



Tourism and Visitor Management in Protected Areas Post-pandemic: The English Context

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15.1 INTRODUCTION

Across the planet, the network of protected areas provides the backbone of biodiversity conservation. These geographically defined areas, protected by legal or other means, enable biodiversity conservation by maintaining key habitats and allow if not facilitate species migration

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and movement (Dudley, 2008). Where protected areas are sustainably managed, as promoted within the UN Sustainable Development Goals and by the International Union for the Conservation of Nature (IUCN), such areas can also act as buffers against the transfer of zoonotic diseases, such as COVID-19. Moreover, they provide for multiple additional benefits including balancing natural landscape processes and enabling ecosystem services, both of which are essential for human survival. They additionally provide opportunities for engaging with nature-based solutions to some of the most pressing twenty-first-century challenges we are experiencing, for example, ameliorating impacts of climate change, supporting water and food security, providing for carbon sequestration, and contributing to improvements in our air quality.

To support the purposes of protected and conserved areas, government and political will is essential. In many cases, this is demonstrated, albeit often prescriptively, in documents generated by global institutions and national governments, in their legislative and policy frameworks. Yet, the ‘devil is in the detail’ (Graham et al., 2003, (ii)). Political frameworks are key for providing funding mechanisms and essential conservation programmes. Often underpinning these activities is the promotion of sustainable tourism products such as nature or heritage tourism, which ultimately has been shown to safeguard, not only the protected and conserved area network and its range of biodiversity and ecosystem

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services but also provide support to local economies and rural communities. A substantial global study on the economic value of protected area tourism, published in 2015, estimated that protected area tourism could be exceeding US\$600 billion in direct in country expenditure annually: a notable amount that way exceeds what was also estimated at that time as < US\$10billion required to safeguard these areas (Balmford et al., 2015). Mindful also of increasing understanding for the health and wellbeing benefits that public access to protected and conserved areas and other forms of green spaces can provide, increasing reliance is being placed on these areas for safeguarding not only environmental and ecosystem wellbeing, but undoubtedly enhancing, if not additionally safeguarding human health benefits.

Such is the potential for positive interactions between humans, protected area settings, and other urban forms of green and blue spaces, that the *One Health* initiative was driven by the IUCN in 2021 (IUCN, 2021). *One Health* recognises how interlinked people and place actually are, and that 70% of zoonotic diseases transfers to humans from wild animals and livestock (Allen et al., 2017; Jones et al., 2008). The initiative emphasises the prioritisation of solutions at national levels that are needed in order to prevent and mitigate impacts from the potential for pandemics in the future, and advocates the application of ‘a coordinated, collaborative, multidisciplinary, transboundary and cross-sectoral approach to address risks that originate at the animal–human–ecosystem interface’ (Hockings et al., 2020, 8).

15.2 IMPACTS OF COVID

The importance for recognising the interconnectivity of people and place was emphasised during the pandemic. Worldwide, our respective experiences of the pandemic have demonstrated to academics and practitioners of protected area management alike, the importance for coordination, collaboration, and communication across sectors. These experiences additionally demonstrated requirements for multidisciplinary approaches to research and management approaches required to address socio-economic-environmental issues in and around protected areas worldwide. COVID-19 rocked global systems, institutions, national economies, and social confidence, not least in terms of tourism and leisure activities contributing to the quality of life that many across the world had previously enjoyed pre-pandemic through their access to protected areas,

including nature reserves and coastlines, and to rural and urban green and blue spaces. COVID-19, and how the pandemic was managed, has impacted, and is continuing to impact many of these protected areas greatly.

Various strategies to prevent the spread of COVID-19 were undertaken by governments worldwide. Some of these were more restrictive than others. These strategies have included lockdowns and restricting public movement and interactions and were fundamentally inclusive of preventing/restricting overseas travel. Between January and May 2020, every global destination-imposed travel restrictions, and 45 per cent either totally or partially closed their borders to tourists (UNWTO, 2020). This strategy had impacts on local economies, and on communities dependent on tourism expenditure (Hockings et al., 2020). It resulted in the long-term closure of some protected areas, which in itself meant job losses for staff, and therefore with what fundamentally became unmanaged areas, had the potential to promote the risk of transferring additional zoonotic diseases. Combined, these factors alone have disrupted ‘decades of conservation effort’ (Hockings et al., 2020, 8).

Government budgets are increasingly being stretched, directed towards supporting public health strategies and concurrently dealing with the global socio-economic crises including cost-of-living increases, effects of war in Ukraine, and fuel price hikes for example. As a result, any funding originally directed to support the planning and management of natural environments is continuing to be questioned if not at risk of being discontinued, with huge consequences for progressing protected area management activities (Spenceley et al., 2021). Also, the likelihood of ‘rollbacks’ is increasingly overt, whereby governments’ previously planned commitments for environmental protection, conservation, and direction towards sustainable economic growth are at risk (Kroner, 2020).

