

Managing Visitor Risk in National Parks



Anna Gstaettner , Kate Rodger , and Diane Lee 

Abstract In a context where visitors seek enjoyment, adventure and fun, re-occurring injury and death represents a complex reality for national park management agencies. At one level, there is a need to understand why visitor incidents and accidents occur. Yet, arising at another level is the issue concerning who is responsible for preventing incidents. This chapter presents an overview of the current state of research on the complexities involved in managing risk in national parks from the pre-COVID-19 era and explores implications from the analysis under the *new normal* paradigm. Using Western Australia (WA) as a case study, we ponder what a new normal might look like in times when international travel restrictions coincide with government initiatives promoting regional tourism, and what this may mean for managing risk in our parks.

Keywords Tourism · Visitors · National parks · Risk management · COVID-19

Introduction

In addition to biodiversity conservation and the preservation of cultural and natural resources, the use of natural areas for relaxation, exercise, mental wellbeing, and psychological restoration is a key driver of support for national parks around the globe (Stolton et al., 2015). Being outdoors in the natural environment has been linked to a wide variety of benefits (Bowler et al., 2010; Keniger et al., 2013; Moyle & Weiler, 2017). Visiting national parks is considered a strategic opportunity to enhance public health and wellbeing, foster productivity and enhance social

A. Gstaettner (✉) · D. Lee

College of Arts, Business, Law & Social Sciences, Murdoch University, Perth, WA, Australia
e-mail: a.gstaettner@murdoch.edu.au; D.Lee@murdoch.edu.au

K. Rodger

School of Environmental Science, Murdoch University, Perth, WA, Australia
e-mail: kate.rodger@dbca.wa.gov.au

© The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2021

J. Wilks et al. (eds.), *Tourist Health, Safety and Wellbeing in the New Normal*,
https://doi.org/10.1007/978-981-16-5415-2_16

resilience (Maller et al., 2009). However, through participating in activities such as hiking, rock climbing, swimming or snorkelling, visitors to national parks are exposed to challenging environmental conditions and a variety of physical hazards presenting injury risk.

With the aim to maximise social benefits and minimise costs, management agencies of recreational protected areas are urged to make these locales accessible and safe to visitors (Buckley, 2002; Eagles, 2014). Recreational protected areas such as national parks are increasingly modelled as managed tourism and recreation products (high visitation numbers combined with managed infrastructure provision) which may prompt visitors to expect that nature-based experiences in parks are always safe to enjoy (Gstaettner et al., 2017; Puustinen et al., 2009). Consequent to these expectations, injury-related incidents occurring in these areas may instigate litigation action against land managers (Sadler, 2004; Shibasaki et al., 2010). While considered a personal misfortune, visitor injury may also prompt accusations of negligence through failures of management intervention (Burton & Kates, 1964; McDonald, 2003).

While the world is reacting and responding to the effects of the global pandemic COVID-19, it is timely to reimagine the complexities of managing risk in the context of nature-based tourism in national parks. Many countries have issued some form of lockdown and social distancing measures to reduce rates of community transmission, and many introduced international travel bans to reduce the spread of the disease (see *Part V Government and Industry Activity: Government Travel Advisories*). These restrictions and an associated focus on locally-based tourism have changed how people travel and where they can go. Preliminary research shows that people seek to connect or reconnect with nature in times of stress and crisis, with recent reports indicating an upsurge in park and forest visitation levels (Derks et al., 2020; Geng et al., 2020).

This chapter presents an overview of the current state of research on the complexities involved in managing risk in national parks from the pre-COVID-19 era and explores implications of the findings under the new normal paradigm. As researchers from the Australian state of Western Australia (WA), a geographically isolated state within a geographically isolated country, we take this opportunity to explore risk management issues from a proactive rather than reactive standpoint. As a country, Australia closed its borders to international tourists at 9:00 pm AEDT, 20th March, 2020 and WA borders were closed to the rest of the country on midnight, 5th April 2020. As of late 2020, these restrictions were still in place. This action likely contributed to WA experiencing no community transmission of COVID-19 since April 2020, a rare outcome in current global conditions. Much of the domestic tourism industry is thriving and visitation to national parks is at an all-time high.

Risk of Injury in National Parks

Tourist safety is considered a growing field of research that includes investigations into patterns of tourist activities and associated injury, appropriate management of risk, and issues of litigation where incidents and accidents occur (Page, 2009). Descriptive epidemiological analyses of recreational injury have been undertaken to identify trends and patterns of incident causes (Golding et al., 2002; Gstaettner, 2020; Heggie & Heggie, 2004, 2008, 2009), propose incident prevention opportunities (Boore & Bock, 2013; Kortenkamp et al., 2017) and to determine whether and how much visitors adopt preventative measures to reduce their risk of injury (Bird et al., 2010; Brandenburg & Locke, 2017; Gstaettner et al., 2020).

However, statistical evidence on tourist morbidity and mortality in national parks should be treated with caution given the difficulty in establishing a comprehensive reflection of incident occurrence in parks around the world. Published studies capturing trends and patterns of visitor incident occurrences tend to be confined to the context of a particular country, to specific park areas, or particular activity types. Bentley and Page (2008) for example examined the scope of tourist accidents in the New Zealand adventure tourism industry; Uriely et al. (2002) focused on hikers in Israel's deserts; and Heggie and Heggie (2004) investigated injury and illness of park visitors in Hawaii. The degree of detail also varies between different studies. Incident analyses have been conducted using a variety of data sources such as coronial death reports (Tiemensma, 2019), park search and rescue statistics (Boore & Bock, 2013), records of medical centres (Ramanpong et al., 2020) or incident databases of park management agencies themselves (Gstaettner, 2020). Information obtained from each of these sources varies significantly in depth and usability; and even if only one single data source is used, inconsistencies exist when comparing incident trends and patterns between two different parks (Gstaettner et al., 2019a).

Recreational visits to natural settings can involve exposure to a variety of environmental hazards, ranging from tripping and slipping accidents associated with relatively minor injury to incidents causing severe trauma or death (Bentley et al., 2008; Heggie et al., 2008; Soulé et al., 2017). Visitor risk greatly differs between parks where it mainly arises from particular environmental conditions that people are exposed to. Environmental hazards that affect visitor risk in national parks include:

- Cliffs or waterfalls (Flaherty & Caumes, 2018; Girasek et al., 2016)
- Dangerous animals (Appleby et al., 2018; Cherry et al., 2018; Gunther & Haroldson, 2020)
- Extreme climate or weather conditions, lightning (Jeuring & Becken, 2013; Ströhle et al., 2018)
- Floods or flash-floods (Espiner, 2001; Sakals et al., 2010)
- Remoteness (Gstaettner et al., 2019a; Saxon et al., 2015)
- Rivers and lakes (Heggie, 2018; Peden et al., 2016a, b)

- Rockfalls, landslides (Muzzillo et al., 2018; Stock et al., 2014)
- Tree falls (Shibasaki et al., 2010)
- Volcanoes (Erfurt-Cooper, 2014; Bird & Gísladóttir, 2020; Heggie & Heggie, 2004)
- Water currents or rips (Ménard et al., 2018; Wilks, 2017).

