The collapse of tourism and its impact on wildlife tourism destinations

David Newsome

Abstract

Purpose – To evaluate some of the current discussion about the possible impacts of the COVID-19 pandemic on wildlife tourism destinations. There could be either positive and/or negative impacts and this viewpoint provides some reflection on what the future might hold for some if not many wildlife tourism destinations when the global tourism industry resumes.

Design/methodology/approach – A combination of tourism and environmental impact research studies and online resources are used to demonstrate the wildlife tourism-conservation nexus and provide a commentary regarding the impact of COVID-19 on the wildlife tourism system.

Findings – This paper provides a context and viewpoint on the possible implications of post COVID-19 reflection for wildlife tourism operations in the future.

Research limitations/implications – This viewpoint paper captures only a snapshot of rapidly emerging online perspectives but at the same time draws together relevant research that emphasises the importance of wildlife tourism.

Practical implications – This paper enables an appreciation of the implications of not reflecting on the way that tourism and the environment are currently/recently managed and funded. One possibility is that we could arrive at a different baseline that reflects degraded wildlife tourism conditions. If, in a post COVID-19 world, a new awareness of the vulnerability of species and the tourism upon which it is dependent arises, this could open the door for improved tourism management and conservation of species that are of high tourism value.

Social implications – This paper offers a synthesis of views that fosters understanding of the possibility of damage to wildlife tourism resources due to the social and economic impacts of COVID-19 on the global nature-based tourism sector.

Originality/value – The viewpoint proffered in this paper provides scope for a rapid evaluation of the current status of wildlife tourism, its vulnerability and the need to reflect on the industry in a post COVID-19 world.

Keywords Wildlife tourism, Conservation, COVID-19, Tourism management, Future scenarios

Wildlife tourism and COVID-19 in context

At the time of writing the COVID 19 pandemic has resulted in about 4.18 million confirmed infections and 283,877 deaths, the tourism industry is in shutdown, globally there is an estimated 75 million job losses in the general tourism and hospitality industry and the world is heading for economic recession (World Travel and Tourism Council, 2020; Worldometer, 2020; World Economic Forum, 2020; UNWTO, 2020). By April 2020 the global travel and tourism industry as we know it had collapsed, contrasting with earlier predictions that globally, rapid growth in tourism would reach up 1.8 billion international visits by 2030 (Holden, 2016; UNTWO, 2017). Of particular relevance to the content of this viewpoint has been the continuing growth in tourists visiting natural areas and the increased desire for wildlife tourism experiences (Balmford et al., 2009; Curtin and Kragh, 2014; Holden, 2016; Steven et al., 2020). Alongside the growth in people wanting to visit protected areas, such as national parks, and see wild animals in their natural habitat there has been a steady
growth in the number of tourism providers to service the demand. At this moment in time, and in virtually every country in the world, there are numerous lodges and hotels providing for wildlife tourism and thousands of local guides who deliver client services for tourists. Lodge owners, host country tourism networks and local communities also work in combination with major international wildlife tour operators, who service clients, largely sourced from the North America, the UK, Europe, Australia, South Africa and New Zealand (Buckley, 2003; Curtin and Wilkes, 2005; Newsome et al., 2013; Rockjumper, 2020; Naturetrek, 2020; Natural World Safaris, 2020).

Overall, there is substantial and vital reliance of the global nature and wildlife tourism industry on the integrity of the natural environment, a need for ready access to protected areas and the necessity of maintaining wildlife populations. In recent times there has been discussion about the degradation of tourism sites and protected areas caused by increasing congestion and inappropriate use (Newsome and Hughes, 2018), over-tourism (Ruck, 2012; Tourism-Review, 2016; Capocchi et al., 2019) and the combined impacts of uncontrolled tourism access and development (Newsome et al., 2013; Schulze et al., 2018). Furthermore, pressure on the integrity of the natural environment for tourism is further exacerbated by poor and ineffective protected area management, landscape level pressures such as increasing urbanisation and agricultural encroachment and climate change (Leverington et al., 2010; Newsome et al., 2013; Watson et al., 2014; BirdLife International, 2018; Rosenberg et al., 2019; Trisos and Pigot, 2020).