15.3 THE CASE OF THE UK

Restrictions imposed across the UK due to COVID-19 have left a lasting legacy in terms of ‘a decline in mental health’ (ONS, 2021). The situation drove people to engage with their personal and public spaces in new, if not alternative ways. Remote working from home has become commonplace, around one in six (17% of) businesses intended to move to homeworking permanently, with 61% of these pointing to improved staff wellbeing as a reason for the change (ONS, 2021). Bedrooms, kitchens have been

converted into office spaces and naturalistic spaces including public and pocket parks in urban areas and protected areas in rural regions, have become of increased focus and attraction for many people, including for those whose interest in such spaces, prior to the pandemic, was negligible at best. Emerging research is demonstrating that for many—especially in urban areas and cities, a sense of freedom was sought, and nature became of increasing value in terms of enhancing health and wellbeing (c.f. Garrido et al., 2021, 2022). Indeed, nature experiences have proved to be considered as a ‘source of solace for many’ (ONS, 2021). The result of this situation for the UK’s protected areas has been a surge in visitors: a phenomenon equally reported across other protected areas across the EU and North America for example (McClanahan, 2020; Rose, 2021). Whilst a totally comprehensive reporting of the situation in the UK remains outstanding, examples of overwhelming public popularity for these areas includes visits to parks in Cornwall rising by 280% during the summer of 2020, with similar situations experienced in Devon and Norfolk, South England (ONS, 2021).

This mass exodus of people escaping from cities to experience the freedom of the open countryside has created additional challenges for protected area agencies and government bodies. Issues include reports of extensive overcrowding, claims of new visitor profiles with implications for managing new demands from visitors, extensive experiences of antisocial behaviour, rising not least to conflicts amongst different user groups (McGinlay et al., 2020). The situation took its toll on capacities to cope with increased and extensive footfall, and multiple incidences of environmental and social detrimental impacts in areas that are designated for their cultural and environmental values. For example, the Peak District National Park Authority is reported as spending on average £38,000 per year collecting litter: this expenditure was expected to double post-COVID (Pidd, 2021). Equally in Snowdonia, the second most visited National Park in Europe (Statista, 2021), it was reported that the numbers of visitors tackling the highest mountain in Wales, had risen by 40% compared to those in 2018. Unprecedented scenes of hundreds of people walking up Snowdon were considered to result in ‘the busiest visitor day in living memory’ according to National Park Authority representatives (BBC, 2021a). Such challenges have required effective, proactive, adaptive, and reactive management both to deal with issues as they surface, but also to work towards minimising risks of further excessive and unplanned use of our protected areas (Snow, 2021).

15.4 MANAGEMENT FRAMEWORKS, GUIDELINES, AND TOOLKITS: PRO-ACTION AND ADAPTATION

All forms of tourism will have some impact on natural environments: this has long been recognised and reported upon (c.f. Mathieson & Wall, 1982). Equally, a number of planning approaches, management frameworks, and best practice guidelines (See example in Box Case Study) have been promoted in academic and grey literature to manage tourism and visitor impacts. These work to avoid exceeding environmental and social carrying capacities of a given area, and to direct effective decisions on the management, monitoring, and development activities in protected areas guided by sustainability principles (Europarc, 2021).

Europarc Federation Sustainable Tourism in Protected Areas: Technical Guidelines (Europarc 2021)

- **‘Giving priority to protection:** A fundamental priority for the development and management of sustainable tourism should be to protect the area’s natural and cultural heritage and to enhance awareness, understanding, and appreciation of it.
- **Contributing to sustainable development:** Sustainable Tourism should follow the principles of sustainable development which means addressing all aspects of its environmental, social and economic impact in the short and long term.
- **Engaging all stakeholders:** All those affected by sustainable tourism should be able to participate in decisions about its development and management, and Partnership working should be encouraged.
- **Planning sustainable tourism effectively:** Sustainable Tourism development and management should be guided by a well-researched plan that sets out agreed objectives and actions.
- **Pursuing continuous improvement:** Tourism should be managed in such a way as to continuously reduce the negative impacts while improving visitors’ satisfaction, economic performance, local prosperity, and quality of life. Regular monitoring and reporting of progress and results should be part of the process’.

