



**CONVENTION ON
MIGRATORY
SPECIES**

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ECOTOURISM AND MIGRATORY SPECIES

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Summary:

In line with Decision 13.136, this document reviews definitions and impacts of ecotourism, and includes a matrix which provides an overview of selected case studies, which highlight both risks and good practice. It is provided to support UNEP/CMS/COP14/Doc.30.6.

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1. INTRODUCTION

[Resolution 12.23 Sustainable Tourism and Migratory Species](#) recalls the UN General Assembly Resolution 69/233, which promotes “*sustainable tourism, including ecotourism, for poverty eradication and environment protection*” and invites implementation of policy, regulations and guidelines in the sector (UN A/RES/69/233¹).

The United Nations General Assembly designated 2002 as the International Year of Ecotourism², affirming ecotourism’s capacity to “*reconcile economy with ecology, and the environment with development*”³. In that year, the Québec Declaration on Ecotourism⁴ was adopted at the World Ecotourism Summit, and the World Heritage Convention and International Union for Conservation of Nature (IUCN) World Commission on Protected Areas (WCPA) each published tourism guidelines⁵; the Convention on Biological Diversity (CBD) and the United Nations Environment Program (UNEP) & World Tourism Organisation followed in 2004 and 2005, respectively⁶.

More recently there has been a focus on the economics of ecotourism, with reports on: the generation of sustainable tourism revenues in protected areas from the CBD & IUCN WCPA⁷; ‘*Travel & Tourism as an Economic Tool for the Protection of Wildlife*’ from the World Travel & Tourism Council⁸; and the ‘*wildlife economy*’ in Africa’s state-protected areas from UNEP-World Conservation Monitoring Centre⁹.

Within the CMS, a collaboration with UNEP and the travel agency company TUI developed a 2006 report on ‘*Wildlife Watching and Tourism: A study on the benefits and risks of a fast growing tourism activity and its impacts on species*’¹⁰.

The 12th meeting of the Conference of the Parties in 2017 adopted Resolution 12.23 on *Sustainable Tourism and Migratory Species*, recognising “*the value of migratory species in the promotion of ecotourism and in the national economy*”. In Paragraph 1, Parties are urged:

to adopt, as they consider appropriate measures such as national action plans, regulations and codes of conduct, binding protocols or additional legal frameworks and legislation, aiming to ensure tourism activities do not negatively affect species anywhere within their migratory range;

Ecotourism has also been considered in CMS agreements, with Paragraph 4.2.1 in the Action Plan of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)¹¹ stating:

¹ <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N14/713/99/PDF/N1471399.pdf?OpenElement>

² <https://www.gdrc.org/uem/eco-tour/2002/yearecotourism2002.html>

³ <https://www.un.org/press/en/2002/envdev607.doc.htm>

⁴ <https://www.gdrc.org/uem/eco-tour/quebec-declaration.pdf>

⁵ <https://whc.unesco.org/uploads/activities/documents/activity-113-2.pdf> ; <https://www.iucn.org/content/sustainable-tourism-protected-areas-guidelines-planning-and-management-0>

⁶ <https://www.cbd.int/doc/programmes/tourism/tourism-manual-en.pdf> ; <https://wedocs.unep.org/handle/20.500.11822/8741>

⁷ <https://www.cbd.int/doc/publications/tou-gdl-en.pdf> ; <https://www.iucn.org/content/sustainable-tourism-protected-areas-guidelines-planning-and-management-0>

⁸ <https://wtcc.org/Portals/0/Documents/Reports/2019/Sustainable%20Growth-Economic%20Impact%20of%20Global%20Wildlife%20Tourism-Aug%202019.pdf>

⁹ https://www.researchgate.net/publication/336028655_Building_a_Wildlife_Economy_Developing_Nature-Based_Tourism_in_Africa's_State_Protected_Areas

¹⁰ https://www.cms.int/sites/default/files/document/ScC14_Inf_08_Wildlife_Watching_E_0.pdf

¹¹ https://www.unep-aewa.org/sites/default/files/basic_page_documents/agreement_text_english_final.pdf

Parties shall encourage, where appropriate but not in the case of core zones of protected areas, the elaboration of cooperative programmes between all concerned to develop sensitive and appropriate eco-tourism at wetlands holding concentrations of populations [of listed migratory waterbirds].

Most recently, *Species-specific Guidelines for Boat-based Wildlife Watching* were endorsed by COP12 in 2017 ([Resolution 11.29 \(Rev.COP12\)/Annex](#)). Two workstreams of ‘*Recreational In-Water Interactions with Aquatic Mammals*’ and ‘*Sustainable Boat-Based Marine Wildlife Watching*’ were combined into one, entitled ‘*Marine Wildlife Watching*’ as requested by COP12. *Recreational in-water interactions with aquatic species: Review of existing guidelines and issues of concern* were presented in [UNEP/CMS/COP13/Doc.26.2.5/Annex 2](#). Following further work, new guidelines will be presented to the 14th meeting of the Conference of the Parties and it is anticipated they will be combined as ‘*Species-specific Guidelines for In-water Recreational Interactions [RIWI] with Marine Wildlife*’. This follows similar initiatives from the industry (e.g. the International Association of Antarctica Tour Operators’ Cetacean Watching Guidelines¹²) and state governments (e.g. the Australian National Guidelines for Whale and Dolphin Watching¹³).

The issue of ecotourism and its impacts was directed to the Scientific Council in Decision 13.136¹⁴, which states:

Subject to the availability of resources the Scientific Council shall conduct periodic appraisals of the latest scientific evidence on the impacts of ecotourism activities on migratory species and to recommend refined guidelines. Produce and submit a draft report at CoP14.

There are a range of definitions of ‘ecotourism’, but the most relevant generally refer to tourism which: takes place in natural areas, contributes to both nature conservation and livelihoods in the local community, and provides an educational experience for participants¹⁵. In some cases, ecotourism is also restricted to smaller groups of visitors¹⁶. However, “*some of the issues peculiar to wildlife are obscured in [...] the more tightly defined ecotourism*” (Reynolds & Braithwaite, 2001, p. 32). Alternatively, ecotourism can be used to refer to rural tourism without a wildlife focus¹⁷. Here ‘*ecotourism*’ is used somewhat more broadly, to consider wildlife tourism without the spatial or scale restrictions, in order to capture the broad range of activities impacting migratory species. Therefore, consideration of the most appropriate term – ‘*ecotourism*’, ‘*wildlife tourism*’, or something else – for use by CMS may be warranted.

Sustainability and direct benefits to nature and local communities may represent ‘good practice’ rather than inherent features of wildlife tourism. Parties to CMS are expected to refer to the ‘*basic philosophies*’ for migratory species ecotourism as outlined in Resolution 12.23 *Sustainable Tourism and Migratory Species*¹⁸:

“a) Tourism activities should not inhibit the natural behaviour and activity of migratory species nor adversely affect their associated habitat;

¹² https://iaato.org/wp-content/uploads/2020/04/IAATO_Cetacean_Guidelines.EN_072250.pdf

¹³ <https://www.awe.gov.au/sites/default/files/documents/aust-national-guidelines-whale-dolphin-watching-2017.pdf>

¹⁴ <https://www.cms.int/en/page/decisions-13135-13136-sustainable-tourism-and-migratory-species>

¹⁵ <https://www.gdrc.org/uem/eco-tour/quebec-declaration.pdf> ; <https://wedocs.unep.org/handle/20.500.11822/8741> ; https://www.cms.int/sites/default/files/document/ScC14_Inf_08_Wildlife_Watching_E_0.pdf ; <https://ecotourism.org/what-is-ecotourism/>

¹⁶ <https://www.gdrc.org/uem/eco-tour/quebec-declaration.pdf> ; <https://wedocs.unep.org/handle/20.500.11822/8741> ; https://www.cms.int/sites/default/files/document/ScC14_Inf_08_Wildlife_Watching_E_0.pdf

¹⁷ e.g. <https://www.e-unwto.org/doi/book/10.18111/9789284408214> (p. 135)

¹⁸ Paragraph 2 https://www.cms.int/sites/default/files/document/cms_cop12_res.12.23_sustainable-tourism-migratory-species_e.pdf

- b) *The activities should not have significant negative impact on the long-term survival of species populations;*
- c) *Tourism activities should create sustainable social and economic benefits within local communities;*
- d) *Revenues generated from the activity should be able to provide resources for the conservation of the species or group of species subject to tourism, including the protection of their habitat, and sustaining best practices;*
- e) *Tourism involving wildlife should take into account the safety of observers and wildlife as well as risk to human health”.*

While sustainable hunting and fishing tourism may meet the conditions outlined above, here they are considered out-of-scope, with the focus on non-lethal forms of ecotourism – although note that there can be direct interactions, e.g. *“hunting by humans, the primary mortality factor for Norwegian reindeer, may have induced increased sensitivity to human activity at a broader scale”* (Nellemann *et al.*, 2000, p. 12).

Furthermore, captive conditions are also excluded, as in most definitions of wildlife tourism and ecotourism (e.g. Higham, 1998)¹⁹. Day trips are included within the definition as tourism, as in, for example, ‘*The Great British Tourism Survey*’²⁰.

Although the CMS defines²¹ migratory species as those crossing national jurisdictional boundaries, and hence technically excludes those migrating solely within state, some such cases are included as illustrative examples here. Similarly, within this document most consideration is given to ecotourism for which migratory species are the target, but Parties may also need to consider impacts on migratory species from ecotourism activities for which they are not the target, and from tourism more generally.

This document reviews migratory species ecotourism to address Decision 13.136.

- [Section 2](#) reviews impacts of ecotourism on wildlife and people – both positive and negative.
- [Section 3](#) uses an organising matrix to draw out case studies across the different CMS species groups and a spectrum of ecotourism activities based on the degree of interaction with species.
- [Section 4](#) highlights some specific considerations related to migration and voluntourism (volunteer ecotourism).
- [Section 5](#) provides recommendations.

