



# Best Practice Guidelines for Great Ape Tourism

Elizabeth J. Macfie and Elizabeth A. Williamson

with contributions from Marc Ancrenaz, Chloe Cipolletta, Debby Cox, Christina Ellis, David Greer, Chloe Hodgkinson, Anne Russon and Ian Singleton

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## Section 1: Executive Summary

Tourism is often proposed 1) as a strategy to fund conservation efforts to protect great apes<sup>1</sup> and their habitats, 2) as a way for local communities to participate in, and benefit from, conservation activities on behalf of great apes, or 3) as a business. A few very successful sites point to the considerable potential of conservation-based great ape tourism, but it will not be possible to replicate this success everywhere. The number of significant risks to great apes that can arise from tourism require a cautious approach. If great ape tourism is not based on sound conservation principles right from the start, the odds are that economic objectives will take precedence, the consequences of which in all likelihood would be damaging to the well-being and eventual survival of the apes, and detrimental to the continued preservation of their habitat. All great ape species and subspecies are classified as Endangered or Critically Endangered on the IUCN Red List of Threatened Species (IUCN 2010), therefore it is imperative that great ape tourism adheres to the best practice guidelines in this document.

The guiding principles of best practice in great ape tourism are:

- Tourism is not a panacea for great ape conservation or revenue generation.
- Tourism can enhance long-term support for the conservation of great apes and their habitat.
- Conservation comes first—it must be the primary goal at any great ape site and tourism can be a tool to help fund it.
- Great ape tourism should only be developed if the anticipated conservation benefits, as identified in impact studies, significantly outweigh the risks.
- Enhanced conservation investment and action at great ape tourism sites must be sustained in perpetuity.
- Great ape tourism management must be based on sound and objective science.
- Benefits and profit for communities adjacent to great ape habitat should be maximised.
- Profit to private sector partners and others who earn income associated with tourism is also important, but should not be the driving force for great ape tourism development or expansion.
- Comprehensive understanding of potential impacts must guide tourism development; positive impacts from tourism must be maximised and negative impacts must be avoided or, if inevitable, better understood and mitigated.

The ultimate success or failure of great ape tourism can lie in variables that may not be obvious to policymakers who base their decisions primarily on earning revenue for struggling conservation programmes. However, a number of biological, geographical, economic and global factors can affect a site so as to render ape tourism ill-advised or unsustainable. This can be due, for example, to the failure of the tourism market for a particular site to provide revenue sufficient to cover the development and operating costs, or it can result from failure to protect the target great apes from the large number of significant negative aspects inherent in tourism. Either of these failures will have serious consequences for the great ape population. Once apes are habituated to human observers, they are at increased risk from poaching and other forms of conflict with humans. They must be protected in perpetuity even if tourism fails or ceases for any reason. Great ape tourism should not be developed without conducting critical feasibility analyses to ensure there is sufficient potential for success. Strict attention must be paid to the design of the enterprise, its implementation and continual management capacity in a manner that avoids, or at least minimises,

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<sup>1</sup> These guidelines are relevant to great apes. We do not specifically address tourism development with lesser apes (gibbons and siamangs) or other primates. Throughout the document the term 'ape' refers to 'great ape', even though many issues covered are also relevant to lesser apes.

the negative impacts of tourism on local communities and on the apes themselves. Monitoring programmes to track costs and impacts, as well as benefits, are essential to inform management on how to optimise tourism for conservation benefits.

These guidelines have been developed for both existing and potential great ape tourism sites that wish to improve the degree to which their programme contributes to the conservation rather than the exploitation of great apes. In Sections 2–4 we summarise the history and lessons learned during three decades of great ape tourism and associated impact studies. This is followed with specific best practice guidelines in Section 5 that are based on experience and impact studies. Section 8 provides the reader with reference material, including useful literature and a set of sample tourist guidelines from several ape tourism sites. This document should be viewed as an essential part of the toolkit for any site practicing or considering great ape tourism as part of its conservation programme.

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## Section 2: Introduction

### 2.1 Primate Specialist Group and the SGA

The Section on Great Apes (SGA) of the IUCN/SSC Primate Specialist Group (PSG) is a group of more than 100 experts involved in research on and conservation of the great apes. The role of the SGA is to promote conservation action on behalf of great apes based on the best scientific information available. The SGA serves as a forum for discussion and information exchange; its members establish guidelines for best practices in research and conservation, formulate action plans and advise on the effective protection of great ape populations in the wild. The SGA advises governments on effective conservation strategies based on current knowledge of the populations and distributions of the great apes and the many pressures that threaten their survival. As an integral aspect of this role, the SGA facilitates the exchange of information among primatologists and the professional conservation community.

#### 2.1.1 Links to other best practice guidelines for great ape conservation

Drawing on expertise from within the IUCN network, the PSG has produced a series of best practice guidelines for conservation practitioners, field scientists, governments, donors and development organisations involved in great ape conservation. All titles in the series are available for download from the PSG website (<[www.primate-sg.org/best.practices.htm](http://www.primate-sg.org/best.practices.htm)>). Other documents in the series cover issues that interrelate with tourism. We recommend that readers of the tourism guidelines also refer to these other guidelines, as together they represent a toolkit for best practice in great ape conservation and management. Specific interactions between the documents are summarised here and will be highlighted in relevant recommendations in this document.

**Health monitoring and disease control in great ape populations (Leendertz *et al.* in press):** The prevention of disease transmission is one of the key issues underpinning best practice in ape tourism. The disease best practice guidelines are therefore a key reference for the tourism guidelines, and will provide the reader with: guidelines for developing health monitoring and surveillance programmes; details on methodology for sampling, testing and post-mortem analysis; and contacts for the global network of health professionals and laboratories interested in great apes. They will also provide in-depth guidance on the prevention of disease transmission between humans and great apes, including employee health programmes for organisations whose staff come into close proximity with apes. Disease risk is relevant not only in the tourism context, but in any situation where humans and apes come into proximity.

**Human–Great Ape Conflict (Hockings and Humle 2009):** The conflict guidelines provide a framework for designing and implementing activities to mitigate conflict between apes and humans competing for access to critical resources such as food (natural or cultivated) and habitat (forest conversion). In cases where great apes are habituated to humans, there is a chance that the level of conflict will increase as apes lose the fear of humans that previously kept them away from human settlements and crops. Communities may resent the fact that tourism income generated

from viewing crop-raiding apes is accruing to protected area authorities. Any site conducting or planning ape habituation should refer to the conflict guidelines to better respond to situations that may arise.

**Surveys and monitoring of great ape populations (Kühl *et al.* 2008):** Any site considering the development of great ape tourism will need baseline information on the population of apes at their site and will need to carry out regular monitoring of the population during habituation and subsequent tourism operations.

**Reducing the impact of commercial logging on great apes (Morgan and Sanz 2007):** It is less likely that ape tourism programmes will be developed in logging sites than in pristine habitats. However, some timber concessions pursuing Forest Stewardship Council (FSC) certification may consider ecotourism development, and a number of great ape populations exist outside protected areas in exploited or privately-owned forests subject to mixed-management objectives, which might include tourism. There are links, therefore, between tourism and logging in these sites. Additionally, a number of recommendations in the logging guidelines may be relevant in certain tourism development contexts, such as if tourism infrastructure may require some limited tree felling.

**Re-introduction of great apes (Beck *et al.* 2007):** There are many great ape sites where re-introduction is a current or potential activity and, for specific guidelines on methods, the reader is referred to the relevant guidelines. Current expert opinion is that tourism should not be carried out with ex-captive great apes due to inherent over-habituation that can lead to a failure of rehabilitation, incurring risks of injury, disease transmission and even death to both humans and apes. In the current document, therefore, we recommend as best practice that tourism should not be developed in ex-captive sites. However, in reality a number of ex-captive sites do operate tourism and it is important that these sites are informed about tourism best practices (see 2.4.1 for more information).

## 2.2 Purpose of these guidelines

Great ape tourism is widely practiced and generally promoted as a tool to conserve great apes and their habitats. The development of tourism is often proposed by donor agencies, great ape range-state governments and conservation agencies as a priority intervention, with a view to increasing revenues and community involvement, as well as promoting financially self-sustainable forests and protected areas, and bringing economic development to a region or country. A number of sites



Western lowland gorilla, Bai Hokou, Central African Republic. Photo © Chloe Cipolletta.

have gained significant experience and ‘lessons learned’ from implementing great ape tourism since the 1970s (McNeilage 1996; Butynski 2001). From their inception, many ape tourism sites have been using basic precautions to minimise risks to the apes, and these can now be justified with the results of significant experience and scientific research. Much has been documented about the costs, risks and benefits of great ape tourism, with significant debate about its overall impacts (e.g., Williamson *et al.* 2001). Over the years research and monitoring have provided the data to support modifications to ape tourism programme design and management to minimise negative impacts (Butynski 1998; Butynski and Kalina 1998; Homsey 1999; Litchfield 1997, 2007).

The purpose of this document is to provide its target audience (defined below) with current standards of best practice in the design and implementation of ape tourism as a means of promoting great ape conservation and the preservation of their forest habitats. These guidelines will also:

- emphasise the inherent risks posed by great ape tourism;
- reinforce the message that great ape tourism is not a panacea applicable to all sites; and
- conclude that if the conservation focus of tourism with the associated control mechanisms recommended by this document cannot be sustained, then great ape tourism should not be considered and a search for an alternative means of revenue and political support for conservation and protection actions should be undertaken.

### 2.3 Target audience

The primary target audience for these guidelines is practitioners designing and implementing great ape tourism activities in the field, as well as policy makers within practitioner institutions. The guidelines will also assist ‘users’ of great ape tourism in private sector businesses to better inform their clients. Conservation professionals and researchers, who may not implement tourism themselves but whose field projects involve humans approaching great apes or conducting activities in ape habitat, would also likely benefit from lessons learned in the impact analyses and prevention recommendations.



Viewing mountain gorillas in Rwanda. Photo © José Kalpers.

### Primary target audience—practitioners and policy makers:

The *practitioners* of great ape tourism who will benefit from reading these guidelines include those currently implementing or designing tourism activities as a tool to support great ape conservation, including the implementing arms of the following types of organisations:

- protected area authorities within great ape range-states;
- conservation agencies and their field projects;
- national and international non-governmental organisations within great ape range-states; and
- researchers who may implement great ape tourism alongside primary research activities.

The *policy makers*, whose policies we hope will be influenced by these guidelines, include all those responsible for developing or approving tourism-related policy within the following organisation types:

- great ape range-state government ministries or departments;
- protected area authorities in great ape range states;
- conservation organisations active in great ape range states; and
- donors (foundations, bi- and multi-lateral) who fund or may consider funding programmes in great ape range states that involve great ape tourism.

### Additional target audience—users and associates:

The *'users'* of great ape tourism include the tens of thousands of tourists who visit great ape tourism sites annually, tourism industry professionals and tour operator associations. While it will not be possible to reach every tourist through these guidelines (and that would require a different style of product), we have written this document with a view to promoting an understanding among the higher level *'users'* of tourism activities, including the tourism industry and tour operator associations. Through enhanced understanding by tourism industry professionals of the risks to great apes and the means of reducing negative impacts, we anticipate that visitors arriving at great ape tourism sites will be better prepared and more willing to comply with regulations. We encourage the production of updated briefing materials for tourists, both at individual sites as has been done for gorillas (IGCP 2004; WCS Field Veterinary Program 2008; BRD 2009), chimpanzees (JGI-Uganda 2006) and orangutans (Ancrenaz 2006), or for broader taxonomic groups and geographic areas (Litchfield 1997). We will promote the dissemination of briefing materials and best practice concepts to tourism stakeholders and lodge operators in both the private sector and community tourism enterprises. Some of the recommendations herein could be adapted to a wider context involving local communities living within or adjacent to great ape habitats.

A number of other *associates* working with great apes, such as researchers, will find information in this document of use to guide their activities. Great ape researchers are in effect long-term visitors with the same, or higher, potential as other visitors for negative impacts on their subjects resulting from habituation and extended close-range presence. As such, **many of the recommendations for tourism best practice can and should be applied or adapted to research situations.** A number of recommendations in this document were trialled in the research context and, in some cases, longer-term visitors are able to apply controls (such as quarantine) that are even more protective to wild apes than is possible with tourists. Researchers studying the impacts of tourism will similarly find these guidelines useful and will, we hope, be able to broaden the scope of impact assessments to provide further guidance to ape tourism management.

## 2.4 Great ape tourism scenarios covered in this document

### 2.4.1 Wild vs. ex-captive sites

This document is intended for sites practicing or considering tourism with wild great apes in their natural habitats. It is not intended to address captive situations. However, due to the increase in the number of great ape orphan sanctuaries, rescue and rehabilitation centres (many of which carry

out or are considering re-introduction), in reality a number of sites do not fit easily into the wild vs. captive categories. To complicate matters further, some of these sites allow tourists to visit ex-captive apes. To avoid confusion, site categories are presented below and assessed for the degree to which the recommendations in this document should apply

Type of ape population visited in the site	Notes
Wild apes – no ex-captives present	<ul style="list-style-type: none"> <li>The main focus of the document.</li> </ul>
Wild apes with rare or occasional ex-captives rescued from poaching events and reintroduced, or translocated, after short duration in captivity (one-off or very rare cases)	<ul style="list-style-type: none"> <li>Over-habituation to humans is a risk factor that increases with length of time in captivity and leads to increased potential for contact between humans and apes during tourism visits, with associated risk for disease transmission, injury or death.</li> <li>'Wild' tourism best practice recommendations apply, as outlined in this document.</li> </ul>
Fully rehabilitated ex-captives co-ranging with wild apes in natural habitat: <ul style="list-style-type: none"> <li>no food provisioning</li> <li>no contact with any provisioned ex-captives</li> </ul>	<ul style="list-style-type: none"> <li>The presence of potentially over-habituated ex-captives in the forest increases the risk of contact between humans and apes during tourist visits, with associated risk for disease transmission, injury, or death. Any disease transmitted via such contact can easily spread to wild apes.</li> <li>'Wild' tourism best practice recommendations apply, as outlined in this document.</li> </ul>
Ex-captives – free ranging with no range overlap or contact with wild apes at present <ul style="list-style-type: none"> <li>not provisioned</li> </ul>	<ul style="list-style-type: none"> <li>Other expert groups have recommended that ex-captives should not be used for tourism.* However, if tourism is carried out with these individuals, best practice for wild ape tourism as outlined in the current document should be adhered to.</li> <li>The presence of potentially over-habituated ex-captives will increase the risk of contact between humans and apes during tourist visits, with associated risk of disease, injury and death.</li> <li>Adjustment in ranging patterns may in some sites result in future range overlap with wild populations and any disease transmitted via tourist contact with ex-captives may pose a risk to wild apes.</li> </ul>
Ex-captives provisioned away from tourists <ul style="list-style-type: none"> <li>free-ranging</li> <li>provisioned, but not as part of tourist visit</li> <li>tourism away from feeding platforms or areas</li> </ul>	<ul style="list-style-type: none"> <li>The presence of potentially over-habituated ex-captives will increase the risk of contact between humans and apes during tourist visits, with associated increased risk for disease, injury or death.</li> <li>Apes that associate humans with food will be more likely to initiate contact with humans to solicit or raid bags for food and this will increase risks for disease transmission or injury.</li> <li>At some sites, there is potential overlap with wild apes.</li> <li>See note* regarding expert opinion on tourism with ex-captives.</li> <li>'Wild' tourism best practice recommendations apply, as outlined in this document.</li> </ul>
Ex-captives provisioned at feeding platform with tourists present: <ul style="list-style-type: none"> <li>free-ranging</li> <li>provisioned during tourist visits</li> <li>tourism at feeding station or platform</li> </ul>	<ul style="list-style-type: none"> <li>Not the purpose of this document, especially as the animals are fed, which is contrary to the recommendations in this document.</li> <li>These sites have different risk factors related to disease transmission and injury at feeding sites due to food attracting humans and apes into close proximity.</li> <li>At some sites, there is potential overlap with wild apes.</li> <li>Even though expert opinion recommends that tourism should not be carried out to ex-captives (see footnote 2), if tourism is taking place, the recommendations in this document may be a useful reference for reducing risks at these sites.</li> </ul>
Fully fenced sanctuary sites <ul style="list-style-type: none"> <li>no potential contact with wild apes</li> </ul>	<ul style="list-style-type: none"> <li>Not covered in the document</li> </ul>

\* The Pan African Sanctuaries Alliance (PASA) does not endorse tourism to ex-captive great apes due to higher risk to tourists and field assistants (Carlsen *et al.* 2006). In addition, an IUCN-sponsored workshop recommended unanimously that no tourism be allowed with rehabilitant orangutans that are eligible for or have already returned to forest life (Rosen and Byers 2002). We have adopted this recommendation as best practice.

## 2.5 Introduction to great ape tourism

Tourism is often promoted as a tool for conserving apes and their habitats through the generation of revenue to fund conservation efforts, while also providing educational opportunities, and social and economic development. Tourists are increasingly desirous of adventurous activities involving travel to remote international wildlife areas where they can view endangered species in their natural habitat rather than in captivity, and many are especially drawn to activities marketed as ecotourism or sustainable tourism. Great apes figure high on the list of animals that many would like to see, and people travel great distances to visit them in the wild. Currently, there are a number of sites where people can view chimpanzees (*Pan troglodytes*), western gorillas (*Gorilla gorilla*), eastern gorillas (*Gorilla beringei*), Bornean orangutans (*Pongo pygmaeus*) and Sumatran orangutans (*Pongo abelii*). A few bonobo (*Pan paniscus*) sites are in the initial stages of tourism development. Many tourism programmes involve habituation to allow the approach of tourists to a viewing distance of 7–20 metres, which would be impossible with unhabituated apes. However, this is not the only model for tourism, as there are sites offering walks through natural habitat during which wild apes may be seen, viewing of apes from platforms or hides at forest clearings (e.g., ‘bais’ in Central Africa), or searching for wild unhabituated orangutans by boat (e.g., Kinabatangan in Sabah) or by vehicle (e.g., forest reserves in Sabah).

Many tourists will be satisfied with seeing only one group of apes and may choose to visit a particular species or subspecies based on its popularity or media coverage (e.g., ‘Dian Fossey’s’ mountain gorillas), which results in a degree of competition in the market. However, others are interested in visiting a number of different sites and in fact the idea of a primate watching ‘life-list’ as is common for birdwatchers is being promoted (Mittermeier *et al.* 2010). This idea could apply not only to species, but also to subspecies and indeed to different populations of each subspecies, as suggested in a regional tourism plan for the Virunga Massif (Mehta and Guchu-Katee 2005).

### 2.5.1 Can we call great ape tourism ‘sustainable tourism’ or ‘ecotourism’?

Many great ape tourism sites would like to market themselves as ‘ecotourism’ or ‘sustainable tourism’ destinations. However, there is debate as to whether the terms should apply to great ape tourism. The definitions of these tourism terms are quite precise, although their details vary slightly:

- Minimal-impact travel to relatively-undisturbed natural areas for the express purpose of experiencing these areas and their wildlife (Boo 1990).
- Responsible travel to natural areas that conserves the environment and improves the well-being of local people (TIES 2005).

In principal, great ape tourism projects should strive to attain the criteria stipulated in the definitions of ecotourism, and should also be sustainable. In practice, however, this has not always been the case. The general trend is to refer to great ape tourism as ‘ecotourism’, especially by those in the tourism industry and private sector and by others who seek to market the activity or destination to tourists who make choices based on their desire to be ‘ecotourists’. However, Caldecott (pers. comm.) points out that great ape tourism has yet to qualify as ecotourism in that it has not been shown that the apes and their habitat remain unharmed.

Epler Wood (1996) suggested that ecotourism should: 1) avoid damaging or destroying the integrity or character of the natural or cultural environments being visited; 2) educate the traveller on the importance of conservation; 3) provide revenues for the conservation of natural areas and the management of protected areas; and 4) bring economic benefits to the local communities in the area. Most ape tourism projects do not fulfil these four criteria. Tourism involves risks to apes and it may not be possible to satisfy the ‘minimal impact’ (Boo 1990) criteria. While regulations are put in place to minimise the risks, as tourist numbers increase, it may become harder to apply them.

“More and more visitors act as tourists rather than as ecotourists and eventually destroy what they came to see” (Russon, Susilo and Russell 2004)

Since great ape tourism is not without risk to the apes visited, the term ‘sustainable tourism’ may be more appropriate. However, if sufficient attention is paid to minimising risks, and if the development of financially-viable ape tourism can contribute to the development of associated conservation activities and risk-mitigation programmes, as recommended in this document (i.e., disease

monitoring, employee health programmes, improved law enforcement, enhanced monitoring of apes), the net benefit to great ape conservation will be positive.

In addition to risk, there are also financial issues. Great apes survive in a few highly vulnerable forest habitats, and the costs of management programmes to protect them are extremely high. If tourism provides sufficient financial resources to cover the operational costs of conservation, this may be one of the few means of sustainably funding the protection of these populations.

“Apes desperately need allies, even if those allies are in it for the money” (Wrangham 2001)

However, financial sustainability will not be possible in all cases. The initial development costs and the associated infrastructure and service requirements can be extremely high, especially in remote forests that have little or no infrastructure (Blom 2001). In addition, the tourism market may not be robust enough to provide sufficient income to an increasing number of new great ape tourism sites. It is important to consider financial sustainability and viability of the overall programme before tourism is initiated.

Great ape tourism must result in improved conservation of the apes and their habitat, achievable only if tourism supports conservation activities in the habitat and stimulates support for conservation through changes in politics or consumer behaviour, or through benefits to local communities sufficient to offset their lost opportunities concerning resource extraction or habitat conversion (Singleton and Aprianto 2001). Monitoring programmes to measure the performance and impacts of tourism programmes should shed light on whether these goals are being achieved.

The production of these guidelines will provide an opportunity for great ape tourism sites to develop and improve their programmes in line with best practice. They should also be used for training and awareness-raising on how to avoid or minimise negative effects. In time, adherence to the *IUCN Best Practice Guidelines for Great Ape Tourism* could become a badge of honour that sites might wish to adopt for marketing purposes, or that tourism certification authorities could use when evaluating great ape tourism sites. In summary, we will refer only to ‘great ape tourism’; we will not call it ‘ecotourism’.

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## Section 3: Global Experience with Great Ape Tourism

### 3.1 History of great ape tourism

Tourism has been developed at a number of great ape sites all over the world. Through different periods in its history and with different methods, previous experience in tourism development and management provides lessons learned to improve future tourism and to achieve conservation objectives.

**Eastern Gorillas:** Mountain gorilla tourism is amongst the world’s best-known wildlife experiences. Mountain gorillas have been visited by tourists since 1955, although in the early years visits were largely unregulated and poorly managed (Butynski and Kalina 1998). Habituation specifically for tourism began with eastern lowland gorillas (*Gorilla beringei graueri*) in Kahuzi-Biega National Park, DRC, in the 1970s, and with mountain gorillas (*Gorilla beringe beringe*) in the Volcanoes National Park, Rwanda, in 1979. Programmes focused on mountain gorillas in the DRC followed in the 1980s, then in Uganda in the 1990s. Tourism was initiated to provide economic alternatives to converting large areas of forest for other uses, such as cattle pasture and agriculture (Weber and Vedder 2001).

While DRC suffered from political instability throughout the 1990s, tourism in Uganda and Rwanda has gone from strength to strength, providing persuasive financial arguments for continued preservation of gorilla habitat, with tourist demand proving surprisingly resistant to both price increases and political events. Mountain gorilla tourism provides significant revenue to the protected area authorities and governments, resulting in improved surveillance and increased protection of the gorillas (Harcourt 1986; Weber 1993; Macfie 2007a). Mountain gorilla tourism in Rwanda has achieved global recognition, informing and inspiring the global ecotourism movement, and at the same time providing financial support for the conservation of gorilla habitat, and stimulating



political will to protect gorillas in perpetuity (Williamson and Fawcett 2008), with a proven economic value exceeding that of alternative extractive land uses (Hatfield and Malleret-King 2006).

**Western Gorillas:** Tourism programmes focused on western gorillas were initiated in the 1990s and are of two different types. Five sites now offer viewing of unhabituated gorillas from fixed platforms at large swampy clearings or 'bais' (Boumba Bek, Lobéké and Nki in Cameroon, Langoué in Gabon and Mbeli Bai in the Republic of Congo), but only two sites offer tracking of habituated western gorillas (Bai Hokou in Central African Republic and Mondika in the Republic of Congo).

The slow development of western gorilla tourism may be attributed to a number of factors. Western gorillas are widely acknowledged to be difficult to habituate to human presence, thereby limiting tourism potential. This may be due to their denser habitats, infrequent vocalisations, larger home ranges and longer day ranges (Tutin and Fernandez 1991; Doran-Sheehy *et al.* 2007), exacerbated by previous exposure to hunting, and factors leading to less visible trail sign (Williamson and Fawcett 2008). A tourism programme at Lossi, in the Republic of Congo, succeeded with habituation (Aveling 1999; Bermejo 2004), but this gorilla population was decimated by the Ebola virus (Bermejo *et al.* 2006). However, habituation has been achieved at Bai Hokou and Mondika, where it is now possible for trackers to follow gorillas daily. Another factor in western gorilla tourism is that the tourist experience may be impeded by poor visibility in the dense tropical forests that make up much of their habitat. Langoué and Mbeli Bai use platforms for viewing at 'bais' as it is not possible to follow gorillas into the forest. In addition to factors related to the nature of the gorillas or their habitat, western gorilla tourism programmes have also suffered from poor infrastructure and high travel costs relative to other destinations in Africa that have political stability and a diversity of tourist attractions (Wilkie and Carpenter 1999). However, factors that have led to the slow development of western gorilla tourism have also provided opportunities to develop tourism in which apes are not the sole focus, but are one of a number of attractions. This in itself may ensure better control over tourism development and improved ape conservation.