Safety also depends on how visitors behave in parks and the activities that they participate in. Hiking for example, which is commonly classified in the low-risk spectrum of outdoor adventure tourism, has in fact one of the highest rates of accidents and injury occurrences (Bentley et al., 2008; Boore & Bock, 2013; Heggie & Heggie, 2009). Some researchers suggest that this outcome may result from these activities being perceived to be low in risk and therefore considered suitable for “normal” (i.e., potentially rather inexperienced) visitors (Bentley et al., 2010; Rickard, 2014a; Wilks, 2008). Water-based activities such as swimming and snorkelling are also of relatively high risk, with drowning being one of the leading causes of visitor deaths related to nature-based tourism and recreation in Australia (Gstaettner, 2020; Leggat & Wilks, 2009; Peden et al., 2016b).

The possibility of injury in national parks arises particularly when park visitors have a limited understanding of local hazard conditions. Here the potential for harm is magnified, for instance, when international visitors find themselves in unfamiliar environments or participate in unfamiliar activities during their visit (Wilks, 2008). Previous research has shown that in-experienced visitors (Heggie & Heggie, 2004), particularly those that are younger and less fit (Mason et al., 2013), and/or those engaging in nature-based tourism activities without tour guidance (Bentley & Page, 2008), are considered most vulnerable.

Many accidents and injuries are considered preventable, or their negative impacts reducible, where recommended safety advice is adhered to (McDonald, 2003; Ritchie et al., 2014). Boore and Bock (2013), for example, suggest that being prepared by wearing appropriate footwear and taking appropriate amounts of water could prevent many of the hiking-related injuries recorded in United States national parks. Mason et al. (2013) propose that hiker preparedness includes carrying a map and a compass, extra clothing and rain gear, a fire starter and a light source, extra food and water, a knife, a first aid kit and a whistle. Assessed against these standards, however, they found that most hikers interviewed were significantly underprepared, often with the belief that the hiking trip was only of short duration/length and therefore these items were not needed (see Fig. 1). Deficiencies in preparedness for risk were also found in a study assessing preparedness of mountain climbers (Brandenburg & Davis, 2016) and in relation to swimming ability in ocean waters (Gstaettner et al., 2017; McCool et al., 2008).

There is also growing concern that carrying electronic devices such as light-weight GPS units, satellite-based personal locator beacons (PLB), or satellite- or smart-phones may reduce individual preparedness and capability to cope with risk. Carrying these devices may provide recreationalists with a sense of security and is thought to potentially lower the perceived need to possess wilderness skills when



Fig. 1 Hikers are often unprepared for conditions in national parks. (Image courtesy of Dr Anna Gstaettner)

venturing outdoors (Dustin et al., 2017). Visitors may fully rely on these devices to navigate them through remote park areas and provide an option to access emergency services, raising concerns that this may lead to an increased expectation that emergency rescue is always readily available, even in remote areas (Wick, 2016). Dangerous selfie-taking in parks may also be of concern (Weiler et al., 2021). Taking a selfie inherently means that park visitors turn their back to the natural environment (see Fig. 2) drawing away attention from possible dangers as they are transfixed by the images on their media device (Kohn, 2018).

Heggie and Amundson (2009) proposed that while inappropriate equipment or clothing was one major driver of park incidents, personal errors of judgement, insufficient physical conditioning, and lack of experience also play a significant role. Park visitors generally tend to focus on the benefits of the park experience rather than injury risks (Gstaettner et al., 2017). Previous research has shown that visitors may behave irresponsibly in regards to their own safety, sometimes deliberately choosing to neglect or ignore safety advice (Parkin & Morris, 2005). *Visitor-Related Risk Factors* provides a summary of a review of the literature for visitor-related factors that may contribute to the occurrence of recreational incidents in nature-based tourism.



Fig. 2 Dangerous selfie-taking in national parks is also of concern. (Image courtesy of Dr Anna Gstaettner)

Visitor-Related Risk Factors

- | | |
|--|---|
| <ul style="list-style-type: none"> • age, gender • being in a group • exposure to hazard (proximity, length) • lack of knowledge/experience, unfamiliarity with environment/activity • lack of abilities (skills/fitness) • lack of situational awareness • language/cultural factors • insufficient acquisition of safety information • lack of protective equipment/suitable clothing/shoes | <ul style="list-style-type: none"> • not carrying enough water • unnecessary risk-taking • overestimation of own abilities • heuristic traps in decision making • ignoring safety warnings/instructions • not accepting responsibility for safety • low risk perceptions; false sense of safety/security • leisure feeling • intoxication, alcohol consumption |
|--|---|

Source: Gstaettner et al. (2018)

Managing Visitor Risks in Parks

Managing the safety of people who visit national parks is a major component of management obligations for park agencies. At one level, there is a need to understand the phenomenon of unintentional injury in national park environments.

Incident reporting and analysis are considered a core element of visitor management systems, which play a significant role in identifying contingent safety concerns (Gstaettner et al., 2019a). Information of incident patterns and trends can be used to evaluate current risk management approaches and can help park managers to identify ways for improvement. Records of incidents provide an important learning platform from which candidate risk factors can be identified and organisational structures reviewed.

Yet, at another level, there is also the issue of who should be responsible for preventing incidents in national parks. Visitor incidents and accidents can have devastating and sometimes long-term impacts on the lives of victims, often imposing high costs of medical treatment and rehabilitation (Forrester et al., 2018). Costs also include a variety of indirect costs to society that cannot be easily measured, potentially affecting work productivity, personal independence and social capital (Butcher, 2004). On top of that, the requirement to respond to incidents and accidents in recreational protected areas can negatively impact the psychological well-being of rescue teams and park staff (English, 2018). Costs associated with incidents and accidents also include the financial costs of search and rescue operations, which can be particularly high when aircraft are involved to access difficult terrain (Small et al., 2018).

In a context where visitors seek enjoyment, adventure and fun, re-occurring visitor injury and death represents a complex reality for national park management agencies. Table 1 provides a synopsis of recent studies on this topic.

For park management agencies, responsibility for visitor safety is fundamentally framed around the legal principle of *duty of care*; a legal principle that is based on the requirement to consider potential consequences for others, and to take

Table 1 Selected works on responsibility for visitor safety in national parks

Author(s) and year	Study Focus	Findings
Espiner (2001)	Risk and responsibility in park management	Nature-based tourism experiences in parks are increasingly linked with high service expectations. Visitors have relatively low awareness of hazards. In contrast to visitors, park managers consider risk of harm to be significant.
McDonald (2003)	Financial liability of park managers	Review of uncertain legal environment when managing visitor risks in parks.
Rickard et al. (2011)	Responsibility attribution, risk, and support for risk management	Most visitors perceive themselves as responsible for their own safety. Those visitors who expressed strong feelings of individual responsibility were less likely to support preventative risk management.
Jeuring and Becken (2013)	Responsibility for information seeking	Attributions of responsibility vary among tourists; a small group exists with a relatively high reliance on external safety measures. Perceived lack of knowledge about severe weather conditions was not necessarily related to increased personal information-seeking behaviour.