¹⁹ <https://wtcc.org/Portals/0/Documents/Reports/2019/Sustainable%20Growth-Economic%20Impact%20of%20Global%20Wildlife%20Tourism-Aug%202019.pdf>

²⁰ https://www.visitbritain.org/sites/default/files/vb-corporate/gb_tourist_annual_report_2019_final.pdf

²¹ *“the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries”*

2. IMPACTS OF ECOTOURISM

Ecotourism can have both positive and negative impacts, environmentally on target species and beyond, and socio-economically for a range of stakeholders. A range of examples are summarised below:

a. Positive impacts of ecotourism

i. Positive impacts of ecotourism – environmental:

- Ecotourism can generate financing for conservation through direct **revenue** allocation:
 - park fees;
 - taxation;
 - tourist donations [*“tourism can [...] influence voluntary financial contributions from visitors interested in achieving social and environmental goals”*]) and impetus for other private investment²².
- Ecotourism can facilitate improved local **human-wildlife coexistence**, due to:
 - reduced threats from unsustainable livelihoods (see [section 2.a.ii](#))
 - alleviation of human-wildlife conflict (see [section 2.a.ii](#)).
- Ecotourism may provide **umbrella protection** to other species and habitats²³; promoting conservation of non-protected areas is *“an important benefit of ecotourism”* (Blamey, 1997, p. 111).
- In cases where **habituation** is maintained (e.g. see [section 3.b.iii](#)), there can be incidental benefits – for example, close contact and intensive tracking *“facilitates health monitoring and surveillance of illegal activities”* – but here it is *“important to establish guidelines on the degree of intervention appropriate for different situations”*²⁴.
- Ecotourism can also contribute to conservation research through facilitation of **data collection**; for example, Antarctic wildlife cruises can contribute to formal and citizen science, including offering live-aboard scientists more repeated visits as part of the cruising schedule than would be possible independently²⁵.

ii. Positive impacts of ecotourism – socio-economic:

- Around one mountain gorilla viewing hub, the **monetary value** of tourism reaching local people is more than four times that for all other revenue sources combined²⁶ (see also: [section 3.b.iii](#)).
- More generally, ecotourism can provide **sustainable economic alternatives** to unsustainable livelihoods²⁷, with:
 - local capacity-building (e.g. technical skills such as SCUBA, languages; UNEP/CMS/COP13/Doc.26.2.5) including nature guiding training (e.g. Biggs *et al.*, 2011);

²²

https://www2.gwu.edu/~iits/Sustainable_Tourism_Online_Learning/Gutierrez/Tourism_Assessment_Process_Manual.pdf (p. 5)

²³ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

²⁴ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf> (p. 15, p. 41)

²⁵ <https://wwhandbook.iwc.int/en/case-studies/whale-watching-in-the-antarctic>

²⁶ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

²⁷

https://www2.gwu.edu/~iits/Sustainable_Tourism_Online_Learning/Gutierrez/Tourism_Assessment_Process_Manual.pdf

- employment opportunities²⁸;
 - diversification of the local economy, including increased markets for traditional and sustainable products²⁹;
 - increased motivation to conserve heritage via ‘constituency building’³⁰.
- Furthermore, ecotourism may **alleviate human-wildlife conflict**: for example, through training for local farmers in crop-raiding mitigation techniques, plus allocated micro-loans for fence-building (Ancrenaz *et al.*, 2007).
 - “*tourism can be positive by fostering local pride, decreasing urban flight and increasing global understanding*” in local communities³¹ - for example, children living in the Monarch Butterfly Biosphere Reserve are described as being proud “*for being the only place in the world receiving the butterflies*” and “*for receiving tourists from different parts of the world*” (Monterrubio *et al.*, 2015, p. 263).
 - Ecotourism may support increased environmental awareness and **attitudinal change**: e.g. “*Many local residents acknowledge that, until recently, they had little interest in gray whales. But as they have come to better appreciate the economic potential of these marine mammals, they have acquired a more personal stake in the whales’ long-term survival*” (Young, 1999, p. 602; see also: [section 3.b.v](#)).
 - Ecotourism can provide an “*educational and exhilarating experience for participants*” (pending ‘*Species-specific Guidelines for In-water Recreational Interactions with Marine Wildlife*’), in addition to the **health and wellbeing benefits** afforded by close contact with nature (e.g. Brymer & Lacaze, 2013).
 - Ecotourism operators may “*contribute to local communities in other less quantifiable, but very tangible ways: [Scottish whale watching guides] offer free tours to local school groups and small businesses at the end of the season, and some [...] use their seafaring and first aid skills to contribute to community services such as the lifeboat*”³² – see also e.g. Ol Pejeta Conservancy’s community-based tourism ventures³³.

b. Negative impacts of ecotourism

i. Negative impacts of ecotourism – environmental:

- An overarching issue: “*competition between tour operators and a perceived pressure to get tourists close [...] often drives operators to contravene the codes, leading to [...] unsustainable levels of disturbance*”³⁴.
- While “*not every behavioural response to the presence of humans leads to a physiological stress response*” (Thiel *et al.*, 2008, p. 846), where physiology is impacted, there can be

²⁸ <https://wwhandbook.iwc.int/en/> – for specific examples see: <https://wwhandbook.iwc.int/en/case-studies/united-kingdom-scotland>; Sustainable Boat-based [Marine] Wildlife Watching: Res. 11.29 / UNEP/CMS/COP13/Doc.26.2.5

²⁹ https://www.unep-aewa.org/sites/default/files/basic_page_documents/agreement_text_english_final.pdf; <https://www.nature.scot/doc/naturescot-research-report-1271-case-studies-large-scale-nature-restoration-and-rewilding>; <https://www.iucn.org/content/sustainable-tourism-protected-areas-guidelines-planning-and-management-0>

³⁰ https://www2.gwu.edu/~iits/Sustainable_Tourism_Online_Learning/Gutierrez/Tourism_Assessment_Process_Manual.pdf

³¹ https://www2.gwu.edu/~iits/Sustainable_Tourism_Online_Learning/Gutierrez/Tourism_Assessment_Process_Manual.pdf (p. 70)

³² <https://wwhandbook.iwc.int/en/case-studies/united-kingdom-scotland>

³³ <https://www.olpejetaconservancy.org/community/ol-pejeta-communities/>

³⁴ <https://wwhandbook.iwc.int/en/>

“severe consequences for wildlife that range in seasonal environments” (Neumann *et al.*, 2010, p. 514).

- Hence ecotourism can cause a range of negative impacts on **target and associated species**:
 - direct mortality e.g. collisions;
 - altered habitat use or displacement – although note that “*animals that do not relocate in the presence of disturbance may not imply undisturbed wildlife, but a lack of alternative habitats to switch to*” (Neumann *et al.*, 2010, pp. 513-514)
 - behaviour change: e.g. modified activity patterns (e.g. increased nocturnality, as observed due to hunting; Reynolds & Braithwaite, 2001);
 - chronic stress (often ‘invisible’);
 - ... potentially reducing population viability.
- Ecotourism can also affect **habitats** (which are especially important where they are host to key behaviours³⁵ such as breeding); e.g. trampling or salt intrusion due to wave incursion from boating can reduce plant production (Reynolds & Braithwaite, 2001), and tourism-generated waste may prevent habitat use³⁶.
- Ecotourism may facilitate introduction or spread of non-native, potentially invasive, species (see [section 3.b.xiii](#)).

ii. Negative impacts of ecotourism – socio-economic:

- Following on from the above, ecotourism may become **commercially non-viable** if negative impacts cause target animals to evade observation; for example, decreasing sighting success for Australian dolphin watching operations over the years was linked to the dolphins responding increasingly strongly to vessels³⁷.
- Ecotourism may generate few economic benefits for locals, as a result of **leakage**, corruption etc.
- Furthermore, locals’ **quality of life may be compromised** due to:
 - overcrowding at traditionally used sites;
 - increased demand raising price of consumer commodities³⁸;
 - exacerbated “*local inequalities and political tensions*” (Gray & Campbell, 2007, p. 465).
- All forms of tourism may be **impacted by shocks** such as economic recessions, terrorism, and pandemics³⁹, although tourist demand for some ecotourism attractions can be ‘*surprisingly resilient*’ to price increases and political events⁴⁰.
- **International condemnation** may occur where there is a perception of ‘excessive tourism’⁴¹.

³⁵ Sustainable Boat-based [Marine] Wildlife Watching: Res. 11.29 / UNEP/CMS/COP13/Doc.26.2.5

³⁶ https://www.iucn.org/downloads/moulouya_lessons_learned.pdf

³⁷ <https://wwhandbook.iwc.int/en/responsible-management/benefits-and-impacts-of-whale-watching>

³⁸

https://www2.gwu.edu/~iits/Sustainable_Tourism_Online_Learning/Gutierrez/Tourism_Assessment_Process_Manual.pdf

³⁹ https://www.unep-aewa.org/sites/default/files/basic_page_documents/agreement_text_english_final.pdf ;

<https://www.nature.scot/doc/naturescot-research-report-1271-case-studies-large-scale-nature-restoration-and-rewilding>

⁴⁰ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

⁴¹ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

3. CASE STUDIES

Four scenarios are explored:

- i. Ecotourism based on direct species interaction:
e.g. in the context of the New Zealand Marine Mammals Protection Regulations 1992, contact is defined as “*any interaction involving a person and [animal] that is likely to produce an effect on the [animal]*”⁴²;
- ii. Ecotourism based on dedicated species observation (without direct interaction):
i.e. Reynolds and Braithwaite’s (2001) ‘*specialist animal watching*’ form of wildlife tourism, e.g. birding tours;
- iii. Habitat-based ecotourism (not focused on particular species):
i.e. Reynolds and Braithwaite’s (2001) ‘*nature-based tourism*’ and ‘*habitat-specific tours*’;
- iv. Incidental wildlife encounters:
e.g. “*Basking sharks can weigh up to seven tonnes, so collisions can result in serious injury to both parties. Users of personal water craft [...] should be particularly vigilant, irrespective of whether or not they are specifically seeking or watching them*”⁴³.

These scenarios highlight the different implications for the migratory species involved, and provide a framework within which a range of case studies are considered. Specifically, one or more examples are presented for most combinations of the above scenarios with each of the CMS species groups: marine, freshwater, terrestrial, and avian.

a. Organising Matrix

	Marine	Freshwater	Terrestrial	Avian
Direct species interaction	i. ‘ <i>Swim-with</i> ’ e.g. basking sharks	ii. ‘ <i>Swim-with</i> ’ e.g. manatees	iii. Mountain gorilla and Japanese ‘snow monkey’ viewing	iv. Facilitated viewing via attraction techniques
Dedicated species observation	v. ‘ <i>Boat-based wildlife watching</i> ’ e.g. Baja grey whales	vi. Thailand ‘ <i>parading shrimp</i> ’	vii. Monarch butterfly migration; viii. Bat tourism	ix. Royal Albatross Centre; x. ‘ <i>Twitching</i> ’
Habitat-based nature tourism	e.g. snorkelling coral reefs	e.g. jungle river cruise	xi. Yellowstone National Park visitor guidance	xii. AEWA guidelines on wetland reserves for migratory waterbirds
Incidental wildlife encounters	xiii. Sea turtle nesting beaches	xiv. Spread of invasive alien species by private use of vessels and gear	xv. Skiing; xvi. Cave tourism (with regards to bats)	xvii. Flight initiation distances in light of recreation

⁴² <https://legislation.govt.nz/regulation/public/1992/0322/latest/whole.html#DLM168286> (2(1))

⁴³ <https://www.nature.scot/doc/guide-best-practice-watching-marine-wildlife-smwww>

b. Case studies

c. Direct species interaction

i. marine – ‘Swim-with’ e.g. basking sharks:

Guidelines from CMS on ‘Recreational In-water Interaction with Aquatic Mammals’ are available in Resolution 12.16⁴⁴, and it is anticipated that at COP14 decisions will be taken to combine these with those on ‘Sustainable boat-based marine wildlife watching’ (Res. 11.29⁴⁵) to cover ‘Marine Wildlife Watching’ (see Decisions 13.66 – 13.68⁴⁶). Furthermore, ‘Species-specific Guidelines for In-water Recreational Interactions with Marine Wildlife’ are in preparation. National legislation such as New Zealand’s Marine Mammal Regulations can provide quantitative rules (e.g. “no person in the water shall be less than 100 metres from a whale, unless authorised by the Director-General” [19(a)]), along with specific provisions for swim-with activities (e.g. “no person shall make any loud or disturbing noise near dolphins or seals”, except “commercial operators may use an airhorn to call swimmers back to the boat or to the shore” [20(c),(d)]⁴⁷).

