1743921316003628

Smout, T. C. 2003. *People and Woods in Scotland: A History.* Edinburgh, UK: Edinburgh University Press.

Smout, T. C. 2009. *Exploring Environmental History: Selected Essays.* Edinburgh, UK: Edinburgh University Press.

Snowden, R., Garthwaite, A., & McNeill, S. 1981. fear into anger into action. *Off Our Backs* 11(7), pp.8–9.

Starlight Foundation. n.d. https://en.fundacionstarlight.org/ [Accessed: August, 17 2023].

Starlight Initiative. 2007. Declaration in defence of the night sky and the right to starlight. La Palma, Canary Islands, Spain. April 20, 2007.

Stengers, I. 2005. Introductory notes on an ecology of practices. *Cultural Studies Review* 11(1), pp.183–196.

Stevens, R. G. 1987. Electric Power Use and Breast Cancer: A Hypothesis. *American Journal of Epidemiology* 125(4), pp.556–561. doi: 10.1093/oxfordjournals.aje.a114569

Stevens, W. 1989. "July Mountain." In *Opus Posthumous: Poems, Plays, Prose*. New York: Alfred A. Knopf.

Stewart, K. 2007. *Ordinary Affects*. Durham, NC: Duke University Press.

Stewart, K. 2008. Weak Theory in an Unfinished World. *Journal of Folklore Research* 45(1), pp.71–89.

Stewart, K. 2011. Atmospheric attunements. *Environment and Planning D: Society and Space 29*(3), pp.445–453. 10.1068/d9109

Stewart 2013. Regionality. *The Geographical Review* 103(2), pp.275–284.

STFC. 2010. Looking up at darker skies. [Report]. October 2010.

STFC and FESDSP. 2016. Galloway Forest Dark Sky Park. Stargazers Welcome. [Booklet].

Stimac, V. 2019. *Dark Skies. A Practical Guide to Astrotourism*. Wilson, WY: Lonely Planet Global Limited.

Stoller, P. 1997. *Sensuous Scholarship*. Philadelphia, PA: University of Pennsylvania Press.

Stone, T. 2017. "Light Pollution: A Case Study in Framing an Environmental Problem." *Ethics, Policy and Environment* 20(3), pp.279–293. doi:10.1080/21550085.2017.1374010.

Style, P. Cairnholy Joe and the Stones. *Mountains of Meaning.* https://mountainsofmeaning.com/tag/joseph-proskauer/ [Accessed: March 5, 2021].

Strathern, M. 2005[1991]. *Partial Connections*. Lanham, MD: Rowman & Littlefield Publishers.

Sullivan, H. I. 2014. The Ecology of Colors. Goethe's Materialist Optics and Ecological Posthumanism, In *Material Ecocriticism*. (eds. Iovino & Oppermann), Bloomington, IN: University of Indiana Press, pp.80–94.

Sumartojo, S. 2021. On darkness, duration and possibility, in (eds. N. Dunn and T. Edensor) *Rethinking Darkness. Cultures, Histories, Practices*. pp.192–201.

Sumartojo, S. 2022. Approaching heritage sites atmospherically. *The Journal of Architecture* 27(4), pp.558–572. doi: 10.1080/13602365.2022.2122069

Sumartojo, S. and Pink, S. 2017. *Atmospheres and the Experiential WorldTheory and Methods*. London, UK: Routledge.

Sundberg, J. 2014. Decolonizing posthumanist geographies. *cultural geographies* 21(1), pp.33–47. doi: 10.1177/1474474013486067

Tabbush, P. 2010. *Cultural Values of Trees, Woods and Forests. Forest Research.* The Research Agency of the Forestry Commission. March 2010.

Talbot, D. 2007. *Regulating the Night: Race, Culture and Exclusion in the Making of the Night-time Economy*. London: Routledge.

Tallmadge, J. 2008. Night vision, in Bogard, P. (ed.) *Let There Be Night: Testimony on Behalf of the Dark*. Reno: University of Nevada Press, pp.135–143.

Tanizaki, J. 2001[1933]. *In Praise of Shadows*. London, UK: Vintage Classics.

Thomas, A. C. 2015. Indigenous more-than-humanisms: relational ethics with the Hurunui River in Aotearoa New Zealand. *Social & Cultural Geography* 16(8), pp.974–990. doi: 10.1080/14649365.2015.1042399

Thomashow, M. 2002. *Bringing Home the Biosphere*. Cambridge, MA: MIT Press.

Thomson, A. R. T. 2013. *The forest, field and studio. Art/making/methodology and the more-than-written in the rendering of place*. PhD. University of Aberdeen.