(continued)

Table 1 (continued)

Author(s) and year	Study Focus	Findings
Rickard (2014a)	Risk and responsibility in park management	Park managers perceive visitors as responsible for avoiding undesirable risk through information seeking and awareness, but also recognise that these actions might be considerable barriers. Physical cues such as handrails, trails and signs in parks construct the appearance of safety provision in parks.
Rickard (2014b)	Responsibility attribution and risk	People tend to attribute responsibility for a hypothetical accident to internal (related to characteristics of the victim), rather than external (related to characteristics of the park or park management) causes. Having experienced a similar accident increased internal causal attribution.
Gstaettner et al. (2018)	Risky behaviour in parks and support for management	Park visitors focus on benefits rather than risks. Visitors support risk management intervention as long as it does not impede their experience but enables safe enjoyment of nature's qualities.
Gstaettner et al. (2019b)	Responsibility to prevent accidents	Responsibility for visitor safety is shared between park managers and visitors. For management agencies, responsibility is based on the legal principle of <i>duty of care</i> . Responsibility parameters can be established by the park visitation context, including geographical attributes, level of service development, and promotion and marketing.
Gstaettner et al. (2020)	Responsibility to prevent accidents and visitor preparedness	Visitors accept responsibility for their safety, but this did not necessarily translate into the view that management agencies are not responsible for visitor safety. Greater attribution of responsibility to park management agencies was linked to lower visitor confidence to deal with a potential emergency event themselves.

reasonable steps to not cause foreseeable harm (see *Part V Government and Industry Activity: Safe Travel—The Legal Duty of Care to Keep Tourists Safe*). Park management agencies have a duty to ensure that premises are fit for purpose, and to take reasonable care to maintain and repair the premises and facilities to avoid accidents. Moreover, responsibility for visitor safety also arises because of managers' specialist knowledge of hazards and associated risk in parks (Gstaettner et al., 2019b). This "superior knowledge", stemming from a professional involvement in managing these environments, manifests in manager responsibility to assess risks from static and dynamic hazards, and their interactions, and consider these risks in accordance with factors of exposure (frequency of use and type of visitor) and potential budget constraints when making visitor risk management decisions.

While the above description of responsibility is largely built upon mandated obligations established under occupiers' liability legislation and laws of negligence (Atherton & Atherton, 2010), other stakeholder groups also share responsibility for visitor safety (Gstaettner et al., 2019b). Close collaboration with other government agencies as well as local emergency services and tourism businesses is central to the development of an effective risk management and incident response system. Moreover, tourism support organisations or social media communicators share some responsibility for park visitors' safety, having moral obligations to promote tourism activity in a safe and responsible way (Gstaettner et al., 2019b). The coordination of multiple sources of information, including social media, to avoid inconsistencies in how particular park settings are promoted is a challenge in visitor safety management (Saunders et al., 2019). Collaborative efforts for safety management should therefore also include sources of third-party communications.

How Much Risk Is Acceptable?

Conflicts of responsibility often only become apparent in the event of a traumatic incident. Never is there only one stakeholder capable of managing all risks in any circumstance and it is difficult to identify the particular actions of each party that have contributed to the outcome. When visitors are known to lack the required knowledge and skills to approach dangerous situations in parks, uncertainty remains where responsibility for safety begins and where it ends.

A large part of the complexity of managing safety in park areas stems from the dual connotation of risk when linked to the natural environment. For example, Hill et al. (2014) suggested that nature-based experiences can provoke feelings of enjoyment as well as vulnerability and fear at the same time. Similarly, Mackenzie and Kerr (2012) uncovered the paradoxical desires for both adventure and safety for those taking part in an outdoor adventure tour. Risk can be regarded as both the potential to experience a negative outcome that should be avoided and as an accepted and even valued experience when seen as a situation of challenge to overcome (Gstaettner et al., 2018). Espiner (2001) noted that it is the values that are assigned to an expected outcome that determine whether risk is viewed positively or negatively. For some, the encounter of risk and personal challenge forms an essential part of the experiential outdoor environment (Dickson, 2012); an unavoidable aspect when searching for the optimal rush experience (Buckley, 2012).

Complexities also arise through a variety of situational triggers that contribute to a variation in how responsibility is shared between management agencies and the visiting public in parks. Park agencies are typically responsible for managing a range of settings, from remote to highly developed. This has implications when deciding on appropriate risk management measures. Management responses to hazards should consider a variety of aspects such as levels of visitation, associated variability in visitor type, and variance in activity opportunities. Some visitor groups

may be at higher risk than others, and management agencies need to account for these differences when making risk management decisions. Research in Australia identified three contextual dimensions that define responsibility parameters within a standardised risk management process (Gstaettner et al., 2019b). These three dimensions include geographical attributes such as accessibility and remoteness; level of service development at a site, and promotion and marketing (Fig. 3).

The geographical dimension is characterised by the amount of effort required by the visitor (or emergency response) to access a site. Remoteness can impact the spatial and functional accessibility of a park, affecting the number of visitors and therefore the diversity of visitor types. Generally, greater management responsibility is assumed for park areas that are conveniently accessible because this increases the possibility that opportunistic and/or unprepared visitors enter the park environment. Similarly, the site development and promotional efforts affect the magnitude and manner of site usage, therefore impacting whether a site is visited by people who may or may not be experienced with local hazard conditions. Some visitor groups may require additional safety considerations, as different types of hazards present different risks for different visitor groups.

Complexities in terms of risk and responsibility arise when these conditions change. For example, modification to the geographical dimension that reduces the effort required to access a site will affect the number of visitors as well as the types of visitors it attracts, and greater management responsibility arises when accessibility is improved. Likewise, modification to the service dimension through the instalment of additional management measures influences the expectations of visitors, in that the more developed an area appears the higher the expectations of visitors in terms of safety. Visitors use visual cues when interpreting their visitation experience, so the presence of pathways, shelters, signposts, or warning messages can prompt greater expectations towards protected area managers to ensure safety provision (Rickard, 2014a). With an increased level of management control, visitors

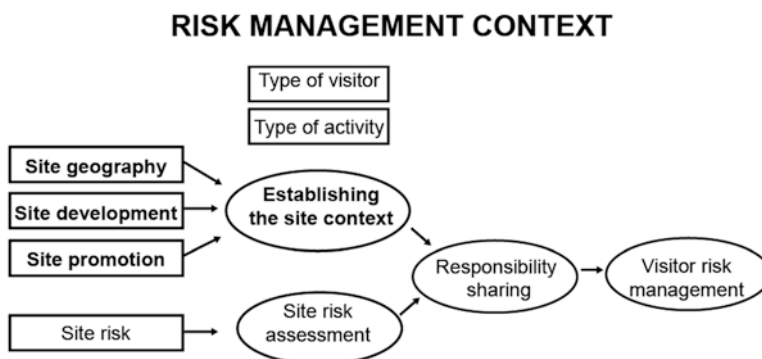


Fig. 3 Site dimensions define the risk management context within which risk management decisions are made. (Source: Gstaettner et al., 2019b)

may develop the impression that a park is not dangerous, introducing a sense of overconfidence related to safety because the park is perceived to be managed well (Gstaettner et al., 2021). Driven by responsibility obligations and associated accountabilities by park management agencies, managing the safety of visitors can trigger a cyclical feedback process in which there is an ever-increasing requirement for risk management intervention, together with increasing expectations for safety and a high reliance on management advice.

This cyclical feedback process draws attention to the requirement to balance contextual variables when parks are modified in an attempt to accommodate higher visitation numbers (e.g., improved road access, site hardening, additional shelters) or when visitor activities are extended to suit a broader range of visitor clientele. The risk management challenge lies in the need to balance legal and moral obligations with societal expectations, particularly when intervention efforts affect people's appreciation of danger and their perceptions on the requirement to prepare for risk.