The COVID 19 pandemic and its impact on tourism and visitation to protected areas has highlighted various issues that are being reported in the press, considered in online discussions and published in past and recent peer-reviewed literature. These articles raise various questions such as is the current lack of tourism a problem or positive for wildlife tourism destinations and when normality resumes, will we have a renewed understanding of the sustainability of wildlife tourism destinations? The objective of this viewpoint, therefore, is to evaluate some of the current discussion about the possible impacts of the COVID-19 pandemic on wildlife tourism destinations. Consideration is given whether there are positive and/or negative impacts and some reflection on what the future might hold for some, if not many, wildlife tourism destinations when tourism activity resumes.

**Impacts of the pandemic on wildlife tourism destinations**

There is no doubt that there is evidence for some positive changes for the environment with the most noticeable effect, at the global level, being the reduction in greenhouse gas and air pollution signatures detectable from satellites (BBC, 2020; Gardiner, 2020). In particular air quality has been seen to improve over China and Europe (NASA, 2020; France24, 2020). In addition to this, it is highly likely that the pressures brought about due to over-tourism (Simmonds et al., 2018; Narrandes, 2019; Nature Seychelles, 2019) and the inappropriate use (Newsome, 2014; Newsome and Hughes, 2018) of protected areas have also eased since international bans on travel have been applied (The Guardian, 2020a).

Moreover, advances have been made in raising awareness, at all levels, of the global bush meat trade which remains a significant pressure on the integrity of wildlife populations everywhere (Aljazeera, 2020; Reuters, 2020a, 2020b; The Guardian, 2020b). Wittemyer (2011, 2020) observes that the trade in wildlife has had a high environmental cost in Africa and this is likely to worsen alongside the COVID 19 pandemic due to loss of human life and the ensuing economic downturn.

A lot of iconic wildlife tourism experiences, already impacted and at risk of further damage by wildlife trafficking and bush meat consumption, could be put in danger because of the wider impacts of COVID 19 such as job losses in tourism and inadequate protected area management (ACF, 2020; Weber et al., 2020). For example, In Africa gorilla tourism programme managers, because of the need to minimise human contact with habituated
apes, are re-evaluating and calling a temporary halt to any further tourism and may apply on-going restrictions when the resumption of normal ecotourism takes place in the future. The New York Post (2020) provides a general report on the known susceptibility of great apes to human diseases and the risk of gorillas contracting coronavirus from tourists. Weber et al. (2020) also note that, under normal tourism conditions, gorillas come into close contact with tourists despite strict wildlife tourism interaction regulations being in place. While gorilla tourism programmes have been temporarily discontinued in the Democratic Republic of Congo, others remain open in Uganda but there are no tourists because of widespread travel bans. Conservation groups, however, believe the real risk to the remaining critically endangered gorilla populations in Africa is likely to be due to increased poaching activities if funding for patrols declines or anti-poaching programmes are relaxed due to a lack of tourism brought about by COVID-19 (ACF, 2020).

While poaching, reduced environmental protection and ecological damage are going to be difficult problems to combat, we can hope that COVID 19 will bring conservation issues surrounding the integrity of wildlife tourism to the fore. There is an urgent need for major funding while critical policy implementation and expertise and staffing gaps remain in regard to pre-COVID 19 problems such as over-tourism, ensuring optimal protected area management effectiveness and tackling the illegal trade in wildlife (Brown, 2017; Schulze et al., 2018; Newsome et al., 2019; Prakash et al., 2019). At the same time, the current pandemic is also creating a situation where local communities are going to lose income because of a lack of tourism (Lowe, 2019). Such a loss of employment especially for rangers is likely to create further difficulties in controlling a rise in poaching activity and protecting wildlife from human intrusion (Losh, 2019; UNEP, 2019; Nashulai, 2020; Vyawahare, 2020).

Active, well managed, ecotourism programmes provide more opportunity for wildlife protection, inject money into local economies, and in many cases result in good conservation outcomes and positive local community development (Buckley, 2003; Buckley et al., 2012; Newsome and Hassell, 2014; Lowe, 2019; Bisby, 2020). The current lack of tourism at many wildlife tourism destinations thus presents as a problem and the longer travel restrictions are in place the more risk there is of habitat loss and poaching at many, and currently iconic wildlife, tourism destinations. (Newsome, 2015; Brown, 2017; Schulze et al., 2018; Maron, 2020). In addition, as wildlife tourism is inextricably linked to conservation efforts around the world the decline in, and postponement of, conservation actions and programmes is a further problem in regards to efforts to understand and protect the natural resources which ecotourism relies on (Alberts, 2020; Foster, 2020; Dinneen, 2020).