**Chimpanzees:** Some chimpanzee research sites (notably Gombe Stream and Mahale Mountains National Parks in Tanzania) have been receiving visitors for over 30 years and since the 1990s, a number of other sites in East Africa (e.g., Kibale and Queen Elizabeth National Parks in Uganda, Nyungwe National Park in Rwanda) have offered guided nature walks during which visitors have the possibility of viewing chimpanzees feeding in fruiting trees. Over the years, tourism at these sites has expanded and the negative impacts of increasing tourist numbers and proximity to chimpanzees have been mitigated by stringent booking systems and tight controls on tourist conduct, including the wearing of surgical masks to reduce disease transmission (e.g., Purcell 2002; Hanamura *et al.* 2006; TANAPA and FZS 2007). More recently, a number of sites in both East and Central Africa have been offering visits to chimpanzee groups habituated specifically for tourism. As an example, in Nyungwe National Park habituation efforts are focused on three groups of chimpanzees and on bringing tourism management and operations in line with Rwanda's mountain gorilla tourism programme (Hurst 2007, 2008a,b). Sites in Central Africa that offer forest-walks with a chance of viewing unhabituated or semi-habituated chimpanzees include Lobéké in Cameroon, Loango in Gabon, Taï in Côte d'Ivoire and Gola in Sierra Leone.

**Bonobos:** Currently, no sites offer tourism with bonobos, which are endemic to the Democratic Republic of Congo (DRC). Bonobo tourism is planned at Lac Tumba/Malebo (WWF 2008), and two research sites in the Lomako Yokokala Faunal Reserve (Dupain 2007), which are also developing community income-earning activities associated with visiting researchers<sup>2</sup>. Not only is DRC emerging from over a decade of conflict, but also bonobo sites are extremely remote, so bonobo tourism will likely cater to small numbers of hardy enthusiasts or high-end (wealthy) tourists. As with any other ape research sites, we strongly recommend that bonobo researchers consult these guidelines and be aware of the potential risks they pose to apes and of possible mitigation measures.

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2 Some research sites in DRC and Cameroon use the term 'scientific tourism' to describe their income-earning activities, including payments for accommodation and technical services, such as field assistants, trackers and guides (Dupain pers. comm.; Tagg pers. comm.).

**Bornean and Sumatran Orangutans:** Orangutan tourism was launched in Sepilok, Malaysia, in the 1960s, although it has focused on rehabilitant orangutans at or near rehabilitation centres. This began as a strategy to protect wild orangutan populations and reflected the difficulties of observing the least social of the great apes in the canopy.

Orangutan rehabilitation projects have used tourism to generate income to finance other conservation activities, while providing legal sanctuary for confiscated orphans and with hopes of advancing conservation education (Frey 1975; Aveling and Mitchell 1982; Rijksen 1982). Two rehabilitation centres that began operations in the 1970s (Sepilok in Sabah, Malaysia, and Bohorok in Sumatra, Indonesia) were the first to accept tourists and have remained the most involved in rehabilitant-orangutan-based tourism (although Bohorok has been closed as a rehabilitation centre and has not received any more orangutans since 1995). These sites have experienced heavy tourist influx: Bohorok reached up to 35,000 visitors in one year, although numbers dropped below 5,000 following a flash flood in 2003 that destroyed the tourism infrastructure (Rijksen and Meijaard 1999; Singleton and Aprianto 2001; Dellatore 2007). In 2006, Sepilok received 97,000 visitors, including over 55,000 foreign nationals (Ambu 2007). While annual revenues have been significant (estimated at between US\$43,000 and US\$240,000 by Rijksen and Meijaard 1999), the problems arising from such heavy visitation have been well documented (Cochrane 1998; Singleton and Aprianto 2001; Rosen and Byers 2002; Low 2004; Singleton *et al.* 2004; Dellatore 2007). The problems consist of the difficulty of controlling large numbers of visitors, proximity to orangutans, illegal feeding and unregulated tourism, all of which lead to reduced orangutan survival and over-development in the local area (Singleton and Aprianto 2001). These sites conduct tourism at feeding platforms near the rehabilitation centres or in the adjacent forest. Sometimes guides call orangutans to approach visitors and provide food rewards—a dangerous practice that increases disease risks and aggression, and can lead to injury of both tourists and orangutans (Russon, Susilo and Russell 2004; Dellatore 2007). Consequently, experts recommend that no tourism be allowed with rehabilitant orangutans that are eligible for or already returned to forest life (Rosen and Byers 2002). Despite the Indonesian government's involvement in regulating, if not halting, tourism at rehabilitation centres, some continue to operate tourism unofficially. A recent analysis of orangutan tourism found that 57% of tours visited rehabilitants exclusively and 97% included rehabilitants (Russon, Susilo and Russell 2004). Orangutan tourism focused on rehabilitants, especially when visited in unnatural contexts such as cages and feeding platforms and by extremely large numbers of visitors, does not meet many of the criteria that define ecotourism and as such should not be promoted as ecotourism or considered best practice.



Rehabilitant orangutans, Tanjung Puting National Park, Central Kalimantan, Indonesian Borneo. Photo © Anne Russon.

Commercial tours to visit wild orangutans have been operating since the mid-1980s, but are less common than rehabilitant tours. They tend to be more expensive and require more time in orangutan habitat (Russon, Susilo and Russell 2004). Given the remoteness of sites typically involved and the difficulties of finding, habituating and observing wild orangutans, support from researchers, wildlife or nature conservation agencies and government authorities is critical to developing these tours. The only sites that tourists visit regularly with the intention of viewing *wild* orangutans are Kinabatangan in Sabah, Malaysia (Ancrenaz 2006) and, to a lesser extent, the Danum Valley in Sabah and Tanjung Puting in Central Kalimantan, Indonesia, where a few tourists walk in the forest looking for wild orangutans but most see rehabilitants. In Kinabatangan, tourism takes the form of dawn or dusk river cruises with opportunities to view wild orangutans from a boat, or forest walks to visit habituated orangutans (Ancrenaz 2006). In 2008, the Kinabatangan programme, which is operated and owned by local community members, received US\$95,000 from 249 tourists of 14 nationalities (Ancrenaz pers. comm.). The revenue and attention generated by tourism is probably one of the reasons that Kinabatangan retains its status as a conservation area, demonstrating the potential for viable tourism programmes based on a ‘wilderness experience’ and the *possibility* of viewing wild orangutans while exploring their habitat.

### 3.2 Lessons learned from existing great ape tourism programmes

#### 3.2.1 Great ape tourism—conservation tool or conservation threat?

Ape tourism is often promoted as a tool to enhance the conservation status and protection of great apes and to serve as a primary draw to attract visitors to an area or country, thereby enhancing the protection of all species sharing their habitat (Adams and Infield 2003; Litchfield 2007). National tourism programmes centred on the opportunity to view great apes have launched a few range states, such as Rwanda and Uganda, into premier tourist destinations and have provided significant funding for conservation activities, as well as accruing tourism-associated revenue to local and national economies. However, these successes may not be replicable at other sites for a number of reasons, and the tourism market may not be able to support the number of sites currently proposing to develop great ape tourism.

Policy makers often view great ape tourism as a rich source of revenue, which may run counter to the principle of keeping tourist numbers small in line with ‘ecotourism’ and nature tourism definitions (Macfie 2007a). An important lesson lies in the prevalence of business interests driving policy decisions and threatening the conservation success of tourism projects globally (Kruger 2005). In the development of any great ape tourism activity, conservation principles must take precedence over profit to private sector stakeholders and other groups that earn tourism revenue. While a successful tourism programme will provide numerous opportunities for income generation, and private sector engagement in service provision is important (Maddison 2004), the prime aim of developing and operating this revenue-generating mechanism should be to support the costs of great ape conservation and to address the needs of communities living adjacent to ape habitats. If the priorities are allowed to invert, with increasing profits for the private sector becoming the driving force for great ape tourism, the programme will have gone completely off course.

A number of negative impacts of tourism affect not only the apes, but also local communities and the environment (see Section 4 for discussion of the impacts of great ape tourism). Therefore, great ape tourism *cannot* be an ideal solution to address the need for sustainable conservation funding at all sites. It must be approached cautiously and should only be instigated in areas that can develop and maintain the standards required to attract a viable segment of the market, and that have the commitment to principles of conservation to adequately control tourism and mitigate its negative impacts. Only if all these prerequisites are met can the risks associated with great ape tourism be prevented so that it does not itself become a conservation threat.

#### 3.2.2 Global interest in great ape tourism as a conservation strategy

A number of global initiatives have adopted or endorsed great ape tourism as a conservation strategy, including the Great Apes Survival Partnership (GRASP), a UNEP/UNESCO initiative to save great apes from extinction. The Kinshasa Declaration, signed at the first GRASP intergovernmental meeting in 2005, promotes economic benefit from great ape ecotourism as a reason for ensuring

their survival (UNEP-GRASP 2005), and a number of great ape range states that signed up to this declaration are currently looking to develop tourism. These efforts are being actively promoted by government officials and technical advisors, who are understandably interested in sourcing sustainable income for their protected area and conservation programmes. Similarly, a wide range of conservation and development donors show interest in tourism initiatives, since they represent a model for sustainability that could allow conservation areas to be weaned off donor funding. It is unlikely that the global tourism market can support an ever-growing number of tourism sites; nevertheless, global interest by conservation groups, donors and tourists is an asset to tourism development as a conservation strategy at sites that demonstrate best practice.

### 3.2.3 Species differences relevant to great ape tourism

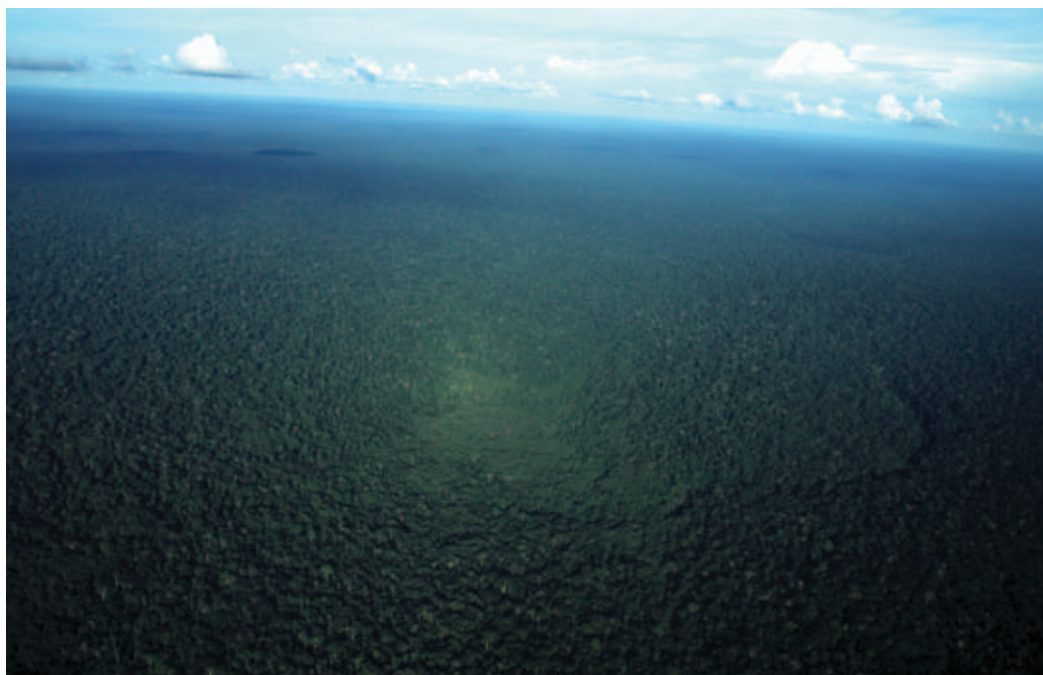
There are a number of biosocial and ecological differences among the great ape taxa and socio-political differences between their range states which can affect great ape tourism as is currently practiced. It is impossible, therefore, to recommend a single model of great ape tourism as best practice. Species-specific characteristics and habitat features will greatly affect what can be achieved in a particular area. Consequently, these guidelines propose common best practices applicable to all taxa and sites together with notes on variations that would apply in specific situations (Section 5), and present examples of tourism regulations from a range of sites (Appendix I).

### 3.2.4 Great ape tourist profiles

The profile of visitors attracted to different tourism sites varies with ease of access, physical fitness requirements, types of tourism offered and infrastructure. These factors also determine how much tourists are willing to pay for the experience (Chafe 2004; Bush and Fawcett 2008), how long they stay in the area, other tourist activities they will be interested in, accommodation standards, community programmes they are willing to support, and conservation awareness programmes that the site should conduct. The profile of tourists to a particular site may also change over time (Duffus and Dearden 1990). Early visitors are typically knowledgeable and careful to have low impact, but as tourism becomes established, more visitors arrive who are less knowledgeable or concerned. Any particular site will therefore need to evaluate how it fits into the market, and design its tourism and associated programmes accordingly, paying attention to general best practice as well as guidelines specific to local factors.

It is also important that each site maintains a flexible approach to marketing, pricing and service provision, so that it may reach out to other sectors of the tourism market when unexpected situations, such as lack of security, arise, which may alter the type of tourist willing to visit the country or site (see Section 3.2.8). This will enhance the continuity of conservation funding from tourism.

Aerial view of Congo Basin forest. Photo © Liz Williamson.



### 3.2.5 Different types of great ape tourism

Existing great ape tourism sites vary in the experience they offer, ranging from essentially guaranteed viewing, when tourists are able to view habituated apes that are tracked daily, viewing unhabituated or semi-habituated apes from a platform, to forest walks or river cruises, during which unhabituated apes may or may not be encountered by chance.

### 3.2.6 Managing tourist expectations

When designing and marketing great ape tourism programmes, it is important to assess the experience to be offered to visitors. Any guarantee of viewing will heighten the tourists' expectations and put pressure on field staff to meet them, even at the risk of failing to adhere to rules and regulations. The expectations for a particular site will depend on the type of tourist, the habitat, the particular species or subspecies being visited<sup>3</sup> and the particular activity offered. Activities must be marketed appropriately so that visitors are not disappointed, and so that they understand they are contributing to lower-impact tourism by staying further away from the animals, viewing from a platform, and not clearing vegetation to improve their view (Greer and Cipolletta 2006). For example, most wild orangutan tours market opportunities to *look* for wild orangutans, but few promise seeing them (Russon, Susilo and Russell 2004).

### 3.2.7 Replication of success stories is not always possible or desirable

The success of mountain gorilla tourism has, over the years, stimulated a flurry of projects hoping to replicate these successes with other great apes and especially with western gorillas (e.g., Gami 1999; Lanjouw 1999a,b; Djoh and van der Wal 2001; Focken 2002). Western gorilla tourism programmes will likely be less successful for a number of reasons, and should not be promoted purely for economic benefits, due to concerns about financial viability (Wilkie and Carpenter 1999; Blom 2000, 2001, 2004; Wilkie, Carpenter and Zhang 2001; Williamson *et al.* 2002). However, if sustainable long-term financial support has been committed and significant conservation benefits are expected, then tourism could be justified (Greer and Cipolletta 2006). Experts have also debated whether Critically Endangered taxa, such as the Cross River gorilla (*Gorilla gorilla diehli*), should be habituated for *any* purpose, whether tourism or research. These guidelines are not prescriptive; if the net conservation outcome, as predicted by suitably designed and conducted feasibility and impact analyses, is beneficial to a Critically Endangered population, tourism *may* be a viable tool. Highly fragmented populations that are already under pressure may not be able to withstand the impacts of tourism, despite the aspirations of stakeholders who see tourism as a means of development.

### 3.2.8 Insecurity affects tourism markets

Many great apes live in countries that have suffered from civil war (e.g., Côte d'Ivoire, Liberia and Sierra Leone in Africa; the Aceh Province of Sumatra in Indonesia). Great ape tourism sites, especially those catering primarily to the more risk-averse luxury tourism market, will find occupancy rates plummeting following high-profile incidents in which tourists are either targets (e.g., Bwindi in 1999) or unintended victims, as in the Bali bombings in 2002 and 2005, which can result in a perception of regional insecurity. Due to the fickle nature of the luxury tourist market, it is important not to exclude average or lower-budget travellers, as these visitors will return more quickly to sites that may have acquired notoriety for insecurity or crime. However, on a more positive note, if a particular site already has a high reputation, tourism may rebound relatively quickly after negative events, as evidenced by the speed with which tourism recovered in Rwanda after the genocide, and even *during* rebel activity in the DRC.

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<sup>3</sup> For example, chimpanzees are more mobile than gorillas and orangutans, requiring greater physical exertion for the visitor to keep up, while photographic opportunities will be limited by the apes' location (in trees, on the ground, or in dense vegetation). Therefore managing expectations must take into account the specific conditions of the site.

### 3.2.9 Global economy affects tourism markets

While not specific to great ape tourism, global economics will affect the viability of tourism programmes. Occupancy rates can fall following economic instability, as was seen in falling bookings and increasing cancellations at many international destinations following the 2008-09 global economic crisis (UNWTO 2009). The types of tourist that tend to visit a particular site will determine that site's vulnerability to economic fluctuations. A site that relies on lower-budget backpackers and adventure tourists may be less affected as these people do not usually use their life savings to fund their trips. This highlights the value of offering services and activities that appeal to a wide variety of tourists, as the risks of market fluctuations will be buffered.

### 3.2.10 Habituation—an invariably long and risky undertaking

Great ape taxa differ widely in the effort required to habituate them: mountain gorilla groups have been habituated in as little as one year, but take on average two years; western lowland gorillas and chimpanzees will allow humans to approach to reasonable viewing distances (10–20 metres) after two to five years of consistent follows (Williamson and Feistner 2003; Greer and Cipolletta 2006). The ease of habituation depends on the species/subspecies' characteristics, the nature of their previous experience with humans and structure of their habitat (Tutin and Fernandez 1991; van Krunkelsven *et al.* 1999). Visibility in lowland forest is poor and great apes are usually obscured even within 10 metres of an observer, whilst sudden contacts are difficult to avoid in dense forest and may hinder habituation by frightening the animals or causing physical danger to apes and visitors alike (Williamson 1988). However, it is important to note experiences with mountain gorillas, where low vegetation and uneven topography provide ideal conditions for observation, occasionally from the opposite side of a ravine; or with eastern chimpanzees that can be observed across a valley with binoculars.

Habituation of orangutans is also a challenging endeavour due to their cryptic and semi-solitary nature. Wild orangutans are elusive and often difficult to locate in the forest. Habituation involves following lone individuals, requiring skilled and dedicated staff to do nest-to-nest follows. When first encountered, most orangutans display agonism by kiss-squeaking or long calls (flanged males), and breaking and throwing branches. Some orangutans hide in the canopy without moving for hours or even days, as long as people remain nearby, while others flee rapidly along the ground or from tree to tree. In Kinabatangan, habituation can take only 10–14 days (but this may be due to low natural fear of humans resulting from the absence of hunting in the area, Ancrenaz



Care should be taken to prevent access to tourist infrastructure by habituated apes! Photo © Uwe Kribus.

pers. comm.) and Sumatran orangutans have been habituated in as few as 3 days (Singleton, pers. comm.). Nevertheless, some orangutans seem resistant to habituation and these individuals should not be pursued (Ancrenaz pers. comm.).

Habituation carries a number of risks for both great apes and humans (Williamson and Feistner 2003; Goldsmith 2004, 2005a). One known negative impact is stress, which can be both inferred from behavioural reactions (e.g., orangutans staying in their nests for days to avoid humans) and confirmed with corticosteroid monitoring (Czekala and Robbins 2001; Nizeyi 2005). Stress can have many consequences, including deleterious impacts on reproductive success and on health, such as reduced immunity to illness, and may cause aberrant behaviour. Whether from stress or from other behavioural reactions to human presence, habituation may result in temporary or longer-term alterations to normal ranging patterns such as home-range use and day-range length (Goldsmith 2005b; McFarland 2007). If this pushes the animals out of protected areas and into contact with adjacent areas used by humans, the potential for increased human-great ape conflict and exposure to human diseases will rise (Macfie 2007a; Hockings and Humle 2009). If apes associate human settlements with food, this will also result in behavioural change and range alteration.

Risks to humans conducting habituation efforts can be predicted from the reactions of the apes under habituation. While habituation is designed to slowly reduce the distances at which human observers are tolerated without aggression or fearful reactions, in its early stages some individuals may attack those working to habituate them, resulting in injury and exposing both to higher risks of disease transmission. Best practices for the habituation of great apes are needed to guide ape research or tourism sites.

Nonetheless, it is important to balance the risks against the positive side effects that habituation can have on the ability of field staff to monitor and protect great apes. With tourism programmes, the fact that guides and trackers follow ape groups every day facilitates health monitoring and surveillance of illegal activities, allowing for prompt attention to any poaching or encroachment in the area, and veterinary interventions, such as snare removals.

Reports from the Virungas present the percentage of immature gorillas in the population as an indicator of reproductive health and to assess habituation impact. Long-term records show that the percentage of immature mountain gorillas has been higher in habituated vs. unhabituated gorillas (Weber and Vedder 1983; Kalpers *et al.* 2003). This may be confounded by the selection of large, reproductive groups for tourism or research, or by improved law enforcement in the habituated groups' home ranges, but as a consistent finding over 20 years of conservation efforts, at least suggests that habituation does not automatically lead to reproductive failure in a group.

### 3.2.11 Enforcement of tourism regulations is critical, but often suboptimal

Sites offering great ape tourism operate under a number of booking systems, rules and regulations designed to protect their target species from the negative impacts of tourism. However, at some sites these rules and regulations are ignored much if not all of the time (Sandbrook 2006; Sandbrook and Semple 2006; Dellatore 2007; Whittier 2009). At a number of sites with easy access and a high chance of viewing apes, tourism management that at first enforced strict adherence to tight controls has relaxed over time, suggesting that continued reinforcement of the rationale behind tourism rules and regulations is needed. Controls fail because conservation is often not the first priority of key actors, such as booking clerks, tracker-guides, or the tourists themselves, whose priorities may run counter to conservation, either through ignorance or selfishness. Problems include pressure from private sector operators on harried booking clerks, which results in overbooking; trackers and guides who relax or ignore regulations to obtain better tips, tourists who do not understand or care about the risks and put pressure on their guides to get closer, and even unscrupulous staff or community members operating additional visits to habituated apes to earn extra income without depositing the tracking fees with the appropriate institution. All of these examples increase the potential for negative impacts on the apes without providing any conservation benefits. Continuous improvement and enforcement of rules, regulations and systems that support ape tourism as a conservation-based activity are therefore critical, as is awareness-raising among tourists and tourism professionals *prior* to their arrival. Without improved enforcement of

the rules and regulations designed to protect apes from potential risk, ape tourism will not be a viable or even an acceptable component of the conservation toolkit.

### 3.2.12 Environmental Impact Assessments and feasibility studies

As with any proposed development that has the potential to impact wildlife and natural processes, feasibility and impact assessments are critical in the planning phase of any great ape tourism project. Environmental Impact Assessments (EIA) are mandated by many range-state environmental management authorities and, if tailored to the particular context, will allow stakeholders to evaluate a number of impacts. Whenever habituation is being considered, it is extremely important to conduct a full cost-benefit analysis, as there are many advantages and disadvantages to habituation, both for the great apes themselves, as well as for the institutions that will manage its outcomes. The International Gorilla Conservation Programme (IGCP) has developed a standardised tool to guide this analysis by asking all the appropriate questions, sourcing all the necessary data, and undergoing a balanced review to make informed recommendations. This process has been dubbed the 'Habituation Impact Assessment' or HIA (Macfie 2007a). A recent study in Nigeria looked at the feasibility of developing Cross River gorilla tourism (Macfie 2007b). Conducting such studies and analyses can be expensive but the investment is favourable compared to the high costs of developing tourism at a site that turns out to be unviable, and the cost in conservation terms of carrying out an activity that causes hardship to the very species it was designed to protect.

### 3.2.13 Impact studies and monitoring are critical

The non-extractive nature of viewing wild animals in their natural environment often leads to an assumption of sustainability, yet these programmes are generally established in fragile environments, opening them up to a mass market in which wildlife is repeatedly and actively sought out (Jacobson and Figueroa Lopez 1994; Tapper 2006). Little is known of the true impacts of tourism on great apes, their physical environment, or other resident wildlife, and even less is quantified. Difficulties are compounded by a lack of baseline data, problems of separating out the effects of tourism from other impacts such as natural environmental change, and the length of time for some effects to become apparent (Briassoulis 1991).

Given these constraints, impact studies conducted during 35 years of great ape tourism provide valuable data to inform the recommendations for best practice in managing great ape tourism:

Western lowland gorilla, Loango National Park, Gabon. Photo © Josephine Head/MPI-EVAN.





- Studies assessing the behavioural impacts and disease risks incurred by mountain gorilla tourism have led to more restrictive rules, such as an increase in the minimum viewing distance from 5 to 7 metres (Homsy 1999), and the importance of limiting the duration of tourist visits (Fawcett 2004; Muyambi 2005).
- Chimpanzee research and tourism projects have documented known human pathogens causing mortality in wild chimpanzees (Wallis and Lee 1999; Leendertz *et al.* 2006; Kaur and Singh 2008; Köndgen *et al.* 2008) and have proven that the wearing of surgical masks is both feasible (TANAPA and FZS 2007) and effective in disease prevention (Boesch 2008; Lukasik-Braum and Spelman 2008).
- Evaluation of three decades of orangutan tourism has provided opportunities to document and improve management practices (Russon, Susilo and Russell 2004). Recent research (Dellatore 2007) has shown that the behaviour of orangutans is significantly altered by tourism in Bukit Lawang, which includes both wild and ex-captive orangutans. The main changes recorded include restricted ranging (staying in areas of high tourism use), altered activity budgets (less foraging), increased incidence of aggression towards people, and high infant mortality. Of particular concern is the practice of feeding orangutans to either entice them to approach tourists or to appease them when they approach and attempt to steal food. This study concluded that behavioural health and reproductive success are poor and that tourism must be restructured to better manage and protect the orangutan population.
- The implementation of programmes monitoring the movements, behaviour and health status of great apes affected by tourism is vital to detect and mitigate known and emerging impacts (e.g., Kaur and Singh 2008) and to inform the design of impact mitigation measures such as employee health monitoring (Ali *et al.* 2004).
- Bio-monitoring activities contribute to more effective and safer tourism programmes. For example, part of the success of the mountain gorilla tourism programme is due to extensive knowledge of gorilla diet, daily-travel distance and ranging patterns that make it possible to predict group movements and locate the gorillas with relative ease. Predictability of daily-activity rhythms is also important for the tourism programme and visits are timed to coincide with gorillas' rest periods when possible, facilitating excellent observation conditions for the visitors (Plumptre and Williamson 2001).
- One gap in the study of great ape tourism to date is the lack of monitoring of negative impacts on the habitat, especially in cases where relatively small areas of forest are used intensively. It is also possible that protection and law enforcement efforts carried out to support tourism may result in positive impacts on forest habitat, and these should be monitored and documented.