Managing Park Visitor Safety in the New Normal

As the world fitfully rebounds from the impacts of the global pandemic, many national park managers are confronted with what is now widely referred to as the *new normal*. Globally, it is exceedingly difficult to describe or explain what the new normal actually looks like as each country is experiencing COVID-19 in its own way. In WA, at the time of writing (December 2020) there is a somewhat unique situation of no recorded community transmission of the virus since April 2020. To achieve the eradication of COVID-19 in the state, the Government undertook a measured and regulated approach implementing non-porous national, state and regional borders to restrict travel in and around WA (Fig. 4). The closing of Australia's international borders resulted in international scheduled passenger traffic in September 2020 dropping to 62,120 arrivals, compared to 3.5 million in September 2019, with an overall decrease of 98% (Bureau of Infrastructure and Transport Research Economics, 2020). The approach of restricting international visitors into Australia and interstate visitors into WA has likely contributed to a successful limiting of virus spread, resulting in WA residents having the opportunity to be opened up internally with work and intra state travel that resumed in May 2020.

As a result of initial response measures such as travel bans, lock-downs and associated closure of many businesses, there has been a significant negative impact on WA's local economy, particularly on the hospitality and tourism sector. To boost local and regional tourism, a campaign was launched by the WA State Government to encourage residents to travel and work in regional areas, as a way to alleviate decreased tourism and labour shortages due to the coronavirus pandemic (Case Study 1).

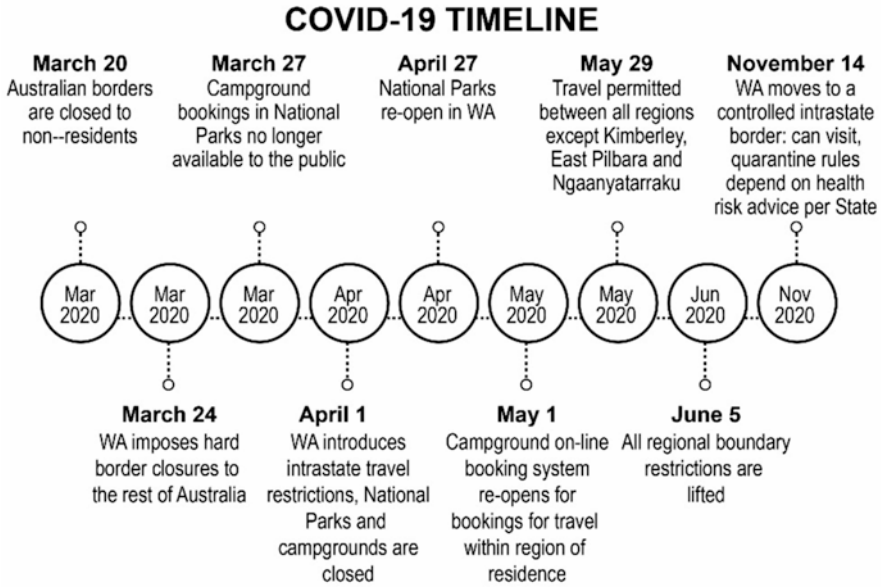


Fig. 4 WA COVID-19 timeline (*current situation at time of writing)

Case Study 1: Wander Out Yonder—A WA Government Tourism Policy Initiative

In March 2020, Australia closed its borders to international visitors. To combat the spread of COVID-19, borders were closed to the other states of Australia and only limited regional travel was allowed within WA. The local tourism industry was decimated.

Regional restrictions were rescinded on June 5th and the *Wander out Yonder* initiative was presented through the media in September 2020. This initiative aimed to encourage Western Australians, within their own state, in “...exploring locations they have never been and embarking on experiences they have never had.”

An investment by the WA Government of \$1 million for this campaign was to provide a return of \$2 million to the WA tourism industry. The WA Government had recognised that while domestic tourism levels were high, there was a missing factor of international and interstate visitors utilising tour business and itineraries. The success of this initiative was recognised when ten thousand \$100 vouchers for intrastate tour experiences were sold out within 4 min of opening.

After being forced to remain isolated indoors during the lock-down period, WA residents had the chance to venture outside to visit local, regional and national parks. This became a prime opportunity for a much-needed mental health break in WA

among residents (Cabrera, 2020). Access to nature is inextricably linked to the resilience of urban communities, as public interaction with the natural environment contributes to physical, social and psychological health (Townsend & Weerasuriya, 2010). Particularly in times of crisis, exposure to natural outdoor environments provides an important means to cope with isolation and stress experienced as a result of travel restrictions and social distancing measures (Samuelsson et al., 2020). With the intention to counteract feelings of being “trapped” within restrictions and closed borders, the campaign emphasised that “we’re still free to *Wander out Yonder*” (Government of Western Australia, 2020)—and many indeed do.

A significant increase in park visitation was recorded, particularly for parks within a 4-h drive of Perth (Thomas, 2020). Monitored trails located close to major population centres experienced growth in visitation. Where trail monitoring occurs, increases in trail use in 2019–2020, when compared to 2018–2019, were recorded in Swan Region (1 h from Perth; +36%), Wellington Region (2.5 h from Perth; +24%), and the Blackwood Region (2.5 h from Perth; +19%). Campsite bookings post-lockdown increased by almost one-third (31%) between 2019 and 2020, for similar periods.

Government initiatives for a stronger tourism industry, however, can have expected and unexpected outcomes. When additional promotional efforts increase the number of visitors in park areas, many of those will be visiting a park for the first time. Previous research has already shown that first-time visitors and repeat visitors are a different cohort. For example, first-time visitors tend to travel longer distances in order to visit a national park (Kruger et al., 2014), and they have a tendency to visit more places and take part in more activities at a destination (Opperman, 1997). Both of these aspects can be problematic from a risk management perspective, as first-time visitors might not be fully familiar with local hazard conditions and might not take the time to appropriately prepare for an activity, resulting in a heightened risk of injury in WA national parks (Case Study 2).

Case Study 2: The Inexperienced Visitor

With the arrival of COVID-19 into Australia came border closures, lockdowns and restrictions on travel. These actions resulted in the eradication of community transmission of the virus in WA and residents were soon able to resume work and travel within the state. Steep increases in park visitation were reported. To gain a park agency perspective on what this might mean for managing visitors in the new normal, interviews were undertaken with WA Parks and Wildlife Services staff.

According to park managers, post-COVID-19 conditions resulted in an increased prevalence of the *Inexperienced Visitor* in national parks. Park agency staff commented that with a general increase in visitation numbers, it appears that this is particularly driven by an increase in the *number of people who have limited experience travelling to remote park areas*. This visitor group is not familiar with and not equipped to handle the extreme conditions of the places they are visiting. They further tend to underestimate the need to actively seek out safety information that allows them to prepare for risk, creating a potentially significant safety management issue.

Industry reports suggest that national parks in the United States are seeing similar issues as a result of increased park visitation. Coinciding with a large increase in outdoor recreation amid COVID-19 restrictions, particularly in hiking, climbing, biking and camping activities (Outdoor Industry Association, 2020), reports from search and rescue teams and park managers indicate an increase in incident occurrence (Howard, 2020; Pilson, 2020). While more research is needed to fully understand the factors at play, observations of US rescue volunteers suggest that an increasing number of incidents include visitors being inexperienced and lack the appropriate gear, skills or fitness to undertake such activities (Brown, 2020). Breathtaking narratives including having to “... rescue hikers who become lost when their phone loses its signal or dies, or who try to summit a mountain they saw on Instagram without researching the terrain or weather” indicate an exacerbation of a pre-existing problem (Brown, 2020). Inexperienced visitors might simply not know what they do not know, and erroneously believe that all is safe and managed well when they venture outdoors (Parkin & Morris, 2005).