Guided by the European Landscape Convention (ELC), at the heart of protected area management is sustainable development and landscape planning (Dejeant-Pons, 2007). This takes a forward-looking stance on how a landscape is managed, it considers the integration of distinct land

uses, be they designated for development and/or for conservation, and it emphasises approaches that involve multiple stakeholders and public views in decisions taken: demonstrating appropriate governance and government of an area (Hewlett, 2015; Hewlett & Brown, 2018; Hewlett & Edwards, 2013). The emphasis is to be proactive, which calls for visionary planning and exploratory planning scenarios: the former ‘as a bottom-up approach for managing complex social–ecological systems in response to multiple system stresses, the climate emergency and competing policy priorities’; and the latter, exploratory scenarios, that provide for alternative considerations for what might happen in the future, for example in relation to coastal erosion, climate change, or other potential disasters, be they of natural or of human origin—as experienced during and since the COVID-19 pandemic (Lo et al., 2021, 446). Through visioning activities, actions on site can be guided, and enable policymakers to identify opportunities for facilitating any changes that might be needed.

To facilitate resource protection, tourism management and accommodate visitors, management frameworks such as limits of acceptable change (LAC), recreation opportunity spectrum (ROS), and carrying capacities, whether focused on social or environmental capacity, can provide structures to deploy and at least in theory, provide for opportunities to prevent/minimise environmental impacts. A commonly deployed planning tool is zonation. The demarcation of zones within a protected area allows for multiple and seemingly incompatible uses within it, by restricting or promoting visitor access according to the sensitivity of those zones. Thus, an area, at least in principle, can be configured to have the potential to accommodate multiple purposes including the development of tourism and leisure activities, tourism infrastructure, i.e. transportation hubs, car parking facilities, and/or creating zones for conservation and research purposes.

Yet as promising as these frameworks can appear to be, they can be highly challenging to implement in practice. This is especially due to the number of stakeholders involved in decision-making (Borrini-Feyerabend et al., 2013; Hewlett & Edwards, 2013) and the fact that a considerable investment in time, money and in diversity of skills on the part of rangers and other staff, is needed to work with these frameworks. For example, environmental carrying capacity, which at its most basic, means determining just how many visitors can be accommodated by any one area without destroying or degrading the environment, can present particular challenges. Carrying capacity relies upon a quantifiable measurement, a

threshold of usage by which an environment is understood to be pejoratively impacted. This threshold is notoriously difficult to measure. Its construction fundamentally draws upon a range of stakeholders' views, (as discussed further) and in terms of the environment itself, carrying capacity should be also drawing upon our knowledge of ecosystems, which by themselves will be a dynamic factor to consider. Consequently, the construction of carrying capacity, in terms of staff knowledge and skills, requires expertise in human behaviour **and** ecology, warranting that a multidisciplinary and interdisciplinary team should be enabled to guide the process. Ultimately, in the case of the EU, in line with principles of the ELC, constructing carrying capacities, additionally and fundamentally, requires the involvement of **all** stakeholders, including protected area staff, government representatives, residents, and the wider public, all of whom will present different values of an area, ideas, preferences, and invariably agendas on what they do or do not consider is too much or not enough tourism being attracted to a given area.

Alternative, and 'softer', approaches to visitor management (Ling Kuo, 2002; Mason, 2005) include the use of human guides, interpretation-information opportunities, and visitor communication strategies, all of which can have the potential to help mitigate and minimise negative impacts of visitors in environmentally sensitive areas (c.f. Mason, 2005 for advantages and challenges of approaches). Likewise, visitor communication strategies (e.g. media campaigns, leaflets, posters, digitally disseminated information on site) can be designed to convey information on the environmental and cultural values of a protected area and purposed to encourage pro-environmental and prosocial visitor behaviours. Such communications strategies have the potential of providing information to a far wider audience of visitors, as well as to residents.

What each of these tools has in common is the need for preparatory time for development and implementation, and the need to take into consideration visits forecast, to prepare for what impacts might be expected on site, and what tourists needs might be. They are often also influenced in practice, by far wider national policy agendas. Data is essential, and information will need to be sourced from a number of key stakeholders, landowners, environmental agencies, and tourism/leisure providers. If coastal areas are included, this will necessitate an additional array of marine-specific expertise, stakeholders, policies, and legislation to navigate. For historical context, benchmarks of environmental data, footfall, and visitor usage for example, are important to

evaluate the longitudinal context of usage and impacts. To advise planning and management processes, information is also required, for example: on visitor numbers, visitors' views on their experiences, visitors' behaviours on site, where the most and least popular routes for walking and cycling might be, visitor dispersion behaviours from key tourism transportation hubs/hotspots, and monitoring for any changes are fundamental amongst many other factors considered in evaluations to inform planning and management processes (Eagles et al., 2002).

The importance of these aspects is widely known, yet such tools can be hugely challenging to implement. For example, fundamental to all management strategies is funding, for both staff time on projects and potentially for the appropriation of existing or installation of new infrastructure. A diverse range of skills will be required and these together with the political will to provide support through funding mechanisms, legislative and policy frameworks, are fundamental to ensure that these vast spaces of highly regarded environmental and often cultural value are supported. Moreover, although such adaptive management strategies are unquestionably warranted as a key principle for both planning and implementing activities ahead of potential challenges (Eagles et al., 2002; Hewlett & Edwards, 2013; Spenceley et al., 2021) not all factors can necessarily be forecast: the pandemic and the surge in visitors experienced in protected areas is a prime example. Consequently, an ability to adapt if not react, informedly, to address 'unexpected disruptions' (Lo et al., 2021, 446) is also essential.