### 3.2.14 Great ape tourism as a development tool for local communities

Benefits from great ape tourism that accrue at the local level can be considerable. Revenue-sharing schemes have been successfully established at a number of tourism sites (Ancrenaz *et al.* 2007; Archabald and Naughton-Treves 2001). Around the mountain gorilla tourism hub of Buhoma in Bwindi Impenetrable National Park (BINP) in Uganda, the value of tourism revenue reaching local people is more than four times the value of all other revenue sources combined (Sandbrook 2008; Blomley *et al.* 2010). Direct employment as a guide or tracker is a much-valued benefit in areas where formal employment opportunities are scarce: The Bai Hokou project hires over 60 BaAka pygmies on a rotational system (Hodgkinson 2009), whilst mountain gorilla conservation organisations are estimated to employ around 150 people (MGVP 2004). Indirect benefits may also be stimulated, such as locally-owned enterprises, or revenue-sharing schemes that fund infrastructure such as schools and hospitals (Sandbrook 2006). Tourism can also give residents a sense of pride and ownership—important factors which contributed to park staff remaining at their posts during periods of extreme insecurity in the Virungas (Plumptre and Williamson 2001).

Yet caution should be exercised before assuming that these benefits will both compensate programme-related costs and lead to altered behaviour towards conservation efforts. Adams and

Infield (2003) concluded that a revenue-sharing scheme around the Mgahinga Gorilla National Park in Uganda did not promote pro-conservation attitudes, a finding repeated in other studies (Hodgkinson 2009). Blomley *et al.* (2010) reported a positive relationship between community attitudes and community development programmes around the same Ugandan parks, although this impact was concentrated in the tourism hubs and was not widespread. However, the most commonly reported cause behind an observed reduction in the level of illegal activities was increased law-enforcement effort, indicating the important and complementary role that law enforcement plays in achieving conservation outcomes.

Where significant benefits are generated, serious consideration must be given to their distribution, to avoid disbursing benefits in a manner unconnected with conservation objectives, thus limiting their effectiveness in contributing to cost reparation or poverty reduction. A clear example is access to employment opportunities, usually dictated by education level, gender, age and domination by local elites (Sandbrook 2006). These challenges are exacerbated by the sheer scale of poverty and high human population densities around some great ape tourism sites. For example, while the Sabyinyo Lodge in Rwanda generated over \$100,000 for local communities in its first year of operations, when viewed in light of the numbers of people living in the area, this translated to only \$10 per person (Mwine pers. comm.). Blomley *et al.* (2010) report that while the Bwindi tourism programme appears to have been effective at delivering both individual and collective benefits, and making the link between these benefits and the presence of gorillas, it has failed to reach the poorest members of the community. Furthermore, benefits may not be viewed as adequate compensation if they are provided in a form which is inappropriate or that individuals fail to value.

In summary, if great ape tourism is to be effective as a development tool, there needs to be very careful consideration of both the costs and benefits being accrued, and how they are distributed among local residents, who are too often disenfranchised and living in extreme poverty. Tourism programmes should emphasise active participation of the poorest members of local communities.

### 3.2.15 Importance of economic valuations and tourism demand studies

When developing or monitoring great ape tourism it is tempting, especially for governments and the private sector, to regard the economic benefits as the *raison d'être* for these programmes. However, it is important that income from great ape tourism is not seen as the ultimate objective, but as an additional benefit of this conservation tool.



Bonobo, Lui Kotale, Salonga National Park, DRC. Photo © Caroline Deimel/MPI-EVAN.

Some countries have expanded their tourism programmes by increasing the numbers of tourists visiting each group of apes and/or increasing the number of ape groups visited by tourists, which exacerbates the risks to the apes and their habitats. However, research shows that many tourists would be willing to pay higher fees for an experience that is more exclusive and appears less intrusive, with smaller groups of tourists (Bush and Fawcett 2008).

In addition, a number of studies have pointed out the fallacy in the assumption that tourism revenues stay in-country and/or trickle down to benefit the local people who bear the costs of living near to ape habitats. While tourism revenues do fund the park authorities, the most significant revenues accrue internationally (Cochrane 1998; Moyini 2000; Hatfield and Malleret-King 2006; Sandbrook 2008). Tourism development activities should therefore address means of maximising the revenue that is retained in-country, and especially locally.

Studies of tourism economics are useful to demonstrate issues of the viability of ape tourism, which is thought to be unviable at many sites (Font, Cochrane and Tapper 2004; Wilkie and Carpenter 1999; Baboulene 2008). A case study of Dzanga-Sangha concluded that tourism was unlikely to cover management costs or to play a significant role in the long-term financing of the protected area (Blom 2000). However, tourism is a significant source of employment in that region and is increasingly important to the local economy, involving local people in sustainable economic development activities. Tourism revenue has also contributed to greater acceptance of the conservation project by local populations and subsequently has improved compliance with conservation regulations. Therefore, it is important to consider how ape tourism revenues are accrued and disbursed, and to adjust the perception that ape tourism exists primarily to generate income for range state governments and park authorities.

#### 3.2.16 Importance of management evaluations of tourism staff conduct

Ape tourism sites might be well designed and strive towards best practice, with strict rules and regulations developed, disseminated and prominently displayed. Nonetheless, it is common that even after presenting the regulations directly to tourists, staff then manage a tourist visit in violation of one or more regulations, most commonly concerning the minimum distance rule (e.g., Sandbrook and Semple 2006). This may be simply due to the difficulty of managing tourists, or unpredictable movements by the apes, but in many cases it is due to the absence of supervision, monitoring and enforcement, and at times exacerbated by the desire to generate larger tips. If staff are regularly monitored and evaluated on their conduct of a tourist visit, and results are discussed openly by the evaluator, staff will improve their tourism management.

#### 3.2.17 Location, location, location

Tourists seeking great ape tourism opportunities may be drawn to a particular site by its ease of access, or precisely the opposite; location is therefore key. Proximity to well-established wildlife tourism circuits, such as the savannah safaris in East Africa, may boost occupancy rates for ape tourism sites. This may help to explain why tourism in Central Africa has been slower to develop even in the better-established and relatively accessible sites, despite their abundant and charismatic wildlife. Conversely, for some tourists the opportunity to get away from the usual circuits is appealing, and they will consider the extra effort required to get to new sites in remote locations worthwhile.

#### 3.2.18 Provisioning/feeding is not appropriate for habituation or tourism

In the early years of primate research a number of sites used food to facilitate habituation. Over time, a number of risk factors developed with provisioning, including behavioural alteration, aggression between group members, aggression towards observers leading to injury, reduced distance or contact that increases disease risks, and parasite contamination of feeding sites (Wrangham 1974; Wallis and Lee 1999; Bertolani and Boesch 2008). Ape research sites discontinued provisioning because of these risks, but it is continued at some ex-captive orangutan sites, where the park authorities feed orangutans at designated platforms and in some cases local guides flout the rules by feeding orangutans in other, unregulated locations where they entice orangutans to approach with food, putting both orangutans and tourists in danger (Dellatore 2007). The potential for negative impacts on the apes, or for litigation in cases of tourist injury, suggest that provisioning

should be stopped, even when carried out by government bodies. If unregulated feeding occurs, monitoring and enforcement, combined with education, are critical to halting this dangerous activity. It would also be advisable to reduce the feeding of ex-captives at platforms to the minimum necessary for their survival and monitoring, and these platforms should not be used as a tourist attraction. Once feeding is no longer a survival requirement, it should be discontinued.

### 3.2.19 Reducing disease-transmission with N95 surgical respirator masks

The wearing of surgical facemasks by people coming into proximity with apes in research and tourism projects has been much debated, since one of the biggest risks of human–ape disease transmission comes in the form of air-borne pathogens (Cranfield 2006). Respiratory disease is the most prevalent cause of mortality in some ape populations (Wallis and Lee 1999; Nutter *et al.* 2005; Hanamura *et al.* 2007; Kaur *et al.* 2008; Whittier, Nutter and Stoskopf 2009). In 1999, IGCP's assessment of the mountain gorilla tourism rules (Homsy 1999) recommended increasing the minimum-viewing distance from 5 to 7 metres, on the basis of research on distances that respiratory droplets and aerosolised particles can travel. However, due to concerns about mask management and compliance, the decision to use masks was postponed, pending further evidence of the link between disease transmission and human presence.

When reviewing mask effectiveness, it is important to remember that much of the literature on facemasks assesses protection of the wearer from infection, but in the case of tourism a potentially-infectious person is wearing the mask and our concern is to keep infectious particles *in*, not out. There are a number of pros and cons associated with the use of masks. Positive factors include that under ideal conditions masks are an effective barrier to exhaled pathogens. Although mask effectiveness lessens over time or in less than ideal conditions, the reduction in large particle aerosolisation is still far more effective than wearing nothing. Arguments against the use of masks include the fact that apes must be habituated to visitors wearing them. Tourists also must be educated to ensure compliance, especially as any discomfort associated with the mask could reduce compliance. Under cooler situations, such as at high altitude, poorly fitting masks may cause fogging of glasses and interfere with photography and binocular use<sup>4</sup>. The burden of ensuring mask supply is also a concern, as masks vary in effectiveness, and masks of appropriate quality are essential to the protective properties. Waste management is also an issue, as masks dropped in the forest would become fomites carrying concentrated potentially-infectious particles with significant disease risk.

A number of high-profile disease outbreaks in ape populations have been reported (Wallis and Lee 1999; Ferber 2000; Leendertz *et al.* 2004; Hanamura *et al.* 2007; Hosaka 2008; Köndgen *et al.* 2008), as well as data showing that, in the right wind conditions, contaminated droplets can travel up to three times the recommended 7 metre minimum distance (Cranfield 2006). Reports from multiple sites confirm that the rules established to protect apes from disease transmission are not enforced adequately or consistently and that safe distances are not maintained (Sandbrook and Semple 2006; Dellatore 2007; Nakamura and Nishida 2009). Consequently, there is increasing advocacy for the use of facemasks by great ape researchers, tourists and staff, in addition to other disease prevention measures. This practice is currently more common at research sites, especially those that have experienced fatal disease outbreaks in their study population (e.g., Tai National Park, Côte d'Ivoire); however, use of masks is also on the rise at tourism sites (e.g., chimpanzee tourism in Mahale Mountains National Park, Hanamura *et al.* 2006; mountain gorilla tourism in the DRC and Rwanda, Hurst 2008c; MGVP 2008, 2009).

Masks vary in quality and efficiency. The main differences between a mask and a respirator are that masks fit relatively loosely and protect the wearer from large aerosol particle transmission whereas respirators have a sealing surface and fit tightly over the nose and mouth—they are designed to prevent both small and large particle aerosol transmission (CDC 2004; CDC 2006). N95 respirators are of better quality and have a better fit and seal than basic surgical masks, thereby providing

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<sup>4</sup> MGVP (2008) tested N95 'duck-bill' shaped respirators, which provide more breathing room, and found that they are more comfortable, not as hot and do not cause eyeglasses to fog up as often.



Tourists wearing N95 surgical masks, Virunga National Park, DRC. Photo © Virunga National Park.

improved prevention of aerosolised particle transmission. The better seal of an N95 mask may provide some relief from fogging of camera lenses or binoculars, but conversely the seal may reduce comfort and compliance if tourists feel it is more difficult to breathe. Facial hair is also a problem, as the seal is no longer ensured. Guidance on fitting and wearing of masks must be presented before approaching a group of apes, when the tourists will be rushing. Masks are only effective if they are worn properly.

We recommend that multi-layered, surgical-quality N95 (or higher<sup>5</sup>) respirators be worn whenever tourists or staff approach apes to a distance of 10 metres or less, that these must be properly used and disposed of, and that wearing a mask must not be considered justification for weakening other disease prevention rules. If N95 masks are not available, paper surgical masks may be used. N95 respirator masks cost approximately US\$0.40 each plus the cost of shipping. This is small compared to the overall cost of great ape tourism operations, although the reliability of supply chains has to be assured. Issues of compliance and effectiveness will be critical in the management of masks as part of a disease prevention programme. Compliance, comfort, tourist acceptance and mask disposal should all be monitored and the results used to inform and improve regulations and procedures. For more information on N95 respirators see Appendix II.

### 3.2.20 The problem of tourism with formerly-captive great apes

Tourism to view ex-captive great apes, while not the main focus of this document, takes place at a number of sites. Ex-captive and wild apes, especially orangutans, interact at some sites, so there may not be a clear wild vs. captive distinction (see table in Section 2.4.1). Due to the particular risks posed by overhabituation, specialists recommend that tourism be discontinued with rehabilitants eligible for release, or already released to free forest life, and in forests where rehabilitants range (Rosen and Byers 2002). Similarly the Pan African Sanctuary Alliance (PASA) does not endorse tourism with ex-captives due to the high risks to tourists and field staff (Carlsen *et al.* 2006).

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<sup>5</sup> Respirators that filter out higher percentages of aerosolised particles are also acceptable (N99 or N100), but more expensive.

Despite the Indonesian government's agreement to halt tourism with ex-captives, it still takes place at a number of orangutan sites (e.g., several sites in Tanjung Puting National Park and around Nyaru Menteng in Central Kalimantan, Bohorok in Sumatra). Tourism to ex-captive orangutans is often poorly controlled, which jeopardises both orangutan conservation and the education rationale of such visits, and reduces the likelihood of successful rehabilitation (Rijksen and Meijaard 1999; Russon, Susilo and Russell 2004). Recent analyses suggest that existing sites must prohibit the feeding of free-ranging rehabilitant orangutans by tourist guides, and enforcement must be ensured by patrols to prevent illegal feeding and enticing of orangutans onto tourist trails (Dellatore 2007). Formal education programmes targeting local tour guides, rangers, and tour operators, as well as the tourists (local, national and international) should promote awareness of the dangers of feeding free-ranging orangutans, especially ex-captives. This will serve to regulate human behaviour in the forest (Dellatore 2007).

### 3.2.21 Conclusions from lessons learned

Given the high cost of developing tourism and the associated infrastructure, along with the need to ensure protection of habituated apes in perpetuity, the establishment of new ape tourism sites should never be undertaken lightly. In addition, the management requirements to develop and effectively implement tourism are labour-intensive and need major commitments in terms of financial and human resources. Added to the equation is consideration of the multitude of impacts of great ape tourism. It is imperative, therefore, that any potential ape tourism project be subject to a full, objective analysis of its feasibility, impact and sustainability, including a multi-stakeholder review, before funding is committed and before promises are made to local communities as to the arrival of tourism and its associated development. Only sites that have a good chance of success, as judged by independent feasibility and impact analyses, and that demonstrate the commitment necessary to exert maximum control and impact mitigation in line with these best practice guidelines, should be developed.

Volcanoes National Park,  
Rwanda. Photo © Lynn Barrie  
and Frances Broussard



## Section 4: Potential Impacts of Great Ape Tourism

The large number of impacts of great ape tourism, both positive and negative, are summarised in the tables below.

### 4.1 Table of potential benefits of great ape tourism

Benefits	Assumptions	Notes
<b>Monitoring:</b> Regular visitation enhances monitoring.	<ul style="list-style-type: none"> <li>Funding for monitoring programmes is secured.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring plan must be in place before habituation begins.</li> </ul>
<b>Veterinary surveillance and care:</b> Habituation and regular visits facilitate health monitoring, resulting in quicker diagnosis and rapid intervention.	<ul style="list-style-type: none"> <li>Funding for veterinary surveillance and response team is secured.</li> <li>Human expertise and laboratory facilities are in place and accessible.</li> </ul>	<ul style="list-style-type: none"> <li>Finalise health monitoring, treatment and disease outbreak contingency plans before habituation begins.</li> </ul>
<b>Law enforcement:</b> Known home ranges, habituation and increased observer presence improve protection of ape groups or individuals by law-enforcement teams.	<ul style="list-style-type: none"> <li>Security in the region allows law-enforcement monitoring.</li> <li>Finance, logistics and staff are in place to support/implement enforcement.</li> </ul>	<ul style="list-style-type: none"> <li>Increase enforcement presence in area before habituation.</li> </ul>
<b>Revenue generation:</b> Potential source of tourism revenue for the protected area, through fees for ape viewing, tracking and associated activities (e.g. nature walks, accommodation).	<ul style="list-style-type: none"> <li>Local, regional, international security situation allows tourism.</li> <li>Financial systems are in place to ensure sufficient revenue remains with ape habitat management to cover conservation costs.</li> <li>Tourists are interested and willing to visit and take up permits.</li> <li>Tourism is well managed.</li> </ul>	<ul style="list-style-type: none"> <li>Financial analysis of potential revenue to be generated through great ape tourism activities is essential to impact assessment.</li> </ul>
<b>Community benefits:</b> Potential source of monetary and non-monetary benefits for communities.	<ul style="list-style-type: none"> <li>Methods to ensure revenue streams to communities in place.</li> <li>Project designed so that communities are involved at all stages of project development.</li> </ul>	<ul style="list-style-type: none"> <li>Develop or expand benefit-sharing systems to absorb revenue.</li> <li>Build capacity to ensure that communities play an active role in benefit sharing.</li> </ul>
<b>Benefits to private sector:</b> Tourism revenues accruing through multiplier effects to private sector in tourism and service industries—state, national, regional, international.	<ul style="list-style-type: none"> <li>Tourists are interested and willing to visit, take up permits and visit other attractions.</li> <li>Private sector tourism industry well managed, with training ensured.</li> </ul>	<ul style="list-style-type: none"> <li>Marketing to enhance revenue streams that spin-off from tourism permits.</li> </ul>
<b>National economic benefits:</b> Increased government earnings from taxes, visas and other income associated with tourism.	<ul style="list-style-type: none"> <li>Effective national finance systems.</li> <li>Transparency.</li> </ul>	
<b>Community participation and support:</b> Increased participation by and support from local communities for protected areas, forest management and ape conservation as a result of community benefit streams.	<ul style="list-style-type: none"> <li>Methods are in place to ensure community participation in tourism development and to maximise tourism benefit streams flowing to communities, through revenue sharing and other spin-offs.</li> </ul>	<ul style="list-style-type: none"> <li>Promote and facilitate active engagement in habitat conservation and tourism by local communities.</li> <li>Ensure support for community capacity to run these projects.</li> <li>Ensure tourism benefits are understood as linked to protecting forest and apes' existence.</li> </ul>
<b>Research and learning:</b> Potential for increasing knowledge base about apes.	<ul style="list-style-type: none"> <li>Research and ranger-based monitoring provide data for centralised databases and information systems.</li> </ul>	<ul style="list-style-type: none"> <li>Research opportunities may be more limited in tourism groups.</li> </ul>
<b>Political goodwill, local and national pride and image:</b> Apes and habitat valued as a means to enhance development and local and/or national image.	<ul style="list-style-type: none"> <li>Political value of tourism revenue outweighs perceived value of land conversion away from conservation.</li> </ul>	<ul style="list-style-type: none"> <li>Decision not to habituate may result in loss of political goodwill and/or loss of support to protected area or forest.</li> </ul>
<b>Regional cooperation:</b> Regional tourism initiatives can stimulate further regional collaboration on ape conservation actions.	<ul style="list-style-type: none"> <li>Political will and transboundary relations supportive of regional cooperation.</li> </ul>	
<b>International awareness and support:</b> Donors interested in financial self-sustainability. Internationally-recognised programme will enhance long-term commitment by government.	<ul style="list-style-type: none"> <li>Tourism is well-managed and seen as sustainable source of revenue.</li> </ul>	<ul style="list-style-type: none"> <li>Document tourism impact studies and distribute to international organisations.</li> <li>International tourists often return home as long-term supporters.</li> </ul>
<b>Enhanced conservation of apes and their habitat as a result of all the above.</b>		

## 4.2 Table of potential costs and disadvantages of great ape tourism

Disadvantages	Mitigation measures	Notes and Action Points
<b>Poaching:</b> Habituated apes are more vulnerable to poaching and conflict if not adequately protected, due to their loss of fear of humans.	<ul style="list-style-type: none"> <li>Once habituated, apes must always be protected through daily monitoring and patrols in their range.</li> <li>Protection for habituated or previously habituated groups by ranger surveillance patrols – in perpetuity.</li> <li>Assumption—management continuity and security.</li> </ul>	<ul style="list-style-type: none"> <li>Discussion required on potential for de-habituation, if any.</li> <li>As orangutans are more solitary, it is not possible to monitor every habituated individual daily. Orangutan sites must strive towards a zero-poaching goal to protect habituated orangutans.</li> </ul>
<b>Disease – 1:</b> Habituating makes apes more vulnerable to the introduction of disease during habituation process.	<ul style="list-style-type: none"> <li>Disease prevention activities for apes.</li> <li>Strict habituation-team protocols.</li> <li>Mitigation, if possible, to be discussed further with veterinary advisors.</li> </ul>	<ul style="list-style-type: none"> <li>Veterinary advice on minimising stress and disease risk during habituation.</li> </ul>
<b>Disease – 2<sup>a</sup>:</b> Habituation allows close approach of humans to apes, therefore increases risk of disease transmission through ongoing disease exposure.	<ul style="list-style-type: none"> <li>Strict enforcement of rules and regulations on tourist and research visits to apes.</li> <li>Training and continual evaluation.</li> <li>Regular review of protocols in light of new research.</li> <li>Education of tourists prior to visit.</li> </ul>	<ul style="list-style-type: none"> <li>Design and implement visit evaluations to assess compliance.</li> <li>Develop veterinary response and outbreak contingency plan.</li> <li>Distribute and discuss disease-risk document (or synthesis) to tourism-development team and stakeholders.</li> <li>Continual analysis of ape morbidity and mortality data.</li> </ul>
<b>Cost implications – 1:</b> Financial implications of the costs of habituation are high—timeframe of years. <sup>b</sup>	<ul style="list-style-type: none"> <li>Financial support for habituation process must be guaranteed before launch.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure adequate funding before habituation launch.</li> </ul>
<b>Cost implications – 2:</b> Operating costs (staff, equipment and infrastructure) are high for tourism activities and for protection and monitoring of habituated groups in perpetuity.	<ul style="list-style-type: none"> <li>Tourism development stakeholders need to ensure that there is a long-term financial plan to cover costs even if there is a slump in the tourism market.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out economic and market surveys to analyse sustainability before developing tourism plan.</li> <li>Develop emergency support plan to cover operations in periods of unstable tourism market.</li> </ul>
<b>Diversion of management attention:</b> Tourism may take resources away from core conservation focus.	<ul style="list-style-type: none"> <li>Reinforce conservation as primary goal in strategic plans and tourism development plans.</li> </ul>	<ul style="list-style-type: none"> <li>Source tourism development funds from additional/new sources.</li> <li>Recruit additional personnel.</li> </ul>
<b>In-migration:</b> Successful tourism development may encourage growth of human communities around ape habitat.	<ul style="list-style-type: none"> <li>Local/district development plans should limit uncontrolled growth</li> </ul>	<ul style="list-style-type: none"> <li>EIA process should address potential for over-development and population increase.</li> </ul>
<b>Range alteration:</b> Habituated apes may alter their range. This could result in groups or individuals ranging outside protected areas into areas with heightened poaching pressure, or into proximity with human infrastructure, resulting in increased risks of disease, poaching, injury and conflict with humans.	<ul style="list-style-type: none"> <li>Daily monitoring of all individuals is essential, both while under habituation and after habituation during tourism operations. This monitoring must continue in perpetuity.</li> <li>Law enforcement patrols in entire home range of habituated individuals/groups.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring of groups or individuals under habituation is critical to judge the extent to which range adjustment may take place as a result of habituation process.</li> </ul>
<b>Human-great ape conflict – 1:</b> Potential for increased conflict with humans and livestock if apes leave protected habitats (even if they ranged outside protected areas before habituation) or if they overlap with human activities (for example in multiple-use zones).	<ul style="list-style-type: none"> <li>Sensitisation.</li> <li>Revenue sharing.</li> <li>Human-great ape conflict mitigation programmes.</li> <li>Community/livestock health outreach.</li> <li>Assessment of home range during group choice.</li> </ul>	<ul style="list-style-type: none"> <li>Additional research needed on whether habituation leads to increase in crop-raiding behaviour.</li> </ul>
<b>Human-great ape conflict – 2:</b> Conflict heightened if tourism is conducted with apes that crop-raid on private land.	<ul style="list-style-type: none"> <li>Explore idea of 'entry' fee if tourism visits might be conducted on community land/farms.</li> </ul>	
<b>Over-habituation:</b> Long-term habituation may lead to over-habituation <sup>c</sup> , with potential for more contact with humans, injury to humans and apes, and increased disease risk through proximity.	<ul style="list-style-type: none"> <li>Research reducing over-habituation.</li> <li>Enforce rules!</li> <li>Deter approach of apes.</li> <li>Review guidelines for human behaviour when close to apes.</li> </ul>	<ul style="list-style-type: none"> <li>Continued assessment and research into the effects of long-term habituation.</li> </ul>