For park management agencies, along with the heightened risk of inexperienced visitors venturing through national parks, there is also the issue of managing new risks associated with COVID-19 itself. Freeman and Eykelbosh (2020) suggest that the management of outdoor recreational environments requires careful analysis to reduce the risk of community spread. Aspects to consider include modification of park areas to promote social distancing (e.g., unidirectional traffic on narrow trail loops) and to avoid crowding (e.g., at viewpoints), to provide opportunities for hand hygiene and safe disposal of personal protective equipment, and to actively discourage activities that involve physical contact. Risks to park staff will also need to be controlled, with some on-ground operation routines to be adjusted for social distancing requirements and the provision of additional protective equipment such as masks.

The far-reaching impact of the pandemic opens additional avenues to explore risk and responsibility in nature-based tourism, as a “return to normal” may not be an option. Preliminary research shows that social distancing guidelines and a desire to avoid exposure to people who may be carrying the virus is changing how and where people recreate outdoors (Rice et al., 2020). Preliminary research indicates that visitor groups who value their freedom in park environments tend to support mandatory permit systems and capacity limits in response to the pandemic. This is to ensure visitors can experience the natural and social benefits of visiting national parks without compromising their health due to COVID-19 (Taff, 2020).

Conclusion

This chapter highlights the many complexities of managing risk and the safety of visitors in national parks, many of which are exacerbated by the global experience of the COVID-19 pandemic and an associated increase in demand for nature-based activities. Policy initiatives introduced to manage the spread of COVID-19 have

potential for both planned and unplanned outcomes. Case Study 1 highlights a policy initiative that aimed to improve the downturn in a state economy arising from border closures, travel restrictions and community lockdown. *Wander out Yonder* has been very successful in terms of increasing visitation to national parks in WA, while Case Study 2 reflects on some of the management issues associated with this visitor increase.

In this time of a global COVID-19 pandemic, uncertainty is the new normal. So, *WHAT'S PAR* for the course? In terms of wellbeing and health, the literature shows that visiting natural areas is conducive to both, and our chapter shows that more people are and will be visiting national parks, both in WA and across the globe. When addressing visitor safety, management agencies will need to work on measures that support those visitors who are less experienced. The literature of managing risk focuses on the context of the setting and the relationships of stakeholders with responsibility for managing that risk, with one of the greatest contributors to the occurrence of incidents being the level of experience. Those with less experience are more likely to be involved in risk-related incidents and injuries.

The act of inviting visitors to a natural area effectively turns protected areas into a tourism product, creating moral and legal obligations to keep visitors safe. While managers of recreational protected areas have a duty of care to reduce the risk of injury for visitors, uncertainty remains where responsibility for safety begins and where it ends. Promotional efforts such as *Wander out Yonder* campaigns form part of the responsibility construct. By encouraging potentially inexperienced visitors to national parks, the challenge for risk management lies in achieving a balance between maximising the benefits of outdoor recreational activities while also minimising the social costs associated with incident occurrences.

As communities across the globe adapt to the new normal, we need to consider not only past issues and approaches to managing risk for visitors in national parks, but also innovative management of COVID-19 issues, at least until an effective vaccine is available and widely disseminated. As Fredman and Margaryn (2020) argue, nature-based destinations have an opportunity to position themselves well for post-pandemic travel and even grow market share. Although managing visitor risk in national parks has always been complex, under the uncertainty of the new normal, further complexity abounds.

References

- Appleby, R., Mackie, J., Smith, B., Bernede, L., & Jones, D. (2018). Human–dingo interactions on Fraser Island: An analysis of serious incident reports. *Australian Mammalogy*, 40(2), 146–156. <https://doi.org/10.1071/AM16026>
- Atherton, T., & Atherton, T. (2010). *Tourism, travel and hospitality law* (2nd ed.). Thomson Reuters.
- Bentley, T. A., & Page, S. J. (2008). A decade of injury monitoring in the New Zealand adventure tourism sector: A summary risk analysis. *Tourism Management*, 29, 857–869. <https://doi.org/10.1016/j.tourman.2007.10.003>

- Bentley, T. A., Page, S. J., & Edwards, J. (2008). Monitoring injury in the New Zealand adventure tourism sector: An operator survey. *Journal of Travel Medicine*, 15(6), 395–403. <https://doi.org/10.1111/j.1708-8305.2008.00234.x>
- Bentley, T. A., Cater, C., & Page, S. J. (2010). Adventure and ecotourism safety in Queensland: Operator experiences and practice. *Tourism Management*, 31(5), 563–571. <https://doi.org/10.1016/j.tourman.2009.03.006>
- Bird, D. K., & Gísladóttir, G. (2020). Enhancing tourists' safety in volcanic areas: An investigation of risk communication initiatives in Iceland. *International Journal of Disaster Risk Reduction*, 50, Article 101896. <https://doi.org/10.1016/j.ijdrr.2020.101896>
- Bird, D. K., Gísladóttir, G., & Dominey-Howes, D. D. (2010). Volcanic risk and tourism in southern Iceland: Implications for hazard, risk and emergency response education and training. *Journal of Volcanology and Geothermal Research*, 189, 33–48. <https://doi.org/10.1016/j.jvolgeores.2009.09.020>
- Boore, S. M., & Bock, D. (2013). Ten years of search and rescue in Yosemite National Park: Examining the past for future prevention. *Wilderness & Environmental Medicine*, 24, 2–7. <https://doi.org/10.1016/j.wem.2012.09.001>
- Bowler, D. E., Buyung-Ali, L. M., Knight, T. M., & Pullin, A. S. (2010). A systematic review of evidence for the added benefits to health of exposure to natural environments. *BMC Public Health*, 10, Article 456. <https://doi.org/10.1186/1471-2458-10-456>
- Brandenburg, W. E., & Davis, C. B. (2016). Medical knowledge and preparedness of climbers on Colorado's 14,000-foot peaks. *Wilderness & Environmental Medicine*, 27(1), 62–68. <https://doi.org/10.1016/j.wem.2015.11.009>
- Brandenburg, W. E., & Locke, B. W. (2017). Mountain medical kits: Epidemiology-based recommendations and analysis of medical supplies carried by mountain climbers in Colorado. *Journal of Travel Medicine*, 24(2), 1–9. <https://doi.org/10.1093/jtm/taw088>
- Brown, A. (2020, July 6). Search and rescue teams, already stretched thin, see surge in calls. *Stateline*. <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2020/07/06/search-and-rescue-teams-already-stretched-thin-see-surge-in-calls>
- Buckley, R. (2002). Managing tourism in parks: Research priorities of industry associations and protected area agencies in Australia. *Journal of Ecotourism*, 1(2&3), 162–172. <https://doi.org/10.1080/14724040208668122>
- Buckley, R. (2012). Rush as a key motivation in skilled adventure tourism: Resolving the risk recreation paradox. *Tourism Management*, 33, 961–970. <https://doi.org/10.1016/j.tourman.2011.10.002>
- Bureau of Infrastructure and Transport Research Economics. (2020). *International Airline Activity*. <https://www.bitre.gov.au/statistics/aviation/international>
- Burton, I., & Kates, R. W. (1964). The perception of natural hazards in resource management. *Natural Resources Journal*, 3(3), 412–441.
- Butcher, F. (2004). Aftermath: Using research to understand the social and economic consequences of workplace injury and illness. *Social Policy Journal of New Zealand*, 23, 181–194. <https://doi.org/10.26686/lew.v0i0.1216>
- Cabrera, L. (2020). Embracing biophilia: Prescribing nature in a pandemic. *LANDSCOPE*, 36(1), 14–17. Department of Biodiversity, Conservation and Attractions.
- Cherry, C., Leong, K. M., Wallen, R., & Buttke, D. (2018). Risk-enhancing behaviors associated with human injuries from bison encounters at Yellowstone National Park, 2000–2015. *One Health*, 6, 1–6. <https://doi.org/10.1016/j.onehlt.2018.05.003>
- Derks, J., Giessen, L., & Winkel, G. (2020). COVID-19-induced visitor boom reveals the importance of forests as critical infrastructure. *Forest Policy and Economics*, 118, Article 102253. <https://doi.org/10.1016/j.forpol.2020.102253>
- Dickson, T. J. (2012). An introduction to risk, adventure and risk management. In T. J. Dickson & T. L. Gray (Eds.), *Risk management in the outdoors: A whole-of-organisation approach for education, sport and recreation* (pp. 1–24). Cambridge University Press.