In some cases species-specific guidance is provided by tour operators: Basking Shark Scotland, which is WiSe-trained⁴⁸ (i.e. certified in wildlife-safe marine wildlife watching), provides a Code of Conduct for swimming with basking shark (*Cetorhinus maximus*)⁴⁹. This aims to safeguard those on both sides of the interaction, with protocols including: “Maximum 4 customers plus a guide in with an individual shark” and “Absolutely no touching of the sharks”. Although the Code is described as aligning with guidance from the Shark Trust⁵⁰ and the Scottish Marine Wildlife Watching Code (SMWWC)⁵¹, it is worth noting that the Shark Trust recommends a maximum of four people within 100m, and the SMWWC states that swimming with basking sharks is not recommended. The Code also describes monitoring which considers cumulative impacts from other visitors.

ii. freshwater – ‘Swim-with’ e.g. manatees:

Although there are no equivalent official guidelines for freshwater ‘swim-with’ activities, interactions with Florida manatee (*Trichechus manatus latirostris*)⁵² at the US Fish & Wildlife Service’s Crystal River National Wildlife Refuge are subject to ‘Manatee Manners’ guidelines, which are present on signage and in briefing videos. These contribute towards an overarching ethos of ‘passive observation’, including non-interaction when manatees are feeding, resting, with calf, or within sanctuaries⁵³. Since the manatees are legally protected under the Marine Mammal Protection Act (1972), the Federal Environmental Protection Act (1973), and the Florida Manatee Sanctuary Act (1978), tour companies operate under Special Use Permits, with boat captains and tour guides pledging to provide “educational tours and not a theme park style experience”⁵⁴.

⁴⁴ https://www.cms.int/sites/default/files/document/cms_cop12_res.12.16_in-water_interaction_e.pdf

⁴⁵ [https://www.cms.int/sites/default/files/document/cms_cop12_res.11.29\(rev.cop12\)_e.pdf](https://www.cms.int/sites/default/files/document/cms_cop12_res.11.29(rev.cop12)_e.pdf)

⁴⁶ <https://www.cms.int/en/page/decisions-1366-1368-marine-wildlife-watching>

⁴⁷ <https://legislation.govt.nz/regulation/public/1992/0322/latest/whole.html#DLM168286>

⁴⁸ <https://www.wisescheme.org/>

⁴⁹ <https://baskingsharkscotland.co.uk/about-us/our-code-of-conduct>

⁵⁰ <https://www.sharktrust.org/basking-shark-project>

⁵¹ <https://www.nature.scot/doc/scottish-marine-wildlife-watching-code-smwwc>

⁵² The species, but not subspecies, is CMS-listed

⁵³ <https://www.discovercrystalriverfl.com/things-to-do/on-water/manatees/>

⁵⁴ <https://www.floridamanateetours.com/manatee-eco-tourism-association/>

iii. terrestrial – Mountain gorilla and Japanese ‘snow monkey’ viewing:

Mountain gorilla (*Gorilla beringei beringei*⁵⁵) viewing is a high-profile and strongly regulated case of direct species interaction. These Critically Endangered⁵⁶ apes are thought to directly benefit through heightened protection and reduced conflict with locals, who share in the generated revenue. The IUCN Best Practice Guidelines for Great Ape Tourism stress that conservation must always remain the primary goal; although it is not necessarily unacceptable for unavoidable negative impacts to occur, these must be mitigated as far as possible. Close-proximity viewing is facilitated by habituation – a process leading to “*acceptance by wild animals of a human observer as a neutral element in their environment*”⁵⁷ – which must be combined with long-term surveillance of illegal activities, and secure investment in this surveillance, such that it could continue even in the absence of tourism.

Some restrictions put in place to protect the animals also benefit stakeholders: for example, small group sizes “*favour high permit prices, as tourists tend to value being part of a small and exclusive group of visitors*”⁵⁸. In contrast, limitations on the interaction experience itself may be more regularly violated, with one tour report describing how “*‘keep 7m away’ and ‘avoid eye contact’ rules went out of the window as the gorillas approached us*”⁵⁹. This is particularly concerning as the distance restriction is put in place mainly to prevent disease transmission to the gorillas by tourists and attendant staff, alongside other precautions including mandatory vaccinations, health screenings, and mask wearing – which have been strengthened in response to the COVID-19 (e.g. temperature checks, an increased distance of 10m to be observed at all times, and further mask specifications)⁶⁰.

In the much more orchestrated situation at the Jigokudani Monkey Park in Japan, provisioning is used to facilitate the desired tourist experience: witnessing and photographing Japanese macaques (*Macaca fuscata*) bathing in a man-made hot spring⁶¹. This species is non-migratory, although park formation was driven by a desire to prevent the monkeys from roaming into nearby farmland where they would be killed for crop-raiding⁶². While visitors are prohibited from feeding or touching the animals, another tour report describes the macaques “*moving around or between the people, often very closely, skipping in and out around people’s legs*”⁶³.

iv. avian – Facilitated viewing via attraction techniques:

Similarly close interactions with birds are sometimes facilitated through attraction techniques. For example, call playback, or the broadcasting of a recording of a bird vocalisation to elicit a response, is often used to entice target species into view. This is a popular technique with tour guides, who are under pressure to produce target species on demand – many of which are secretive, skulking species of tropical forests (Harris & Haskell, 2013; Watson *et al.*, 2018). Simulated birdwatchers’ playback led to increased vocalisations, but apparent habituation occurred with decreasing responses over time, in a study of two tropical bird species (Harris & Haskell, 2013). Target species’ recordings may also disturb additional species, such as potential prey – as observed in scientific

⁵⁵ The subspecies is CMS-listed

⁵⁶ Plumptre, A., Robbins, M.M. & Williamson, E.A. 2019. *Gorilla beringei*. The IUCN Red List of Threatened Species 2019: e.T39994A115576640. <https://dx.doi.org/10.2305/IUCN.UK.2019-1.RLTS.T39994A115576640.en>. Accessed on 22 April 2022.

⁵⁷ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf> (p. 36)

⁵⁸ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf> (p. 48)

⁵⁹ https://d11gbzngntg4t4.cloudfront.net/reports/UGA02_report_100115_Uganda_Mammals_and_Mountains.pdf

⁶⁰ <https://www.wildgorillasafaris.com/gorilla-trekking-uganda/gorilla-trekking-rules-and-regulations-in-uganda/>

⁶¹ <https://www.japan-guide.com/e/e6028.html>

⁶² https://d11gbzngntg4t4.cloudfront.net/reports/JPN01_report_190215_Wild_Japan_in_Winter.pdf (p. 8)

⁶³ <https://www.wildlifeworldwide.com/tour-reports/japans-winter-wildlife-tour-report-terry-reis-group-feb-2020.pdf>

experiments (Schmidt & Belinsky, 2013), and guided tours: “[the local guide] wanted to try for Harpy Eagle [*Harpia harpyja*] which he believed nested nearby, and the recording scared a Kinkajou [*Potus flavus*] which came out”⁶⁴. Alternatively, it has been suggested that, if playback decreases time to first sighting, it may reduce other forms of disturbance such as trampling, as well as helping to secure local livelihoods based on reliable sightings of key species – with these direct beneficiaries hopefully invested in maintaining best practices. To that end, scientists continue to call for further research into long-term impacts on bird populations and communities, beyond individual behaviour changes (Watson *et al.*, 2018).

Additionally, birders looking to ‘tick’ certain species of antpitta (Grallariidae spp.) can visit sites where they are specifically provisioned, including as part of organised tours⁶⁵. This goes against relevant guidelines, such as the Association of British Travel Agents’ (ABTA) Global Welfare Guidance for Animals in Tourism, which consider feeding of free-roaming wild animals to be an ‘unacceptable practice’⁶⁶. However, in this case, similar benefits to those of call playback could be put presented in defence of the practice, given the popularity of these sites with committed birders⁶⁷.

d. Dedicated species observation

v. marine – ‘Boat-based wildlife watching’ e.g. Baja grey whales:

United Nations Sustainable Development Goal 14⁶⁸ encourages sustainable use of marine resources; marine tourism generates more revenue globally than fisheries and aquaculture combined (as of 2006; Higham *et al.*, 2016). As mentioned in [section 3.b.i.](#), CMS guidelines on ‘Sustainable boat-based marine wildlife watching’ are available in Resolution 11.29 (Rev.COP12), and it is anticipated that at COP14 decisions will be taken to combine these with those on ‘Recreational In-water Interaction with Aquatic Mammals’ (Res. 12.16) to cover ‘Marine Wildlife Watching’ (see Decisions 13.66 – 13.68⁶⁹). More specifically, as of 2009, whale watching alone generated over \$2 billion in revenue and supported 13,000 FTE jobs⁷⁰. If whales are considered a common-pool resource – since “the more time one operator spends with an animal at the surface, the less time remains available for others to extract value from the same resource” – public regulation is the recommended management regime, with inter-governmental organisations as a third party to mediate across geopolitical boundaries (Higham *et al.*, 2016, pp. 77-78). In addition to the guidelines mentioned above, CMS has collaborated with the International Whaling Commission on a Whale Watching Handbook⁷¹, and there are various national regulations⁷² and guidelines⁷³.

Higham *et al.* (2016) note that “many cetaceans cross national maritime borders and move between international jurisdictions on a regular (e.g., seasonal) basis” (p. 82), and the grey whales

⁶⁴ https://d11gbzngntg4t4.cloudfront.net/reports/PAN07_report_190518_Panama_Harpy_Eagle_Special.pdf

⁶⁵ e.g. https://d11gbzngntg4t4.cloudfront.net/reports/ECU17_report_200209_Ecuador_on_the_trail_of_the_Jocotoco_Antpitta_2.pdf;

<https://www.birdingecotours.com/northern-ecuador-trip-report-november-2021/>

⁶⁶ <https://www.abta.com/sites/default/files/media/document/uploads/Global%20Welfare%20Guidance%20for%20Animals%20in%20Tourism%202019%20version.pdf> (p. 6)

⁶⁷ <https://www.birdguides.com/articles/features/antpittas-on-the-trail-through-ecuador-and-peru/>

⁶⁸ <https://sdgs.un.org/goals/goal14>

⁶⁹ <https://www.cms.int/en/page/decisions-1366-1368-marine-wildlife-watching>

⁷⁰ https://www.cms.int/sites/default/files/document/BackgroundPaper_Aus_WhaleWatchingWorldwide_0.pdf

⁷¹ <https://wwhandbook.iwc.int/en/>

⁷² <https://legislation.govt.nz/regulation/public/1992/0322/latest/whole.html#DLM168286>

⁷³ <https://wwhandbook.iwc.int/en/responsible-management/guidelines-and-regulations>

(*Eschrichtius robustus*) which migrate to Baja California, Mexico from the Arctic Ocean provide what is described by one wildlife travel company as “*probably the greatest whale watching spectacle on Earth*”⁷⁴. The World Heritage Site of El Vizcaíno Biosphere Reserve (EVBR), “*a crucial habitat for the entire grey whale population*”, offers an ‘*inimitable*’ tourist experience (Brenner *et al.*, 2016, p. 434) whereby the whales ‘*want to play*’ and apparently approach boats for head rubs⁷⁵. Although such close proximity can be associated with vessel strikes, acoustic pollution and behavioural disruption (Higham *et al.*, 2016), grey whale populations at EVBR were stable or increasing 1996-2014 (Brenner *et al.*, 2016) – but Higham *et al.* (2016) caution against delaying implementation of management until adverse impacts are detected.

Sustainability of whale watching in EVBR is also vital for local people, since many communities “*now involved in whale-watching activities have already undergone substantial socio-economic trauma after the collapse of local fisheries*” (Higham *et al.*, 2016, p. 83) – see Young (1999) for details of fishing conflicts and decline in this region. Whale watching in the EVBR generated a total gross turnover of almost \$3 million in 2006-2007 (excluding package tours and before incorporating multiplier effects), “*benefitting mostly local tourism businesses*” such as tour operators, accommodation providers, restaurants and gas stations (Brenner *et al.*, 2016, p. 429).