Disadvantages	Mitigation measures	Notes and Action Points
<b>Stress – 1:</b> Habituation is a stressful process for apes—initial stress during habituation may potentially lead to increased vulnerability to disease, as well as reduced reproductive rates.	<ul style="list-style-type: none"> <li>Develop and use ‘best practices’ for habituation to minimise stress.</li> <li>Develop and implement research protocol for stress monitoring during habituation.</li> </ul>	<ul style="list-style-type: none"> <li>Develop best practice guidelines for great ape habituation.</li> <li>If new habituation undertaken, design monitoring programme to assess stress factors.</li> </ul>
<b>Stress – 2:</b> Chronic stress <sup>d</sup> following habituation during operation of tourism. Stressful situations would include natural behaviours (e.g., fighting and interactions) and human interactions.	<ul style="list-style-type: none"> <li>Strict adherence to reviewed regulations to minimise chronic stress.</li> </ul>	<ul style="list-style-type: none"> <li>Review tourism management to minimise stress inducers.</li> <li>Develop stress-monitoring plan.</li> </ul>
<b>Behaviour change and social disruption:</b> research has revealed significant impacts of tourism on ape behaviour.	<ul style="list-style-type: none"> <li>Design visit/visitor regulations in light of behavioural changes observed.</li> <li>Strict adherence to regulations.</li> </ul>	<ul style="list-style-type: none"> <li>Synthesise and present research results to staff and decision-makers.</li> <li>Tourism management review to reduce impact on behaviour.</li> <li>Ongoing research/monitoring of habituated groups.</li> </ul>
<b>Reduced reproductive success:</b> behavioural impact, stress, disease and immunosuppression may all lead to reproductive failure, with impacts on population size over time.		<ul style="list-style-type: none"> <li>Research on habituation impact on reproductive behaviour<sup>e</sup>, maternal care and infant mortality.</li> </ul>
<b>International condemnation:</b> Lack of support if perception is of excessive tourism.	<ul style="list-style-type: none"> <li>Carry out a feasibility study and impact review before any new tourism habituation is initiated.</li> <li>Circulate feasibility study report if habituation is recommended.</li> </ul>	<ul style="list-style-type: none"> <li>Funding for feasibility/impact studies should be included in tourism development initial scoping plan.</li> </ul>
<b>Habitat impact:</b> Negative impact of tracking activities on habitat—vegetation and other animal species.	<ul style="list-style-type: none"> <li>Conduct tracking with only essential cutting of trails.</li> <li>Limit number of tourists in a group.</li> <li>Limit number of groups in an area.</li> </ul>	<ul style="list-style-type: none"> <li>Develop protocol for trackers and guides to minimise impacts on habitat.</li> </ul>
<b>Pollution and habitat impact of tourism infrastructure and activities.</b>	<ul style="list-style-type: none"> <li>Conduct EIA prior to development of tourism infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>Additional regulations to minimise waste associated with tourism.</li> </ul>
<b>Military escorts for tourists, if required, increase all impacts</b>	<ul style="list-style-type: none"> <li>Develop code of conduct for military escorts to minimise impact.</li> </ul>	
<b>Uncontrolled development:</b> Tourism, if not controlled with conservation objectives, may stimulate construction of unplanned, unsightly lodges and camps with negative environmental impacts.	<ul style="list-style-type: none"> <li>Zoning plans to be developed to control infrastructure in tourist area.</li> </ul>	<ul style="list-style-type: none"> <li>Market surveys will provide potential developers with occupancy estimates to inform plans.</li> </ul>
<b>Knock-on effect to other ape sites:</b> Development of ape tourism at one site will lead to requests/raised expectations for tourism to be developed at other sites.	<ul style="list-style-type: none"> <li>Manage expectations in nearby sites.</li> <li>Conduct market surveys to analyse potential market for ape tourism in any site under consideration.</li> </ul>	<ul style="list-style-type: none"> <li>Failed expectations may result in backlash against conservation of apes and habitat.</li> </ul>
<b>Negative impact on local people:</b> Lack of benefits compounded by rising crime and costs, social or cultural impacts, etc.	<ul style="list-style-type: none"> <li>Develop and implement plans to optimise community impacts.</li> </ul>	<ul style="list-style-type: none"> <li>Community impacts will affect attitudes towards conservation.</li> </ul>
<b>Negative impact on apes and habitat as a result of all the above.</b>		

<sup>a</sup> Note the balance between disease risk and veterinary care: Habituation allows for increased veterinary care/disease monitoring and enhanced opportunity for medical care. Leaving unhabituated groups results in reduced disease exposure but less/no opportunity for veterinary support.

<sup>b</sup> Habituation for some species or subspecies takes 2 years or more, and tourism development should operate on a 5-year time plan.

<sup>c</sup> Prolonged exposure and overhabituation may establish a hierarchy between humans and apes, resulting in a potential for injury.

<sup>d</sup> Acute stress vs. chronic stress—in chronic stress, even when no longer acutely stressed, research in mountain gorillas has shown that stress hormone levels remain higher than pre-exposure (Nizeyi 2005).

<sup>e</sup> Data from Bwindi gorillas show a slight (non-significant) reduction in growth of habituated groups vs. unhabituated groups (Robbins pers. comm.). Conversely, during repeated censuses in the Virungas, the proportion of immature mountain gorillas has been higher in habituated than unhabituated groups. Note that this may be confounded by selection of groups with more females and juveniles for tourism/research, and/or the fact that these groups are better protected.

### 4.3 Discussion of key tourism impacts

As shown in the tables above, there are a number of benefits and advantages of great ape tourism, as well as a long list of potential risks and disadvantages. Prominent amongst the benefits is the potential for some sites to earn significant revenues and to promote local, national and international goodwill, which together may provide significant support for conservation efforts in ape habitats (Harcourt 2001). However, this must be weighed against a number of costs, amongst which the potential for disease transmission, behavioural change and human-great ape conflict stand out as significant challenges to the often-voiced opinion that great ape tourism should be widely developed.

#### 4.3.1 Key positive impact—sustainable conservation funding

Great ape tourism has the potential to generate significant revenues, not only for site management authorities, but also for local communities, local and national governments and the private sector. Once the costs of developing tourism have been met through grants, loans or other investments, a *successful* ape tourism site will cover operational costs as well as the costs of conservation management of the site. Tourism can also produce enough revenue to support wider conservation efforts. Great ape tourism has the potential, therefore, to provide sustainable conservation funding.

However, when considering the economic benefits of tourism, which may be significant at some sites, it is important for planners and decision makers to factor in the high cost of developing and operating tourism programmes. The costs of developing ape tourism as a conservation activity include significant expenditures during habituation, which can take two years or longer, and during which no income can be expected. At the same time, funding must be sourced to cover the establishment of appropriate infrastructure for tourism operations, as well as staff recruitment and training. It is also essential that a contingency plan is in place to fund continued operations of key protection and monitoring activities at times when tourism levels may be low, during both predictable low seasons and in case of unforeseen events, such as security issues and global economic trends that impact tourism. Once great apes are habituated, they must be protected in perpetuity and this is expensive. Certainly not all sites will be able to meet these costs through tourism income alone, as many factors determine the ability to attract and maintain a sector of the limited global market for ape tourism. Thus there is a limit to the number of sites in any one country or region and for any one species or subspecies that will be viable; therefore national and regional planning, communication and collaboration are required to ensure that tourism is not developed at sites that ultimately prove unviable.



Sumatran orangutan, Gunung Leuser National Park, Indonesia. Photo © Perry van Duijnhoven

#### 4.3.2 Key positive impact—enhanced monitoring and protection of apes

Certainly when apes are habituated and followed regularly, for either tourism or research purposes, the level of protection and law-enforcement effort in their home range is greatly enhanced, as is the potential for veterinarians to intervene to manage disease and human-caused injuries. Additionally, tourism enhances local, national and international awareness of the need to conserve great apes and the threats they face, leading to increased financial and political support for their protection.

#### 4.3.3 Critical negative impact—disease transmission

Among the numerous impacts of ape tourism outlined in Tables 4.1 and 4.2, all of which require attention, two stand out not only as having potentially disastrous consequences but also because they are to a large extent preventable through strict adherence to best practice as described in this document. These are disease transmission and behaviour change.

The potential for disease transmission is another significant risk associated with tourism. Great apes are susceptible to human-borne diseases due to our close phylogenetic history and are particularly vulnerable to diseases to which they have had no previous exposure and thus have no natural resistance (Ferber 2000; Wallis *et al.* 2000; Woodford *et al.* 2002; Garber 2008). Habituation produces stress in apes and stress may increase susceptibility to diseases, including those carried by humans, whether tourists, park rangers, researchers or local residents. The diseases of greatest concern are those that are easily transmitted without direct or prolonged contact (Leendertz *et al.* in press). A number of sites have experienced disease outbreaks, some with multiple ape fatalities, that were either suspected or proven to be associated with humans (Macfie 1991; McNeillage 1996; Homsy 1999; Wallis and Lee 1999; Woodford *et al.* 2002; Kaur and Singh 2008).

The risks of disease transmission have driven caution in the design of rules and regulations controlling tourism management and the conduct of visits, including limits on tourist numbers, time spent with apes and viewing distances (Hastings *et al.* 1991; Macfie 1991, 1996; Kortlandt 1996; Wallis and Lee 1999; Mudakikwa 2001). Although a number of experts have warned of disease risks (Homsy 1999; Wallis *et al.* 2000) and provided indirect evidence of disease transmission (Lonsdorf *et al.* 2006; Hanamura *et al.* 2007; Hosaka 2008), until recently evidence of direct transmission to wild apes was limited to bacterial and parasitic infections (Graczyk *et al.* 2002; Goldberg *et al.* 2007; Rwego *et al.* 2008).

However, new research provides more convincing evidence of virus transmission between humans and wild apes (Kaur *et al.* 2008; Köndgen *et al.* 2008), adding considerable weight to the arguments for strict protocols guiding the use of apes for tourism and research. While disease may be introduced into the habitat by adjacent communities, refugees, military and so on, tourists and researchers present a particular concern due to their close, relatively prolonged contact with great apes, and moral responsibility. Tourists also represent the greatest number of new contacts for a group of apes, ranging from six new visitors per day to many more at sites not yet implementing strict limits. Field staff and researchers must adhere to best practice and follow strict employee health monitoring protocols. International tourists come from diverse and often distant countries, have usually been in close confines with other travellers (e.g., on aeroplanes and other transport), and the resulting exposure to pathogens may be exacerbated by the stress of travel (Wilson 1995; Ostroff and Kozarsky 1998; Adams *et al.* 2001). As tourism can result in persistent psychological stress and increased susceptibility to disease in great apes (Hudson 1992; Hofer and East 1994; Meder 1994), disease transmission risks will be exacerbated by close contacts with infected tourists (Sandbrook and Semple 2006). However, few tourists can be given systematic health checks, therefore, it is with good management that we have an opportunity to minimise risks. Most great ape tourism sites request that tourists self-report any clinical signs of illness and defer their visit, nonetheless tourists manifesting symptoms have been known to visit habituated apes (Ostroff and Kozarsky 1998; Adams and Infield 2003; Sandbrook 2006; Muehlenbein *et al.*, 2008), thereby carrying disease pathogens into the apes' environment.

Disease processes affecting apes, but not originating with tourists, can also affect tourism. A tragic example of this is the devastating impact of Ebola, which killed 95% of known individual gorillas in outbreaks in Gabon and Republic of Congo (Walsh *et al.* 2003; Caillaud *et al.* 2006), including two groups at Lossi that had been habituated for tourism (Bermejo *et al.* 2006). Ebola has also killed

habituated chimpanzees in the Tai National Park (Formenty *et al.* 1999). Ebola is among a number of diseases that are transmitted from apes to humans, although most are not as deadly. This reinforces, however, the point that disease can move in both directions and tourists visiting great apes have a vested interest in following disease-prevention protocols.

Health experts can provide advice on disease patterns and outbreaks, to inform ape tourism management. For example, investigation into a recent case of Marburg virus in Uganda (a haemorrhagic disease similar to Ebola, thought to be carried by bats and highly lethal to great apes) concluded that a bat cave was the likely source of infection of a Dutch tourist (Timen *et al.* 2009). Seven days later she viewed mountain gorillas from a distance of a few metres. This gives cause for concern about any ape tours that include bat caves—cave visits should be scheduled *after* viewing great apes or avoided altogether in countries with a history of Marburg, due to the public health risk (Timen *et al.* 2009).

Disease risks underpin many of the rules and regulations controlling great ape tourism and indeed are considered one of the three greatest threats to the long-term survival of great apes (along with poaching and habitat loss). Attention to disease control is critical to any tourism programme and, as a key companion to this document, the reader is strongly encouraged to read the *IUCN Best Practice Guidelines for Health Monitoring and Disease Control in Great Apes* (Leendertz *et al.* in press).

#### 4.3.4 Critical negative impact—behavioural change

Habituation to humans is known to affect great ape behaviour and be stressful, and can result in displays of aggression towards humans, altered activity budgets and changes in ranging patterns (Grieser Johns 1996; Cipolletta 2003; Williamson and Feistner 2003; Blom *et al.* 2004; Nizeyi 2005; Goldsmith *et al.* 2006; Doran-Sheehy *et al.* 2007; Bertolani and Boesch 2008; Klailova *et al.* 2010). Aberrant behaviour is another potential side effect of stress. Only a handful of studies have assessed behavioural change in the presence of tourists: western gorillas show higher rates of aggression, with dominant males spending significantly less time sleeping and resting (Hodgkinson and Cipolletta 2009), while mountain gorillas display altered activity patterns, including more time spent moving and increased monitoring (Fawcett 2004; Muyambi 2005). Orangutans in Bukit Lawang spend less time foraging, travelling and socialising in the presence of tourists (Dellatore 2007), although these changes could be caused by guides attracting orangutans with food—a practice judged inappropriate in these best practice guidelines. Tourism can also have an



Mountain gorillas, Virunga National Park, DRC. Photo © Russ Mittermeier/CI.

indirect negative impact on social interactions, as habituated apes may have reduced opportunities to interact with unhabituated individuals (Ancrenaz pers. comm.; Williamson pers. obs.).

There is clearly a need to minimise impacts on behaviour, not only for the primary reasons of preserving the health and welfare of the apes, but also because tourists are paying to observe natural behaviour and this should not be influenced by tourism itself. The long-term implications of these impacts are not yet known. The precautionary principle suggests, however, that even in the absence of direct proof of negative behavioural impact we should enhance tourism control and adaptively manage tourism activities to avoid behavioural change. The fact that stress contributes to range alteration will inevitably affect tourism logistics, as has been observed with transboundary mountain gorilla groups, and should be an added incentive to ensure enforcement of rules designed to minimise such impacts.

#### 4.3.5 Critical negative impact—vulnerability to poaching

Once great apes have been habituated for tourism or research they are more vulnerable to approach by humans in general, who may get close before triggering a flight response. This exposes habituated apes to increased risks of capture, injury or death, deliberate or accidental, at the hands of poachers or soldiers. The apes' vulnerability during periods of insecurity was demonstrated by the slaughter of habituated gorillas in Kahuzi-Biega National Park (Yamagiwa 1999) and Virunga National Park (Kalpers *et al.* 2003), including the high profile gorilla 'executions' in 2007 (Williamson and Fawcett 2008). Consequently habituated apes must be monitored every day, and protected by teams conducting law-enforcement patrols. Governments and NGOs must fulfil their responsibility to protect habituated groups and their habitat by implementing well-structured law enforcement and monitoring programmes, although such activities may be compromised during periods of insecurity. The presence of law-enforcement teams not only deters illegal activities, but also enables management and veterinary teams to respond immediately should any illegal activities take place. Commitment to daily monitoring is an essential requirement for any and all habituated apes and must be carried out in perpetuity, as de-habituation may not be achievable.

#### 4.4 Conclusions on tourism impacts

To address the large number of negative impacts of tourism, especially those highlighted above, it is imperative that great ape tourism management and associated rules and regulations are designed with impact mitigation in mind, and that they can withstand the pressure of growing demands for increased revenue and increased development of tourist 'opportunities'. It is also essential that training of tourism field personnel, enforcement of regulations, and dissemination of the content and rationale for these recommendations, are given highest priority by organisations developing and operating great ape tourism. Key audiences are not just the tourists and the staff of the tourism enterprises, but also decision-makers in the protected area authorities and relevant ministries. In addition, services that protect habituated apes from illegal activities and disease must be funded and implemented. This document should provide a useful resource, laying out the key concepts for mitigating negative impacts while at the same time optimising the positive impacts of great ape tourism.

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## Section 5: Guidelines for Best Practice in Great Ape Tourism

At this point in the document, the reader will be aware of the lessons learned through global experience with great ape tourism (Section 3) and the large number of potential impacts of great ape tourism (Section 4). This information should foster an understanding and willingness to accept and implement the guidelines formulated here in Section 5, which represent best practice in the design and management of tourism. These recommendations are based on the guiding principle that great ape tourism must benefit great ape conservation. All potential impacts, both positive and negative, must be understood, evaluated, and considered in the planning and management of tourism initiatives such that positive impacts are exploited and maximised to their highest level, while negative impacts are minimised or, better still, avoided altogether.

## GENERAL GUIDELINES FOR ALL GREAT APE SPECIES

### 5.1 Guiding principles for using tourism as a great ape conservation tool

#### 5.1.1 Tourism is not a panacea for great ape conservation or revenue generation

Tourism can contribute to great ape conservation but will not be viable at all sites. Sites must meet the criteria listed in Sections 5.2 and 5.3, or they are not appropriate for great ape tourism. Sites that fail to generate the revenue anticipated may suffer a backlash against the conservation effort, so care should be taken to avoid raising false expectations among politicians, managers and local communities.

#### 5.1.2 Tourism can enhance long-term support for conservation

Great ape tourism may enhance the financial, aesthetic and cultural value of apes and their habitats as perceived by local communities, policy-makers and political leaders in the great ape range states, thereby promoting long-term support for conservation of apes and their habitats (Harcourt 2001).

#### 5.1.3 Conservation must be the primary goal of great ape tourism

Conservation must be given priority over economic and political concerns at all great ape tourism sites. Any site that undertakes great ape tourism must place continued and enhanced emphasis on protection, law enforcement, environmental awareness-raising and other conservation activities. The effort and resources required to develop and operate tourism should not divert resources and attention away from the conservation focus.

#### 5.1.4 Conservation benefits must significantly outweigh risks

Great ape tourism development proposals should undergo full feasibility and impact assessments, and should not be implemented unless the benefits anticipated outweigh the potential risks. Tourism and its associated impact mitigation measures must significantly improve the conservation outcome compared to a no-tourism scenario. Only programmes that will enhance conservation efforts and improve protection of the ape population should go ahead. While this is a general guideline for all great apes, it is crucial for Critically Endangered and small populations due to their precarious conservation status.

#### 5.1.5 Conservation investment and action must be assured in perpetuity

Anti-poaching activities must be launched in parallel with habituation efforts, especially in Central Africa where poaching of great apes for food is at its highest levels. Once habituated, great apes and their home ranges must be protected and monitored daily by law enforcement teams with on-call veterinary expertise. These activities are necessary not only for conservation, but also to support tourism development and management, and must be continued in perpetuity. Financial contingency plans for periods of low tourism should be in place before tourism is developed.



Gorilla model at headquarters of Volcanoes National Park, Rwanda. Photo © Martha Robbins/MPI-EVAN.

### 5.1.6 Great ape tourism must be based on sound objective science

Great ape tourism can be controversial, and not all conservationists agree that it is an acceptable activity. To defend great ape tourism as a sustainable component of a conservation strategy, conservation must take priority over economic and political interests (Section 5.1.3), decisions affecting tourism must be results-led and based on sound and objective science, and regulations governing visits must be scientifically-formulated and rigorously enforced (Butynski and Kalina 1998).

### 5.1.7 Benefits and profit for local communities should be maximised

For great ape tourism to properly meet the criteria for *sustainable* tourism, it must maximise both direct and indirect benefits to adjacent communities that bear the costs of conservation, including opportunity costs (Grosspietsch 2007). While conservation must take priority over other interests, tourism should strive to contribute to poverty reduction wherever possible and, at the very least, should do no harm to local communities (SGLCP 2009). Direct benefits include local recruitment of tourism staff and sharing a percentage of tourism revenue with adjacent communities. Indirect benefits include marketing and support for services that earn additional income for communities (such as tourism infrastructure which is partially or wholly community-owned and operated). Care should be taken to ensure that benefits are not focused on a small section of a community but are accessible to the majority. Full consultations should be conducted to ensure that benefits are provided in a manner both recognised and valued by local residents. Guidance on involving communities in tourism activities is available (e.g., Gutierrez *et al.* 2005; Ancrenaz *et al.* 2007; Rajaratnam *et al.* 2008), as are lessons learned through the development and implementation of revenue-sharing and other community programmes centred on great ape tourism (Archabald and Naughton-Treves 2001; Adams and Infield 2003; Blomley *et al.* 2010).

### 5.1.8 Profit to private sector partners must not be a driving force

In the development of any great ape tourism activity, conservation principles must take precedence over profit generation for private sector stakeholders. While a successful tourism programme will provide opportunities for income to accrue at various levels, the primary aim of developing and operating this revenue-generating mechanism is to support the cost of conservation efforts. The needs of communities living in or adjacent to ape habitats must also be addressed; however, if the priorities become inverted, with profit to the private sector becoming the driving force behind great ape tourism, then stakeholders must analyse how the priorities could have gone astray and how to rebalance them.

### 5.1.9 Comprehensive understanding of impacts must guide tourism development

Great ape tourism has a number of advantages and disadvantages, all of which must be clearly understood by everyone involved in the planning and implementation. These issues should be kept in mind at all stages of the design, development and management of great ape tourism. The guidelines in this document are founded on the principle of optimising impacts for conservation. Any site that cannot sustain impact-optimising activities, financially or institutionally, should not initiate a great ape tourism programme.

## 5.2 Assessment phase

All proposed great ape tourism activities must be evaluated as to their suitability, feasibility and impacts. Only if a site is judged appropriate at this stage should planning go ahead.

### 5.2.1 Stakeholder awareness of costs and benefits

Prior to developing a tourism site, all stakeholders in the decision-making and design phases should be guided through a discussion that allows for consideration of full spectrum of advantages and disadvantages to make sure that their decisions are well informed. This will help to ensure that if tourism development goes ahead, there is support for, and commitment to, the time and funding required to implement activities, and that controls are in place to maximise benefits and mitigate negative impacts, as covered in Sections 3 and 4.

### 5.2.2 Criteria for great ape tourism sites

The following criteria must be met for great ape tourism to be considered as a conservation strategy:

- a. Presence of a sufficient number of apes<sup>6</sup>, with ranging patterns that will allow for reasonable year-round or predictable seasonal viewing. In the absence of site-specific research to inform this criterion, surveys should be carried out to assess the density and distribution of apes present.<sup>7</sup>
- b. Funding already committed to cover tourism development along with the required impact-optimising activities and long-term obligations (including the costs of great ape health monitoring, treatment of disease, and employee health programmes).
- c. Both site and programme conform to national legal and regulatory requirements (e.g., EIA, zoning) for all activities and associated infrastructure.
- d. Tourism market for this ape taxon, country, location and so on, is sufficient to support the recurrent costs of conservation activities and tourism operations, as analysed through a business plan incorporating financial models of income and expenditure.
- e. Preliminary analysis suggests that the addition of this site fits within the tourism carrying capacity for the particular taxon or region.
- f. Physical habitat (forest/vegetation structure, topography, waterways) allow for low-impact and safe access to view apes, either on foot or from boats, as appropriate to the site.
- g. Research suggests that habituation to the appropriate viewing distance will be possible (not less than 7–10 metres, with or without masks respectively).
- h. Awareness of key conservation issues or threats that pose a risk to habituated apes and that tourism could help to address (e.g., poaching, human-great ape conflict).
- i. Ability of the site's management to absorb the added responsibility of operating and maintaining a tourism initiative (additional staffing, infrastructure, law enforcement, and control measures to optimise booking systems and prevent unauthorised tourism).
- j. Credible indications that effective management will be put in place to maintain conservation priorities over the long term, to address and mitigate all recognised negative impacts, and that acceptable education and economic benefits will be delivered to local communities.
- k. Presence of, or ability to develop through capacity-building programmes, sufficient human resources in terms of skilled guides, wardens and impact-monitoring staff.
- l. Understanding of whether and how tourism could affect existing levels of human-great ape conflict, either positively or negatively.<sup>8</sup>
- m. Awareness of disease in both humans and livestock that might be transmitted to apes through the activities of staff and/or tourists.<sup>9</sup>
- n. Knowledge of socioeconomic and political context that might either support or pose a risk to great ape tourism (e.g., Plumptre *et al.* 2004).
- o. Ability to provide appropriate infrastructure required for tourists to access and stay at or near the site, including road, river or air transport, hotels, lodges and campgrounds.

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6 A 'sufficient' number of apes would be determined by factors specific to the taxon and site under review.

7 See *Best Practice Guidelines for Surveys and Monitoring of Great Ape Populations* (Kühl *et al.* 2008).

8 See *Best Practice Guidelines for the Prevention and Mitigation of Conflict Between Humans and Great Apes*, (Hockings and Humle 2009).

9 See *Best Practice Guidelines for Health Monitoring and Disease Control* (Leendertz *et al.* in press).



- p. Ability to control the development of tourism-related infrastructure in the area through zoning or other regulation, to prevent over-development in or adjacent to great ape habitat.
- q. Willingness of national authorities and institutions to develop and improve services that would support and stimulate tourism programmes, including immigration, security, tour operator networks, marketing and tourist information, and infrastructure (e.g., airports, domestic flights, roads and hotels).
- r. Knowledge of existing or potential ape re-introduction programmes, and awareness of how these would affect tourism development<sup>10</sup>. Note that we endorse the recommendation of other expert groups that tourism programmes should not be developed with ex-captive apes because of the potential dangers to both apes and tourists.