- Dustin, D., Beck, L., & Rose, J. (2017). Landscape to techscape: Metamorphosis along the Pacific Crest Trail. *International Journal of Wilderness*, 23(1), 25–30. <https://ijw.org/landscape-to-techscape/>
- Eagles, P. F. (2014). Research priorities in park tourism. *Journal of Sustainable Tourism*, 22(4), 528–549. <https://doi.org/10.1080/09669582.2013.785554>
- English, A. (2018). Exposure of park management staff in Victoria, Australia to critical incidents and trauma: Rethinking our approach. *Parks: The International Journal of Protected Areas and Conservation*, 24(2), 7–18. <https://doi.org/10.2305/IUCN.CH.2018.PARKS-24-2AE.en>
- Erfurt-Cooper, P. (Ed.). (2014). *Volcanic tourist destinations*. Springer.
- Espinser, S. (2001). *The phenomenon of risk and its management in natural resource recreation and tourism settings: A case study of Fox and Franz Josef Glaciers, Westland National Park, New Zealand*. https://researcharchive.lincoln.ac.nz/bitstream/handle/10182/638/Espinser_PhD.pdf?sequence=6
- Flaherty, G. T., & Caumes, E. (2018). An analysis of international traveller deaths at the Cliffs of Moher in Ireland, 1993–2017. *Journal of Travel Medicine*, 25(1), Article tay019. <https://doi.org/10.1093/jtm/tay019>
- Forrester, J. D., Tran, K., Tennakoon, L., & Staudenmayer, K. (2018). Climbing related injury among adults in the United States: 5-year analysis of the National Emergency Department sample. *Wilderness & Environmental Medicine*, 29(4), 425–430. <https://doi.org/10.1016/j.wem.2018.05.0>
- Fredman, P., & Margaryn, L. (2020). 20 years of Nordic nature-based tourism research: A review and future research agenda. *Scandinavian Journal of Hospitality and Tourism*. <https://doi.org/10.1080/15022250.2020.1823247>
- Freeman, S., & Eykelbosh, A. (2020). COVID-19 and outdoor safety: Considerations for use of outdoor recreational spaces. *National Collaborating Centre for Environmental Health*. <https://nceeh.ca/documents/guide/covid-19-and-outdoor-safety-considerations-use-outdoor-recreational-spaces>
- Geng, D. C., Innes, J., Wu, W., & Wang, G. (2020). Impacts of COVID-19 pandemic on urban park visitation: a global analysis. *Journal of Forestry Research*, 32, 553–567. <https://doi.org/10.1007/s11676-020-01249-w>
- Girasek, D. C., Marschall, J. S., & Pope, D. (2016). Understanding hikers who approached a hazardous river in Yosemite National Park. *Injury Prevention*, 22(2), 110–116. <https://doi.org/10.1136/injuryprev-2015-041625>
- Golding, D., Tuler, S., & Krueger, R. J. (2002). *An analysis of visitor risk in the national park system*. George Perkins Marsh Institute, Clark University. <https://www.yumpu.com/s/3ZUZeAXhSkOd63hh>
- Government of Western Australia. (2020, June 1). *WA locals urged to 'Wander out Yonder' and explore stunning State* [Press release]. <https://www.mediastatements.wa.gov.au/Pages/McGowan/2020/06/WA-locals-urged-to-Wander-out-Yonder-and-explore-stunning-State.aspx>
- Gstaettner, A. M. (2020). Visitor incidents in Western Australian protected areas, 2011–2017. *Wilderness & Environmental Medicine*, 31(3), 303–311. <https://doi.org/10.1016/j.wem.2020.05.006>
- Gstaettner, A. M., Rodger, K., & Lee, D. (2017). Visitor perspectives of risk management in a natural tourism setting: An application of the Theory of Planned Behaviour. *Journal of Outdoor Recreation and Tourism*, 19, 1–10. <https://doi.org/10.1016/j.jort.2017.04.001>
- Gstaettner, A. M., Lee, D., & Rodger, K. (2018). The concept of risk in nature-based tourism and recreation—A systematic literature review. *Current Issues in Tourism*, 21(15), 1784–1809. <https://doi.org/10.1080/13683500.2016.1244174>
- Gstaettner, A. M., Kobryn, H. T., Rodger, K., Phillips, M., & Lee, D. (2019a). Monitoring visitor injury in protected areas—Analysis of incident reporting in two Western Australian parks. *Journal of Outdoor Recreation and Tourism*, 25, 143–157. <https://doi.org/10.1016/j.jort.2018.04.002>