Following on from the concerns raised above, the general consensus is that pandemics such as COVID-19 are closely linked with human population growth and environmental degradation (Pimental et al., 2007; Robbins, 2012; Wood, 2014; Ostfeld, 2017; The Guardian, 2020c). Reasons forwarded to explain the link between human activity and viral diseases include human encroachment into natural areas, deforestation, disruptions to natural ecological relationships, humans coming into close contact with disease carrying species, trafficking of wildlife, loss of biodiversity and compromised human health due to poverty. Wittemyer (2020) calls for strong global cooperation and action on the illegal trade in wildlife targeted for human consumption. Challender et al. (2020) suggest the need for stronger policies on regulating the trade in wildlife that consider public health issues associated with animal - human disease transmission.

Clearly, humanity has a lot of work to do when it comes to environmental management, but we should not underestimate the role that wildlife tourism and associated ecotourism activities can play in informing the world about wildlife and stimulating us to think about our relationship with nature. As previously stated the global nature-based tourism industry has and can lead to a constructive valuation of wildlife, deeper understanding of our place in the
natural world, encourage positive environmental conservation efforts and provide employment for thousands of people aiding in poverty alleviation.

Wildlife tourism in a post-COVID-19 world

Both the positive and negative effects of wildlife tourism have been established for a long time (Higginbottom et al., 2001 and Green and Higginbottom, 2001). While negative pressures associated with tourism appear to be currently reduced at many wildlife tourism situations, most of the rapidly disseminated on-line reporting on the loss of tourism revenues is signalling “down the track” threats to wildlife because tourism funds a lot of conservation and helps to protect wildlife (Buckley et al., 2012; Rowe, 2020). However, at the same time, the COVID 19 pandemic is considered to be a watershed moment in global awareness about the trade in wildlife and especially in relation to the fate of endangered species such as pangolins (Briggs, 2020). Eventual outcomes will depend on individual country situations and the motivation and lasting engagement of local communities. In terms of wildlife trafficking there is some hope in South East Asia (Reuters, 2020a, 2020b), but tourism operators and conservationists in Africa have reported that a longer-term recession of wildlife tourism will lead to poaching losses of valued wildlife (Deliso, 2020; Paxton, 2020).

In re-iterating the reality mentioned above this viewpoint re-emphasises that wildlife tourism is not always run in a sustainable fashion (Newsome, 2013; Prakash et al., 2019). This is mostly due to one or more of the following situations: poor tourism management scenarios, over-tourism or inadequate protected area management. Despite this somewhat negative reality there are many examples where overall the impacts of wildlife tourism are positive and lend hope for environmental, social and economic sustainability (Buckley, 2003; Newsome and Hassell, 2014; Bisby, 2020). The lack of wildlife tourism associated with the COVID 19 pandemic, will in all probability, compromise conservation work, increase the threat to wildlife populations and jeopardise the integrity of wildlife tourism programmes. The location, nature and extent of the aftermath will only become apparent in years to come. One possible positive outcome is that in those situations where tourism is currently poorly managed, especially in combination with over tourism, there is scope for environmental recovery and the possibility of re-assessing how a protected area and attendant wildlife tourism could be managed into the future.

Assuming there is no critical damage in the first-place, the resumption of tourism can end up with two possible end spectrum scenarios. At the negative end, tourism “players” and protected area managers do not reflect on previous conditions and the way that tourism and the environment were managed and things go on as before. Given this possibility, and particularly after the impact of COVID 19, we could end up with a new baseline of damaged conditions, further losses of habitat, and depleted populations of wildlife at many locations. The nature and quality of wildlife tourism that ensues from this situation is likely to be poorer, less satisfying and left in an even more vulnerable situation than it was before COVID 19.

At the positive end of the spectrum, post COVID 19, we reach a new awareness of the vulnerability of species and the tourism upon which it is dependent on for survival. This provides a realistic platform for increased funding for tourism management and conservation with the aim of protecting ecosystems vital for sustainable tourism and economic growth. From this scenario, a more secure future for wildlife, better quality ecotourism and greater visitor satisfaction can be realised.