McNeely (1992) included 'guaranteed wildlife viewing' as a general criterion for nature tourism; however, in this document we recommend that great ape tourism sites do *not* offer viewing guarantees due to the difficulty of observing wild apes and the possibility of increased behavioural impact and disease risks if distance and other protective measures are violated to satisfy a guarantee.

### 5.2.3 Feasibility studies and impact analysis of potential sites

The optimum method of deciding whether ape tourism is an acceptable and appropriate conservation strategy, and meets all criteria in Section 5.2.2, is to subject the proposed site and programme to a full feasibility study and impact (cost/benefit) analysis. Great apes should not be habituated or exposed to the risks associated with tourism at a site that has been judged unviable, unsustainable, or inappropriate for any reason. A feasibility and impact study should follow EIA models, examining biological, physical, social, political, behavioural, disease, economic, market, infrastructure, policy and institutional factors relevant to the proposed site and tourism activities (Section 3.2.12). Impact assessments must take into account the results of previous impact studies and ongoing research, and require stakeholder commitment to abide by the conclusions of the study, even if the programme or site is ultimately found to be inappropriate or unviable for great ape tourism. Funding for this type of analysis should be built into programme design budgets.

### 5.2.4 Further assessments required for decisions on tourism expansion

Once a great ape tourism site has been established and is operating successfully, there will be a growing awareness or perception—either real or inflated—of the financial benefits accruing to institutions, businesses and individuals. As a result, ape tourism sites, even those not at optimum or maximum occupancy, will eventually come under pressure from various sources to expand the number of tourists allowed per visit or visits per day. The demand may be for an increase in the maximum number of people allowed to view already habituated groups, or it may request habituation of additional groups in the same area, or in new areas, or in some cases may involve allowing tourists to view groups studied by researchers.

Any decisions to expand operations should be made with caution, as many of the negative impacts on the apes increase with every additional visitor (Homsy 1999; Macfie 2005). The option of exposing additional apes to habituation and tourism should be subject to a rigorous impact and feasibility analysis, similar to the feasibility study required for a new site. The intention of such analyses is to reduce the impacts on the apes and habitat, to suggest mitigation measures, and to guide choice of group if a decision is made to proceed. The motivation for expansion should be analysed to judge whether alternative actions, such as enhanced booking systems, might address stakeholder requirements without increasing tourist numbers or the number of apes visited. Additionally, the tourism programme at its current level should be evaluated for signs of weakness, for example, suboptimal tourism management and control. It would be unwise to expand and subject additional apes to the risks of poor management before addressing the current system by improving booking

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<sup>10</sup> See *Best Practice Guidelines for the Re-introduction of Great Apes* (Beck et al. 2007).

and tourism control measures. A methodology for this type of analysis has been developed to guide tourism and research habituation decisions for mountain gorillas in the Virunga/Bwindi landscape (Macfie 2007a). The Habituation Impact Assessment (HIA) includes processes and decision trees that are relevant, or could be adapted, to other sites and great ape taxa.

### 5.3 Planning phase

Once a site is judged appropriate for great ape tourism, the following recommendations will ensure best practice in programme design.

#### 5.3.1 Impact optimisation as a core component of programme design

Beyond building awareness of tourism impacts, as discussed above, it is essential that activities and controls to maximise the conservation benefits of tourism and minimise negative impacts are built into the programme from the outset. A cost-benefit analysis must consider the financial implications of operating all the required impact-optimising activities proposed in this document (such as enhanced law-enforcement monitoring, disease surveillance and treatment, and employee health programmes). Impact optimisation must be planned and funded, to set the stage such that a tourism programme can be viable and rooted in preservation, not exploitation, of the apes.

#### 5.3.2 Habituation Impact Assessment (HIA)

As a component of an impact analysis and feasibility study, an analysis of factors specifically associated with habituation of a particular group of apes should be conducted. An Habituation Impact Assessment should analyse the potential impacts of habituating a group of apes, suggest possible alternatives, recommend specific sites for tourism development, and provide guidance on the impact-mitigation measures to put in place alongside tourism activities (Macfie 2007a).

#### 5.3.3 Criteria for choice of site or group

Following a feasibility study and/or an HIA, if great ape habituation and tourism development are to proceed, it is vital that appropriate choices are made concerning which individuals, groups or communities of great apes will be viewed by tourists. The most important criteria to consider in choosing a group or community are the following:

- a. For African apes – size and composition of group or community:
  - **Minimum size of group or community:** For tourism operations where visitors approach groups of habituated chimpanzees, bonobos or gorillas to distances of 7–10 metres (with or without masks respectively), the total number of people



Chimpanzee, Kibale National Park, Uganda. Photo © Alain Houle.

including guides and trackers, should not be greater than the number of apes >1 year old in the group. During their vulnerable first year, infant apes are not counted in group-size criteria. For a tourism programme designed for 4 tourists + 2 staff (see Section 5.5.6), a target group of apes should comprise at least 6 individuals aged >1 year.

- **Maximum size of group or community:** At sites with multiple ape groups or communities to choose between, the largest groups and those with high growth rates should not be exposed to tourism. These groups represent a larger percentage of the population and therefore present a greater risk if a serious or fatal disease were introduced. At sites with few groups to choose from, decisions must be based on factors related to conservation impact.
- **Composition of group or community:** 'Ideal' group composition will be determined by species-specific behavioural and demographic factors, such as typical immigration/emigration patterns, and intra-group aggression and cohesiveness. A group that appears likely to disintegrate should be ruled out as a candidate for habituation. However, once a group has been habituated, it (and any splinter groups) must be protected in perpetuity, even if tourism is discontinued.

**b. For semi-solitary Asian great apes – behavioural and demographic criteria:**

- **Group size:** Orangutan tourism operations are generally based on viewing individuals in trees from the ground or from boats, therefore group size guidelines do not apply.
- **Social structure:** Orangutan social structure should be considered when choosing sites: Orangutan individuals are members of loosely-organised communities; females and their dependent offspring are members of 'kin clusters' with overlapping home ranges (Singleton *et al.* 2009).
- **Gender and age:** Adult male orangutans travel long distances and may leave their core range for months at a time, during which they will be 'lost' to tourism. Adult females have smaller home ranges, are therefore easier to find and, make more appropriate candidates for habituation. Stress, however, may affect breeding success and the decision to habituate breeding females should be made with caution. Females with young infants who show distress should not be followed.
- **Individual sensitivity to habituation and viewing activities:** Orangutans show strong individual differences in their reactions to being followed by humans. Some habituate relatively easily while others do not. Individuals showing obvious signs of stress (hiding behaviour, fleeing, kiss-squeaking) after 10 days of regular contact should not be pursued further.

**c. Percent of population exposed to tourism:** Expert advice will dictate the maximum percent of a given population to be subject to the risks of tourism; some groups or individuals should be left undisturbed. Some stakeholders have proposed an absolute maximum of 50% groups and individuals in small populations (e.g., Bwindi), where the protective effects of tourism may balance the risks. However, 50% of a large population could not be supported by the tourism market. Given wide variations in great ape population size, precise recommendations will be site-specific.

**d. Trends in group size:** A group that is growing in size is likely to be a better choice for tourism than one that is shrinking for any reason. The financial implications of halting tourism if an habituated group becomes too small include not only the costs of tourism development but also the costs of protecting the group indefinitely. The continuation of tourism might be justified if the associated law-enforcement and monitoring activities could reverse a downward trend.

- e. **Home-range location and ranging patterns:** The location and size of an individual's, group's or community's home range is critical to the feasibility of tourism for the reasons given below:
- **Accessibility:** Depending on how the tourism programme will operate (daily return hike or boat trip vs. a mobile camping/tracking experience), the ability to reach and observe a target group within the duration of a standard visit will affect the choice of group.
  - **Access to and from tourism infrastructure:** Factors such as proximity to existing or planned tourism infrastructure (trails, booking offices, visitor centre, accommodation) should enter into group selection.
  - **Seasonal and annual or supra-annual reliability:** Seasonal and annual variations in ranging patterns will affect how tourism is managed, such that departure points and accommodation requirements may vary through the year.
  - **Risks of human-great ape conflict:** Habituating apes that range into community areas would exacerbate existing conflicts with humans, and these would be heightened if income were generated by crop-raiding apes. Therefore groups known to have such tendencies should not be habituated.
  - **Ranging in areas subject to illegal activities:** If a group ranges into an area that experiences high levels of illegal activities, the enhanced monitoring and law enforcement that come with tourism may diminish the risks of poaching or injury. However, if hunting is a known threat, habituation to humans will put the apes at greater risk; in such cases, habituation should proceed only if effective protection can be assured.
  - **Beneficiaries:** Group choice may be influenced by factors relating to who will benefit—from local employment or provision of tourism services, to revenue-sharing mechanisms. The distribution of benefits over a wide area, or to a new location, should be considered.
  - **Zoning and other policy issues:** Policy issues may dictate or prevent tourism in certain areas, thereby ruling out groups that range there.
  - **International boundaries:** Unless regional agreements are in place, apes that range across international or other significant geo-political boundaries should not be chosen for tourism, due to the risks of 'losing' them, or other administrative complications.
- f. **Home-range overlap and ape density:** A group or community whose range has less overlap with adjacent groups, or is in an area of relatively low density, would be at lower risk from some negative impacts of tourism, such as the introduction of infectious disease.

*N.B.* When viewing from hides or platforms (western lowland gorillas) or from boats or vehicles (orangutans), many of the above factors are not relevant.

#### 5.3.4 Developing and refining habituation protocols

Habituation is defined as the acceptance by wild animals of a human observer as a neutral element in their environment. The process of habituation depends on the species under consideration, its social organisation, density, previous experience with humans, and structure of the habitat (Williamson and Feistner 2003). While habituation of orangutans typically takes from a few weeks to a several months, habituation of African apes generally requires 2 to 5 years.

Most great ape taxa have been successfully habituated for research or tourism, resulting in a significant accumulation of knowledge and experience. Those leading new habituation efforts should familiarise themselves with lessons learned, and tailor their techniques to the target population or site. Habituation protocols should address technical and logistical issues to enhance habituation while minimising impacts on behaviour, health and habitat. Protocols should provide advice on the size, composition and conduct of habituation teams, and the team's approach should be guided

by knowledge of the apes' feeding ecology and ranging patterns. Proximity, posture and behaviour of habituators should be modified in response to alarm and display behaviours. In general the preferred approach is to aim for a distance at which the apes are aware of the team's presence without pushing them into flight mode. Any flight or increased frequency of alarm or aggressive behaviours should cause the team to retreat, and maintain a greater distance until these behaviours reduce in frequency. This distance should be maintained for a pre-determined length of time each day, with incremental attempts on successive days, weeks and months to gradually reduce the distance without inducing a flight response or triggering aggression and alarm behaviours. As best practice is designed to minimise behavioural impacts and disease risks, habituation should never proceed to distances closer than the minimum distance approved for tourism (see Section 5.5.13), and physical contact should never be instigated by an habituator.

How a group is approached is one of the most important elements of successful habituation. Certain behaviours should be avoided, such as making loud noises, sudden gestures or surreptitious movements. Typical reactions to observer presence include flight, avoidance, curiosity, display and ignore, and occasionally attack. The key to habituation is to maximise regular positive interactions, when the animals' first reaction is neither fear nor alarm. Systematic records are necessary to assess progress towards habituation and should include information on duration of contact, distance, reactions and activity budgets (Williamson and Feistner 2003; Ancrenaz pers. comm.).

#### 5.3.5 Tourism development plans for sites judged appropriate and feasible

Once a site has passed through all the assessments detailed above and been judged suitable for great ape tourism, a full development plan should be prepared, documenting the actions needed to implement tourism. Plans should summarise all site and impact assessment recommendations, addressing each to ensure compliance, and address the development and implementation guidelines detailed on page 38 (see Sections 5.4 and 5.5).



Chimpanzee, Nyungwe National Park, Rwanda. Photo © Julian Easton.

## Contents of a Typical Tourism Development Plan:

- a. Objectives
- b. Guiding principles and policies
- c. Site assessment and impact study results
- d. Site description
- e. Habituation protocols
- f. Ape tourism limits
  - Number of groups/individuals
  - Percentage of population
- g. Site access
  - Road and trail access
  - Boat and air access if feasible
- h. Infrastructure plans
  - Local zoning plans
  - Accommodation plans
    - ⊙ Accommodation policies
    - ⊙ Lodge/hotel/tented camps
    - ⊙ Huts, chalets, campsites
  - Trails
  - Offices
  - Visitor education centre
  - Gates and ranger posts
- i. Staffing requirements
  - Management staff
    - ⊙ Wardens
    - ⊙ Finance staff
    - ⊙ Booking staff
  - Field staff
    - ⊙ Trackers
    - ⊙ Tourist guides
    - ⊙ Hospitality staff
    - ⊙ Visitor information staff
  - Recruitment plans
  - Training plans
  - Policies on external staff (e.g., external guides)
- j. Equipment
  - Communications
  - Field equipment
  - First Aid
- k. Ape monitoring and health protocols
- l. Booking systems and pricing structure
- m. Guides and guide services
- n. Visitor information
- o. Publicity, marketing, etc.
- p. Transport, emergencies
- q. Visitor regulations
- r. Veterinary cover
- s. Diversification of tourist activities
- t. Community conservation programme
  - Revenue sharing to benefit local communities
  - Other benefit-sharing programmes
  - Awareness and outreach
  - Community Impact monitoring plan
- u. Regional cooperation (if applicable)
- v. Impact mitigation plan
- w. Finances:
  - Budget and funding plan for tourism development costs
  - Operations budget
  - Tourism income models
  - Community income models
  - Income models for other stakeholders
- x. Emergency / Contingency Plans:
  - Security plan
  - Disease outbreak response plan
  - Funding plan for tourism closure
  - Human-ape conflict mitigation

Tourist lodge, Bwindi Impenetrable National Park, Uganda.  
Photo © Liz Macfie.



## 5.4 Development phase

### *Guidelines during Habituation:*

#### 5.4.1 No provisioning

In the past, provisioning with food was used to kick-start habituation at a few chimpanzee research sites. Feeding is still practiced to draw orangutans to tourist accessible areas with the approval of conservation authorities and, although not authorised, is occasionally used to entice orangutans to approach tourists. Lessons learned from these sites suggest that this practice heightens aggression both between apes and towards observers, and such close contact or injury increases the risks of disease transmission (Wallis and Lee 1999). Disease risks also increase with provisioning as food items can act as vehicles ('fomites') for infectious agents to enter the ape population. In addition, provisioning facilitates parasite contamination, if apes are repeatedly fed in the same areas. Therefore, provisioning is no longer practiced at great ape research sites and should not be used in great ape tourism. Tourism sites where feeding has occurred in the past should halt this activity and step up enforcement, together with risk-awareness training for any staff, tourist guides and tourists who think that feeding apes is acceptable.

#### 5.4.2 Adherence to habituation protocols

As described in Section 5.3.4, habituation of great apes should follow protocols founded on experience. This will be an iterative learning process—lessons learned should be incorporated into protocol revisions and made available to other projects.

#### 5.4.3 Habituation target distances

The habituation target distance for apes that will be viewed by tourists on foot should be 10 metres. If observers will be provided with N95 masks, then the target distance may be reduced to 7 metres.

#### 5.4.4 Habituation to observers wearing surgical masks

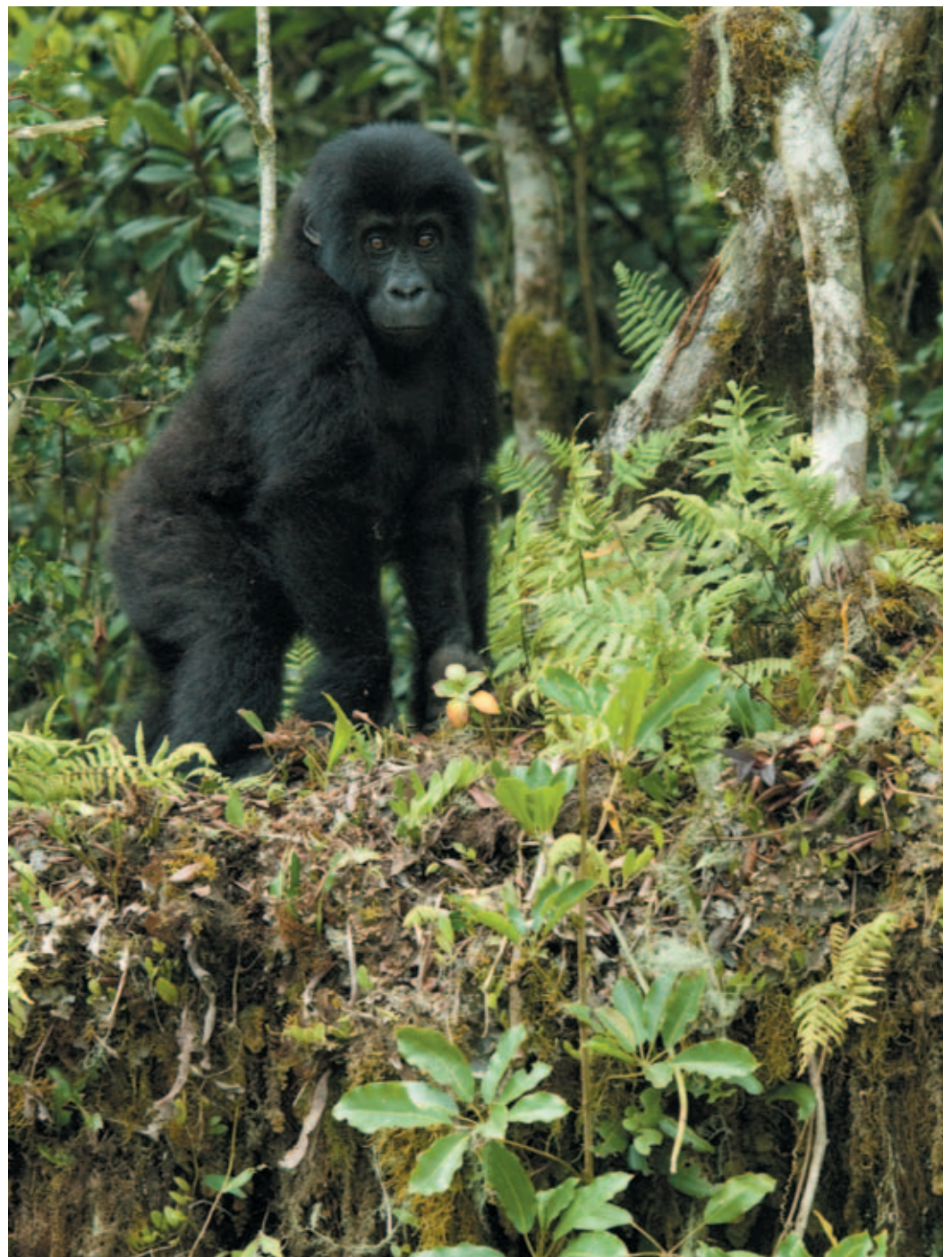
Since we recommend as best practice that observers (tourists, staff, researchers) who are likely to approach apes to less than 10 metres should be wearing N95 surgical respirator masks, habituation teams should do the same to allow apes to become accustomed to the masks. In addition, habituators themselves pose disease risks if the apes lack prior exposure to human pathogens, so wearing masks would be an added precaution.



Chimpanzee, Nouabalé-Ndoki National Park, Republic of Congo. Photo © Ian Nichols.

#### 5.4.5 Avoidance of overhabituation

Excessive habituation is indicated by unacceptably close proximity, physical contact and aggression towards humans, with increased risks of injury, disease and even death. Overhabituation can result in apes approaching tourists, initiating contact and in some cases attempting to obtain food, all of which can be dangerous for both humans and apes. Mountain gorilla and orangutan tourists often report being approached or touched by apes, and staff must try to prevent these interactions. Extreme loss of fear of humans can lead to apes ranging and even nesting in community areas, and to increased crop-raiding. In a few cases, local people have been physically attacked by wild great apes (Hockings and Humle 2009), and tourists have been attacked by rehabilitant orangutans (Singleton and Aprianto 2001; Dellatore 2007). In summary, overhabituation must be prevented at all costs, feeding should not be allowed, and habituation efforts should never go beyond predetermined levels specified in the tourism development plan. Any attempts by apes to approach closer than the minimum distance or to touch human observers should be discouraged with means appropriate to the context, and the habituation team must move away to maintain their distance.



Young eastern lowland gorilla, Kahuzi-Biega National Park, DRC. Photo © John Martin/CI.



## *Impact Mitigation:*

### 5.4.6 Health monitoring and veterinary response

All great ape tourism sites should participate in, and benefit from, long-term health monitoring programmes. A wealth of reference material on conservation medicine and treatment protocols is available (e.g., Cranfield, Gaffikin and Cameron 2001; Deem, Karesh and Weisman 2001; Krief *et al.* 2005; Cranfield 2008) and is summarised in Leendertz *et al.* (in press).

Ape tourism operations should include veterinary response teams, either on-site or available to respond to emergencies. These teams should have clearly defined roles and responsibilities, including diagnostic and treatment protocols. It is important to establish guidelines on the degree of intervention appropriate for different situations: to treat diseases and injuries that are proven or suspected to be human-caused, but perhaps not those considered to be natural (unless there is a risk to the population, or when treatment is judged appropriate for humane reasons, Decision Tree Writing Group 2006).

### 5.4.7 Employee health programmes

Great ape tourism projects should provide health screening and treatment for all field staff, especially staff that are likely to come into close proximity with habituated apes. Provision of health care helps to address a basic need of local staff, while at the same time enabling screening, prevention and treatment of common diseases that pose a risk to great apes. The Mountain Gorilla Veterinary Programme (MGVP) operates employee health programmes in three countries and serves as a resource for others wishing to develop similar services (Nutter and Whittier 2001; MGVP 2002; Ali *et al.* 2004; Employee Health Group 2004). When designing such programmes, it is essential to assess staff living conditions and to consider extending the programme to cover immediate household members, although this would increase costs. Common components include vaccination against preventable diseases, diagnostic tests, routine chest x-rays or tuberculosis tests, first aid provision and training, and health education.

### 5.4.8 Community health programmes

Health outreach to monitor disease and improve hygiene in local villages is an important adjunct at great ape projects. Field staff and tourists often spend time in community areas before they enter ape habitat (Guerrera *et al.* 2003). Therefore, devoting attention to community health will provide additional protection to the apes, while at the same time providing a needed service to neighbouring communities.

### 5.4.9 Community outreach and involvement in great ape tourism activities

In locations where apes live in close proximity to human communities, it is important to find ways to involve local people in tourism activities. This will be a means of gaining their support, which is key to the long-term success of tourism (Ancrenaz *et al.* 2007; Rajaratnam *et al.* 2008).

#### **Environmental Education:**

The success of ape tourism will be greatly enhanced by well-designed environmental education and awareness activities, both to promote understanding and acceptance of the conservation programme and its associated tourism, as well as to stimulate the development of value-added community income generation linked to tourism. The design of education programmes will not be detailed here, as there is a wealth of reference material available. Suffice it to say that education should not stop with simply relaying facts, but go further, to explore the complexities of conservation and to explain the value of wildlife and their habitats. Awareness programmes should be developed by professional educators in partnership with community members to identify appropriate campaign messages (Wallis and Lonsdorf 2010), and should themselves undergo cost-benefit assessment as they must not compromise great ape conservation through excessive visitation (Singleton and Aprianto 2001).

### Revenue Sharing:

One excellent means of stimulating community support for conservation is via a system for sharing a proportion of tourism revenue with the adjacent communities that carry most of the burden of living close to ape habitat. Revenue sharing encourages sustainable conservation by contributing to the improvement of the living conditions of neighbouring communities. This can be achieved through:

- **Conservation impacts:** to reduce illegal activities; to ensure sustainable conservation; and to increase community responsibility for conservation
- **Livelihoods impacts:** to improve livelihoods by supporting projects that contribute to poverty alleviation; to compensate for loss of access to ape habitat and/or crop damage; to provide alternatives to resources in ape habitat; and to encourage community-based tourism
- **Relationship impacts** (between tourism project and local population): to build trust; to increase ownership; to reduce conflicts; to increase participation; and to empower communities

The positive effects of revenue sharing can be increased by ensuring the following:

- Programme identity—funds must be seen to be linked to continued conservation of ape habitat.
- Partnerships with local government—the key player in local development and poverty alleviation.
- Community participation in the design, implementation and monitoring of revenue sharing.
- Revenues shared complement and supplement, rather than substitute for, other funding.
- Transparency and accountability.

Adhering to these guiding principles will lead to specific programme components, including the amounts to be shared (typically a percentage of gross revenue) and the beneficiary target area (typically the communities that have an impact on ape habitat and/or areas in which crop-raiding or other human-wildlife conflicts occur). Above all, revenue-sharing programmes should provide benefits to groups (entire communities if possible) rather than individuals, and should target sectors representing the 'poorest of the poor' and other disadvantaged groups, as they are priorities for poverty alleviation, as well as being the most likely to exploit natural resources in ape habitat, whether legally or illegally.

### Supporting Community-Owned and Operated Tourist Services and Products:

The feasibility of supporting locally-owned companies or associations that will become involved with, or take charge of, great ape tourism or associated services must be assessed and given priority. Indeed, if local communities bear the costs of living close to protected areas and wildlife, it seems logical to give them a sense of ownership when economic incentives can ensue from great ape tourism. Community involvement might be in the provision of guiding services, transport, accommodation and food, or the sale of local products to tourists. Examples of successful community-owned enterprises include *Red Ape Encounters*, a company which offers orangutan viewing in the Kinabatangan (Rajaratnam *et al.* 2008), and the Nkuringo Conservation and Development Foundation, which co-owns an area of mountain gorilla habitat at the BINP boundary in Uganda on which a community-owned luxury tourist lodge is co-managed with a private-sector partner. Lessons learned underscore that care must be taken to foster good relations with private sector operators to avoid the perception of a monopoly beneficiary. While a protected area authority may already view the community as a priority, it must also promote awareness of this principle among the private sector, which might otherwise exercise political or financial clout that could jeopardise the community's benefits (Kazooba 2008; Tentena 2010).