Thrift, N. 1996. *Spatial Formations*. London, UK: SAGE Publications Ltd.

Thrift N. 1999. Steps to an ecology of place. In, Massey D., J. Allen and P. Sarre (eds), *Human geography today*, pp.295–322. Cambridge, UK: Polity Press.

Thrift, N. 2004. Intensities of Feeling: Towards a Spatial Politics of Affect. *Geografiska Annaler* 86(B), pp.57–78. doi: 10.1111/j.0435-3684.2004.00154.x

Thrift, N. 2007. *Non-Representational Theory: Space, Politics, Affect*. London, UK: Routledge.

Thrift, N. and Dewsbury, J-D. 2000. Dead Geographies—And How to Make Them Live. *Environment and Planning D: Society & Space* 18(4), pp.411–432. doi: 10.1068/d1804ed

Toop, D. 2004. *Haunted Weather: Music, Silence, and Memory: Resonant Spaces, Silence and Memory*. London, UK: Serpent's Tail.

Toop, D. 2016. *Into the Maelstrom: Music, Improvisation and the Dream of Freedom: Before 1970*. London, UK: Bloomsbury Academic.

Torralba, M., Lovrić, Roux, J-L., Budniok, M-A., Mulier, A-S., Winkel, G. and Plieniger, T. 2020. Examining the relevance of cultural ecosystem services in forest management in Europe. *Ecology and Society* 25(3)2. doi: 10.5751/ES-11587-250302

Treddinick, M. 2008. Original Country, in (ed. Bogard). *Let There Be Night: Testimony on Behalf of the Dark*. Reno, NV: University of Nevada Press, pp.150–159.

Tsing, A. L. 2005. *Friction: An Ethnography of Global Connection*. Princeton, NJ: Princeton University Press.

Tsing, A. L., Swanson, H. A., Gan, E. and Bubandt, N. (eds.) 2017. *Arts of Living on a Damaged Planet: Ghosts/Monsters*. Minneapolis, MN: University of Minnesota Press.

Tsouvalis, J. 2000. *A Critical Geography of Britain's State Forests*. Oxford, UK: Oxford University Press.

Tuan, Y-F. 1974. *Topophilia. A Study of Environmental Perception, Attitudes, and Values*. New York, NY: Columbia University Press.

Tuan, Y-F. 1997. Sense of Place: What does it mean to be human? *American Journal of Theology & Philosophy* 18(1), pp.47–58.

Tuck and McKenzie. 2015. Relational Validity and the "Where" of Inquiry: Place and Land in Qualitative Research. *Qualitative Inquiry* 21(7), pp.633–638. doi: 10.1177/1077800414563809

UK Man and the Biosphere Committee n.d. Galloway & Southern Ayrshire Biosphere. http://www.unesco-mab.org/galloway--southern-ayrshire-biosphere.html [Accessed: May 30, 2021].

Urry, J. 1992. The Tourist Gaze Revisited. *American Behavioural Scientist* 36, pp.172–86.

van Liempt, I., van Aalst, I. & Schwanen, T. 2015. Introduction: Geographies of the urban night, *Urban Studies* 52(3), pp.407–421.

Vannini, P. 2015a. *Non-Representational Methodologies. Re-Envisioning Research*. London, UK: Routledge

Vannini, P. 2015b. Non-representational ethnography: new ways of animating lifeworlds. *Cultural Geographies* 22(2), pp.317–327.

Vannini, P. and Taggart, J. 2013. Domestic lighting and the off-grid quest for visual comfort. *Environment and Planning D: Society and Space* 31, pp.1076–1090. doi: 10.1068/d17412

Vannini, P. and Taggart, J. 2015. Solar energy, bad weather days, and the temporalities of slower homes. *cultural geographies* 22(4), pp.637–657. doi: 0.1177/1474474013516406

Vannini, P. and Vannini, A. S. 2019. Wildness as vitality: A relational approach. *ENE: Nature and Space* 2(2), pp.252–273. doi: 10.1177/2514848619834882

Varela, F. J., Thompson, E. and Rosch, E. 1991. The embodied mind: Cognitive science and human experience. Cambridge, MA: The MIT Press.

Visit Scotland 2016. *Dark Skies*, digital video. https://www.youtube.com/watch?v=v8IQAUvopnI [Accessed: March 5, 2018].

Volvey, A. 2012. Fieldwork: how to get in(to) touch. Towards a haptic regime of knowledge in geography. In, (eds.) M. Paterson and M. Dodge. *Touching Space, Placing Touch*. [1st edition]. London, UK: Routledge.