The reality, however, is likely to span the full spectrum of different scenarios reflecting different local conditions. This could occur in the context of damage already done, according to losses and damage connected with an absence of tourism and how rapidly the wildlife tourism resumes and the specific philosophy and economic circumstances of tour operators. The ultimate scenario also depends on political support and funding, adequate financing of protected areas and the active role of NGO’s and the renewed
confidence, or otherwise, of local communities. All of this raises the important question as to whether the COVID 19 pandemic will be a good or bad outcome for wildlife tourism.

References

ACF (2020), “How is the novel coronavirus connected to wildlife?”, available at: https://africanconservation.org/how-is-the-novel-coronavirus-connected-to-wildlife/ (accessed 11 April, 2020).

Alberts, E.C. (2020), “COVID-19 forces sea shephard to suspend patrols to protect last vaquitas”, available at: https://news.mongabay.com/2020/04/covid-19-forces-sea-shepherd-to-suspend-patrols-to-protect-last-vaquitas/ (accessed 12 April, 2020).

Aljazeera (2020), “Illegal wildlife trade goes online as China shuts down markets”, available at: www.aljazeera.com/news/2020/03/illegal-wildlife-trade-online-china-shuts-markets-200324040543868.html (accessed 12 April, 2020).

Balmford, A., Beresford, J., Green, J., Naidoo, R., Walpole, M. and Manica, A. (2009), “A global perspective on trends in nature-based tourism”, PLoS Biology, Vol. 7 No. 6, p. e1000144.

BBC (2020), “Will COVID-19 have a lasting impact on the environment?”, available at: www.bbc.com/future/article/20200326-covid-19-the-impact-of-coronavirus-on-the-environment (accessed 11 April, 2020).

BirdLife International (2018), State of the World’s Birds: Taking The Pulse of The Planet. BirdLife International. Cambridge available at: www.birdlife.org/sites/default/files/attachments/BL_ReportENG_V11_spreads.pdf (accessed 11 April, 2020).

Bisby (2020), “Coronavirus fuelled tourism meltdown yields pros and cons for conservation”, available at: www.theglobeandmail.com/life/travel/article-coronavirus-fuelled-tourism-meltdown-yields-pros-and-cons-for/ (accessed 11 April, 2020).

Briggs, H. (2020), “Coronavirus: putting the spotlight on the global wildlife trade”, available at: www.bbc.com/news/science-environment-52125309 (accessed 11 May, 2020).

Brown, V.F. (2017), The Extinction Market: Wildlife Trafficking and How to Counter It, Oxford University Press Oxford.

Buckley, R. (2003), Case Studies in Ecotourism, Cabi Publishing Wallingford.

Buckley, R.C., Castley, J.G., de Vasconcellos Pegas, F., Mossaz, A.C. and Steven, R. (2012), “A population accounting approach to assess tourism contributions to conservation of IUCN-red-listed mammal species”, PloS One, Vol. 7 No. 9.

Capocchi, A., Vallone, C., Pierotti, M. and Amaduzzi, A. (2019), “Overtourism: a literature review to assess implications and future perspectives”, Sustainability, Vol. 11 No. 12, p. 3303.

Challender, D. Hinsley, A. Verissimo, D. and Sas Rolles, M. (2020), “Why a blanket ban on wildlife trade would not be the right response”, available at: https://theconversation.com/coronavirus-why-a-blanket-ban-on-wildlife-trade-would-not-be-the-right-response-135746 (accessed 11 April, 2020).

Curtin, S. and Kragh, G. (2014), “Wildlife tourism: reconnecting people with nature”, Human Dimensions of Wildlife, Vol. 19 No. 6, pp. 545-554.

Curtin, S. and Wilkes, K. (2005), “British wildlife tourism operators: current issues and typologies”, Current Issues in Tourism, Vol. 8 No. 6, pp. 455-478.

Deliso, M. (2020), “Conservationists fear african animal poaching will increase during COVID-19 pandemic”, available at: https://abcnews.go.com/International/conservationists-fear-african-animal-poaching-increase-covid-19/story?id=70118142 (accessed 11 May, 2020).

Dinneen, J. (2020), “COVID-19 disrupts major year for biodiversity policy and planning”, available at: https://news.mongabay.com/2020/04/covid-19-disrupts-a-major-year-for-biodiversity-policy-and-planning/ (accessed 11 April, 2020).