- Gstaettner, A. M., Lee, D., Weiler, B., & Rodger, K. (2019b). Visitor safety in recreational protected areas: Exploring responsibility-sharing from a management perspective. *Tourism Management*, 75, 370–380. <https://doi.org/10.1016/j.tourman.2019.06.007>
- Gstaettner, A. M., Lee, D., & Weiler, B. (2020). Responsibility and preparedness for risk in national parks: Results of a visitor survey. *Tourism Recreation Research*, 45(4), 485–499. <https://doi.org/10.1080/02508281.2020.1745474>
- Gstaettner, A. M., Rodger, K., & Lee, D. (2021). Managing the safety of nature? Park visitor perceptions on risk and risk management. *Journal of Ecotourism*. <https://doi.org/10.1080/14724049.2021.1937189>
- Gunther, K. A., & Haroldson, M. A. (2020). Potential for recreational restrictions to reduce grizzly bear-caused human injuries. *Ursus*, 2020(31e6), 1–17. <https://doi.org/10.2192/URSUS-D-18-0005.1>
- Heggie, T. W. (2018). Lake tourism fatalities: a 46-year history of death at Lake Powell. *Journal of Travel Medicine*, 25(1), Article tay037. <https://doi.org/10.1093/jtm/tay037>
- Heggie, T. W., & Amundson, M. E. (2009). Dead men walking: Search and rescue in US National Parks. *Wilderness and Environmental Medicine*, 20(3), 244–249. <https://doi.org/10.1580/08-WEME-OR-299R.1>
- Heggie, T. W., & Heggie, T. M. (2004). Viewing lava safely: an epidemiology of hiker injury and illness in Hawaii Volcanoes National Park. *Wilderness & Environmental Medicine*, 15(2), 77–81. [https://doi.org/10.1580/1080-6032\(2004\)015\[0077:VLSAEO\]2.0.CO;2](https://doi.org/10.1580/1080-6032(2004)015[0077:VLSAEO]2.0.CO;2)
- Heggie, T. W., & Heggie, T. M. (2008). Search and rescue trends and the emergency medical service workload in Utah's national parks. *Wilderness and Environmental Medicine*, 19, 164–171. <https://doi.org/10.1580/07-WEME-OR-178.1>
- Heggie, T. W., & Heggie, T. M. (2009). Search and rescue trends associated with recreational travel in US National Parks. *International Society of Travel Medicine*, 16(1), 23–27. <https://doi.org/10.1111/j.1708-8305.2008.00269.x>
- Heggie, T. W., Heggie, T. M., & Kliever, C. (2008). Recreational travel fatalities in US National Parks. *Journal of Travel Medicine*, 15(6), 404–411. <https://doi.org/10.1111/j.1708-8305.2008.00235.x>
- Hill, J., Curtin, S., & Gough, G. (2014). Understanding tourist encounters with nature: A thematic framework. *Tourism Geographies*, 16(1), 68–87. <https://doi.org/10.1080/14616688.2013.851265>
- Howard, M. (2020, October 26). *Officials: Mountain search and rescue went up as the unprepared headed out*. https://www.outdoors.org/articles/amc-outdoors/officials-mountain-search-and-rescue-goes-up-as-the-unprepared-head-out?utm_campaign=mkg-oc-110220&utm_medium=&utm_source=internal-oc-all&utm_content=cta1&fbclid=IwAR06LbVNgIMxKCIqY3-XdY51k8d_osiXQkm2kUJS010LnuNPLBvoJRJIaro
- Jeuring, J., & Becken, S. (2013). Tourists and severe weather—An exploration of the role of Locus of Responsibility' in protective behaviour decisions. *Tourism Management*, 37, 193–202. <https://doi.org/10.1016/j.tourman.2013.02.004>
- Keniger, L. E., Gaston, K. J., Irvine, K. N., & Fuller, R. A. (2013). What are the benefits of interacting with nature? *International Journal of Environmental Research and Public Health*, 10(3), 913–925. <https://doi.org/10.3390/ijerph10030913>
- Kohn, T. (2018). “Backs” to nature: Musing on tourist selfies. In S. Gmelch & A. Kaul (Eds.), *Tourists and tourism: A reader* (3rd ed., pp. 69–78). Waveland Press.
- Kortenkamp, K. V., Moore, C. F., Sheridan, D. P., & Ahrens, E. S. (2017). No hiking beyond this point! Hiking risk prevention recommendations in peer-reviewed literature. *Journal of Outdoor Recreation and Tourism*, 20, 67–76. <https://doi.org/10.1016/j.jort.2017.10.002>
- Kruger, M., Saayman, M., & Hermann, U. P. (2014). First-time versus repeat visitors at the Kruger National Park. *Acta Commercii*, 14(1), Article a220. <https://doi.org/10.4102/ac.v14i1.220>
- Leggat, P. A., & Wilks, J. (2009). Overseas visitor deaths in Australia, 2001 to 2003. *Journal of Travel Medicine*, 16(4), 243–247. <https://doi.org/10.1111/j.1708-8305.2009.00302.x>

- Mackenzie, S. H., & Kerr, J. H. (2012). A (mis)guided adventure tourism experience: An autoethnographic analysis of mountaineering in Bolivia. *Journal of Sport & Tourism, 17*(2), 125–144. <https://doi.org/10.1080/14775085.2012.729901>
- Maller, C., Townsend, M., St Leger, L., Henderson-Wilson, C., Pryor, A., Prosser, L., & Moore, M. (2009). Healthy parks, healthy people: The health benefits of contact with nature in a park context. *The George Wright Forum, 26*(2), 51–83. <https://doi.org/10.1093/heapro/dai032>
- Mason, R. C., Suner, S., & Williams, K. A. (2013). An analysis of hiker preparedness: A survey of hiker habits in New Hampshire. *Wilderness & Environmental Medicine, 24*, 221–227. <https://doi.org/10.1016/j.wem.2013.02.002>
- McCool, J. P., Moran, K., Ameratunga, S., & Robinson, E. (2008). New Zealand beachgoers' swimming behaviours, swimming abilities, and perception of drowning risk. *International Journal of Aquatic Research and Education, 2*(1), Article 2. <https://doi.org/10.25035/ijare.02.01.02>
- McDonald, J. (2003). The financial liability of park managers for visitor injuries. In R. Buckley, C. Pickering, & D. B. Weaver (Eds.), *Nature-based tourism, environment and land management* (pp. 35–50). CABI.
- Ménard, A. D., Houser, C., Brander, R. W., Trimble, S., & Scaman, A. (2018). The psychology of beach users: Importance of confirmation bias, action, and intention to improving rip current safety. *Natural Hazards, 94*(2), 953–973. <https://doi.org/10.1007/s11069-013-0812-x>
- Moyle, B. D., & Weiler, B. (2017). Revisiting the importance of visitation: Public perceptions of park benefits. *Tourism and Hospitality Research, 17*(1), 91–105. <https://doi.org/10.1177/1467358416638918>
- Muzzillo, R., Losasso, L., & Sdao, F. (2018, May). Rockfall source areas assessment in an area of the Pollino national park (Southern Italy). In *International conference on computational science and its applications* (pp. 366–379). Springer. https://doi.org/10.1007/978-3-319-95168-3_25
- Opperman, M. (1997). First-time and repeat visitors to New Zealand. *Tourism Management, 18*(3), 177–181. [https://doi.org/10.1016/S0261-5177\(96\)00119-7](https://doi.org/10.1016/S0261-5177(96)00119-7)
- Outdoor Industry Association. (2020, August 13). *Increase in outdoor activities due to COVID-19*. <https://bit.ly/2Ffku68>
- Page, S. J. (2009). Current issue in tourism: The evolution of travel medicine research: A new research agenda for tourism? *Tourism Management, 30*, 149–157. <https://doi.org/10.1016/j.tourman.2008.04.011>
- Parkin, D., & Morris, K. (2005). Pete's story: Interpreting the consequences of risk-taking behavior. *Applied Environmental Education & Communication, 4*(2), 139–150. <https://doi.org/10.1080/15330150590934525>
- Peden, A. E., Franklin, R. C., & Leggat, P. A. (2016a). The hidden tragedy of rivers: A decade of unintentional fatal drowning in Australia. *PLoS One, 11*(8), Article e0160709. <https://doi.org/10.1371/journal.pone.0160709>
- Peden, A. E., Franklin, R. C., & Leggat, P. A. (2016b). International travellers and unintentional fatal drowning in Australia—A 10 year review 2002–12. *Journal of Travel Medicine, 23*(2), 1–7. <https://doi.org/10.1093/jtm/tav031>
- Pilson, G. (2020, November 15). COVID-19 & SAR call-outs: An increasing trend? *Wilderness Medicine Magazine*. <https://wms.org/magazine/1259/covid-19-updates>
- Puustinen, J., Pouta, E., Neuvonen, M., & Sievänen, T. (2009). Visits to national parks and the provision of natural and man-made recreation and tourism resources. *Journal of Ecotourism, 8*(1), 18–31. <https://doi.org/10.1080/14724040802283210>
- Ramanpong, J., Yu, C. P., Chiang, P. N., & Tsai, M. J. (2020). Risk management in suburban forest recreation areas: a retrospective analysis of illness cases. *Urban Forestry & Urban Greening, 53*, Article 126710. <https://doi.org/10.1016/j.ufug.2020.126710>
- Rice, W. L., Meyer, C., Lawhon, B., Taff, B. D., Mateer, T., Reigner, N., & Newman, P. (2020). *The COVID-19 pandemic is changing the way people recreate outdoors: Preliminary report on a national survey of outdoor enthusiasts amid the COVID-19 pandemic*. <https://doi.org/10.31235/osf.io/pmz9>