15.5 THE PANDEMIC, PROTECTED AREAS, MANAGEMENT STRATEGIES, AND OUTCOMES: CASE OF DORSET, UK

One area that was overwhelmed with visitors during the post-lockdown period of the pandemic, was Dorset in Southern England. The county encompasses the Dorset Area of Outstanding Natural Beauty, classified of international importance as a Category V IUCN protected landscape/seascape. Covering over 1,129 square kilometres, the Dorset AONB covers approximately 42% of the county of Dorset and stretches from Lyme Regis in the west, along the coast to Poole Harbour in the east, and north to Hambleton Hill near Blandford Forum (Fig. 14.1). It includes three Ramsar Sites; wetlands of global importance; nine Special Areas of Conservation (SACs) of international importance for habitats and species, and three Special Protection Areas (SPAs) of international importance for

birds. Together, SACs and SPAs form a network of ‘Natura 2000’ sites—European sites of the highest value for rare, endangered, or vulnerable habitats and species. National designations include nine National Nature Reserves (NNRs) which lie wholly within the AONB: 67 Sites of Special Scientific Interest (SSSIs) of national importance for their wildlife and/or geological interest; 646 Sites of Nature Conservation Interest (SNCIs); 1,581 hectares of Ancient Semi-Natural Woodland; of the eastern two-thirds of the Dorset and East Devon Coast World Heritage Site (‘Jurassic Coast’) and Marine Protected Areas in the sea adjacent. Access to the county is served by an international airport, a number of motorways linking major cities including London to Dorset, and relatively good rail links. It is one of the major tourism destinations in the south, and one of the most popular destinations. Such is its popularity and ease of access that in the surge of visitors experienced in 2020, Google mobility data recorded a 500% increase in visitations during this time (Google, 2021).

With visitors came multiple forms of impacts, some traditional and some new. These were especially evident in key tourism hotspots, where reports of exceeding capacity of tourism infrastructure was evident, even in the neighbouring town of Bournemouth where authorities announced a national emergency in an attempt to manage the overwhelming numbers of visitors to the south coast (BBC, 2020a). The social impact on communities included increases in illegal parking, the indiscriminate disposal of litter, human, and dog waste near residences and other forms of antisocial behaviour, including graffiti spray painted along parts of the coastal cliff face (BBC, 2020b; BBC, 2021b; BBC, 2021c; Fitch, 2020, 2021). Reports of fires and arson events were experienced, requiring Fire and Rescue Services intervention. Additionally, tourist activity was concentrated in well-known places, often promoted through Instagram and other online promotions that seemingly had replaced the use of literature provided at visitor centres. Yet although visitors focused on key known hotspots, their apparent quest for freedom and exploration led to their dispersal across vast areas of open space, resulting in an identifiable pattern of footpath erosion and concerns for new pathways being cut into the landscape by the increased footfall (Fig. 15.1).



Fig. 15.1 Location of COVIM (*Sources* © Crown copyright and database rights 2022 Ordnance Survey [100025252] and Dorset Council)

15.6 MANAGEMENT RESPONSES: THE CASE OF COVID VISITOR AND IMPACT MANAGEMENT STUDY (COVIM)

Such events called for urgent responses. At the international level, launched by the IUCN, the Global Taskforce on COVID-19 and Protected areas, led discussions amongst members representative of governing bodies, academic institutions, and protected area managing agencies worldwide, on impacts of the pandemic, potential for strategic responses and sharing of best practice. This resulted in members taking

recommendations to protected area agencies and other stakeholders in their respective countries.