Foster, K. (2020), “80 Per cent of conservation careers negatively affected by COVID pandemic”, available at: https://news.mongabay.com/2020/04/80-percent-of-conservation-careers-negatively-affected-by-covid-pandemic-commentary/ (accessed 11 April, 2020).

France24 (2020), “Air quality is improving in countries under coronavirus quarantine”, available at: www.france24.com/en/20200322-air-quality-is-improving-in-countries-coronavirus-quarantine-pollution-environment (accessed 11 April, 2020).
Gardiner, B. (2020), “Pollution made COVID-19 worse. Now lockdowns are clearing the air”, available at: www.nationalgeographic.com/science/2020/04/pollution-made-the-pandemic-worse-but-lockdowns-clean-the-sky/ (accessed 11 April, 2020).

Green, R. and Higginbottom, K. (2001), “Negative effects of wildlife tourism on wildlife. Status assessment of wildlife tourism research report, no 5”, Cooperative Research Centre for Sustainable Tourism, Gold Coast.

Higginbottom, K. Northrope, C. and Green, R. (2001), “Positive effects of wildlife tourism on wildlife. Wildlife tourism research report, no 6”, Cooperative Research Centre for Sustainable Tourism, Gold Coast.

Holden, A. (2016), Environment and Tourism, 3rd edn. Routledge, London.

Leverington, F., Costa, K.L., Pavese, H., Lisle, A. and Hockings, M. (2010), “A global analysis of protected area management effectiveness”, Environmental Management, Vol. 46 No. 5, pp. 685-698.

Losh, J. (2019), “Central Africa’s rangers are as threatened as the animals they guard”, available at: https://foreignpolicy.com/2019/10/06/central-africas-rangers-are-as-endangered-as-the-animals-they-guard/ (accessed 13 April, 2020).

Lowe, J. (2019), “Poor Filipino fishermen are making millions protecting whalesharks”, available at: https://theconversation.com/poor-filipino-fishermen-are-making-millions-protecting-whale-sharks-122451 (accessed 11 April, 2020).

Maron, D. (2020), “Poaching threats loom as wildlife safaris put on hold due to COVID-19”, available at: www.nationalgeographic.com/animals/2020/04/wildlife-safaris-halted-for-covid-boost-poaching-threat/ (accessed 11 April, 2020).

Narrandes, N. (2019), “Seychelles conducts study to assess over-tourism”, available at: www.getaway.co.za/travel-news/seychelles-conducts-study-to-assess-over-tourism/ (accessed 11 April, 2020).

NASA (2020), “Airborne nitrogen dioxide plummets over China”, available at: https://earthobservatory.nasa.gov/images/146362/airborne-nitrogen-dioxide-plummets-over-china (accessed 11 April 2020).

Nashulai (2020), “The first maasai conservancy in the maasai Mara”, available at: www.nashulai.com/ (accessed 11 April 2020).

Nature World Safaris (2020), available at: www.naturalworldsafaris.com/ (accessed 11 April 2020).

Nature Seychelles (2019), “Too much of a good thing. Over-tourism at cousin island special reserve prompts visitor control measures”, available at: www.natureseychelles.org/knowledge-centre/news-and-stories/742-too-much-of-a-good-thing-over-tourism-on-cousin-island-special-reserve-prompts-visitor-control-measures (accessed 11 April, 2020).

NatureTrek (2020), available at: www.naturetrek.co.uk/ (accessed 11 April 2020).

Newsome, D. (2013), “An ‘ecotourist’s recent experience in Sri Lanka”, Journal of Ecotourism, Vol. 12 No. 3, pp. 210-220.

Newsome, D. (2014), “Appropriate policy development and research needs in response to adventure racing in protected areas”, Biological Conservation, Vol. 171, pp. 259-269.

Newsome, D. (2015), “Conflicts between cultural attitudes, development and ecotourism: the case of bird watching tours in Papua New Guinea”, in Markwell, K. (Ed.), Birds, Beasts and Tourists: Human-Animal Relations in Tourism, Channel View Publications, Clevedon.

Newsome, D. and Hassell, S. (2014), “Tourism and conservation in Madagascar: the importance of andasibe national park”, Koedoe, Vol. 56 No. 2, pp. 1-8.