Gross turnover exceeds the lost income due to rock lobster fishery closure during whale-watching season by 50% (Brenner *et al.*, 2016), and to compensate for lost fishing opportunities across two lagoons, locals hold exclusive rights to offer tourist services to independent travellers and foreign tour operators (Dedina & Young, 1995). Governmental promotion and law enforcement of tourism in EVBR has “*been perceived as both successful and economically-beneficial by most actors involved in nature-based tourism*” (Brenner *et al.*, 2016, pp. 449). Further planning and marketing could focus “*on well-defined visitor segments to satisfy their specific needs and expectations*” (Brenner *et al.*, 2016, p. 429): across independent visitors to EVBR, almost half – “*the most important segment in economic terms*” – are partaking in whale-watching as an ‘*add-on*’ activity; hence, there is scope for increased promotion of cultural attractions such as cave paintings and salt production (Brenner *et al.*, 2016, p. 445).

vi. freshwater – Thailand ‘*parading shrimp*’

Generally, invertebrates “*are largely ignored by [the] public, especially in the ecotourism sector*” (Hongjamrassilp *et al.*, 2021, p. 6). An exception is ‘*shrimp parading*’: “*a relatively new wildlife ecotourism event where tourists visit Ubon Ratchathani, Thailand to witness a mass migration of freshwater shrimp that emerge from the water and move across land*” (Hongjamrassilp *et al.*, 2021, p. 1). This was promoted by the Tourism Authority of Thailand in the late 1990’s, but development of the phenomenon as a tourist attraction has coincided with decreased numbers of migrating shrimp, attributed to the use of flashlights during viewing. Hongjamrassilp *et al.* (2021) recommend zoning based on stages of the migration, with tourist access and flashlight use managed accordingly, based on experimental evidence from Hongjamrassilp and Blumstein (2022). Interviews revealed that while tourists and locals were concerned with the possibility of extinction and supported behavioural regulations such as staying on the trail, there were more neutral reactions to restrictions on personal flashlights and flash photography. The authors suggest that the government should set up a website to publicise the ‘*parading shrimp*’ and associated sustainability guidelines – the impact of which has yet to be assessed. Additionally, they emphasise the potential for ecotourism around invertebrate mass migrations, such as Christmas Island’s red crabs⁷⁶.

⁷⁴ <https://www.wildlifeworldwide.com/group-tours/grey-whales-of-san-ignacio-lagoon/>

⁷⁵ <https://www.wildlifeworldwide.com/tour-reports/grey-whales-of-san-ignacio-lagoon-29-feb-2020-tour-report.pdf>

⁷⁶ <https://parksaustralia.gov.au/christmas/discover/highlights/red-crab-migration/>

vii. terrestrial – Monarch butterfly migration:

The only CMS-listed invertebrate is the monarch butterfly (*Danaus plexippus*), which has been described as “one of the few insects to generate similar levels of interest as charismatic megafauna” (Lemelin & Jaramillo-López, 2020, p. 293). This is in large part due to its “multi-generational migration, spanning 3,000km across the North American continent, [which] represents one of the world’s greatest migrations” (Lemelin & Jaramillo-López, 2020, p. 293), and is an important tourist draw to the region of Mexico now designated as the Monarch Butterfly Biosphere Reserve (MBBR; Monterrubio *et al.*, 2015). However, this population and its associated migration face a range of threats, including climate change, pesticide use and habitat loss in the breeding grounds (Canada and the USA)⁷⁷, deforestation and forest degradation in Mexico, and unregulated tourism (Vidal & Rendón-Salinas, 2014). These authors “often observed groups of tourists approaching the colonies too close”, including in designated closed areas; such disturbance may cause the butterflies to disperse and relocate, with potential impacts on their energy reserves and hence future migration (Vidal & Rendón-Salinas, 2014, p. 173). Indeed, a 2015 ‘World Heritage in Danger’ report stated that “the impacts of visitors on butterfly behaviour are not fully understood”⁷⁸. Viewing regulations are provided in some of the more popular sanctuaries within the MBBR, and Lemelin and Jaramillo-López (2020) recommend further measures to protect the monarchs and their habitat – for example, mulching horse trails and footpaths to prevent erosion.

In terms of socioeconomic impacts, while the MBBR is the most visited biosphere reserve in Mexico, average expenditure is low compared to other Mexican tourist destinations (Lemelin & Jaramillo-López, 2020). World Wildlife Fund-approved operator Natural Habitat Adventures stresses that ecotourism is “essential to the butterflies’ continued survival: butterflies demonstrate to locals that ecotourism can be a more viable and sustainable source of economic wellbeing than resource exploitation”⁷⁹. However, Barkin (2003) claimed that the MBBR had “been unable to generate an impetus for local development among the indigenous and peasant communities in the region” (p. 371), despite the fact that, “when given the chance and access to resources, the poor are more likely than other groups to engage in direct action to protect and improve the environment” (p. 373). The MBBR is described as “one of the most populated National Protected Areas in Mexico”, with many inhabitants “belonging to thirteen indigenous communities with high levels of poverty and marginalisation” (Monterrubio *et al.*, 2015, p. 261). These communities traditionally managed the forests for timber, and while sustainable livelihoods have been supported through the Monarch Fund following creation of the Biosphere Reserve⁸⁰, some argue that this has “undermined social control of land” (Gonzalez-Duarte, 2021), with local landowners “largely marginalised from the management discussion” (Lemelin & Jaramillo-López, 2020, p. 294). Other potential concerns related to the sustainability of monarch butterfly ecotourism in the MBBR include: the role of child labour (Monterrubio *et al.*, 2015); a need for diversification to support demand at other times of year and for longer stays (Barkin, 2003); and recent violent incidents against butterfly conservationists⁸¹.

viii. terrestrial – Bat tourism:

Bat tourism “has a potential to conserve bat populations while providing social and economic benefits to local people in host communities” (Pennisi *et al.*, 2004, p. 195). It involves some of the world’s largest mammal congregations – e.g. Bracken Cave, Texas (approximately 20 million Mexican free-tailed bats, *Tadarida brasiliensis*)⁸² – and migrations – e.g. Kasanka National Park, Zambia

⁷⁷ <https://www.theguardian.com/environment/2020/feb/08/monarch-butterflies-under-threat-mexico-aoe>

⁷⁸ https://assets.nrdc.org/sites/default/files/wil_15040901a.pdf

⁷⁹ <https://www.nathab.com/central-america/monarch-butterfly-tour/>

⁸⁰ <https://news.mongabay.com/2020/02/two-deaths-trigger-alarm-at-mexicos-monarch-butterfly-biosphere-reserve/>

⁸¹ <https://news.mongabay.com/2020/02/two-deaths-trigger-alarm-at-mexicos-monarch-butterfly-biosphere-reserve/> ; <https://www.theguardian.com/environment/2020/feb/08/monarch-butterflies-under-threat-mexico-aoe>

⁸² <https://www.batcon.org/bat-tourism-the-surprising-power-of-bat-watching-holidaymakers/>

(approximately 10 million straw-coloured fruit bats, *Eidolon helvum*)⁸³. Viewing bats emerging from roosts is in some ways an ideal ecotourism activity, as “*unlike many other natural phenomena (especially in the animal world) [it is] near-guaranteed*”⁸⁴. The Congress Avenue Bridge in Austin, Texas, hosts millions of bats within an urban setting, attracting an estimated 100,000 visitors generating £10m worth of tourist revenue each year⁸⁵ and hosting an annual Bat Fest⁸⁶. Bat tourism revenue is important in providing an incentive to maintain and conserve bat populations, which – despite supporting various important ecosystem services – are subject to negative attitudes and in some cases persecution due to superstition, misconceptions, and fears of disease⁸⁷, leading to declines in many species (Pennisi *et al.*, 2004).

While bat watching tends to occur outside cave entrances, with a lower potential for disturbance compared to cave recreation (see [section 3.b.xv.](#)), in some cases negative impacts may occur (Pennisi *et al.*, 2004). At the Eckert James River Cave, which is co-managed by Bat Conservation International and Texas Nature Conservancy, visitor numbers were found to contribute to variability in bat emergence time; management then reduced the number of viewing nights from seven to four per week, and increased the viewing distance⁸⁸. When using ‘arenas’ outside caves to view bat emergence (as at Carlsbad Cavern, New Mexico⁸⁹), it should be borne in mind that clearing vegetation around entrances can increase bats’ vulnerability to predation (Biswas *et al.*, 2011). Sustainable bat tourism management “*should be based on legitimate scientific research*” involving government agencies and conservation NGOs (Pennisi *et al.*, 2004, p. 201).

ix. avian – Royal Albatross Centre:

Northern royal albatross (*Diomedea sanfordi*) are CMS- and ACAP-listed, and their only mainland breeding colony in the world⁹⁰, on the Otago Peninsula in New Zealand (Party to both CMS and ACAP), played a key role in developing wildlife tourism in the country. Each pair at the Royal Albatross Centre is estimated to generate more than NZ\$50,000 per year – before factoring in regional spend – contributing ‘*substantially*’ to local income and employment, while bringing few costs due to their marine diet (Tisdell & Wilson, 2012).

Higham (1998) was concerned that the shift towards international visitation precipitated by development of a new reception facility in 1989 would cause seasonality issues, along with unrealistic expectations from non-specialist wildlife tourists (e.g. visiting as part of a package trip) – for example, of feeding or even handling the nesting birds. However, fences prevent unauthorised access to the nesting area⁹¹, which is now viewed via guided tours within a sound-proofed observatory with one-way glass⁹². More recently, issues arose due to the use of drones in the restricted airspace above the colony⁹³, but these have been alleviated through signage and education (New Zealand Department of Communication, pers. comm.). The Royal Albatross Centre

⁸³ <https://www.theguardian.com/environment/2021/jan/05/why-the-worlds-biggest-mammal-migration-is-crucial-for-africa-photo-essay-aoe>

⁸⁴ <https://www.batcon.org/bat-tourism-the-surprising-power-of-bat-watching-holidaymakers/>

⁸⁵ <https://www.batcon.org/bat-tourism-the-surprising-power-of-bat-watching-holidaymakers/>

⁸⁶ <https://www.roadwayevents.com/event/bat-fest/>

⁸⁷ <https://www.batcon.org/bat-tourism-the-surprising-power-of-bat-watching-holidaymakers/>; <https://www.theguardian.com/environment/2021/jan/05/why-the-worlds-biggest-mammal-migration-is-crucial-for-africa-photo-essay-aoe>

⁸⁸ <https://www.batcon.org/article/the-james-river-bat-cave/>

⁸⁹ <https://portals.iucn.org/library/efiles/documents/2001-008.pdf> (p. 45)

⁹⁰ <https://albatross.org.nz/>

⁹¹ <https://ro.uow.edu.au/cgi/viewcontent.cgi?article=1544&context=artspapers>

⁹² <https://albatross.org.nz/about/useful-information/>

⁹³ <https://www.doc.govt.nz/news/media-releases/2016/drone-found-within-albatross-colony/>

has been awarded Qualmark Enviro Gold status and a TripAdvisor Certificate of Excellence⁹⁴. Ticket revenue helps to fund the centre's "*intensive management of breeding pairs to maximise successful hatching and fledging of chicks*", including via artificial incubation (Zhang, 2020, p. 48) and supplemental food (Higham, 1998)⁹⁵.

x. avian – ‘Twitching’

‘Twitching’ – the act of travelling a long distance to see a rare bird – can be a high carbon activity; ‘twitchers’ may take long-haul flights across the globe, charter small aircraft to remote islands or drive excessive distances in the pursuit of a bird they have never seen before (Lees & Gilroy, 2021). However, increasing environmental awareness has encouraged more birdwatchers to use public transport in the quest to observe rare birds. This will ultimately result in longer travel times and increase the need for overnight stays, thus potentially increasing the economic value of twitching for the local community.