In the UK case, and working at the regional level of Dorset, governing bodies, area authorities, and other stakeholders including emergency services were engaged in the continuation of their management practices (c.f. Fitch, 2021), namely scenario scoping and visioning practices, that resulted in adaptive management plans, that are guided by landscape planning and regional land-use approaches. To supplement the strategic working amongst a broad range of key stakeholders including custodian public sector officers of the Jurassic Coast and Dorset AONB, landowners, NGOs, and through governance consultative mechanisms with the wider public, a visitor communication campaign, ‘Promise to Love Dorset’ was developed by Dorset Council using Visit Dorset promotional platforms. The Council procured an external agency (Alive) to design, deliver the campaign, and supply all visuals and content. It was funded by a central government emergency fund created as part of the national strategy designed to support economic recovery post-COVID. This ran from April through to September 2021 and was primarily disseminated via social media and website platforms. Additional tools used included e-newsletter campaigns, on-site signage/banners at key car parks, radio and podcast advertisements, and roadside electronic billboards. Visit Dorset, the tourism marketing arm of Dorset Council, management organisations, the Lulworth Estate, the National Trust, Natural England, and NGOs, as well as town and parish councils, shared the campaign through their own channels to increase the messages to their audiences. The NGO Litter Free Dorset ran a focused multimedia campaign alerting people to the risks of lighting campfires or having barbecues (Snow, 2021), the campaign’s key objective was to influence visitor behaviour in terms of reducing what was considered as four major impacts: (a) the production of litter, (b) the number of fires caused by Barbecues or campfires, (c) illegal parking and camping, and (d) antisocial behaviour including vandalism, graffiti, and disposal of human and dog waste. A public safety message was emphasised to inform visitors to take care of eroding cliffs, a volatile coastline, to be aware of strong water currents and take caution with open water swimming, kayaking, and paddle-boarding, increasingly popular activities, to reduce the number of people getting into difficulty and requiring emergency services.

The visitor communication campaign was successful in terms of its reach on social media. An evaluation conducted by CAN Digital showed

that between July and September 2021, 18,815,682 impressions (number of digital views or engagements) were recorded and 281,629 people engaged with the campaign (reported as interactions recorded as click throughs, swipe ups, likes, shares, video views over a ten-second period). Additional data gathered from advertising platforms showed that the campaign appeared on the devices of 3.7 million people and that various elements of the campaign were interacted with (clicked, liked, shared) over 550,000 times (Snow, 2021).

Alongside this evaluation of the campaign on social media, the Covid Visitor and Impact Management study (COVIM) , was designed to: (1) evidence the suspected environmental impacts of increased visitors' numbers; and (2) evaluate the Promise to Love Dorset campaign's effectiveness and persuasiveness in influencing visitors' attitudes and behaviours on the ground. To date there has been little research that has looked at how effective or persuasive visitor communication strategies are in practice, and this study was intended to address this key gap. An overall aim of the project was to provide recommendations to inform existing management strategies and inform the design of an impact and visitor management framework. COVIM was led by Nature Based Collaborative Solutions, a Community Interest Company comprised social and environmental scientists, in partnership with the teams of Dorset AONB, Visit Dorset, additional landowners and managing agencies, and NGOs. COVIM was funded in part by a grant from the National Geographic Society, with supplementary support in terms of information and secondary data provided from governing bodies, NGOs, landowners and tourist organisations, and fire and rescue services in the area. COVIM commenced in May 2021 and was completed in July 2022.

15.7 CASE STUDY AREAS

Four tourism hotspots on the Dorset coast and along the Jurassic World Heritage coastline, were selected as case studies areas: (1) **Studland** a headland at the southern side of the entrance to Poole Harbour; it is characterised by beach, heathland, woodland, and protected sand dunes. (2) **Old Harry Rocks** an east-facing promontory around 2 miles to the south of Studland, and popular viewpoint. Around 15 miles to the west, (3) **Durdle Door** is centred around a natural sea arch of limestone. Adjoining it to the east, (4) **Lulworth Cove**, a natural south-facing cove featuring a popular beach and village (Fig. 15.1).

15.8 ENVIRONMENTAL AND VISITOR STUDIES

COVIM was based on two stages that ran concurrently. Firstly, an environmental study, the aim of which was to evaluate environmental impacts of visitors in each of the four case study areas. Four key indicators pertaining to visitor impacts on the natural environment were determined in consultation with our partners: fires, off-road parking, litter production, and footpath dynamics. Fires and off-road parking are primarily drivers of environmental degradation, whereas litter production and path erosion are impacts of visitors that may also serve as proxies for harder-to-measure ecological impacts. Data were collected from various sources to cover the period 2014 to 2021. The focal period was the years 2020 and 2021, whilst the earlier years enabled us to place the most recent observations in a temporal context, revealing the extent to which recent levels of impacts are atypical, and what a return to longer-run normality would entail.

Concurrently, we conducted a series of visitor's studies, looking at visitors' behaviour, attitudes, and experiences in some of the case study sites, with specific focus on the effectiveness of the Promise to Love Dorset campaign on encouraging pro-environmental behaviour and attitudes of visitors. It was intended that this study would contribute to an enhanced understanding of the factors influencing visitors' responses to messages that the campaign sought to convey, and to identify a set of 'practices' amongst tourists who share similar habits, thereby shedding light on how the design and distribution of these messages may be more persuasive. To meet these aims, three different visitor studies were conducted: (1) a visitor survey, (2) an on-site visitor observation study, and (3) on-site mini-interviews with visitors. Across all studies, data were collected in two periods: Summer (June–August) 2021 and Easter (April) 2022 to capture peak holiday periods over an 11-month period.