### Other Community Conservation and Benefit-Sharing Programmes:

A number of other community programmes can be mutually beneficial to great ape tourism. As conservation and poverty alleviation can be complementary goals, a comprehensive programme that involves and benefits adjacent communities will have a greater chance of success. This may include targeted local recruitment, participation in business enterprises linked to tourism, agricultural extension, micro-credit schemes, and controlled access to forest resources (if local regulations allow).

### A Conservation Basis for All Community-Development Programmes:

As with all community-development programmes linked to conservation, managers should aim to maximise benefits to neighbouring communities without encouraging immigration, which would exacerbate development issues and have negative consequences for conservation.

### *Management Systems:*

#### 5.4.10 Tourism booking systems

Great ape tourism booking systems should adhere to the following principles to maximise benefits to conservation and to stakeholders:

- **Robust and foolproof:** As best practice in great ape tourism requires strict application of rules and regulations, booking systems must be robust enough to prevent over-booking, which could lead to conflict at departure points and pressure on staff to break the rules. Systems for bookings held with an initial deposit until a deadline for full payment, or loss of deposit if not confirmed, should be clearly spelled out so that all visitors, whether booking directly or through a tourism agency, can access a fair and equitable system for obtaining permits.
- **Internet-based bookings:** Internet-based systems will foster improved bookings and occupancy rates as long as they are professionally designed and managed, and allow tourists a safe and secure method to reserve and pay for permits. Small projects, or those just entering the market, may not have the capacity to maintain an electronic booking system, but as their operations grow there will be advantages to moving away from traditional means (post, telephone, radio) towards an electronic system that prevents over-booking.
- **Tourist diversity:** Booking systems should be developed to accommodate the spectrum of tourists, from high-end clients booking through tour operators who handle permits, accommodation, transport and guiding, to low-budget tourists organising their own logistics. Low-budget tourism tends to benefit local enterprises and to be more reliable during times of insecurity or other market depressors, whereas high-end tourism expenditures are often higher, but accrue at national/international levels rather than locally. In addition, local citizens should be encouraged to experience their own heritage through a favourable pricing structure.
- **Local and national tourism providers:** While there are often expectations that great ape tourism will make everyone rich, these are unlikely to be fulfilled. Tourism businesses with strong regional or international linkages have an unfair advantage in the tourism market. Therefore booking systems should allow smaller operators to acquire a share of permits if they wish to tap into the market for linked services, such as accommodation, transport and transfers.
- **Informative:** Communications with those wishing to book ape tourism permits must clearly explain the rationale behind rules and regulations, especially those that restrict bookings such as limits on visitor numbers and the minimum visitor age of 15 years.
- **Seasonality:** Programme design should include evaluation of seasonal marketing or low-season rates (e.g., Nishida and Mwinuka 2005) to alleviate pressure during high seasons that might lead to violation of tourism rules. However, it is also important to consider that low seasons can allow for rest or reduced-exposure of habituated apes to the stressors and risks of tourism.

- **Stand-by systems:** At sites with multiple groups of apes available for tourism, booking systems that allow permits for one group to be held back as ‘stand-by’ only (not booked in advance) can resolve the problem of a group being unavailable on a particular day (having ranged too far or a veterinary intervention required), or accidental overbooking.

#### 5.4.11 Pricing structures

Appropriate pricing is vital to maximising revenue and should follow the guiding principle that conservation is the primary goal of great ape tourism. When establishing a pricing structure, it is important to consider the following:

- **Unique experience:** Fees charged for great ape tourism must reflect the exclusive nature of ape viewing and should not be under-valued. Market surveys show that people are willing to pay large fees for this privilege (e.g., \$500 to track mountain gorillas, Bush and Fawcett 2008).
- **Conservation impact:** The overall tourism cost-benefit ratio is greatest when small numbers of tourists pay high prices. Low prices could lead to excessive visitor demand that would ultimately jeopardise conservation objectives.
- **Type of tourism:** Fees should also reflect the nature of tourism on offer (tracking with essentially guaranteed viewing at close proximity vs. observation at a bai vs. forest walk with a chance to see apes vs. river excursion). In addition, sites or countries trying to recover from a tourism slump could consider a temporary reduction in charges.
- **Tiered pricing structures:** Pricing should provide incentives to local visitors, as well as citizens and residents of range states. These visitors will improve occupancy rates, especially in low seasons or tourism market slumps, and will enhance local and national awareness of ape conservation issues.
- **Pricing structures guided by occupancy rates:** As an ape tourism site grows in popularity, it may become fully booked at certain times of year. This could result in pressure from tourists, tour operators, and even conservation authorities and government ministries, to increase visitor numbers, either by allowing more tourists per group or per day, or through additional habituation efforts. However, the first course of action should be to raise the permit price so that additional conservation funding is sourced without increasing the risks caused by expanding tourism.
- **Market studies and visitor surveys:** It is important to price activities appropriately, particularly at new sites, and decisions should be informed by market surveys targeting sectors of the tourist market that a site hopes to attract. As operations grow, visitor surveys and additional evaluations should guide pricing reviews.

#### 5.4.12 Marketing efforts

Once a tourism site has been established and habituation (if appropriate) is underway, the process of marketing should begin.

- **Identify key players in the tourism market:** Market surveys will help to identify stakeholders and means of attracting appropriate sectors of the tourism market.
- **Prepare and distribute marketing materials stressing conservation principles:** Materials designed to attract tour operators and tourists to a site and to inform them of what to expect must emphasise that conservation is the priority goal of tourism. This will sensitise tourists by demonstrating that activities will be managed to minimise risks to the apes, and will better prepare tour operators to inform their clients of the rules and regulations intended to protect the apes from tourism impacts.
- **Marketing must moderate tourist expectations:** Many people consider great ape tourism to be a once-in-a-lifetime opportunity. Marketing must generate realistic expectations so that tourists understand and appreciate the typical tourist experience in a given site. The pressure to guarantee observations of wild apes should be

resisted, as it raises expectations significantly, and it is impossible to guarantee a 100% chance of observing wild animals, even if they are habituated. It is preferable to market tracking rather than viewing, stipulating that staff will follow tracks and attempt to locate the apes, but cannot guarantee they will be visible. Alternative activities should be in place and offered to visitors if the apes are not located (e.g., if a group has moved too far away).

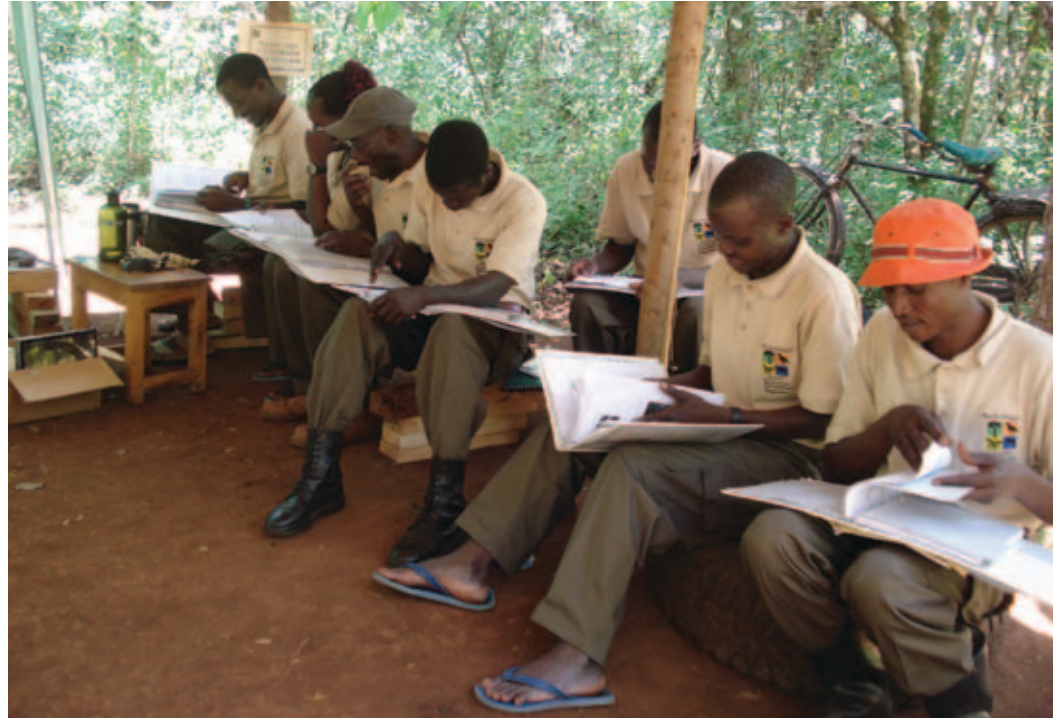
- **Marketing must manage tour operator and other partner expectations:** Great ape tourism is viewed by many private sector partners as an opportunity to sell lucrative tourism packages. Marketing efforts must address the tendencies of tour operators to regard ape tourism as a 'product' rather than a conservation opportunity, as the former attitude may lead to disregard of regulations, abuse of visiting privileges and pressure to expand operations.
- **Marketing should promote broad tourism circuits:** Great ape tourism often operates within constraints of uncertain sightings (or poor quality viewing), in remote locations with basic visitor facilities, all of which may reduce tourist interest, occupancy and satisfaction. While striving to improve visitor facilities (along best practice guidelines), it is important to build ape tourism into circuits that highlight a region's wildlife and natural habitats, as well as specialist interests, such as bird-watching or cultural tours, to encourage longer stays in the region or country.

#### 5.4.13 Staffing issues

Tourism management requires professional, competent and efficient staff, who are well paid, well trained and well equipped. The following are issues to incorporate into recruitment plans for great ape tourism.

- **Local recruitment:** To maximise benefits to communities adjacent to great ape habitat, it is important to provide local employment opportunities. Knowledge of the forest environment is usually advanced in local people who use the forest and its resources. Many have skills that are essential for tracking great apes, and are familiar with local community culture and traditions, which can enhance the visitors' experience. Formal training (see next page) to develop skills that local staff do not have will require funding and time commitments.
- **Importing skilled staff as trainers:** Only when particular skills cannot be sourced or developed locally should staff be recruited further afield. This might be the case for functions such as hospitality, management and accounting, or positions requiring an ability in a particular foreign language. Skilled staff should then provide training to local recruits.
- **Staff affiliation:** Ideally all staff guiding tourists will be hired directly by a protected area management authority, or officially recognised by that authority. If staff are employees, their strict adherence to regulations will be easier to enforce.
- **Remuneration:** Ape tourism has the potential to attract high fees, and must be adequately controlled to protect the apes from the negative impacts of strong monetary incentives. This will require loyalty to the conservation goals of a tourism programme, and staff must not be tempted to deviate from established rules for personal gain. One of the best ways to avoid corruption is to pay satisfactory salaries. In many countries, the legally-mandated minimum wage is not enough to guarantee an appropriate standard of living; thus tourism projects should assess the cost of living and provide a 'living wage' sufficient to maintain a staff member with an average-sized family. (See also tipping policies in Section 5.5.16).
- **Equipment and uniforms:** Field staff must be provided with appropriate field and communications equipment and attired in professional uniforms that clearly identify them as tourism staff. Disease transmission should be minimised by assigning specific staff members to particular groups, with an adequate supply of clean uniforms and appropriate boot washing facilities (Whittier 2009).

Tourism staff training, Budongo Forest Reserve, Uganda. Photo © Debby Cox.



#### 5.4.14 Staff training

For great ape tourism to be effectively managed with conservation as its main purpose, it must be run by skilled and knowledgeable staff who understand the risks involved, that conservation is the primary objective, and who have the authority to enforce regulations in the face of pressures from both tourists and tour operators. The following issues must be taken into account when designing and financing staff training programmes:

- **Great ape behaviour and forest ecology:** Staff should be knowledgeable about the ecosystem in which they will guide visitors. Many tourists are keen to learn while hiking and tracking, and staff should be capable of answering questions about great ape biology and behaviour, and the ecology of their habitat. Tourism staff could improve their knowledge by participating in research activities.
- **Language skills:** Staff must be able to explain the rationale behind regulations, to control tourists and to communicate effectively during an emergency. They therefore need to be competent in speaking the most common language of a site's tourists.
- **Empowerment:** As well as enforcing protected area regulations and national laws, staff must have the ability to control tourists without concern for any perceived differential in social status, and they must not give priority to tourist satisfaction over ape protection. Staff training should include techniques for dealing with 'problem' tourists who resist their authority and who may aggressively push for rules to be broken.
- **First aid:** Training and equipment should prepare staff to respond appropriately in cases of accident or injury, to treat and transport tourists to safety.

#### 5.4.15 Emergency contingency plans

All tourism sites must develop plans to respond to emergencies that may affect the viability of their programmes:

- **Funding contingency plans:** While successful tourism will be a good source of funding, it may not be reliable, given the fickle nature of the industry and that trends are difficult to predict. Slumps in visitation will result in lower revenues for conservation and law enforcement, but these activities *must* continue even in the absence of tourism. Financial contingency plans can include emergency support from donors, endowment funds or revenue set-asides to cover core conservation operations during low-tourism periods.

- **Disease outbreak contingency planning:** Great apes are vulnerable to disease transmitted by tourists, field staff, local communities, livestock and other wildlife. Therefore veterinary support programmes should work with site authorities to put in place disease surveillance and response plans so that quick action can be taken to prevent spread or outbreaks.<sup>11</sup>
- **Human–great ape conflict response plans:** Tourism can exacerbate conflicts with local people if, for example, habituation increases the incidence of crop-raiding and income is not seen to be fairly distributed. Plans to avoid or mitigate such conflicts must be in place (see Hockings and Humle 2009).
- **Security or natural disaster planning:** Any area that is prone to natural disasters, cross-border conflict, civil war, crime or terrorist attacks should not be selected for tourism development; however, unforeseen events can affect any site. Thus it is important that evacuation plans and security protocols are in place to protect tourists, staff and great apes during any such event.

## 5.5 Implementation phase—regulations

Great ape tourism sites should develop detailed regulations incorporating lessons learned from other sites, and should monitor, reinforce and improve these regulations throughout the lifespan of their programme. Site-specific regulations can be developed in consultation with medical, veterinary, travel and ecotourism practitioners (Muehlenbein and Ancrenaz 2009). However, good plans are meaningless without effective enforcement, and poor enforcement has been a perennial problem for great ape tourism. Therefore, it is critical that conservation managers have the authority to institute tourism regulations, to exercise authority once tourism is underway, and to maintain that authority over the long-term. This will help to foster compliance by both staff and tourists. The general regulations given below are relevant to most great ape tourism sites.

### *Regulations – Pre-Visit*

#### 5.5.1 Dissemination of regulations via tour operators and booking agents

Prior to their arrival at a great ape tourism site, visitors should be presented with the rationale behind measures intended to minimise disease risks and other negative impacts of tourism. Printed regulations should be sent to tour operators, marketing or booking agents and, if possible, posted on a website.

#### 5.5.2 Immunisation

Many great ape sites require that tourists present proof of vaccination, or a current negative test, for a number of diseases. Vaccination requirements may include polio, tetanus, measles<sup>12</sup>, mumps, rubella, hepatitis A and B, yellow fever, meningococcal meningitis, typhoid and tuberculosis (or proof of negative skin test within the last six months). This regulation has a number of advantages: besides preventing the spread of these particular diseases, it reinforces the visitor's perception that tourism poses a risk to the apes. This should stimulate any responsible tourist's willingness to adhere to guidelines for their visit. Relying on proof of vaccination or a negative test alone will not control all infections of concern, such as the common cold and influenza, for which there is either no vaccine or a vaccine for certain strains only.

There can be problems with vaccinations: Vaccinated tourists may develop a false sense of security and feel that they can violate other regulations because they are immunised. In addition, lead-times for vaccination mean that vaccination requirements may not be easy to administer (e.g., vaccinating only one day before a visit is generally not protective, and a modified live vaccine may

<sup>11</sup> Disease contingency plans are available for mountain gorillas (UWA and IGCP 2000; MGVP 2004). In addition, simple procedures such as preventing staff from visiting multiple groups will prevent disease spread (Whittier 2009).

<sup>12</sup> Laboratory tests show that immunity to measles can substitute for proof of vaccination (Budongo Forest Project 2006).

infect other contacts, apes included). To avoid disappointment, vaccination and health regulations should be provided at the time of booking so that tourists are able to organise any immunisations or tests required and obtain the necessary documentation. See Leendertz *et al.* (in press) for more information.

### *Regulations – On Arrival*

#### 5.5.3 Presentation of tourism impacts and safety issues

Appropriate information on the various impacts of tourism on great apes should be given to tourists on arrival. Presentation should be thorough and consist of both active discussion of the regulations that minimise risks and passive information transfer (such as written materials in accommodation facilities, displays and signage in check-in areas). This can be reinforced with demonstrations of the required safe distance and role-play with guides showing how they would manage an approaching ape to prepare tourists on how they should respond. If acted out, tourists will be more likely to remember what they have been told. Safety precautions should also be explained at this time and, if required, visitor liability waivers signed.

#### 5.5.4 Guided health evaluation prior to departure

During final check-in for a tourist visit, staff should inspect vaccination certificates rather than rely on self-reporting (Muehlenbein *et al.* 2008). Tourists should then be guided through a self-evaluation designed to highlight whether they might be infectious or otherwise unable to participate in the visit. This should include a checklist of symptoms such as sneezing, coughing, fever or diarrhoea within the previous 48 hours, and exposure to any significant risks (e.g., disease, bat caves). *N.B.* Self-evaluation is not enough to ensure compliance because some tourists will try to conceal symptoms; however, the process will identify those willing to decline a visit on health grounds, and facilitate the process of refunding tourists who self-report illness.

#### 5.5.5 Professional health evaluation

A health professional on-site could perform routine health checks, such as measuring body temperature, heart rate and respiratory rate. This will not be possible at all sites, but large tourism programmes should consider having a nurse or doctor on staff, in conjunction with an employee health programme. Health professionals will also be able to advise on local and global disease patterns and propose additional precautions as needed. Guides should also be trained to recognise tourists who are unwell, and given authority to exclude them from great ape tourism activities.

### *Regulations – During Visit*

Unfortunately, tourists who have travelled long distances (usually at great expense) may try to hide illness, while others could be infectious without knowing it. Consequently everyone who approaches great apes poses a disease risk and must act accordingly. Strict regulations are also important to minimise the behavioural impacts of tourist visits. Any site claiming that they adhere to best practice in great ape tourism must implement the following:

#### 5.5.6 Maximum number of tourists per group

To minimise behavioural disturbance and disease risk, strict limits on the number of tourists allowed to visit each day must be set and adhered to. In dense forest where visibility is poor, any sudden noise or movement could cause alarm and unpredictable reactions. In addition, finding a good viewing spot for each tourist can be challenging. Tourists must stay together and avoid encircling the apes being viewed. To facilitate the control of visitors, minimise danger and enhance visitor satisfaction, the number of people per party should be no more than 4 tourists accompanied by 2 guides/trackers. This should achieve a reasonable balance between apes and humans, and reduce stress and its knock-on effects. Small numbers also favour high permit prices, as tourists tend to value being part of a small and exclusive group of visitors.

This general guideline should be implemented by all new sites. However, note that species-specific recommendations on tourist numbers are discussed in Section 5.7. A number of sites operate with fewer than 4 tourists, including the sites offering viewing of habituated western lowland gorillas and



some orangutan sites—the continued viability of these sites suggests that numbers can remain low. Mountain gorilla sites and some chimpanzee sites currently operate with more than 4 tourists, and these sites should assess whether reducing tourist numbers *towards* this recommended maximum could be feasible in future, and any new ape groups opened for tourism should have a smaller number of tourists.

#### 5.5.7 One tourist visit per day

- There should be no more than one visit per day to each group of apes (or individual/party/forest area in the case of chimpanzee and orangutan tourism).
- Any site that currently operates more than one visit per day should try to reduce the schedule to one visit a day per group or individual. This can be done by closing second-visit bookings over time, or by habituating a new group (guided by a full impact assessment).
- Tourism accommodation located in or near ape habitat must limit visitor movements away from the facility to prevent uncontrolled ape viewing.

#### 5.5.8 No visits by people who are sick

- People who are unwell will not be allowed to visit the apes, and this must be made very clear at the time of booking. It is critical that tourists are encouraged to self-report their illnesses and be given incentives to refrain from visiting if necessary. This should not be a postponed visit (it is probable that the person would continue to be infectious for a few days), but could be a refund on-site or vouchers for other tourism services (e.g., accommodation, hiking).
- Similarly, staff members who are ill must not participate in ape visits, and must be given incentives to remain away from apes, such as guaranteed ‘sick days’ and a policy of non-discrimination if they cannot work because of illness.

#### 5.5.9 N95 respirator masks

- All tourists and staff who are likely to approach habituated apes to within 10 metres should wear a surgical quality N95 respirator mask for the duration of their one-hour visit. Respirators that filter out higher percentages of aerosolised particles are also acceptable (i.e., N99 or N100).
- Masks should be carried by tracker/guides in appropriate waterproof containers so that they are not damaged and rendered less effective during transport. They should be distributed to tourists just before they begin actually viewing the apes.
- Masks are disposable and should not be re-used. They should be collected by the trackers/guides immediately after the visit and disposed of appropriately after the visit, as they pose a disease risk to apes and other wildlife if accidentally dropped in the forest.
- Masks must be burned upon return to tourism administration or accommodation facilities, away from areas where apes range.
- Masks that become damp or wet are less effective at blocking pathogens and should be exchanged for a new one.
- Staff must receive training in mask management, including proper fit-testing, wear, use and disposal.
- Appropriate use of masks (including fitting, handling and disposal) should be demonstrated in full to tourists at the departure point, with a review before they reach the 10-metre distance, so that masks are not put on incorrectly in a rush to see the apes.
- A surgical mask should not give the wearer a false sense of security—all other regulations (concerning hygiene, distance from the apes, time spent with them) must be enforced alongside mask provision. Appropriate education must be given to staff and tourists alike.

- Tourists feeling the urge to sneeze or cough while in proximity to the apes should turn their head away even when wearing a surgical mask, but should not remove the mask, although staff should offer a replacement mask if necessary.
- Mask management should be monitored as part of a broader tourism monitoring programme, and results used to inform and improve procedures.
- Tourist compliance and feedback should also be taken into consideration when reviewing mask management procedures.
- Procurement systems must ensure a reliable supply of appropriate masks on site.
- If N95 respirator masks are not available, surgical quality multi-layer masks may be used while N95 respirators are procured, as surgical masks provide a barrier to large-droplets. Their use should only be temporary, as surgical masks are not as effective as N95 respirators. Further information on surgical masks and N95 respirators can be found in Appendix II.

#### 5.5.10 Children younger than 15 years old prohibited from visiting

- Children below 15 years old must not be allowed to visit great apes. While parents may argue against this regulation on the basis that their child is capable of the hike or mature enough to control their fear, this safeguard is primarily for health reasons. Young people are more likely to be infected with common childhood diseases, even when properly vaccinated, and therefore pose a much greater health risk to habituated apes.

#### 5.5.11 Non-essential personnel to remain at a distance from apes

- Non-essential personnel such as military escorts or porters must stay as far away as feasible, out of sight *and earshot* during the tourist visit.
- Non-essential personnel should remain in contact with guides via walkie-talkie radios, so that they can be instructed to move if the apes head in their direction.

#### 5.5.12 Prevent contamination of the habitat with food waste

- Eating is not allowed during a visit. Food and drink must not be visible while observing great apes, but should be left with porters or other personnel who remain out of sensory range of the apes.
- Food must not be consumed within 500 metres of apes. This will minimise the accidental contaminated waste and prevent the apes from developing an association between humans and food.
- Food waste and all other rubbish must be stowed in backpacks and carried out of the forest to prevent deposition of infectious waste in the habitat.
- Food must never be used to attract apes towards tourists.

#### 5.5.13 Minimum distance to habituated great apes

- For visitors wearing N95 surgical masks, the minimum distance permitted is 7 metres (22 feet)
- For visitors not wearing N95 masks, the minimum distance permitted is 10 metres (33 feet)

#### 5.5.14 One-hour time limit

- Tourists must spend no more than one hour near habituated apes.
- This limit combined with restriction of one visit per day means that no ape should be visited by tourists for more than one hour on any day.
- If apes are not easily visible when first approached, staff should escort tourists away to a distance of 200 metres to await a time when the apes are resting or have moved into more open vegetation, and then begin the permitted hour.



Scaled-model of the minimum 7-metre distance allowed between tourists and mountain gorillas, Volcanoes National Park, Rwanda. Photo © Maryke Gray.

#### 5.5.15 Hand-washing and hygiene

- Basin facilities and soap should be provided at departure points, and tourists encouraged to wash their hands before departure.
- Latrines must be provided at departure points, and tourists encouraged to use them before departure. Latrines should be constructed at appropriate distances from watercourses (at least 30 metres).
- If tourists or staff have to urinate or defecate while in the forest, faeces must be buried in a 30-centimetre hole. This should be at least 500 metres from apes' location and away from watercourses.
- Guides should carry hand disinfectant spray (such as chlorhexidine), gel, or wipes for all visitors and staff to use before approaching apes.
- Smoking is prohibited in ape habitat due to the risk of fire, and of disease transmission via contaminated cigarette butts. The smell of smoke will also scare wildlife.
- Spitting and nose blowing/clearing on the ground are forbidden—staff and tourists should use handkerchiefs as needed, and these activities should not take place near the apes.
- The same boots and clothing should not be worn to visit a different group unless it has been washed and dried between visits.