- Rickard, L. N. (2014a). Mountains and handrails: Risk, meaning, and responsibility in three national parks. *Environmental Communication*, 8(3), 286–304. <https://doi.org/10.1080/017524032.2013.850109>
- Rickard, L. N. (2014b). Perception of risk and the attribution of responsibility for accidents. *Risk Analysis*, 34(3), 514–528. <https://doi.org/10.1111/risa.12118>
- Rickard, L. N., Scherer, C. W., & Newman, S. B. (2011). Exploring attribution of responsibility for visitor safety in a US national park. *Health, Risk & Society*, 13(6), 527–545. <https://doi.org/10.1080/13698575.2011.613983>
- Ritchie, B. W., Chien, P. M., & Watson, B. M. (2014). It can't happen to me: Travel risk perceptions. In A. G. Woodside & M. Kozak (Eds.), *Tourists' behaviours and evaluations* (pp. 65–73). Emerald Group Publishing Limited.
- Sadler, P. (2004). Do we need a sign on every rock in the water? Standard of care in negligence and the tourism industry in Western Australia. *Legal Issues in Business*, 6, 1–9. <http://www.austlii.edu.au/au/journals/LegIssBus/2004/1.html>
- Sakals, M. E., Wilford, D. J., Wellwood, D. W., & MacDougall, S. A. (2010). Active fans and grizzly bears: Reducing risks for wilderness campers. *Geomorphology*, 115(3-4), 305–314. <https://doi.org/10.1016/j.geomorph.2009.06.031>
- Samuelsson, K., Barthel, S., Colding, J., Macassa, G., & Giusti, M. (2020, April 17). *Urban nature as a source of resilience during social distancing amidst the coronavirus pandemic*. <https://doi.org/10.31219/osf.io/3wx5a>
- Saunders, R., Weiler, B., Scherrer, P., & Zeppel, H. (2019). Best practice principles for communicating safety messages in national parks. *Journal of Outdoor Recreation and Tourism*, 25, 132–142. <https://doi.org/10.1016/j.jort.2018.01.006>
- Saxon, K. D., White, J. M. B., Eddy, M. M., Albertus, D. L., & Bassin, B. S. (2015). Injury patterns at Isle Royale National Park: An epidemiologic review of injuries and illnesses sustained in a remote environment. *Wilderness & Environmental Medicine*, 26, 83–88. <https://doi.org/10.1016/j.wem.2014.08.010>
- Shibasaki, S., Onodera, S., Aiko, T., Tsuge, T., Shoji, Y., & Yamaki, K. (2010). *Current situations and issues of risk management in protected areas; A case study of the Oirase Stream Area in Towada-Hachimantai National Park, Japan*. Paper presented at the 5th international conference on monitoring and management of visitors in recreational and protected areas: Recreation, tourism and nature in a changing world. https://mmv.boku.ac.at/refbase/files/shibasaki_shigemits-2010-current_situations_a.pdf
- Small, E. R., Burbank, S. R., Lorme, J. M., Carlson, K., Erickson, T. B., & Young, D. S. (2018). Apostle Islands National Lakeshore: A review of search and rescue and emergency medical services operations, 2006–2015. *Wilderness & Environmental Medicine*, 29(4), 463–470. <https://doi.org/10.1016/j.wem.2018.06.010>
- Soulé, B., Lefèvre, B., & Boutroy, E. (2017). The dangerousness of mountain recreation: A quantitative overview of fatal and non-fatal accidents in France. *European Journal of Sport Science*, 17(7), 931–939. <https://doi.org/10.1080/17461391.2017.1324525>
- Stock, G. M., Luco, N., Collins, B. D., Harp, E. L., Reichenbach, P., & Frankel, K. L. (2014). *Quantitative rock-fall hazard and risk assessment for Yosemite Valley, Yosemite National Park, California*. US Geological Survey Scientific Investigations Report. <https://doi.org/10.3133/sir20145129>
- Stolton, S., Dudley, N., Avcioğlu Çokçalışkan, B., Hunter, D., Ivanić, K.-Z., Kanga, E., Kettunen, M., Kumagai, Y., Maxted, N., Senior, J., Wong, M., Keenleyside, K., Mulrooney, D., & Waithaka, J. (2015). Values and benefits of protected areas. In G. L. Worboys, M. Lockwood, A. Kothari, S. Feary, & I. Pulsford (Eds.), *Protected area governance and management* (pp. 145–168). ANU Press.
- Ströhle, M., Wallner, B., Lanthaler, M., Rauch, S., Brugger, H., & Paal, P. (2018). Lightning accidents in the Austrian alps—A 10-year retrospective nationwide analysis. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, 26(1), 1–9. <https://doi.org/10.1186/s13049-018-0543-9>

- Taff, B. D. (2020, June 5). Summer visitors to American parks choose safety first over freedom to roam. *The Conversation*. <https://theconversation.com/summer-visitors-to-american-parks-choose-safety-first-over-freedom-to-roam-138512>
- Thomas, C. (2020, December 1–3). *How Australia's tourism and park agencies are supporting tourism recovery*. Conference Presentation. Ecotourism Australia, Margaret River, WA.
- Tiemensma, M. (2019). Environmental deaths in the Northern Territory of Australia, 2003–2018. *Wilderness & Environmental Medicine*, 33(2), 177–185. <https://doi.org/10.1016/j.wem.2019.03.002>
- Townsend, M., & Weerasuriya, R. (2010). *Beyond Blue to Green: The benefits of contact with nature for mental health and well-being*. Beyond Blue Limited.
- Urieli, N., Schwartz, Z., Cohen, E., & Reichel, A. (2002). Rescuing hikers in Israel's deserts: Community altruism or an extension of adventure tourism? *Journal of Leisure Research*, 34(1), 25–36. <https://doi.org/10.1080/00222216.2002.11949958>
- Weiler, B., Gstaettner, A. M., & Scherrer, P. (2021). Selfies to die for: A review of research on self-photography associated with injury/death in tourism and recreation. *Tourism Management Perspectives*, 37, Article 100778. <https://doi.org/10.1016/j.tmp.2020.100778>
- Wick, R. (2016). Technology brings new challenges to wilderness managers: An example from the bureau of land management-managed lost coast of California. *Journal of Forestry*, 114(3), 415–416. <https://doi.org/10.5849/jof.15-076>
- Wilks, J. (2008). Considering the standard of care for tourists. *International Travel Law Journal*, 15, 135–142.
- Wilks, J. (2017). Tourism and aquatic safety: No lifeguard on duty—Swim at your own risk. *Tourism in Marine Environments*, 12(3–4), 211–219. <https://doi.org/10.3727/154427317X15016348972677>

Dr. Anna Maria Gstaettner has recently completed her PhD in the College of Arts, Business, Law & Social Sciences at Murdoch University which focuses on risk and responsibility in recreational protected areas. Anna currently undertakes research on capability building in the emergency management sector in Western Australia. ORCID: <https://orcid.org/0000-0002-6395-7454>

Dr. Kate Rodger is a research scientist at Parks and Wildlife Service, Western Australia. Research in nature-based tourism is her speciality, including human-wildlife interactions, visitor monitoring, and integrating ecological and social sciences. Kate's current research is working with Traditional Owners to evaluate the benefits of Indigenous ranger programs to enhance social outcomes. ORCID: <https://orcid.org/0000-0002-7416-7220>

Dr. Diane Lee is the Academic Chair of Tourism and Events, in the Social Sciences and Arts Discipline, in the College of Arts, Business, Law & Social Sciences at Murdoch University. Her research expertise is in sustainable tourism issues and tourism education. ORCID: <https://orcid.org/0000-0002-8164-913X>.