15.9 KEY FINDINGS

The environmental study sought to establish what impacts during 2020 could be discerned in comparison with previous years. As such a benchmark of such impacts, were provided to our partners, that could inform management strategies, especially for use in times where an informed reactive management approach to existing adaptive strategies may need to be deployed in the future. The key overall finding was that the year of the

pandemic, 2020, was a year of unusually intense visitor impacts on the natural environment. Although the temporal resolution is only annual for most of our environment data, the existence of a national lockdown throughout the spring of 2020 implies that the heavy impacts of this year were additionally concentrated into a shorter window of recreational time. In addition, environmental damage appears to have been increasing gradually but exponentially across the study area over the period 2014–2021. This is evidenced by average trends of 16% more fires per year, 27% more parking fines per year, and around 5% more footpath area per year, along with increasing annual fluctuations. The season of 2020 (despite being shortened by the pandemic), saw elevated impacts in all the features studied, whilst footpath erosion appears to have risen dramatically since the summer of 2020.

There were some marked disparities between the sites, however. In the Studland area (including Old Harry Rocks), fires were dramatically more common (an 85% increase demonstrated through number of calls received identifying incidences: Fig. 14.2) in 2020 than expected based on the seven-year trend, whereas the Lulworth area showed no such increase. Litter collected also increased strongly in 2020 (by around 100% above the seven-year rising trend: Fig. 14.3) at Studland, but not (as far as collection records show) at Lulworth. In the Lulworth area (including Durdle Door: Fig. 14.4), on the other hand, footpath erosion was stronger, apparently reaching 40% per year in the 2021–2022 period (Fig. 15.2).

In 2021, most environmental impacts appear to have decreased compared to 2020. Fire incidence at Studland dropped by 46% from the 2020 level (Fig. 15.2) to return to a value that was not significantly different from its seven-year trend ($t = 1.3$, $P = 0.1$: 2-tailed test). Parking fines at Studland dropped by 70% from the 2020 level (Fig. 9.2) to return to a value that was not significantly different from their seven-year trend ($t = -1.8$, $P = 0.07$: 2-tailed test). Our data were insufficient to detect changes in rates of litter production or footpath widening in 2021 (Fig. 15.3).

With regard to the *visitor studies*, Google mobility data recorded a 500% increase in 2020 on the previous year's visitations. In terms of who was on site, our data analyses showed that most visitors were day and short-break holiday-takers, two-thirds had visited the sites before, and most reported their intentions to return to international travel when restrictions were lifted. Perhaps unsurprisingly, given that our data were

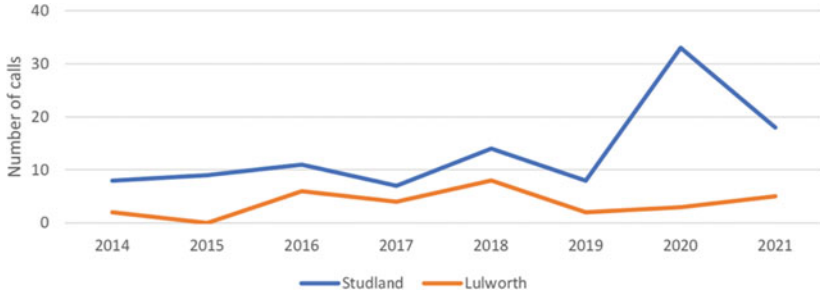


Fig. 15.2 Numbers of emergency calls likely related to fires for the two main areas studied, from 2014 to 2021. The Studland area experienced a significant anomaly (nearly twice the number of calls expected from an exponential regression line) in the lockdown year 2020

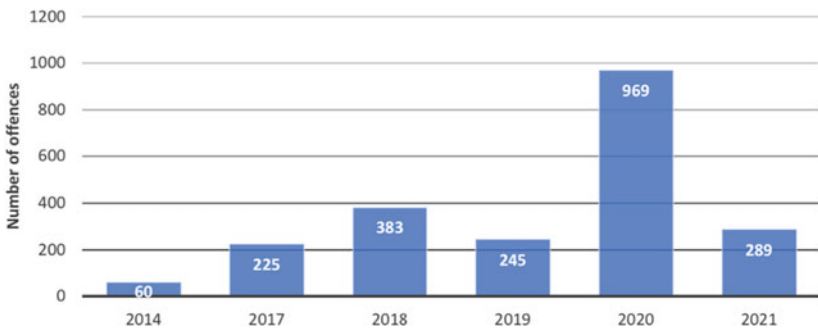


Fig. 15.3 Fly parking offences recorded in 2014 and 2017 onwards around the Studland site. There is a significant anomaly (about 40% above the number expected from an exponential regression line) in 2020