For example, a black-backed oriole (*Icterus abeillei*) – an endemic to central Mexico – that appeared in Pennsylvania, USA, attracted 1,824 observers from across the United States and resulted in travel activity estimated to value US\$223,000 over 67 days (Callaghan *et al.*, 2018). Similarly, the expenditure of birdwatchers twitching an Aleutian tern (*Onychoprion aleutica*) in Australia was found to range from AU\$199,000-\$363,000, and a survey revealed they were “*cumulatively willing to donate upwards of AU\$30,000 to a non-governmental conservation organisation in order to have viewed the terns*” (Callaghan *et al.*, 2020).

On-site charity donations are now common at sites hosting vagrant birds in the United Kingdom, and these collections can help to mitigate any ill-feeling towards crowds of visiting birdwatchers (Lees & Gilroy, 2021). More campaigns promoting public transport and charity donations in twitching will help to improve the green credentials of this ecotourism activity, whilst also increasing its economic and conservation potential.

e. Habitat-based nature tourism

xi. terrestrial – Yellowstone National Park visitor guidance:

The National Park Service’s ‘safety’ webpage for Yellowstone illustrates their dual responsibilities towards wildlife and people, in the “*Protect Your Park; Protect Yourself*” slogan, and distance restrictions: 25 yards, or 100 yards for bears and wolves – and further if affecting their behaviour⁹⁶. More generally, it is prohibited to “*wilfully remain[...] near or approach[...] wildlife, including nesting birds, within any distance that disturbs or displaces the animal*”⁹⁷. Much of Yellowstone’s management documentation references the National Park Service’s purpose: to “*conserve the scenery [...] and wild life [...] unimpaired for future generations*” and “*provid[e] for the enjoyment of these resources by visitor [sic] and other users, as long as use does not impair specific park resources or overall visitor experience*”⁹⁸. These aims are often facilitated through spatiotemporal zoning of different activities: swimming is prohibited in a stretch of river used by spawning Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*), while various fishing restrictions protect nesting birds such as the migratory harlequin duck (*Histrionicus histrionicus*), and facilitate grizzly bear (*Ursus arctos horribilis*) management. Although fishing is (predominantly) a lethal take activity and hence not included within our definition of wildlife tourism, it is worth noting that stipulated

⁹⁴ <http://otagopeninsulatrust.co.nz/wp-content/uploads/2013/11/Otago-Peninsula-Trust-annual-report-2016.pdf>

⁹⁵ <https://albatross.org.nz/>

⁹⁶ <https://www.nps.gov/yell/planyourvisit/safety.htm>

⁹⁷ <https://www.nps.gov/yell/planyourvisit/rules.htm>

⁹⁸ https://www.nps.gov/yell/learn/management/upload/Yellowstone-SUPERINTENDENT-S-COMPENDIUM-2021_Signed.pdf (p. 4, p. 5)

possession limits (or lack thereof) have been set to directly benefit the native fish species⁹⁹ and hence contribute towards the image many visitors hold of a ‘pristine’ Yellowstone environment.

xii. avian – AEWA guidelines on wetland reserves for migratory waterbirds:

Conservation Guidelines from AEWA on the development of ecotourism at wetlands state unequivocally that the only acceptable form of tourism in most AEWA sites is “*nature tourism that contributes to nature conservation*”. Hence, tourist amenities such as benches, picnic tables and paths should be located and maintained to reduce disturbance to the birds. Additionally, interpretative material can explain the rationale behind any provided guidelines, such that user behaviour is voluntarily modified through improved understanding, as opposed to officially restricted. In a summary of the generally applicable conclusions from a study in the Netherlands into the effects of disturbance on breeding birds, it is noted that “*The level of disturbance is linear to the logarithm of recreational intensity; thus, as the intensity of recreation increases, the additional disturbance caused becomes relatively less important*”, or, conversely, that low-intensity recreation can have a disproportionate impact¹⁰⁰.

f. Incidental wildlife encounters

xiii. marine – Sea turtle nesting beaches

Sea turtles – all seven species of which are CMS-listed – are often recognised as ecotourism attractions in themselves. In the Caribbean, the Wider Caribbean Sea Turtle Conservation Network (WIDECAS) emphasises the benefits from sea turtles to governments, the tourism industry, and visitors¹⁰¹, and the “*Strategy for the Development of the Caribbean Environment Programme (1990-1995) calls for “the development of specific management plans for economically and ecologically important species”, making particular reference to [...] species of sea turtle*”¹⁰². However, beach tourism can also threaten sea turtles: for example, the British Virgin Islands’ “*beaches are under intense pressure for tourist development and many [host] intense levels of activity which are likely to adversely affect nesting sea turtles*” – “*it would be ironic if tourists were allowed to destroy the very resources that attracted them to the area in the first place*”¹⁰³. WIDECAS and the UNEP Caribbean Environment Programme recommend wide distribution of educational materials informing tourists of these issues, with brochures available at tourist offices, hotels, and dive shops, and regulations ideally advertised at airport and cruise ports, car rentals, and charter operations¹⁰⁴.

Beach recreation poses various risks to sea turtles: at Kanzul beach, Mexico, nearly 6% of nesting attempts are obstructed by beach furniture (Oliver de la Esperanza *et al.*, 2017), while issues with violations of beach furniture regulations are described in the set of case files of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) regarding turtle nesting beaches in the Mediterranean. On Daliman-Sarigerme beach in Turkey, loggerhead turtle (*Caretta caretta*) nests were more concentrated on undeveloped sections of the beach, with nesting thought to be impeded by nocturnal anthropogenic disturbances (Kaska *et al.*, 2010). The NGO ‘Marine Turtle Conservation in the Mediterranean’ recommends beach signage conveying

⁹⁹ https://www.nps.gov/yell/learn/management/upload/Yellowstone-SUPERINTENDENT-S-COMPENDIUM-2021_Signed.pdf

¹⁰⁰ https://www.unep-aewa.org/sites/default/files/publication/cg_7new_0.pdf (p. 10)

¹⁰¹ <https://www.widecast.org/>

¹⁰² https://wedocs.unep.org/bitstream/handle/20.500.11822/27364/CEP_TR_15-en.pdf (p. i)

¹⁰³ https://wedocs.unep.org/bitstream/handle/20.500.11822/27364/CEP_TR_15-en.pdf (p. 20, p. 60)

¹⁰⁴ https://wedocs.unep.org/bitstream/handle/20.500.11822/27364/CEP_TR_15-en.pdf

restrictions and recommended behaviours to be improved, i.e. suitably located, clearly visible, and supported by associated spatiotemporal zoning¹⁰⁵.

Artificial light, as may be generated by tourist strips, can also affect both incoming nesting and outgoing hatchling sea turtles, with sky glow exerting an influence from a distance of up to 18km¹⁰⁶. The CMS recognises light pollution as a threat to sea turtles, with Parties implored to “*manage artificial light so that migratory species are not disrupted within, nor displaced from, important habitat, and are able to undertake critical behaviours*” (Res. 13.5¹⁰⁷). Beachfront artificial light can disorient hatchlings such that they may not reach the sea, are attracted back to shore, or expend more energy in the process¹⁰⁸. Various interventions can help to reduce these effects:

- Australian National Light Pollution Guidelines for Wildlife: “*ensure there is a tall dark horizon behind the beach such as dunes and/or a natural vegetation screen*”¹⁰⁹ ;
- For required lights (e.g. to ensure safety): manage intensity/colour/positioning (e.g. US county ordinances, Mascovich *et al.*, 2018; Oliver de la Esperanza *et al.*, 2017); shield/redirect/recess; use timers/motion sensors¹¹⁰;
- For hotel rooms: tint windows (such that less than 45% of light is transmitted¹¹¹); implement in-house public engagement – Mascovich *et al.* (2018) found little effect of an experimental in-room educational card, suggesting the need for a different form of messaging and/or stronger enforcement (see Oliver de la Esperanza *et al.*, 2017); indeed, government involvement “*often essential to ensure that light management on nesting beaches, justified by scientific information and supported by the public, becomes a reality*”¹¹².

xiv. freshwater – Spread of invasive alien species by private use of vessels and gear:

The CBD defines invasive alien species as those “*whose introduction and/or spread outside their natural past or present distribution threatens biological diversity*”¹¹³, with the potential for huge economic damage¹¹⁴. Since “*all [water-based] recreational activities have the potential to spread aquatic invasive species*”, awareness campaigns stress the important role of recreational users of waterbodies in preventing further spread. For example, the ‘*Stop Aquatic Hitchhikers!*’ website refers to those “*aquatic invasive species that can be transported to other waterbodies by recreational activities*”, but combatted through the process of ‘*Clean Drain Dry*’¹¹⁵. The more widely used ‘*Check Clean Dry*’ slogan has been incorporated into guidance from relevant organisations (e.g. British Canoeing¹¹⁶) and shown to increase biosecurity activity by anglers (Smith *et al.*, 2020). Expanding upon the basics of ‘*Check Clean Dry*’, the GB Non-Native Species Strategy emphasises that boat users should be particularly careful in protected areas and when moving vessels internationally¹¹⁷. Boating permits for Yellowstone National Park require an Aquatic Invasive Species inspection, and water shoes with fibrous soles are prohibited as these “*can be harder to clean, more difficult to dry*”

¹⁰⁵ <https://www.medasset.org/report-08-2020-fethiye-patara-turkey/> ; <https://www.medasset.org/report-08-2021-fethiye-patara-turkey/>

¹⁰⁶ https://www.cms.int/sites/default/files/document/cms_cop13_res.13.5_annex_e.pdf

¹⁰⁷ Paragraph 5, https://www.cms.int/sites/default/files/document/cms_cop13_res.13.5_light-pollution-guidelines_e.pdf

¹⁰⁸ https://www.cms.int/sites/default/files/document/cms_cop13_res.13.5_annex_e.pdf

¹⁰⁹ https://www.cms.int/sites/default/files/document/cms_cop13_res.13.5_annex_e.pdf (p. 68)

¹¹⁰ https://aquadocs.org/bitstream/handle/1834/18088/TR2_c.pdf

¹¹¹ https://aquadocs.org/bitstream/handle/1834/18088/TR2_c.pdf

¹¹² https://aquadocs.org/bitstream/handle/1834/18088/TR2_c.pdf (p. 25)

¹¹³ <https://www.cbd.int/invasive/WhatareIAS.shtml>

¹¹⁴ <https://www.cbd.int/invasive/>

¹¹⁵ <https://stopaquatichitchhikers.org/aboutus/>

¹¹⁶ <https://www.britishcanoeing.org.uk/uploads/documents/Biosecurity-at-paddling-Events-Toolkit.pdf>

¹¹⁷ <https://www.nonnativespecies.org/what-can-i-do/check-clean-dry/boaters/>

and retain [aquatic invasive species] longer than other types of foot gear material”¹¹⁸. More generally, the Irish Recreational Boating Pathway Action Plan for invasive alien species (as required under EU Regulation 1143/2014) identifies tourism bodies as important stakeholders with whom communication should be maintained.

xv. terrestrial – Skiing:

It has been suggested that the relative wildlife value of alpine habitats is increasing due to changes at lower altitudes (Rolando *et al.*, 2013). However, “the ski industry certainly represents the major [anthropogenic] threat to mountain wildlife, and ski-pistes in particular probably represent [...] a significant effect on wildlife habitat” (Rolando *et al.*, 2013, pp. 102). Areal extent of ski-pistes is increasing, and impact on animals “is mostly (although not totally) negative” (Rolando *et al.*, 2013, pp. 117; see also: Sato *et al.*, 2013). Specifically, ski-pistes have been found to support lower bird abundance and diversity than other land uses – with indirect effects on adjoining habitat – and to be largely absent of small mammals (Rolando *et al.*, 2013). A study of animal tracks in Norway observed a negative correlation with ski tracks, although there was a significant increase within three weeks of resort closure due to COVID-19 (Risberg, 2021). Cross-country skiing can induce increased movement in moose for up to three hours, leading to displacement and impacts on accompanying calves (Neumann *et al.*, 2010). The increased unpredictability of off- versus on-trail activity is thought to preclude habituation and generate larger zones of influence (Neumann *et al.*, 2010).