#### 5.5.16 Tipping policies and staff salaries

- Tourists must be informed that tips cannot be used to encourage staff to break regulations, and staff must not view tips as justification to ignore regulations; this would also reduce the professionalism of the operation.
- Tourists dislike having rules presented to them and then seeing them broken—this reduces respect for both staff and regulations. This message must be communicated to staff through education, training and monitoring, to enhance their compliance.
- Tipping policies should be clearly displayed so that tourists are aware of the issues before starting their activity.
- Tourism staff should be paid satisfactory salaries (at least a 'living wage' and preferably higher) to minimise temptations to violate regulations for higher tips.
- Regular monitoring and staff supervision should be used to reinforce tipping issues.

- All tourism staff, from check-in clerks to trackers and guides, should benefit from tips via a shared tip box with tips distributed equally among all staff each day.
- Policies specifying that pooled tips will be divided among all tourism staff will help prevent irregularities and should be posted where they are visible to visitors.
- Tourists appreciate guidance on tipping, and appropriate amounts can be suggested.
- A no-tipping policy should be considered if tips are judged to be a prime factor in staff relaxing regulations.

#### 5.5.17 Monitoring and enforcement of rules

- It is imperative that all staff understand the rules, can explain their rationale to visitors and enforce them.
- Tourism staff should be regularly monitored and evaluated on their conduct, and results should be discussed openly between evaluators and staff.
- A post-visit checklist provided to tourists and staff could help to reinforce staff compliance, and specific cases where staff had problems enforcing rules could be used in staff training exercises.
- Regular refresher courses will reinforce staff understanding and adherence to tourism regulations, and should include training on enforcement techniques.

### *Regulations – Site Management*

#### 5.5.18 Infrastructure designed to minimise impact on apes and habitat

- EIAs should be carried out for all tourism-related infrastructure developments, in keeping with national environmental legislation.
- Tourism infrastructure, such as lodges, campsites and visitor centres, should be constructed in areas where impacts on apes and their habitats are minimal.
- If possible, tourism infrastructure should be located outside or on the edge of ape habitat, and any disruption to native vegetation, especially forest, should be kept to a minimum.
- Tourism infrastructure should not be built in areas frequented by apes, due to risks of encountering people, food preparation areas, waste disposal, or sanitation facilities, and risk of injury from electrical cables or other hazards.

A viewing platform, Mbeli Bai, Republic of Congo. Photo © Fiona Maisels.



- Tourism infrastructure must not introduce additional disease risks to ape populations. Attention to appropriate sanitation, hygiene and waste disposal is critical in this regard.
- Tourism infrastructure should not include installations that could attract apes, such as the planting of crops or fruit trees.
- If infrastructure on any scale is necessary in ape habitat, attention should be paid to reducing the impact of tree felling on the apes' feeding and ranging requirements (see Morgan and Sanz 2007).

#### 5.5.19 Staff housing and administrative infrastructure

- Staff and administrative buildings should be sited to maximise the oversight and control of tourism programmes. Managers and law enforcement teams should be posted on-site so that monitoring and protection activities can be carried out routinely.
- Staff and administration buildings must be located and designed to minimise impacts on apes and their habitat from noise and other hazards (e.g., fuel, power lines, toxins).

#### 5.5.20 Tourism accommodation should benefit local communities

- Accommodation in lodges or campsites should be managed to maximise community benefits through community-ownership, employment opportunities, or revenue-sharing schemes that provide income to members of the community or funding for social services.
- Tourist accommodation that benefits local communities should be protected from external competition. This can be achieved through zoning so that only a viable number of facilities are allowed to operate at the preferred locations.

### 5.6 Monitoring and evaluation phase

#### 5.6.1 Applied research

Tourism programmes should be supported by independent impact-assessments to inform and improve tourism policy and management systems. Formal mechanisms of review and incorporation of research results into management and policy will ensure that conservation impacts are optimised. Research programmes should include:

- **Disease monitoring:** Disease is the most serious risk associated with great ape tourism. Health monitoring records will show patterns of disease, and allow management to design prevention measures (e.g., quarantine, tourist vaccination regulations, community health projects) and to respond to disease outbreaks. Routine observations by trained personnel and non-invasive screening should be supplemented by opportunistic sampling of immobilised animals (see Leendertz *et al.* in press).
- **Behavioural monitoring:** Tourism can also have serious negative impacts on the behaviour, physiology and social dynamics of habituated apes. Independent research will highlight potential or incipient problems before they become severe and will allow adaptive management (see Fawcett 2004; Muyambi 2004; Hodgkinson and Cipolletta 2009).
- **Ecological monitoring:** Heavy tourist traffic may cause soil compaction, erosion, trampling and damage to vegetation. Controls to minimise degradation of the habitat should include prohibition of the cutting or removal of seedlings and vegetation, walking off trails, and fire.
- **Population monitoring:** Population monitoring is an essential adjunct to tourism management. Tourism should stimulate the development of research projects to meet tourism-impact monitoring and applied research requirements.

- **Law–enforcement monitoring:** The development and operation of tourism must not divert attention and resources away from the central goal of protecting great apes and their habitat. It is, therefore, important to monitor trends in illegal activities, and assess the performance and results of law-enforcement activities. Law-enforcement monitoring will highlight areas for improvement or the need for increased surveillance, and can inform management when apes are ranging into areas of illegal activity, so that prevention and response to those activities can be enhanced.
- **Conflict monitoring:** Human-great ape conflicts can be alleviated through the provision of tourism benefits to local communities, or exacerbated by tourism altering the apes' ranging behaviour and bringing them into conflict situations more frequently. It is important that conflicts are systematically monitored and the success of mitigation efforts measured.
- **Economic assessments:** The motivation for initiating great ape tourism is often the economic benefits anticipated by various institutional, local and national stakeholders, in both the public and private sectors. However, as has been stated throughout this document, conservation must be the ultimate goal of great ape tourism, and should be given priority over other interests. Therefore, it is important to monitor the economic impacts of great ape tourism to better justify its existence and to inform management decisions, such as pricing structures and booking systems. Methodology can be adapted from previous studies (e.g., Wilkie and Carpenter 1999; Hatfield and Malleret-King 2006; Bush and Fawcett 2008; WCS Gabon 2008).

#### 5.6.2 Staff monitoring

Staff working in great ape tourism must be fully supported in their role as the prime defenders of great apes against the negative impacts of tourism. They need to be, and feel, able to discuss and enforce tourism rules and regulations. Their roles must be evaluated regularly to assess effectiveness and modify management, as needed. This can be achieved by regular supervision, including evaluation in the field, evaluation during tourism impact research, and feedback from tourists.

#### 5.6.3 Programme monitoring and evaluation

- **Financial monitoring and transparency:** As a tool to provide funding for conservation, it is crucial that systems are in place to monitor revenue generation. Financial controllers must be able to demonstrate that income is supporting protected area management and operations, community projects and revenue-sharing programmes. Transparency will go a long way to reassuring critics of great ape tourism that this is an appropriate conservation measure.
- **Programme reporting:** Progress reports and the results of tourism impact monitoring and applied research should be produced at regular intervals (preferably quarterly, but at least annually) to stimulate internal review and timely identification of issues to be addressed.
- **Programme evaluation:** Regular medium-term (every two years) internal assessments of the performance, management and impacts of great ape tourism programmes must be carried out to accurately monitor progress and to allow for programme review and improvement. The results of management-related research (Section 5.6.1) should be used to guide improvement and adaptation in tourism programme management. In the longer-term, external evaluations should take place every 5 years to ensure appropriate implementation and to foster learning and exchange with other great ape tourism sites.

## GUIDELINES FOR SPECIFIC SITUATIONS OR SPECIES

### 5.7 Species-specific guidelines

In addition to the general guidelines in Section 5.5, the following are specific to each taxon and tailored to their socio-ecology, habitat, and/or the type of tourism operating where they occur.

#### 5.7.1 Eastern Gorillas

Lessons learned from over 30 years of experience with eastern gorilla tourism form the foundation of the general guidelines above and few variations are proposed for this species. Mountain gorilla socio-ecology makes them particularly amenable to tourism, which is further facilitated by features of their high altitude habitat (e.g., Williamson and Fawcett 2008). These characteristics make it possible for slightly larger tourist groups to visit in safety. Mountain gorilla tourism began with groups of 6 tourists; however, at some sites tourist group size was increased against expert advice. We maintain that the smaller number of visitors is better for both gorillas and tourists, and recommend that tourist group size be reduced from 8 to 6, and that any new groups opened for tourism should receive no more than 6 tourists. The 'gold standard' recommendations for eastern gorilla tourism (MGVP 2009) are presented in Appendix I-A.

#### 5.7.2 Western Gorillas

The high profile and revenues generated by mountain gorilla tourism have inspired ambitions to replicate this success elsewhere. However, the western gorillas' socio-ecology, habitat, history and the threats they face differ significantly from eastern gorillas, and a number of factors warrant special mention. The two sites currently offering viewing of habituated western lowland gorillas, Mondika and Bai Hokou, have limited visitor group size to 2 and 3 tourists respectively (see also Appendix I-B).

- **Tailored marketing:** Western gorilla tourism will not meet expectations that have been raised by the mountain gorilla experience, so marketing must emphasise the differences and keep visitor expectations to a realistic level. It is advisable to promote western gorilla 'tracking' rather than 'viewing', as encountering a dispersed group of gorillas obscured by thick ground vegetation or high in trees might disappoint those expecting clear observations and photo opportunities.
- **Tracking expertise:** Tracking western gorillas, which have long day ranges, large home ranges and leave little trail, requires a level of expertise that often exists only among historically hunter-gatherer groups. Where possible, trackers should



Western lowland gorillas, Mbeli Bai, Republic of Congo. Photo © Vicki Fishlock.

be sourced from these ethnic groups, to maximise the success of habituation and tourism programmes.

- **Gorilla population density:** An unusually high gorilla density may impede habituation efforts as trackers could follow more than one group by mistake when trails cross in the overlapping ranges of different groups. However, if their density is very low, gorillas will be harder to find.
- **Multiple groups:** Sudden change in the typically smaller groups of western lowland gorillas, such as the death of the dominant 'silverback' male, can lead to group disintegration and the abrupt termination of habituation or tourism efforts. Therefore, tourism programmes should identify and commit to working with at least two groups from the outset.
- **Tourism outside of protected areas:** Most western gorillas live outside protected areas and tourism can improve the protection of some populations. In such cases, tourism must operate under clear, legally-binding agreements with local stakeholders, which define each partner's roles and responsibilities towards the long-term conservation effort, as well as to tourism development and operations. Sustainable funding must be secured not only to cover tourism development costs, but also long-term protection and conservation activities, particularly as it is more difficult to ensure funding for conservation projects outside protected areas.
- **Bai visits:** See Appendix I–C for an example of regulations for viewing from a platform.
- **Tracking unhabituated gorillas:** See Appendix I–D for an example of regulations for forest walks.

### 5.7.3 Chimpanzees

Chimpanzee parties tend to be less cohesive than gorilla groups. Although it is difficult to oversee a group of people when the chimpanzees are dispersed, staff must keep control of tourists at all times. It is critical to prevent tourists becoming separated and at risk, especially from displaying adult males. See Appendix I–E for sample regulations, but please note: Sites currently allowing groups with more than 4 tourists to visit are advised to revise this policy.

- **No provisioning:** Although this is a general guideline recommended for all species, it is emphasised here as most relevant to chimpanzee sites where provisioning has been practiced in the past, and where there were indications that provisioning resulted in increased aggression.
- **Prevention of attacks on human infants:** Chimpanzees have been known to attack human babies as an extension of their normal predatory behaviour. The minimum age of a tourist is 15 years, so small children will never be allowed to visit great apes. However, where local people are permitted to walk on designated trails, they must be forewarned of the dangers. A chimpanzee community that ranges into areas used by local people should not be habituated for tourism.

### 5.7.4 Bonobos

Bonobo tourism is under development at a few sites in the DRC, but to date there are no lessons learned specific to bonobos.

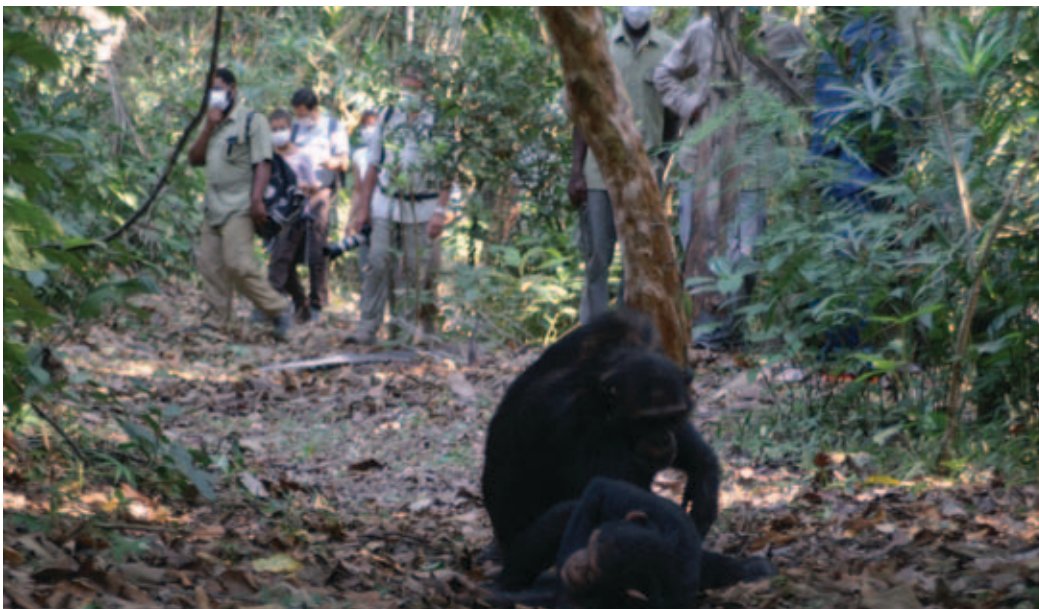
### 5.7.5 Orangutans (Sumatran and Bornean)

Participants of the 2002 Orangutan Conservation and Re-introduction Workshop (Rosen and Byers 2002) recommended against additional tourism development in wild orangutan habitat in Indonesia. This was due to concerns over security and illegal logging, combined with the remote nature of most orangutan sites and how this affects competition in the Southeast Asian regional tourism market. Civil war in Aceh ended in 2005, and tourism could again be used as a conservation and development tool (Singleton, pers. comm.). The 2002 workshop encouraged the promotion of community-based tourism initiatives only in areas that are not priorities for orangutan conservation and thus are not



candidates for immediate protection and/or incentives. Appendix I–F presents guidelines from one such project. In addition to the general guidelines, the following are specific to orangutans:

- **Minimise impacts on social interactions between habituated and unhabituated orangutans:** Although tourist visits are limited to one hour, human presence may reduce opportunities for habituated orangutans to interact with non-habituated individuals that are scared of people. This impact on orangutan sociality should be minimised by implementing the following guidelines:
  - ⊙ Individual orangutans should not be visited by tourists for more than 10 days per month.
  - ⊙ Tourism to individual orangutans should be suspended for at least 3 months per year. Note that if all habituated orangutans at a particular site use the same area of forest, periodic closure of the site is recommended.
  - ⊙ Consort pairs should not be followed. Male orangutans are more aggressive when in consortship with a female, therefore, consort pairs should be left alone to minimise stress and risk of injury, and to avoid disruption of their reproductive behaviour.
- **Minimise impacts on vegetation:** If tourism is regularly conducted with the same individual orangutans, trampling of vegetation and trail cutting will be concentrated. This can be addressed by:
  - ⊙ Limiting visitation to 10 days per month per individual (as above).
  - ⊙ Suspending tourism to an individual or area for 3 months per year (as above).
  - ⊙ Spreading the impact by rotating the focus of tourism activities to orangutans in different parts of the forest. When certain individuals or areas are closed to tourism (20 days per month plus 3 months per year), tourism is moved to different areas and individuals, giving the ecosystem a chance to recover, thereby increasing the long-term sustainability of tourism. This strategy exposes a greater proportion of the orangutan community and a greater area of forest to the impacts of tourism, so a balance must be achieved.
- **Zero-poaching in habituated orangutan home ranges:** The general guidelines state that all habituated great apes must be monitored daily and in perpetuity, to protect them from poaching. Due to the orangutans' semi-solitary and arboreal nature, it is impossible to monitor each individual every day. Accordingly, managers must strive towards a goal of zero poaching throughout the areas in which they range.



Tourists wearing masks viewing chimpanzees, Mahale Mountains National Park, Tanzania. Photo © Toshisada Nishida.

- **Viewing from boats or vehicles:** A few sites in Sabah, Malaysia, offer wildlife viewing excursions by boat or vehicle, and Gunung Leuser National Park in Sumatra, Indonesia, offers trekking on elephants. When orangutans are seen, they are usually at distances of 20 metres and above so the risks of disease transmission are lowered and the number of tourists per visit can be increased to 12 per boat or vehicle. However, large numbers of tourists can be noisy and intrusive, so tourist behaviour must be controlled, particularly when viewing unhabituated animals. Boat size, number of boats operating, and other site-specific factors will determine upper limits, but in general there should be no more than three boats or vehicles in proximity to an orangutan at any one time.
- **Tourists must remain in vehicle or boat at all times:** It is essential that distance maintained and tourist numbers controlled to enhance wildlife viewing and reduce impacts on the wildlife. Tourists should never be allowed to leave their vehicle or boat to pursue orangutans on foot.
- **Enforcement of no-feeding regulations:** While no provisioning is a general recommendation for all taxa, feeding is still practiced at some orangutan sites. Tourism managers should impose rules to stop the feeding of free-ranging orangutans by both tourists and guides, and indeed prohibit the carrying of any food into the forest.
- **Ex-captives:** No tourism should be allowed with reintroducible orangutans in rehabilitation centres, or in forests where rehabilitants range (Rosen and Byers 2002; Russon, Susilo and Russell 2004). Given that such tourism is currently in operation, we include regulations from Bukit Lawang as Appendix I–G.

## 5.8 Special considerations for small and Critically Endangered populations

Particular caution is required before developing or expanding tourism with Critically Endangered taxa. This classification is given to three of the four gorilla subspecies (mountain, western lowland and Cross River) and the Sumatran orangutan as (IUCN 2010). Although the three subspecies of Bornean Orangutan are listed as Endangered, the northwestern and the East Kalimantan populations of the eastern subspecies also merit special consideration because their small remaining populations are similar in size to those of the Sumatran orangutan (Soehartono *et al.* 2007).

### 5.8.1 Risk-management programmes

We recommend that a number of impact-management measures accompany all great ape tourism programmes. In the case of small or Critically Endangered populations, funding for risk management must be guaranteed before any tourism activities are launched, to ensure that negative impacts are identified and immediately addressed.

### 5.8.2 Optimise before expanding

A number of sites with Critically Endangered great apes are already conducting tourism. In some of them, tourism has made a positive contribution, generating income for comprehensive conservation programmes in and around their habitat. Income to national treasuries and a range of stakeholders has resulted in enhanced perceptions of great apes, and stimulated long-term support for conservation. While keeping these successes in mind, it is also important to step back and evaluate the future of tourism at these sites, to protect the programmes from complacency, and to prevent them sliding towards over-exploitation of the apes. There has been a general tendency to expand tourism by habituating additional animals, but for conservation to remain the primary objective, it is important to resist temptation to expand for economic gain. Economic benefits can be achieved in ways that do not involve subjecting the apes to additional tourists or exposing more animals to tourism. The recommendations below should be followed at all sites operating tourism with Critically Endangered apes:

- **Income generation that does not involve tourism expansion:** Governments and conservation authorities should encourage alternative means of stimulating earnings by authorities, the private sector and local economies, such as investment in

national enterprise development, micro-credit schemes for local enterprises, and support for other business developments.

- **No increase in the number of groups habituated for tourism:** Sites with Critically Endangered apes should avoid expanding the number of habituated groups. It is important to maintain a balance of exposed and unexposed groups to better mitigate negative impacts of tourism.
- **No increase in the number of individual apes habituated for tourism:** Habituation decisions should not be based on habituating the largest groups of apes, or the greatest number of individuals, for tourism. The larger the proportion of a population that is exposed to tourism, the greater the risk that disease could result in drastic reduction of the population.
- **Maximise revenue per tourism permit:** If there is pressure to increase revenues from great ape tourism, the first measure taken should be to increase permit prices. Revenue per permit should also be maximised by diversifying tourism activities at each site, and building ape tourism into national tourism circuits. Extending the average length of in-country stay of great ape tourists would increase the earnings associated with each permit at local, regional and national levels.

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## Section 6: Conclusions

This document has provided a review of the history of great ape tourism and covered in detail the multiple costs and benefits to the conservation of great apes and their habitats. While not appropriate at every site, great ape tourism can serve as a tool to fund great ape conservation efforts. Sites that intend to develop and operate great ape tourism should use the general and specific guidelines given in Section 5 to design and implement tourism activities that are rooted in conservation, not the exploitation of great apes.

In closing, readers should review the guiding principles of best practice in great ape tourism, keeping the following in mind at all stages of planning, developing, implementing, and monitoring great ape tourism:

- Tourism is not a panacea for great ape conservation or revenue generation.
- Tourism can enhance long-term support for the conservation of great apes and their habitat.
- Conservation must be the primary goal at any great ape site and tourism can help to fund it.
- Great ape tourism should be developed only if the anticipated conservation benefits, as identified through impact studies, significantly outweigh the risks.
- Conservation investment and action at great ape tourism sites must be sustained in perpetuity.
- Great ape tourism must be based on sound and objective science.
- Tourism benefits and profit for communities adjacent to great ape habitat should be maximised.
- Profit to private sector partners and others who may derive income from tourism must not be the driving force for great ape tourism development or expansion.
- Tourism development must be guided by a comprehensive understanding of potential impacts, and managed to maximise the positive impacts and mitigate the negative impacts.

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## Section 8: Bibliography

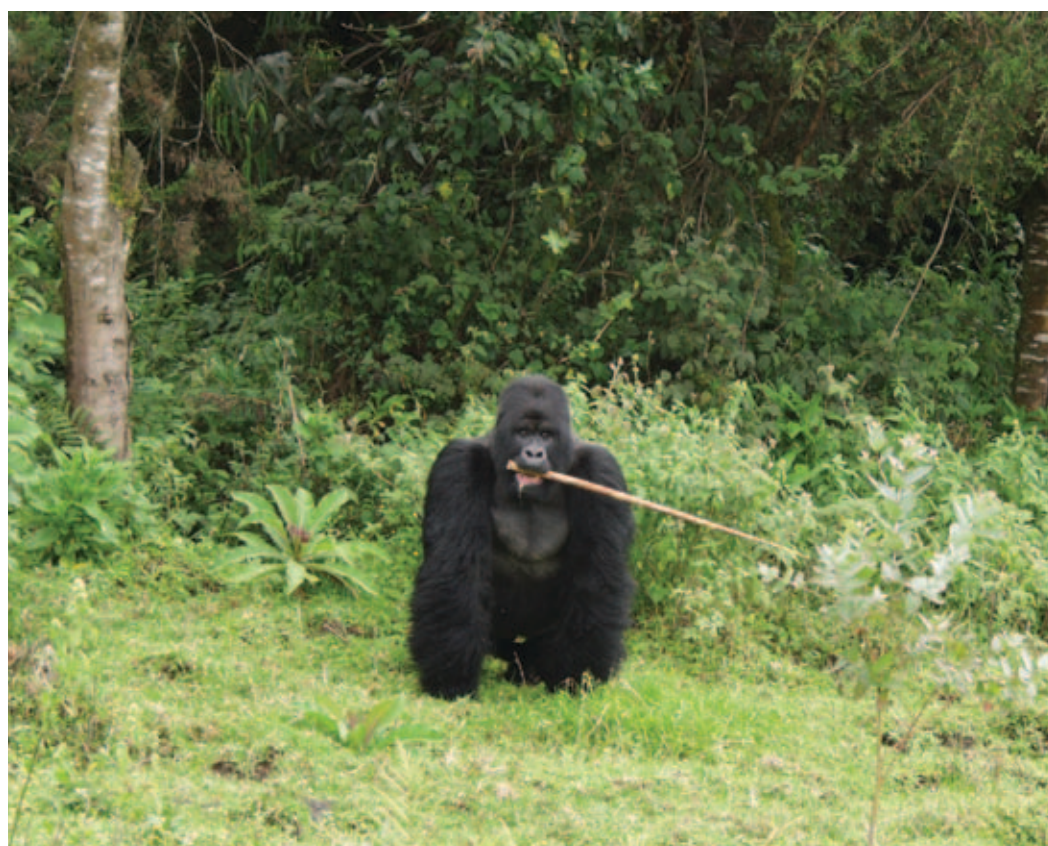
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Mountain gorilla with a bamboo shoot, Volcanoes National Park, Rwanda. Photo © Annette Lanjouw.



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A fully equipped tourist guide, Budongo Forest Reserve, Uganda. Photo © Debby Cox.

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## Appendix I – Sample Tourist Regulations

### A. Eastern Gorillas

*Note: The rules listed below are considered by the Mountain Gorilla Veterinary Project (MGVP) to be minimum guidelines for tourists, researchers and park staff visiting mountain gorillas in Rwanda, Uganda and the Democratic Republic of Congo (MGVP 2009). They have been continually updated during years of operation by MGVP and may also be applied to Grauer's gorillas and chimpanzees. To reach the 'gold standard', MGVP recommends additional rules be implemented; these are marked by a footnote below.*

#### Gorillas Are Endangered\* Please Help Us Keep Them Healthy—Gorilla Visitation RULES for Tourists, Researchers and Staff

##### Before You Set Out<sup>13</sup>

- Maximum of 8 visitors in each group, plus 2 park staff for tourist visits — 1 guide + 1 tracker <sup>14</sup>
- Minimum age: 15 years old
- To protect the health of the gorillas, wash your hands before setting out <sup>15</sup>.
- Please use clean tracking clothes for EACH gorilla visit; please clean your shoes carefully BEFORE and after each visit <sup>16</sup>.
- **If you do not feel well**, have diarrhoea or a sore throat, please report it to your guide. It is very important that people with signs of any type of infection never visit gorillas. *Depending on the country, you may be eligible for a rain check/ refund so you may visit when you are well.*
- If you have a chronic illness such as heart disease, emphysema, or arthritis, please reconsider your decision to trek. Health services are limited near the park.
- Please use the restroom before your visit, as there will be no facilities available.