collected in peak school holiday periods, most visitor groups comprised of families with children. There were relatively small numbers of older adult visitors across all sites. This was particularly so in the summer season of 2021, where only seven per cent of visitors fell in this category, but even in Easter 2022 they made up just 10% of visitors observed. This could be COVID related, particularly in Summer 2021 when COVID restrictions were just being relaxed. Yet, this could also be due to the terrain

that would need to be navigated by visitors. This situation was particularly noted at Old Harry Rocks, a footpath that led along rough terrain, was open to nature and had few sitting points: the second example that involved navigating a < 600 m footpath which leads to 145 steps down to the beach. In terms of steepness, this varies on different sections of the footpath, however, the steepest section has been approximated of ranging between 10 and 15 degrees.

There is little infrastructure in place to aid visitors. Here despite the footpaths being in keeping with the landscape, they were frequently criticised by older and/or less mobile adult visitors as being inaccessible. In terms of visitor attitudes and behaviours, most visitors evinced a holiday/tourist motivation for visiting these locations, where nature was seen as an important background to (rather than foreground to) their reasons for being there. The key motivation for most visitors was simply to get away from it all, to relax and to spend time away with family and friends, particularly post the peak of COVID as most had been unable to go away on holidays for some time. Most visitors showed a strong environmental orientation, though this did not necessarily translate into varying levels of environmental behaviour being observed. For example, it seems clear that where behaviours required a high degree of 'effort', they were less likely to happen, e.g. taking litter home rather than putting it into a recycling bin on site.

Relatedly, most visitors seemed happy to obey the rules, but they did not always know what the rules were. Instead, they had their own ideas about what was appropriate on site that was related to what they had done in the past when on holiday, or what they saw as important to their own experience on site. Barbecues are a good example of this, as some visitors did not see these as being problematic, but instead thought they were an important part of what they did on the beach. Through the interviews it was clear, a tension did exist between the different 'groups' of tourists who were at a site in terms of their expectations and experiences. In particular, this was noted between those who want more touristic infrastructure such as bars and eateries and those who wanted less and who reported experiencing an over-commercialism of areas steeped in nature and heritage. This situation presents a significant challenge to those responsible for tourism and visitor management in terms of how to reconcile these competing demands.

In relation to the visitor communications campaign, of the 336 participants that were surveyed or interviewed on site, less than ten per cent,

reported seeing the campaign. Thus, whilst the reach of the visitor campaign was extensive in terms of social media presence, and its design was based on conveying positive messages to visitors, it would seem that its impact in influencing visitors' attitudes and behaviours on the ground was limited, and the campaign did not appear to change their understanding of the unique and diverse habitat, rules, and dangers presented by these locations. Fly parking was still evident, albeit 60% less in 2021 than would be expected from the seven-year trend. This might have been attributable to the campaign, although fire incidence was 40% higher than expected from the seven-year trend. It must be said that this is not entirely unusual in terms of social media campaigns, as there is considerable evidence that informational visitor campaigns are insufficient to achieve pro-environmental outcomes (e.g. see Abrahamsen et al., 2005). Research has indicated that to truly influence behaviour, it is important to fully incorporate behavioural change theory, and importantly to design campaigns that incorporate the views of those whose behaviours you are trying to change (c.f. Green et al., 2019). Our data on site provides some evidence for the real value of such an approach, with many participants expressing the environmental value of the area and their interest in doing more as individuals and groups. Overall, this does indicate that there is huge potential, as also identified by Visit Dorset (Snow, 2021), to change visitors' behaviours, where campaigns are designed with this in mind.

15.10 DISCUSSION

Adaptive and proactive management, scenario scoping and landscape planning practices are at the core of best practice in protected area management across the EU, and in the UK. Based on sustainable principles, in keeping with balancing use and conservation in these areas, their vision for longevity, and the legacy they provide for current and future generations is emphasised. Ongoing management assessment processes using indicators that help authorities know if they are or are not achieving their goals should be evident and improve protected area management, either directly through on-the-ground proactive and adaptive management or indirectly through improvement of national or international conservation approaches: all of which require funding. Yet, this process is all well and good when the status quo of an area is relatively well maintained.

During the pandemic, management processes including the availability of staff could not however, have perhaps forecast the speed with which COVID-19, was able to consume governments time, attention, funding mechanisms, etc., worldwide, and the activities warranted to make urgent decisions for public safety have had a knock-on pejorative effect on protected areas. The unfolding situation benefitted natural areas indirectly by the absence of public use, yet it also challenged their management through the sheer and sudden surge in visitor numbers. The situation was unprecedented. As evidenced by the case of Dorset, best practice management principles are demonstrated across the area, including in terms of increasing organisations' insights into the tourism attracted to the area, through engaging with the COVIM research team, which additionally enabled an evaluation of the authorities' own visitor campaign. Yet multiple impacts continued to be demonstrated and visitations could feasibly be considered to have exceeded social and environmental capacities.