Newsome, D. and Hughes, M. (2018), “The contemporary conservation reserve visitor phenomenon!”, Biodiversity and Conservation, Vol. 27 No. 2, pp. 521-529.

Newsome, D., Moore, S. and Dowling, R. (2013), “Natural area tourism: Ecology”, Impacts and Management, Second Edition. Channel View Publications, Clevedon.

Newsome, D., Rodger, K., Pearce, J. and Chan, J. (2019), “Visitor satisfaction with a key wildlife tourism destination within the context of a damaged landscape”, Current Issues in Tourism, Vol. 22 No. 6, pp. 729-746.

New York Post (2020), “Africa’s endangered gorillas also at risk from coronavirus”, available at: https://nypost.com/2020/03/23/africas-endangered-gorillas-also-at-risk-from-coronavirus/ (accessed 11 April 2020).
Ostfeld, R.S. (2017), “Biodiversity loss and the ecology of infectious disease”, *The Lancet Planetary Health*, Vol. 1 No. 1, pp. e2-e3.

Paxton, M. (2020), “The coronavirus threat to wildlife tourism and conservation”, available at: www.undp.org/content/undp/en/home/blog/2020/the-coronavirus-threat-to-wildlife-tourism-and-conservation.html (accessed 11 May 2020).

Pimentel, D., Cooperstein, S., Randell, H., Filiberto, D., Sorrentino, S., Kaye, B., Nicklin, C., Yagi, J., Brian, J., O’Hern, J., Habas, A. and Weinstein, C. (2007), “Ecology of increasing diseases: population growth and environmental degradation”, *Human Ecology*, Vol. 35 No. 6, pp. 653-668.

Prakash, S.L., Perera, P., Newsome, D., Kusuminda, T. and Walker, O. (2019), “Reasons for visitor dissatisfaction with wildlife tourism experiences at highly visited national parks in Sri Lanka”, *Journal of Outdoor Recreation and Tourism*, Vol. 25, pp. 102-112.

Robbins, J. (2012), “The ecology of disease”, available at: www.nytimes.com/2012/07/15/sunday-review/the-ecology-of-disease.html (accessed 11 May 2020).

Reuters (2020a), “China bans trade, consumption of wild animals due to coronavirus”, available at: www.reuters.com/article/us-china-health-wildlife/china-bans-trade-consumption-of-wild-animals-due-to-coronavirus-idUSKCN20J069 (accessed 11 April 2020).

Reuters (2020b), “After coronavirus, SE Asia strongly favours crackdown on wildlife trade, says WWF”, available at: www.reuters.com/article/us-health-coronavirus-wildlife/after-coronavirus-se-asia-strongly-favours-crackdown-on-wildlife-trade-says-wwf-idUSKBN21O262 (accessed 11 May 2020).

Rockjumper (2020), “Worldwide birding adventures”, available at: www.rockjumperbirding.com (accessed 12 April 2020).

Rosenberg, K.V., Dokter, A.M., Blancher, P.J., Sauer, J.R., Smith, A.C., Smith, P.A. and Marra, P.P. (2019), “Decline of the North American avifauna”, *Science*, Vol. 366 No. 6461, pp. 120-124.

Rowe, S. (2020), “COVID 19 has taken tourism down, but animal conservation is going down with it”, available at: https://therising.co/2020/04/11/covid-19-impacting-animal-conservation/ (accessed 11 May 2020).

Ruck, J. (2012), “The destinations under threat from tourism – in pictures”, available at: www.theguardian.com/environment/gallery/2012/may/30/destinations-under-threat-tourism-in-pictures (accessed 9 April 2020).

Schulze, K., Knights, K., Coad, L., Geldmann, J., Leverington, F., Eassom, A., Marr, M., Butchart, S.H., Hickings, M. and Burgess, N.D. (2018), “An assessment of threats to terrestrial protected areas”, *Conservation Letters*, Vol. 11 No. 3, doi:10.1111/conl.12435.

Simmonds, C., McGivney, A., Reilly, P., Maffley, B., Canon, G., Wright, P. and Whaley, (2018), “As thrill seekers and Instagrammers swarm public lands, reporting from eight sites across America shows scale of the threat”, available at: www.theguardian.com/environment/2018/nov/20/national-parks-america-overcrowding-crisis-tourism-visitation-solutions (accessed 11 May 2020).