Vreese, R. D., Herzele, A. D., Dendoncker, N., Fontaine, C. M. and Leys, M. 2019. Are stakeholders' social representations of nature and landscape compatible with the ecosystem service concept? *Ecosystem Services* 37, 100911. doi: 10.1016/j.ecoser.2019.100911

Wade, M. 2009. Galloway Forest Park: one of the darkest places on the planet. *Guardian*. October 24th 2009. https://www.thetimes.co.uk/article/galloway-forest-park-one-of-the-darkest-places-on-the-planet-gjmcrphz68x [Accessed: January 7, 2018].

Walker, C. E. Luginbuhl, C. B. and Wainscoat, R. J. 2009. Lighting and Astronomy. *Physics Today* 62(12), pp.32–37. doi: 10.1063/1.3273014

Weaver, D. 2011. Celestial ecotourism: new horizons in nature-based tourism. *Journal of Ecotourism* 10(1), pp.38–45, doi: 10.1080/14724040903576116

Wellard, 1998. Socio-economic Methodologies Best Practice Guidelines. Stakeholder Methodologies in Natural Resource Management. London, UK: Natural Resources Institute.

West, S., Haider, L. J., Masterson, V., Enqvist, J. P., Svedin, U. and Tengö, M. 2018. Stewardship, care and relational values. *Current Opinion in Environmental Sustainability* 35, pp.30–38. doi: 10.1016/j.cosust.2018.10.008

Whatmore, S. 2002. *Hybrid Geographies. Natures Cultures Spaces*. London, UK: SAGE Publications Ltd.

Whatmore, S. 2006. Materialist returns: practising cultural geography in and for a more-than-human world. *cultural geographies* 13, pp.600–609. doi: 10.1191/1474474006cgj377oa

Whyte, D. 1996. Sweet Darkness. In *The House of Belonging.* Many Rivers Press.

Wild, A., Clelland, D. Gillespie, S. and Hill, C. 2017. Galloway and Southern Ayrshire Biosphere Socio-Economic Baseline Study. September 2017.

*Wildlife and Countryside Act, The.* 1981; Deer (Scotland) Act 1996. Scotland, UK.

Wilkerson, A. 2020. Cosmic Connections. *An Intuitive Inquiry into the Sociocultural Experiences of Engaging with Outer Space in Scotland.* Dissertation. The University of Edinburgh.

Williams, R. 2008. Night spaces: Darkness, deterritorialization, and social control. *Space and Culture* 11(4), pp.514–532.

Wilson, H. F. 2016. On geography and encounter: Bodies, borders, and difference. *Progress in Human Geography* 41(4), pp.451–471.

Wolf, I. D. and Croft, D. B. 2012. Observation techniques that minimize impacts on wildlife and maximize visitor satisfaction in night-time tours. *Tourism Management Perspectives* 4, pp.164–175.

Woodward et al. 2010. Of eagles and flies: orientations toward the site. *Area* 42(3), pp.271–280. doi: 10.1111/j.1475-4762.2009.0092.x

Woolf, V. 2022[1930]. *Street Haunting: A London Adventure.* London, UK: Penguin Classics.

Wylie, J. 2004. Depths and folds: on landscape and the gazing subject. *Environment and Planning D: Society and Space* 24, pp.519–535. doi: 10.1068/d380t

Wylie, J. 2007. *Landscape.* London, UK: Routledge.

Wylie, J. and Webster C. 2019. Eye–opener: Drawing landscape near and far. *Trans Inst Br Geogr.* 44, pp.32–47. doi: 10.1111/tran.12267

Xihong, L., Jiao, L., Zhong, J., Jia, Q., Liu, J. and Liu, Z. 2021. Artificial light pollution inhibits plant phenology advance induced by climate warming. *Environmental Pollution* 291, 118110.

Yallop, J. 2023. *Into the Dark. What darkness is and why it matters.* London, UK: Icon Books Ltd.

Zajac, M. 2022. *Awestruck*, digital photograph https://capturethedark.darksky.org/2022/entry/152/10 [Accessed: November 18, 2022]

Zhong, L., Jiao L, Zhong J, Jia Q, Liu J, Liu Z. 2021. Artificial light pollution inhibits plant phenology advance induced by climate warming. *Environmental Pollution* 291, 118110. DOI: 10.1016/j.envpol.2021.118110

Zielińska-Dabkowska, K. M., Xavia, K. and Bobkowska, K. 2020. Assessment of Citizens' Actions against Light Pollution with Guidelines for Future Initiatives. *Sustainability* 12(12). doi: 10.3390/su12124997