Key indicative impacts recorded in our study from 2020 related to footfall, in that main footpaths widened by an average of up to 40% per year following the release from lockdown, whilst fires increased by up to 85%, litter production by 100%, and illegal parking by up to 150%. Thus, visitor numbers impacted extensive tracts of managed footpaths, and cut new footpaths into the landscape, whilst inappropriate use of barbecues resulted in a number of fires, one of which on the outskirts of our case study areas destroyed two acres of forest: replicating a fire in the same forest the previous year that damaged 220 hectares (BBC, 2021d). The amount of litter grew in 2020, (Pidd, 2021) and clear examples of antisocial behaviour were regularly reported by the media.

The visitor communications campaign was designed to ameliorate these negative impacts. Importantly, in line with best practice and the management of protected areas and green spaces (Leung et al., 2018; EUROPARC, 2021), although it is recognised that evaluations of techniques used can be difficult (Slaymaker, 2016), an evaluation of the campaign on the ground was welcomed. As discussed above, the COVIM evaluation showed that despite the reach of the campaign, fewer than ten per cent of those surveyed reported that they had seen the campaign and of those that could, none were able to recall its messages. This meant that COVIM was unable to make any quantifiable determination of how the campaign influenced visitors when on site. The researchers observed and reported on clear abuses of safety precautions in Durdle Door for

example, in relation to just how close the public were to crumbling cliff edges. The media reported on a number of incidences along the cliffs, where visitors ignored messages as to their vulnerability along cliff edges and incidences of visitors in distress in the sea resulted in their needing help from rescue services (examples Klein, 2021; Ping, 2022) (Fig. 15.4).

The visitor studies provided insights into their experiences and how tourism and visitor management was progressed in the case study areas. As discussed above, in all areas, many tourists complained about the lack of bins made available, and some expressed concerns during the heat of the summer, for taking their litter home, including dog waste, with them when they left. Additional complaints were conveyed as to how public transportation to the sites could be improved in terms of frequency and location to case study areas, resulting in long walks often over make-shift walkways. Related to inaccessibility reported by visitors, and specifically at Durdle Door, concerns were additionally conveyed for what was considered to be only exclusive access being provided for those able, relatively young and physically fit. At each of the case study areas, there was also a clear distinction, if not conflicting views amongst visitors as to those who wanted more tourism infrastructure, i.e. shops, cafes, increased car parking facilities and those who wanted less.

Despite years of underfunding, political involvement in the management of these areas, and a multitude of stakeholders involved in the



Fig. 15.4 Visitors at cliff edge above Man O' War Beach, Durdle Door (Denise Hewlett)

governance and management of our protected areas, best practices in the management of such protected areas are being demonstrated. Yet as with so many other protected areas in Europe (McClanahan, 2020), the unprecedented nature of the pandemic and surge in visitors to our green and blue spaces, meant that management in situ was weakened. Additionally, this situation is exacerbated as in the UK's case, there is a striking inability to constrain visitor numbers, many of our spaces are not boundaried, and there are no central hubs of transportation with which to count numbers entering/leaving an area—this is fundamentally important to be able to inform carrying capacity evaluations and monitoring visitor numbers. Additionally, our managing agencies in Dorset have for years received limited government funding, impacting staffing in terms of numbers and skills, and impacting capital asset budgets required to instal infrastructure that can enhance zonation strategies for example, and direct visitors to areas identified for usage, and away from areas designated for conservation and/or research purposes. The situation is still, at this time of writing, very questionable. The UK, having left the European Union, is increasingly facing political turmoil with huge and impactful deficits in our national economy, in part created by a context derived from the post-pandemic outfall, political and economic instability, and war in Ukraine. Moreover, with major impacts on our economy, recession, fuel hikes, and inflation, the UK national debt, is currently forecast to tip £2.45 trillion (Ukpublicspending, 2023): an eye watering figure which will challenge public expenditure budgets for decades to come. It is suspected that as with other protected areas worldwide (Kroner, 2020), a 'rolling back' of funding and of political support, may well be coming towards the UK protected area network.

Acknowledgements Sincerest thanks to the National Geographic Society who awarded the COVIM team with funding that made this research possible. Our thanks especially go to Julia Luthringer, our funding officer at the National Geographic who provided support and guidance throughout our collaborations with the organisation. We are also hugely grateful to the teams of the Dorset Area of Outstanding Natural Beauty, of Visit Dorset, of the National Trust Studland Team, of the GIS officer of the Dorset Fire and Rescue Service, and thanks to the Lulworth Estate and the Lulworth Rangers: all of whom provided the research team with access permissions, and who provided secondary data sets that enabled comparative research to be completed.

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