Steven, R., Rakotopare, N. and Newsome, D. (2020), “Avitourism tribes: as diverse as the birds they watch”, in Pforr, C., Dowling, R. and Volgger, M. (Eds), *Consumer Tribes in Tourism*, Springer Nature, Singapore.

The Guardian (2020a), “Giant leap for toadkind after yorkshire fell runs are cancelled”, available at: www.theguardian.com/environment/2020/mar/30/giant-leap-for-toadkind-after-yorkshire-fell-runs-are-cancelled (accessed 11 April 2020).

The Guardian (2020b), “Coronavirus closures reveal vast scale of China’s secretive wildlife farm industry”, available at: www.theguardian.com/environment/2020/feb/25/coronavirus-closures-reveal-vast-scale-of-chinas-secretive-wildlife-farm-industry (accessed 11 April 2020).

The Guardian (2020c), “Tip of the iceberg: is our destruction of nature responsible for COVID-19?”, available at: www.theguardian.com/environment/2020/mar/18/tip-of-the-iceberg-is-our-destruction-of-nature-responsible-for-covid-19-aoe (accessed 11 April 2020).

Tourism-Review (2016), “Mass tourism affects major travel destinations in Europe”, available at: www.tourism-review.com/mass-tourism-hit-santorini-venice-and-ibiza-news5139 (accessed 11 April 2020).

Trisos and Pigot (2020), available at: https://theconversation.com/climate-change-could-cause-abrupt-biodiversity-losses-this-century- (accessed 11 April 2020).

UNEP (2019), “Rangers-unsung heroes of wildlife conservation”, available at: www.unenvironment.org/news-and-stories/story/rangers-unsung-heroes-wildlife-conservation (accessed 13 April 2020).
UNWTO (2017), *Tourism Highlights*, World Tourism Organisation, Madrid.

UNWTO (2020), available at: www.unwto.org/tourism-covid-19-coronavirus (accessed 11 April 2020).

Vyawahare, M. (2020), “National parks in Africa shutter over COVID-19 threat to great apes”, available at: https://news.mongabay.com/2020/03/national-parks-in-africa-shutter-over-covid-19-threat-to-great-apes/ (accessed 13 April 2020).

Watson, J.E. Dudley, N. Segan, D.B. and Hockings, M. (2014), “The performance and potential of protected areas”, *Nature*, 515 available at: www.nature.com/articles/nature13947

Weber, A., Kalema-Zikusoka, G. and Stevens, N.J. (2020), “Lack of Rule-Adherence during Mountain gorilla tourism encounters in bwindi impenetrable national park, Uganda, places gorillas at risk from human disease”, *Frontiers in Public Health*, Vol. 8, p. 1.

Wittemyer, G. (2011), “Effects of economic downturns on mortality of wild african elephants”, *Conservation Biology*, Vol. 25 No. 5, pp. 1002-1009.

Wittemyer, G. (2020), “The new coronavirus emerged from the global wildlife trade – and it may be devastating enough to end it”, available at: https://theconversation.com/the-new-coronavirus-emerged-from-the-global-wildlife-trade-and-may-be-devastating-enough-to-end-it-133333 (accessed 11 April, 2020).

Wood, C.L. (2014), “Environmental change and the ecology of infectious disease”, *Science*, Vol. 346 No. 6214, p. 1192.

World Economic Forum (2020), “The COVID-19 recession could be far worse than 2008 – here’s why”, available at: www.weforum.org/agenda/2020/04/mapping-covid19-recession (accessed 9 April 2020).

World Travel and Tourism Council (2020), “WTTC messaging”, available at: www.wttc.org/members-hub/ (accessed 9 April 2020).

Worldometer (2020), “COVID-19 coronavirus pandemic”, available at: www.worldometers.info/coronavirus/ (accessed 11 May 2020).

**Further reading**

Hockings, M., Hardcastle, J., Woodley, S., Sandwith, T., Wilson, J., Bammert, M. and Lopoukhine, N. (2019), “The IUCN green list of protected and conserved areas: setting the standard for effective area-based conservation”, *Parks*, Vol. 25 No. 25.2, pp. 57-66.

**Corresponding author**

David Newsome can be contacted at: D.Newsome@Murdoch.edu.au

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com