Furthermore, effects have been found to extend spatially and temporally beyond recreation areas and high season (Nellemann *et al.*, 2000). In Rondane, Norway, tourist resorts induced avoidance perimeters in wild reindeer (*Rangifer tarandus tarandus*) of at least 5km, with maternal groups mostly remaining at least 15km away – “the farthest distance possible in this mountain area” (Nellemann *et al.*, 2000, p. 12). This redistribution, attributed to resort avoidance given the otherwise uniform habitat, was found to have population effects due to overgrazing of lichen at selected distances – which was also observed by Helle *et al.* (2012) in Finnish Lapland. In contrast, in a study in the Black Forest (Germany), ski tourism did not affect capercaillie (*Tetrao urogallus*) home range location, but the birds avoided high-intensity areas during the ski season where possible – except when factors such as poor weather deterred visitors (Thiel *et al.*, 2008). This enabled maintenance of lower stress levels (as measured by hormones), averting “potential negative consequences on body condition and overall fitness” (Thiel *et al.*, 2008, p. 845).

Concentrating recreational activity into a smaller area may support increased animal abundance, as observed for semi-domesticated reindeer around a resort in Finnish Lapland during a period of increasing recreation pressure and partially attributed to “channeling [sic] of tourists into fewer and better marked hiking and skiing routes” (Helle *et al.*, 2012, p. 23). Suggested installations of ski-piste underpasses or woody debris are supported by limited evidence, as summarised by Conservation Evidence¹¹⁹. Conversely, retention of protected habitat patches was recommended by the authors of the capercaillie study, especially since those “inaccessible to humans might provide a visual and acoustic shield from recreation activities in adjacent areas” – provided regulations ensure users remain within permitted zones (Thiel *et al.*, 2008, p. 852). More generally, a systematic review and meta-analysis on the impacts of winter recreation on animals concluded that “the majority of ski resorts are operating in the absence of knowledge needed to inform effective strategies for biodiversity conservation and ecologically-sound management. Thus, there is an urgent need for more empirical research to be conducted throughout this increasingly threatened ecological community” (Sato *et al.*, 2013, p. 1).

¹¹⁸ https://www.nps.gov/yell/learn/management/upload/Yellowstone-SUPERINTENDENT-S-COMPENDIUM-2021_Signed.pdf (p. 46)

¹¹⁹ <https://www.conservationevidence.com/actions/2355> ; <https://www.conservationevidence.com/actions/2356>

xvi. terrestrial – Cave tourism (with regards to bats):

Cave tourism is increasing in popularity, with approximately 20 million visitors per year¹²⁰, and “*direct benefits to local communities*” (Debata, 2021, p. 684). However, it can cause deterioration of bat habitat and declines in bat populations (Martin *et al.*, 2003; Paksuz & Özkan, 2012), with knock-on effects on aspects of cave biodiversity, due to the importance of nutrient input via bat guano – the presence of which can cause visitors to have a negative attitude towards bats (Debata, 2021). In addition to impacts derived from visitors themselves, structural modifications and activities such as ceremonial burning of incense can alter microclimatic conditions (including temperature, humidity and carbon dioxide levels), for which bats have specific requirements (Biswas *et al.*, 2011; Olson *et al.*, 2011; Debata, 2021). In some cases, cave access for tourism can also facilitate direct persecution of bats therein (Furey & Racey, 2016; Debata, 2021).

Cave visitation has the potential to induce dramatic increases in bat activity, arousal from hibernation, and abandonment of young (Olson *et al.*, 2011; Debata, 2021)¹²¹. Peak impacts may occur after visitors have left, with cascading effects as disturbed individuals disrupt others (Olson *et al.*, 2011). Conservation Evidence have reviewed the intervention ‘*Install and maintain cave gates to restrict public access*’, to conclude that while cave gates can be used to restrict public access and hence reduce disturbance, they can also impede access for bats, in some cases causing roost abandonment¹²². Martin *et al.* (2003) support the use of various exclusion methods for off-limits caves, while Paksuz and Özkan (2012) find that gating tourist caves can help to control access and in some cases increase bat abundance.

Studies including Mann *et al.* (2002) have found reduced tourist disturbance to cave bats through changes in trail illumination: darkness is best, but red light is much less disruptive than white. Tour group size was not found to have an effect, but avoiding talking reduced colony activity. With no evidence of habituation, and highest impacts during breeding, Mann *et al.* (2002) advised species- and site-specific bans on cave visits in the period from birth through peak lactation (see also: Olson *et al.*, 2011; Debata, 2021). At the Dupnisa cave system in Turkey, caves are managed differently based on their bat populations: Kuru cave is open to tourism year-round as the tourist circuit does not approach roosting bats; Sulu cave is closed to tourism during bat hibernation; and Kiz cave is closed to tourism year-round as it used for both hibernation and breeding (Paksuz & Özkan, 2012).

Cave tourists may not know much about the bats therein: in a survey of cave tourist at the Gupteswar caves in India, 62% thought bats were birds, and 78% disagreed that human activities in caves threatened bats (Debata, 2021, Table 1). Additionally, Conservation Evidence have not found any evidence regarding educating the public on ways to reduce bat disturbance in caves¹²³. However, ecotourism providers definitely need to inform customers about the associated risk of Marburg virus, to which primates are susceptible – with itineraries ideally rearranged such that caves are only visited *after* any mountain gorilla viewing¹²⁴.

xvii. avian – Flight initiation distances in light of recreation:

Flight initiation distances (FIDs), defined as the “*distance at which animals flee an approaching [perceived] predator*”, can be used to determine set-back distances or buffer zones to reduce the impacts of human activities on wildlife (Blumstein *et al.*, 2003, p. 97). A survey at Botany Bay, Australia, found that the distance at which birds walked or flew away from human approach was highly variable across species and sites, suggesting “*that wildlife managers should be somewhat*

¹²⁰ <https://portals.iucn.org/library/efiles/documents/2001-008.pdf>

¹²¹ <https://www.conservationevidence.com/actions/999>

¹²² <https://www.conservationevidence.com/actions/999>

¹²³ <https://www.conservationevidence.com/actions/1003>

¹²⁴ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

conservative in developing buffer zones, but they can use previously published FID data for a given species as guidelines" (Blumstein *et al.*, 2003, p. 97).

While that study did not find any patterns between FIDs and human activities, piping plover (*Charadrius melodus*) nesting on recreational beaches at Lake McConaughy (Nebraska, USA) display longer FIDs and nest return times in response to disturbance by dogs (including with humans) compared to vehicles (the most common stimulus at that site; Jorgensen *et al.*, 2016). As an Endangered Species Act listed species, piping plover should be protected from any human disturbance "*that significantly disrupts normal behaviour patterns and creates the possibility of injury*" (Jorgensen *et al.*, 2016, p. 2) – necessitating intense management at Lake McConaughy, which receives over 1 million visitors a year. However, Jorgensen *et al.* (2016) point to a source of potential uncertainty in the purpose of exclusion zones: is the aim to prevent elicitation of any behavioural response, or to prevent disturbances with measurable adverse effects? In this case, dogs (even when restrained) elicited stronger responses, and were observed entering exclusion zones on two occasions – but in most cases birds which left the nest returned within three minutes, and nesting success remained relatively high. Disturbance appeared to induce cumulative stress over the course of each day, but the piping plovers exhibited habituation over time, leading the authors to recommend decreased extent of exclusion zones over the nesting period, presumably to balance recreational interests (Jorgensen *et al.*, 2016). While those authors did not consider the chick rearing period, a similar study of white-fronted plover (*Charadrius marginatus*) on coastal beaches of the Cape Peninsula, South Africa found shorter FIDs and return times with increased disturbance (Baudains & Lloyd, 2007). In fact, higher levels of recreation were associated with greater overall reproductive success, due to decreased nest mortality attributed to predator deterrence (Baudains & Lloyd, 2007).

For shorebirds, "*stringent enforcement of a leash law for the control of dogs could be the most effective way to reduce negative impacts of human disturbance on [...] breeding success*" (Baudains & Lloyd, 2007, p. 406). More generally, human thoroughfare can induce buffer distances due to avoidance of paths¹²⁵, and has been observed to cause birds to largely abandon incubation, while direct approach can also cause invisible impacts such as elevated heart rate (reviewed in Carney & Sydeman, 1999). In combined recommendations for ecotourists and other visitors to natural areas, Carney and Sydeman (1999) suggest leaving some colonies entirely undisturbed, and instating buffer distances for both pedestrians and aircraft in others. In the wider literature regarding FIDs, a study of hoatzins (*Opisthocomus hoazin*) found that adults were able to habituate to humans by reducing flush distances in response to regular exposure, but juveniles appeared to be sensitised by early-life exposure, resulting in higher stress responses and hence lower survival (Müllner *et al.*, 2004).

4. SPECIFIC CONSIDERATIONS:

a. Migration

As previously mentioned, the CMS defines migratory species as those crossing national jurisdictional boundaries cyclically and predictably, and hence does not cover species migrating solely within state; however, some such cases are included as illustrative examples here (e.g. see [section 3.b.vi](#)). The IUCN Best Practice Guidelines for Great Ape Tourism suggest that "*apes that range across international or other significant geo-political boundaries should not be chosen for tourism*" unless regional agreements are in place¹²⁶, emphasising the importance of international cooperation and inter-governmental mediation in these cases (see also: [section 5](#)).

The AWEA guidelines on wetland reserves for migratory waterbirds support "*development of ecotourism based on spectacular concentrations of migratory [species such as] waterbirds*",

¹²⁵ <https://www.nature.scot/doc/review-capercaillie-conservation-and-management-report-scientific-advisory-committee>

¹²⁶ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf> (p. 36)

depending on the animals' site use¹²⁷. There may also be cases where migrations of one species support congregations of another, which is the target of ecotourism as a result: for example, grizzly bear feeding on salmon runs (which can be viewed via stands¹²⁸, by drifting downriver¹²⁹, or adjacent to their trails¹³⁰ in British Columbia, or through permits from Alaska Department of Fish & Game¹³¹). In such cases where ecotourism is focused on observing migration or visiting key stopover sites, there is a risk of disrupting critical stages such as building or replenishing reserves¹³². Although migratory spectacles may attract ecotourists in and of themselves (e.g. raptors at Straits of Gibraltar¹³³), especially given their combination of various wildlife tourism criteria – temporal predictability, local superabundance, and spatial concentration (Reynolds & Braithwaite, 2001) – 'severe seasonality' of migratory species may present a barrier to developing tourism¹³⁴.

In terms of ecotourism impacts on migration, Resolution 12.23 specifies that unsustainable migratory species tourism can disrupt migration cycles and hence cause irregular and/or unpredictable influxes – which could have negative consequences for both the species concerned and the associated ecotourism activity. Hence scientific underpinnings to policy are vital, since "*ecotourism activities can have the best intentions but be undermined by a lack of clear understanding on migratory species behaviour and requirements*" (Resolution 12.23, p. 2). This also applies to associated infrastructure; roads may be constructed at least in part to facilitate tourism, and can directly obstruct migration, for anything from frogs to wildebeest¹³⁵.

It is important to note that it may be difficult to fully assess impacts of ecotourism activities, given the potential for these to remain undetected at one site while manifesting elsewhere (for example, further along the migratory cycle), only following a time lag, or in some non-sampled subset of the population (UNEP/CMS/COP13/Doc.26.2.5). This may be a particular issue for migratory species spanning regulatory borders; for example, given their more than 5,000-mile migratory range in the eastern North Pacific, "*gray whales are not the exclusive domain of any one group but instead are exploited by multiple users operating independently of one another throughout the range*" (Young, 1999, p. 600). While in Baja California, decreasing numbers of gray whales towards the end of the season leads to overcrowding of remaining individuals yet to start migration.

b. Voluntourism

Volunteer ecotourism, or more generally, voluntourism, as a sector is "*substantial and increasing*" (Gray & Campbell, 2007), offering a '*backstage pass*' to hands-on experiences¹³⁶, in association with the more intensive training and supervision which can be provided in comparison to other types of (eco)tourism. This can help to alleviate some of the typical associated issues, leading Gray and Campbell (2007) to ask whether voluntourism could be considered an '*ideal*' form of ecotourism, especially as it could perhaps be described as '*decommodified*'. At the Sea Turtle Conservation project in Gandoca, Costa Rica, voluntourists did have fewer requirements than other tourists –

¹²⁷ https://www.unep-aewa.org/sites/default/files/publication/cg_7new_0.pdf (p. iii)

¹²⁸ <https://www.grizzlytours.com/grizzly-bears-viewing-tours-2-or-3-nights/>

¹²⁹ <https://www.ecotours-bc.com/adventure-packages/the-bear-whisperer.html>

¹³⁰ <https://www.wildlifeworldwide.com/journal/grizzly-camp-bc-chris-breen>

¹³¹ <https://www.adfg.alaska.gov/index.cfm?adfg=viewinglocations.mcneilriver>

¹³² Sustainable Boat-based [Marine] Wildlife Watching: Res. 11.29 / UNEP/CMS/COP13/Doc.26.2.5

¹³³ <http://www.visitgibraltar.gi/see-and-do/natural-attractions/birdwatching-32>

¹³⁴ <https://migratorysoaringbirds.birdlife.org/en/sectors/tourism#gsc.tab=0>

¹³⁵

https://www2.gwu.edu/~iits/Sustainable_Tourism_Online_Learning/Gutierrez/Tourism_Assessment_Process_Manual.pdf

¹³⁶

<https://www.abta.com/sites/default/files/media/document/uploads/Global%20Welfare%20Guidance%20for%20Animals%20in%20Tourism%202019%20version.pdf>

although they cited a lack of available activities and amenities as a less positive feature of their trip (Grey & Campbell, 2007).

Where voluntourists work with – rather than instead of – locals, and overall sustainability is monitored¹³⁷, voluntourism can perhaps be promoted as an appropriate type of (eco)tourism for isolated communities in developing areas (Grey & Capmbell, 2007). However, the issue of ‘*development freeze*’ may be raised: in Gandoca, in terms of future development, local households hosting voluntourists would like to ensure continued economic benefits to the community, while volunteers and staff are more concerned with the potential for negative environmental impacts. This is described as “*a criticism of the ecotourism aesthetic in general*”, as it is represented more broadly by the view held by some voluntourists that “*it is not sufficient that local residents no longer consume turtle eggs; in addition to realising an economic benefit in the conservation of sea turtles, local people should acquire an environmental consciousness mirroring that of the volunteers*” (Grey & Campbell, 2007, p. 477, p. 475).

5. RECOMMENDATIONS

Overarching guidelines for ecotourism are enshrined in its various definitions, which tend to concur on the requirements of: sustainability; contribution to nature conservation; support for local livelihoods; and education for participants. Yet guidelines will not be followed if they are unattainable, which may be the result of attempting to maximise all attributes simultaneously. Hence Reynolds and Braithwaite (2001) highlight ‘*inevitable*’ trade-offs between visitor satisfaction, enterprise profitability, species conservation, and welfare of individual animals – which resonates well with ecotourists (UNEP/CMS/COP13/Doc.26.2.5). Returning to Resolution 12.23, in addition to avoiding negative impacts on migratory species, and ensuring positive contributions to the local ecosystem and communities, risks to wildlife and observers should be taken into account. Tourist safety is also emphasised in the CMS ‘*Marine Wildlife Watching*’ guidelines (UNEP/CMS/COP13/Doc.26.2.5), which emphasise that inherent dangers in activities such as swimming may be exacerbated by aspects of the wildlife interaction, such as crowding.

The case studies in [section 3](#) illustrate a range of situations in relation to the development and implementation of ecotourism guidelines. Marine ‘*swim-with*’ activities ([section 3.b.i](#)) and boat-based marine wildlife-watching ([section 3.b.v](#)) are covered by a lot of work within the CMS and elsewhere, which could inform similar outputs in other areas. While the IUCN Conservation Guidelines on Great Ape Tourism may be considered ‘*gold standard*’, there remains evidence of non-compliance (see [section 3.b.iii](#)), highlighting the importance of interpretation and training (see below), as well as the potential inherent in interdisciplinary research linking wildlife impacts with socioeconomic drivers. While there has already been some research into the role of playback in facilitated viewing of birds, there are calls to broaden applicability of these results – for example by considering longer-term effects and whole communities rather than species in isolation (see [section 3.b.iv](#)). In the case of the Thailand ‘*parading shrimp*’, evidence-based management of ecotourism has been suggested, but it remains to be seen whether the proposed regulations are effective in reducing the observed decline in this population (see [section 3.b.vi](#)). Finally, the case studies referring to ‘*incidental wildlife encounters*’ (see [section 3.b.xii](#) to [section 3.b.xvi](#)) highlight the importance of developing guidelines beyond ecotourism, to consider other forms of tourism and recreation which may impact migratory species.

a. Commonly-occurring guidelines on human-wildlife interaction in ecotourism:

“*Many recreationists do not feel that they have a negative impact on wildlife and that it is possible to approach wildlife closer than what wildlife tolerates*” (Risberg, 2021, p. 11). Hence a common theme

¹³⁷

<https://www.abta.com/sites/default/files/media/document/uploads/Global%20Welfare%20Guidance%20for%20Animals%20in%20Tourism%202019%20version.pdf>

across the above case studies, and more widely in the scientific literature and published ecotourism guidelines, is the recommendation to maintain appropriate distance (for detail see [section 3.b.xvi](#)), and to avoid direct contact – perhaps practising ‘passive observation’ (see [section 3.b.ii](#)) – except in certain specific conditions (e.g. with Pacific grey whales, [section 3.b.v](#)). The Australian National Guidelines for Whale and Dolphin Watching suggest that deviations from recommended practice should only occur under more stringent restrictions and with sufficient oversight¹³⁸. This could perhaps be equated with the ‘backstage passes’ offered to volunteer ecotourists in association with more intensive training and supervision (see [section 4.b](#)), or more generally to the different regulations applicable to the general public compared to qualified rangers in relation to interactions with birds and their nests.

Furthermore, certain activities are discouraged by a wide range of ecotourism stakeholders; for example, tourists are prohibited or advised against taking or purchasing animal products/souvenirs in Galapagos¹³⁹ and Yellowstone¹⁴⁰ National Parks, by the New Zealand Department of Conservation (in relation to giant snail shells)¹⁴¹, as part of Naturetrek’s Guidelines for Responsible Travel for customers¹⁴², and in the ABTA Animal Welfare Guidelines¹⁴³ and the Animal Welfare Toolkit from the Association of Independent Tour Operator^s¹⁴⁴. However, there are also numerous calls to apply any guidelines on species-, case-, and country-specific bases. For example, the CBD Guidelines on Biodiversity and Tourism development state that guidelines should “*be flexibly applied to suit different circumstances and domestic institutional and legal settings*”¹⁴⁵. More specifically, UNEP/CMS/COP13/Doc.26.2.5 maintains that “*No single solution exists that could accommodate, suit, and adjust to the variety of modalities and characteristics of [Recreational In-Water Interactions] RIWIs with aquatic species recorded between and within countries and regions*” (p. 9).

b. Governance:

Paragraph 1 of CMS Resolution 12.23 refers to the role of “*national action plans, regulations and codes of conduct, binding protocols or additional legal frameworks and legislation*” in governance of ecotourism, which may involve collaboration within and beyond governments. Internally, as part of the Bulgarian National Ecotourism Strategy, the departments of Environment & Water, Economy (including Tourism), and Agriculture & Forests signed a Cooperation Protocol which “*formalised their joint support for ecotourism*”¹⁴⁶; externally, inviting industry input to guidelines can help to increase operator ‘ownership’, awareness and compliance¹⁴⁷. At a national level, the Australian Guidelines for Whale and Dolphin Watching clarify that “*state and territory governments must implement their own laws and guidelines to best suit their jurisdictions*”; where industry codes of conduct differ from local by-laws and other legislation, participants should be made aware of the legal responsibilities incumbent upon themselves and the operator¹⁴⁸. On a broader scale, ecotourism involving transboundary (including migratory) target species requires international coordination and/or inter-

¹³⁸ <https://www.awe.gov.au/sites/default/files/documents/aust-national-guidelines-whale-dolphin-watching-2017.pdf>

¹³⁹ <https://www.galapagos.org/travel/travel/park-rules/>

¹⁴⁰ <https://www.yellowstonenationalparklodges.com/connect/yellowstone-hot-spot/what-not-to-do-in-yellowstone/>

¹⁴¹ <https://www.doc.govt.nz/nature/native-animals/invertebrates/powelliphanta-snails/#you-can-help>

¹⁴² <https://www.naturetrek.co.uk/about-us/sustainable-tourism>

¹⁴³

<https://www.abta.com/sites/default/files/media/document/uploads/Global%20Welfare%20Guidance%20for%20Animals%20in%20Tourism%202019%20version.pdf>

¹⁴⁴ <https://www.aitoclimatecrisis.com/articles/animal-welfare-toolkit/>

¹⁴⁵ <https://www.cbd.int/doc/publications/tou-gdl-en.pdf> (p. 5)

¹⁴⁶ <https://www.e-unwto.org/doi/book/10.18111/9789284408214>

¹⁴⁷ <https://wwhandbook.iwc.int/en/case-studies/united-kingdom-scotland>

¹⁴⁸ <https://www.awe.gov.au/sites/default/files/documents/aust-national-guidelines-whale-dolphin-watching-2017.pdf> (p. 5)

governmental mediation (Higham *et al.*, 2016) – especially important where species are subject to different pressures under different jurisdictions.

c. Spatial planning:

In terms of protected areas, the AEWA Action Plan recommends excluding ecotourism from core zones (para. 4.2.1), while the Québec Declaration suggests that participatory land-use planning should extend to buffer zones. More widely, governments may wish to define ecotourism-destination regions based on landscape types and clusters of protected areas (as in Bulgaria's 'National Ecotourism Strategy and Action Plan'¹⁴⁹). Similarly, lesser-known attractions and communities can be incorporated into tourism circuits¹⁵⁰ such as national '*bird routes*' (e.g. Biggs *et al.*, 2011) or the Yellowstone to Yukon Conservation Initiative¹⁵¹. These could also help to guide tourist schedules, as suggested in [section 3.b.xv](#) in relation to cave tourism, Marburg virus and mountain gorillas.

Spatiotemporal zoning can be used to protect target species and direct socioeconomic benefits of ecotourism. Sections [3.b.x](#), [3.b.xii](#), [3.b.xiv](#), [3.b.xv](#), and [3.b.xvi](#) cover the importance of separating different land uses and activities, along with appropriate associated signage (see also: Lemelin & Jaramillo-López, 2020). More generally, "*proper scientific management of off-limit zones and area-specific guidelines for wildlife observation could reduce harmful effects*" (Müllner *et al.*, 2004), including shielding from less obvious stressors such as noise and light (see sections [3.b.ix](#), [3.b.xiv](#), and [3.b.xv](#)). Additionally, spatiotemporal zoning can be used to protect from local competition those tourist services which bring revenue to local communities¹⁵².

d. Indigenous peoples and local communities (IPLCs):

The UN General Assembly Resolution on the promotion of '*sustainable tourism, including ecotourism*' (UN A/RES/69/233) includes considerations of poverty reduction, enhanced rural standards of living, and empowerment of underrepresented groups. More specifically, "*indigenous cultures, traditions and knowledge, in all their aspects, are to be fully considered, respected and promoted*" (UN A/RES/69/233, 13)¹⁵³ – especially given that many associated practices "*have proven to be sustainable over the centuries*"¹⁵⁴. The Québec Declaration also asserts that IPLCs have the "*right to self-determination and cultural sovereignty*" and hence "*to opt out of tourism development*"¹⁵⁵. Nevertheless, any facilities accessible to tourists should be made available for IPLCs¹⁵⁶, and benefits should be maximised through revenue-sharing (ideally targeted at the most disadvantaged sectors¹⁵⁷), avoidance of leakage, and participative planning and co-development of management plans¹⁵⁸. Similarly to the mitigation of human-wildlife conflict mentioned in [section 2.a.ii](#), tourist donations or other forms of revenue can be directed into funds compensating those suffering losses to their livelihood from target species – for example, ranchers and jaguars (*Panthera onca*) in the Pantanal, where the value of wildlife tourism greatly exceeds that of depredated cattle (Tortato *et al.*, 2017). Local citizens can also be inspired to value target species, and more generally

¹⁴⁹ <https://www.e-unwto.org/doi/book/10.18111/9789284408214>

¹⁵⁰ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

¹⁵¹ <https://y2y.net/resources/travel-y2y/> ; <https://therevelator.org/yellowstone-yukon-chadwick/>

¹⁵² <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

¹⁵³ <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N14/713/99/PDF/N1471399.pdf?OpenElement>

¹⁵⁴ <https://www.gdrc.org/uem/eco-tour/quebec-declaration.pdf> (p. 2)

¹⁵⁵ <https://www.gdrc.org/uem/eco-tour/quebec-declaration.pdf> (p. 2, p. 3)

¹⁵⁶ <https://www.cbd.int/doc/programmes/tourism/tourism-manual-en.pdf>

¹⁵⁷ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

¹⁵⁸ https://www.cms.int/sites/default/files/document/ScC14_Inf_08_Wildlife_Watching_E_0.pdf

to experience their own natural heritage, through favourable pricing structures¹⁵⁹, which can help to counter the inherent seasonality of migratory species ecotourism by bolstering income during low season or slumps. For example, domestic Kenyan tourism was promoted during the Serengeti wildebeest migration in 2020, when international tourists were subject to travel restrictions¹⁶⁰.

e. Tourism trajectories and market segments:

In relation to the inception of new ecotourism destinations and activities, it has been suggested that it is best to focus on “*areas that can develop and maintain the standards required to attract a viable segment of the market*”¹⁶¹. Subsequently, regulations may become more difficult to enforce, or may need to be adapted, with increased tourist numbers – which are usually accompanied by changing visitor profiles, potentially including decreasing concern for species conservation¹⁶² (see also: Higham, 1998). However, it is worth noting that increases in visitor numbers at low levels can have relatively greater impacts than at high levels (see [section 3.b.xi](#)). As mentioned in [section 3.b.v](#), governments and the tourism industry may wish to tailor ecotourism offerings and regulations to the different types of tourists visiting¹⁶³ (see also: Blamey, 1997): for example, across South Africa’s protected areas, megafauna draw first-time and overseas visitors, while more experienced and African visitors are most interested in birds, plants, and scenery¹⁶⁴.

f. Monitoring:

Ecotourism monitoring should be implemented *prior* to observation of negative impacts (Higham *et al.*, 2016), enabling establishment of robust baselines and levels of natural variability (UNEP/CMS/COP13/Doc.26.2.5). Where some colonies or populations are to be left undisturbed (e.g. Carney & Sydeman, 1999; IUCN Best Practice Guidelines for Great Ape Tourism¹⁶⁵), these can act as ‘*controls*’ with which to compare those subject to ecotourism or other stressors. It may be helpful to adopt Higham *et al.*’s (2016) suggestion to consider ecotourism target species as ‘*common-pool*’ (i.e. with finite interaction potential) versus ‘*open-access*’ (i.e. with indefinite interaction potential) resources; for example, in terms of whale watching, each animal spends a limited time at the surface, such that one boat or group of boats engaging in observation detract from that opportunity for others. This may be particularly important for the welfare of individually-recognisable animals¹⁶⁶, such as ‘*Migaloo*’ the ‘*white whale*’, who is even subject to tailored legislation¹⁶⁷.

Generally, the ‘burden of proof’ should fall on the tourism industry (UNEP/CMS/COP13/Doc.26.2.5), with the precautionary principle applied on both sides: assertions of lack of impact should be supported by scientific evidence (e.g. see Harris & Haskell, 2013), but equally, blanket bans on pre-existing activities should only be mandated where there is evidenced need for such strong measures, with consideration for alternative livelihood provision. Individual tour operators may consider cumulative effects from other visitors as part of their monitoring programme¹⁶⁸, but often some form

¹⁵⁹ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

¹⁶⁰ <https://www.reuters.com/article/uk-health-coronavirus-kenya-conservation-idAFKCN25618K>

¹⁶¹ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

¹⁶² <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

¹⁶³ <https://www.iucn.org/content/sustainable-tourism-protected-areas-guidelines-planning-and-management-0>

¹⁶⁴ <https://wtcc.org/Portals/0/Documents/Reports/2019/Sustainable%20Growth-Economic%20Impact%20of%20Global%20Wildlife%20Tourism-Aug%202019.pdf>

¹⁶⁵ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

¹⁶⁶ <https://www.awe.gov.au/sites/default/files/documents/aust-national-guidelines-whale-dolphin-watching-2017.pdf>

¹⁶⁷ <https://www.migaloo.com.au/about>

¹⁶⁸ <https://baskingsharkscotland.co.uk/about-us/our-code-of-conduct>

of external oversight would be required to incorporate this. Facilitation could be aided by formal permitting schemes¹⁶⁹, which are especially useful for demonstration of compliance with relevant legislation¹⁷⁰. Most importantly, mechanisms should be in place to ensure that results from monitoring are acted upon; for example, see the management of drones at the Royal Albatross Centre in [section 3.b.ix](#). Research and action could be prioritised for those target species which are: “*already vulnerable but poorly studied*” (UNEP/CMS/COP13/Doc.26.2.5); in areas of high activity; and/or subject to newly proposed techniques¹⁷¹. Finally, adaptive management can enable flexible responses to changing conditions as they are detected¹⁷².

g. Training/certification:

As mentioned above in relation to permitting, “*labelling and certification can be used to either control the number of commercial operators active in an area, and to identify operators committed to excellence*” (UNEP/CMS/COP13/Doc.26.2.5, p. 16), including small and medium-sized enterprises, and ideally tailored to local and regional criteria¹⁷³. Training of guides can include recommended observation techniques (e.g. “*minimise unnecessary movements and noise*”) and be assessed through evaluation of resulting target species disturbance (Jeziarski, 2009, p. 11). Guide certification may also encourage greater interaction with tourists, as recommended at the Monarch Butterfly Biosphere Reserve (Lemelin & Jaramillo-López, 2020). Finally, while ‘*good practice*’ or even ‘*best practice*’ guidelines can help to identify and reward sustainable ecotourism operators, it is important to ensure optimisation ‘*in practice*’.

h. Messaging:

As mentioned in [section 3.b.vi](#), there is a potential opportunity for government communication outlets to simultaneously publicise ecotourism attractions and disseminate their associated regulations and sustainability guidelines. This would help to contribute to guidelines being “*visible, accessible and consistently presented*” to stakeholders¹⁷⁴. While the AEW Conservation Guidelines on wetland ecotourism stress the potential for modifying visitor behaviour through information rather than enforcement (see [section 3.b.xi](#)), Mascovich *et al.* (2018) discuss the importance of direct personal interaction and/or incentive-based messaging where descriptive interpretation materials are ineffective. Educational programmes may also maximise conservation benefits by incorporating wider environmental messaging (for example, regarding climate change) – especially given that the creation of ‘*environmental ambassadors*’ may be used to support ecotourism in remote areas with few local beneficiaries (e.g. the subantarctic¹⁷⁵). Where target species sightings cannot be guaranteed – as is usually the case – ecotourism operators can emphasise ‘*the thrill of the chase*’ (e.g. Naturetrek, pers. comm.) rather than “*put pressure on field staff to meet [expectations], even at the risk of failing to adhere to rules and regulations*”¹⁷⁶. Similarly, tourists “*are paying to observe natural behaviour*”, so it is not in their interests to exert undue influence¹⁷⁷. Finally, given that “*the more we feel that our experience is ‘tourism for the masses’, the less satisfied we are with the experience*” (Risberg, 2021, p. 3), emphasising exclusivity can support both premium prices and

¹⁶⁹ <https://legislation.govt.nz/regulation/public/1992/0322/latest/whole.html#DLM168286>

¹⁷⁰ <https://wwhandbook.iwc.int/en/responsible-management/management-strategies>

¹⁷¹ <https://www.awe.gov.au/sites/default/files/documents/aust-national-guidelines-whale-dolphin-watching-2017.pdf>

¹⁷² https://www.cms.int/sites/default/files/document/ScC14_Inf_08_Wildlife_Watching_E_0.pdf

¹⁷³ <https://www.gdrc.org/uem/eco-tour/quebec-declaration.pdf>

¹⁷⁴ pending ‘Species-specific Guidelines for In-water Recreational Interactions with Marine Wildlife’

¹⁷⁵ <https://www.gov.gs/south-georgia-a-visitors-guide/>

¹⁷⁶ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf> (p. 13) - see also: https://www.cms.int/sites/default/files/document/ScC14_Inf_08_Wildlife_Watching_E_0.pdf

¹⁷⁷ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf> (p. 29)

reduced impacts (through smaller group sizes and hence reduced overall visitation)¹⁷⁸ – as in [section 3.b.iii](#).

In conclusion, the selected case studies highlight both risks and good practice for Parties to consider, with a summary of the most pertinent points for the development of guidelines provided in this final section. The Scientific Council may also wish to reflect on whether ‘ecotourism’, ‘wildlife tourism’, or something else is the most appropriate term for use by CMS going forward.

¹⁷⁸ <https://portals.iucn.org/library/sites/library/files/documents/ssc-op-038.pdf>

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