##### While You Are in the Park

- Do not enter the park without a guide.
- Please keep your voice low.
- 'Leave No Trace'. If you brought it in - take it out. Do not litter. Avoid unnecessarily damaging any plants. Do not remove any plants or wildlife from the park.
- If you must relieve yourself, bury solid waste at least one foot (30 cm). If you are with a guide, ask them to dig the hole.
- Leave all backpacks, walking sticks, food and drink, at least **100 metres** from gorillas (the length of a football/soccer field). The porters and extra trackers will stay here.
- No smoking or spitting.

##### When You Are With the Gorillas

- Maintain a 7 metre (23 feet) distance from the gorillas.
- Spend a maximum of 1 hour per visit
- Do not eat or drink during the gorilla visit. Do not feed the gorillas. AGAIN Smoking is not allowed.
- Do NOT use flash photography. Ask your guide for tape to cover flash if needed.
- Speak only in a soft voice.
- All cell phones must be OFF. Radios should be turned down.

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<sup>13</sup> Pre-visit vaccinations have been discussed in other sites, and tourists are very likely to follow protocols if informed in advance. However this would not prevent the diseases of prime concern (influenza, common cold, TB).

<sup>14</sup> MGVP 'gold standards' recommend the maximum number of people should be reduced to improve both the quality of the visit for tourists and the ability of the guides to enforce rules. Instead of 8 guests + 2 park staff, MGVP recommends 6+2.

<sup>15</sup> Toilets and hand-washing facilities to be provided at morning meeting points. Hands and boots should be disinfected at entrance to park/forest—this can be carried out with hand sprayers containing disinfectant.

<sup>16</sup> Trackers and rangers should also change clothes, shower, and clean boots before visiting a second group. During a respiratory disease outbreak, and for one week afterwards, staff should not move between groups.

- Do not antagonize the gorillas in any way: Do not point at the gorillas, make sudden gestures or movements or loud noises
- If a gorilla charges you, remain still, avoid eye contact BUT DO NOT turn away.
- Follow the instructions and advice of your guide.
- You MAY be asked to wear a mask BEFORE visiting the gorillas and wash your hands again/use hand sanitizer if there is a local or global disease outbreak. The park officials will institute this rule when advised by vets and other health experts <sup>17</sup>.
- If you cough or sneeze, you should wear a mask (For tourists, guides will provide the mask and will collect them at the end of the visit <sup>18</sup>
- **Note: Those who do not respect the guidelines may be asked to leave the gorillas and the park; you will not receive a refund and you may be penalized.**

## B. Western Gorillas: tracking

*Note: This content is adapted from material provided by WCS (WCS Field Veterinary Program 2008) for Mondika, where tourists track habituated western lowland gorillas.*

### Gorilla tracking at Mondika

Tracking gorillas at Mondika can be physically demanding and we request that visitors are in sufficient physical condition to endure hikes of up to 3 hours in dense vegetation, often wading through water and swamps.

#### Tourist Health Requirements:

In order to ensure to the degree possible that tourists and other visitors are not carrying diseases that may be subsequently transmitted to the Mondika gorillas, the following regulations have been instituted:

Prior to arrival in Congo, each visitor will be required to furnish proof of current vaccination against the following:

- Polio (attenuated)
- Measles\* (\*It is contraindicated that immunocompromised individuals be vaccinated against measles)
- Yellow fever (this is also required for entering many African countries)

In addition, each visitor must provide proof of negative tuberculosis (TB) status:

- Negative TB test (Mantoux skin test or other recognised test) obtained in the last six months prior to arrival.

This information will be verified on arrival at Bomassa Base before granting permission to visit Mondika. Failure to provide the necessary information, or falsifying such information, can result in being refused access to the Mondika site and/or gorilla viewing. Anyone exhibiting signs of potentially transmissible disease, such as influenza, may be refused access to Mondika Camp and gorilla viewing. Anyone with an active herpes outbreak (cold sores) or diarrhoea will also be denied entry to the forest. Staff at Bomassa and Mondika retain the right to deny access to the gorillas to anyone believed to be currently ill with a transmissible disease.

For the health and well-being of the visitors, the following are also strongly recommended:

- Tetanus vaccination
- Hepatitis A vaccination
- Hepatitis B vaccination.

<sup>17</sup> MGVP “gold standards” recommend that everyone should be made to wear an N95 mask – staff and tourists. If N95 masks are unobtainable and/or too expensive, a standard surgical mask should be used. This is particularly important in light of the increasing severity and frequency of influenza virus infections among people.

<sup>18</sup> For tourist groups, the gorilla guide should be assigned the role of collecting used masks and disposing of them properly. For research groups and routine monitoring, the lead tracker is assigned this task.

## Tourist Visit Health and Safety Regulations

1. The minimum age of visitors for gorilla viewing is 15 years.
2. The maximum number of visitors viewing the gorillas at any one time is limited to two people. Visitors will be accompanied by one tracker and one guide, so that the viewing group is limited to a total of four people. This is because of the small size of the gorilla group, the fact that the group is often very spread out and dispersed, the terrain and disease concerns.
3. Visits with the gorillas will be limited to one hour. Guides will make every reasonable attempt to insure good viewing of the gorillas, but such may not always be possible. The guides' decision on when to terminate the visit is final.
4. A maximum of two gorilla visits will be facilitated on any given day. Each of these visits will have a maximum of two visitors and viewing will be for a maximum one hour.
5. All visitors must maintain a minimum distance of 7 meters from the gorillas at all times. If during the visit a gorilla approaches to within that 7m distance, your guides will have you retreat to a safe distance.
6. All visitors must wear the provided facemasks (covering nose and mouth) at all times when observing the gorillas. These facemasks will not in any way negatively affect your experience with the gorillas, but can play an important role in minimising transmission of diseases such as the common cold or other respiratory conditions, which are frequently picked up on long-haul flights. These facemasks must be returned to the guide at the end of the visit.
7. Visitors must remain with their guide at all times. Speak and move quietly in the forest. You will see much more. In the event that an animal displays or charges, remain calm and avoid movements that may further excite the animal, avoid eye contact and follow the directions of your guide.
8. Do not attempt to touch, point at or otherwise interact with the gorillas or other wildlife.
9. No defecating in the forest. Please take care of any needs before leaving the base camp.
10. No urinating within 100m of the gorillas, nor in any water source. If at all possible, a small hole should be dug and the urine covered over with dirt.
11. No coughing, sneezing or spitting in proximity to the gorillas. If you do have to sneeze or blow your nose, please turn away and cover your mouth with a tissue.
12. No littering of any kind will be permitted; everything carried into the forest must be carried out.
13. No smoking is permitted in the forest.
14. No eating is permitted within 100m of the gorillas. All food packaging and utensils must be carried out of the forest.
15. No feeding of the gorillas or any other animals.
16. Do not attempt to attract the attention of the gorillas or animals for a photo opportunity and do not use flash photography.
17. Do not leave bags or other belongings unattended in the forest in proximity to the gorillas.

## C. Western Gorillas: bai visits

*Note: This content is adapted from material provided by WCS for tourism at Mbeli Bai in the Republic of Congo (WCS Field Veterinary Program 2008), and is an example of tourism regulations at 'bai' sites, in which visitors observe gorillas, if they are present, along with other species that visit a forest clearing. Viewing at these sites tends to be from platforms on the edge of the clearing, in this case called the 'mirador'. For regulations from additional bai sites, see WCS Gabon (2006) for Langoué Bai, Gabon, and for Bai Hokou in CAR: <http://www.dzanga-sangha.org/drupal/node/516>*

### Guidelines for visitors to Mbeli Bai, Nouabalé-Ndoki National Park

These brief guidelines should help you prepare for the tropical rain forest and for visiting Mbeli Bai. The Nouabalé-Ndoki National Park is an intact forest ecosystem with healthy populations of wild animals. These instructions are for your safety and for the health of the animals. They will also ensure that your experience of the Nouabalé-Ndoki National Park is as enjoyable and memorable as possible. Please do not hesitate to contact Nouabalé-Ndoki National Park (NNNP) staff or researchers at the Mbeli Bai Study for any questions regarding health, safety and wildlife. It is important that you always follow the instructions of NNNP staff (both guides and researchers) carefully during your visit.

#### Illness

- No visitor should visit the forest if they have any symptoms of illness. If you become ill during your visit, please notify the Park staff or research team leader immediately. Cases of human viruses and bacteria that can be transmitted from

humans to apes include influenza and the common cold. Therefore, these illnesses could prove harmful to chimpanzees and gorillas.

#### **Behaviour in the camp**

- Your accommodation is situated 2.7 km from Mbeli Bai and it will take you around 45 minutes at a leisurely pace on a well-trodden path to reach the clearing. You are in the middle of the rainforest and it is not uncommon to encounter wild animals in the camp or on the path. Wild animals are potentially dangerous and should always be treated with the utmost respect.
- Extreme care should be taken if moving between your house and your toilet during the night, and you should not move around the camp at night without a guide.
- In the NNPN we are trying to integrate research and eco-tourism at one site. We do however ask you to respect the camp workers and researchers who live in the camp, and avoid leaving the tourist camp to visit the research camp.
- Please do not drop litter.

#### **Behaviour in the forest**

- Do not walk in the forest without a guide or a researcher
- Always stay in visual contact with park staff, guides or researchers. Park staff have years of experience with wild animals and will provide instructions in the event that you meet an animal on the path to the bai.
- Follow the instructions of park staff, guides and researchers when encountering an elephants, gorillas or other wild animals.
- Never run or shout while in proximity to wildlife.
- Walk silently and always be vigilant while in the forest.
- Do not approach any large animals, including chimpanzees, gorillas and elephants. Never try to touch or in any way physically contact any of the animals in the forest.
- Act submissively towards all animals in the forest and do not exhibit any behaviour that may threaten or harass the animal.
- If you meet a gorilla in the forest, you must remain where you are, keep quiet and still and don't run away.
- Avoid making any noise or other disturbance while in the presence of wildlife. (If you have to communicate with your guide or your group, use low and hushed voices).
- Do not use flashes or artificial lights when photographing or filming wildlife. Also, please keep any equipment noise to a minimum. Wear appropriate field clothes, preferably in forest colours such as green and brown.
- Do not drop litter. Human refuse (food remains, garbage, personal items, etc.) is often attractive to wildlife and should be transported from the forest to designated latrines and disposed of properly. Ziploc bags should be included in hiking gear to store and transport trash generated while in the forest.
- Smoking is prohibited in the forest.
- Please refrain from coughing, sneezing, or nose blowing in proximity to animals.
- Please use designated latrines at either Mbeli Bai camp or Mbeli mirador, and avoid using the forest as a toilet!

#### **Behaviour at the bai**

- All the animals visiting Mbeli Bai are wild and habituated only to the presence of researchers on the observation platform (mirador). In order to minimise disturbance and maximise your time with the animals please when on the platform:
- Speak quietly, move slowly.
- Do not smoke, do not cook food.
- Do not walk in the forest behind the mirador.
- Avoid wearing colourful clothes, such as bright red, yellow.
- Always listen to the advice of the researchers.
- Do not walk to the toilet without a tracker.
- Do not lean over the edge of the mirador.
- Be aware of snakes!

## D. Western Gorillas: forest walk/chance observation

*Note: These recommendations were adapted from a Zoological Society of London visitor information leaflet provided to tourists who visit Mikongo in Gabon (ZSL 2009). During guided walks through the forest, visitors could on occasion encounter gorillas.*

### Requirements and recommendations to tour operators

#### Requirements:

- **Age limit:** no less than 15 years old - this is primarily because children of less than 15 years old can still be vectors of childhood diseases and might not be able to deal in an appropriate manner with a dangerous situation – there is no official upper age limit.
- **Good physical fitness:** guests have to be fit enough to hike for a minimum of 2–3 hours in a dense and humid environment.

#### Recommendations:

- **Guests should have updated vaccinations for the following diseases:** polio (attenuated), measles, tetanus, hepatitis A, yellow fever (compulsory in Gabon). At this stage, as guests are not in close contact with habituated gorillas, vaccinations are only recommended. There is no way for us to check that guests are actually vaccinated against these diseases before they arrive at MCC and it is difficult to make sure that tour operators actually provide these recommendations to their customers. If tourists are to be taken for habituated gorillas viewing in the future, vaccinations will be compulsory and ways of control implemented.
- **Clothing:** Guests should wear comfortable outdoor clothes of neutral colours (avoid visible colours such as white, bright blue and red, as well as black), preferably long trousers and long-sleeved tops.

#### Checking for guests' health status

- **Visitor health information form:** at their arrival, guests are given a health form to fill in as part of an indemnity form package (cf. annexe I). The health form should be used as a support to raise guests' awareness about zoonotic diseases and as a means to check for guests' healthiness from their arrival.
- **Direct observations:** ecoguides and management staff have to pay attention to any sign of illness (fever, weakness, dizziness, sneezing/coughing/sniffing, diarrhoea/vomiting, injury) shown by guests. Guests also have to be encouraged to self-report any health problem occurring during their stay. In case a guest shows any signs of illness, the management staff has to strongly recommend guests to stay at camp. The management staff retain the right to deny access to the forest to any guest believed to be ill with a transmissible disease (e.g., cold, diarrhoea) or with any affliction likely to compromise their safety.
- **Awareness:** posters summarising primate health rules have been designed, and posted in all guest rooms.

#### Applying responsible behaviours

- **Informing guests upon their arrival:** in the indemnity form package to be signed by tourists at their arrival (cf. Annexe I), a sheet summarises the main safety rules and recommendations corresponding to responsible behaviours to follow while in the camp and in the forest. These rules and recommendations are similar to the ones provided to forest workers. One important additional rule is that guests have to respect and follow ecoguides' directives during walks in any case. To empower and increase the sense of responsibilities of ecoguides, ecoguides have to be the ones explaining the rules and recommendations to the guests from their arrival: the ecoguide has to go through them with the guests and check that they are well understood. So particular attention should be given to refresh ecoguide training on these rules and check on how they apply them.
- **Group size:** whatever their size, all groups have to be accompanied by 2 ecoguides, one leading and one at the back. The maximum group size for guided walks is recommended to be no more than 7 persons, including ecoguides, for safety but also to increase wildlife viewing opportunities. Larger groups should then be encouraged to split into smaller ones. This question needs to be addressed in advance with tour operators when discussing bookings so that guests and tour leaders are aware before their arrival.
- **Introductory talk and check-up by guides:** before going for walks in the forest, leading guides have to explain again the rules and recommendations to the guests and check that all are dressed appropriately and look in good shape.
- **Boot cleaning and disinfection:** before and after each walk, guides and guests have to dip their boot soles into the disinfectant solution.
- **During walks:** ecoguides have to avoid interfering with the habituation work by preparing walks with guests in advance and checking with the habituation team that areas involved do not overlap. Regular radio checks between teams during walks have to be made to check on their respective position and adapt tourism circuits accordingly. It is strictly forbidden that ecoguides and guests purposefully join the habituation team in the forest.

## E. Chimpanzees

*Note: Extracted from the Jane Goodall Institute–Uganda Ecotourism Health Protocols (JGI-Uganda 2006), which cover a range of visitor categories. The excerpt below is for ‘Day Visitors’, i.e. tourists. Regulations vary slightly between JGI and other chimpanzee sites - see also regulations from Gombe (Collins 2003; Gombe Stream Research Centre and Wilson 2006) and from Mahale Mountains National Park (TANAPA and FZS 2007).*

### Age Limits:

Minimum age is 15 years.

Maximum age is 65 years; this is also dependant on size and fitness level of the person. Management will assess all clients prior to starting the walk. If managers are concerned, you may be refused entry with the chimpanzees.

### Health Clearance:

All visitors that participate in the chimp walks are required to be free of any flu-like disease at the time of the walk. Anyone with a herpes (cold sores) outbreak will also be denied entry to the forest. If the project supervisor is at all concerned about the visitors' present state of health, participation on the walk will be denied. JGI management staff will have the final say on who can go on the walk; this is not negotiable.

### All visitors must be given the following instructions:

- 1. If you are sick, you are not allowed to enter the forest to follow the chimpanzees.** Human illnesses can infect and kill these animals. Do not approach them if they arrive in camp. Even if you are not visibly sick, you may be carrying a disease that can kill them which is why following these rules is so crucial.
- 2. It is crucial that you remain a minimum of 10 metres/33 feet from chimpanzees and baboons at all times.** If an animal starts to approach, move away to a distance of 10 metres. It is your responsibility to keep the safe and proper distance.
- 3. The number of people in your group must never exceed six (6), excluding your guide, while following the chimps.** You must be accompanied by a Guide at all times in the forest. If you encounter another group of people observing chimps or baboons, wait patiently at a distance until they move away. Children under the age of 7 are not permitted in the forest.
- 4. You are allowed to remain with a group of chimpanzees for one hour, after which you may encounter other parties briefly and visit the many scenic areas of the forest.**
- 5. It is very important that you stay together in your group.** Never spread out or surround animals you are observing. When you come upon chimps or baboons in the forest it is best that you sit quietly. You will see more natural behaviour if the chimps are relaxed.
- 6. If you must talk in the forest, speak quietly.** Do not use arm gestures while talking. This may be seen as a threat by baboons and chimps. Never stare at a baboon, as it is taken as a threat.
- 7. Carry your equipment, backpacks and other items at all times.** Both chimps and baboons will steal anything left unattended. These unfortunate incidents increase the risk of disease transfer and result in damage to your belongings. Be especially careful with bandanas and tissues. And never leave belongings outside unattended in camp.
- 8. Do not spit or nose blow on the ground. Suppress sneezes and coughs while in forest.** If you must, cover your face and turn away from the animals being observed.
- 9. Do not smoke or eat in the forest.** Always eat indoors behind a latched door. Visitors have been seriously injured by baboons that have tried to steal food.
- 10. Never feed the chimpanzees, baboons or other wildlife.**
- 11. Use the latrine and wash hands with soap before entering the forest and upon return.** You are responsible for digging a 1 ft deep hole in the forest for burying faeces when a latrine is not available.
- 12. Never attempt flash photography or use reflective devices.** Wild animals are unpredictable when startled. Visitors have been seriously threatened by chimpanzees after ignoring this rule. Never try to attract an animal's attention in order to take a better photograph.
- 13. Littering of any kind is forbidden.** Never throw food, candy wrappers, cigarette butts, or any other man-made product onto the ground. Transporting the rubbish you bring back out of the forest and reserve/park would be greatly appreciated.



## F. Orangutans: wild

### GUIDELINES FOR TOURISTS VISITING THE RED APE ENCOUNTERS, MALAYSIA WILD HABITUATED ORANGUTANS

The most important thing for a visitor to remember is to always follow the tour leader's recommendations for the safety of both the orangutan and the people.

**RULE 1: Number of people limited to 5 tourists per group (RAE staff not included).**

- *Reasons: control the risk of human impacts  
optimise the encounter and viewing opportunities for tourists*

**RULE 2: Duration of an orangutan viewing time limited to one hour maximum**

- *Reasons: reduce orangutan exposure to potential germ-carrying people  
minimise behavioural disturbance and associated stress in the animals*

If orangutans are not visible when the visitors arrive at the site, they can wait in stand-by with their guide at a minimum of 100 metres from the tree where the animal stays.

**RULE 3: Frequency of visits limited to 1 visit per day and per habituated orangutan**

- *Reasons: minimise stress of the animals  
minimise the negative impacts of heavy human presence on RAE natural environment  
(trampling, disturbance to the ecosystem, etc.).*

**RULE 4: Ill people cannot visit the orangutan**

Tourists are asked to self-report any sickness to the RAE staff and their visit will be refunded or rescheduled. RAE staff can refuse a visit to any visitor showing obvious signs of disease.

- *Reasons: minimise risks of disease transmission*

**RULE 5: Not closer than 10 metres from an orangutan**

- *Reasons: minimise risks of disease transmission*

**RULE 6: Adopt an appropriate behaviour during the close contact with the orangutan**

- *Reasons: minimise the stress and disturbance to the animals*
- *Proper behaviours:*
  - ✓ Refrain from smoking, eating, sneezing and coughing in the presence of orangutans
  - ✓ visitors should remain in a tight group, without losing contact with the RAE staff
  - ✓ where possible, visitors should sit whilst watching the apes
  - ✓ body language is important and visitors should stay as quiet as possible during their entire visit (no screaming, no brisk movements, no running, etc...). Show respect to the animals and try to remain as silent as possible with them.
  - ✓ do not clear vegetation to get a better view of the orangutans
  - ✓ do not stare at the orangutans and do not use binoculars, photographic lenses and/or video cameras if the animals are disturbed (kiss-squeak vocalisations).
  - ✓ do not try to approach an orangutan (especially a newcomer) unless a guide is with you.

**RULE 7: Adopt an appropriate behaviour during all times in the forest**

- *Reasons: minimise disturbance to the ecosystem*
- *Proper behaviours:*
  - ✓ all faecal material and papers must be buried (a parang can be borrowed anytime from the RAE staff).
  - ✓ littering is strictly prohibited at RAE site and all types of rubbish must be carried outside of the forest.
  - ✓ do not collect any living organisms from the forest (flowers, insects, seeds, etc.).

## G. Orangutans: ex-captives and wild

### Sumatran Orangutan Health Protocols and Guidelines for Visitors to the Bukit Lawang Eco-tourism Site (SOS 2008)

As you trek through the forest at Bukit Lawang, it is important to remember that you are entering the habitat of one of the rarest great ape species on Earth.

The population of Sumatran orangutans at Bukit Lawang is from two different origins:

1. Ex-captive individuals who have been rehabilitated and released in the forest. Captive and rehabilitation experiences often result in released rehabilitant orangutans not fearing humans and even expecting to interact with them.
2. Wild individuals, some of whom have become habituated to human presence, with the remaining being naïve (i.e. not used to people's presence in their forest habitat).

Inappropriate behaviour by visitors may affect the behaviour and health of orangutans from both populations negatively, which places them at increased risk of becoming stressed and falling ill. By following these simple guidelines, visitors are able to see the Sumatran orangutans at Bukit Lawang in a way that is both safe for themselves and safe for the orangutans, whilst at the same time, experiencing a more natural, unique experience in the forest.

#### Group Responsibilities

- A maximum group size of seven visitors is to be adhered to whilst in the forest. Research from other eco-tourist sites that allow great ape trekking has shown that visitor group size can affect the behaviour of the great apes encountered and (as a result), the visitors' experience. Where groups of visitors are too high in number, the animals become stressed and nervous and move away from visitor groups.
- Every member of a visitor group should maintain a minimum distance of TEN METRES from the closest orangutan. The potential for disease transfer, both humans to orangutan and orangutan to human, is very high due to the close genetic relationship humans share with great apes. Pneumonia, influenza, tuberculosis, hepatitis A, B, C and E, cholera, herpes, parasites and even the common cold can all be passed between great apes and humans.
  - This distance serves to protect visitors from the possibility of attack by orangutans. This is a real factor in ex-captive orangutans, since most are not afraid of humans after having lived as human captives and being rehabilitated by humans; it is not a serious concern with wild orangutans.
  - If an orangutan moves towards a visitor group or any member of the group, it is primarily the responsibility of the guide to move the whole visitor group back (maintaining the minimum distance at all times). Every member of a visitor group should nonetheless move away from any orangutan that approaches and alert others of the approach.
- Once in the presence of orangutans (less than 50 metres away, the distance at which orangutans are considered to be associating with one another), visitors may stay NO LONGER THAN ONE HOUR. The visit will be formally timed from the point of entering the orangutans' presence. When this period is over, the group is to leave the area that the orangutan is in.
  - Timing is the guide's responsibility and the viewing period CANNOT be extended.
- Remember that visitors are guests in the Gunung Leuser National Park, which is the orangutans' home and that what is best for the orangutans is to freely roam and forage naturally in the forest without excessive disturbance.

#### Orangutan Viewing

Sumatran orangutans share over 96.5% of their genetic DNA with humans and as a result they are like us in many ways. It is important to remember that orangutans are highly intelligent, thinking, feeling beings and should be treated with due care and respect. Visitors to the Bukit Lawang site are to observe the following 'orangutan etiquette' guidelines:

- Visitors should not touch the orangutans under any circumstances. Touching is very dangerous, for various reasons: diseases, infections and even parasites can easily pass between orangutans and humans and physical contact makes the likelihood of this higher. Touching also gives the orangutans the chance to grab; some of them do, with all four hands and feet, typically to steal food or other goods. A mature orangutan is approximately four times stronger than a human and can inflict serious or fatal injuries if they feel threatened, irritated or upset.
  - Binoculars may be useful because they allow close up views of orangutans from safe distances. Please do not use binoculars unless orangutans are relaxed and stop using them if orangutans show signs of becoming uneasy. Binocular lenses pointed at an orangutan can look like 'big eyes' and orangutans sometimes seem to find this uncomfortable.

- Camera usage must also follow the same guidelines for binoculars. Camera lenses may often be larger than those of binoculars and thus may irritate the orangutans. Also limit the use of flash photography as this may also affect the orangutans.
- Visitors must not feed the orangutans under any circumstances.
- Visitors should not under any circumstances move to or stay in a location that puts them between two orangutans, especially a mother and her infant or a male and his female consort. Orangutan mothers are extremely protective of their young and can become aggressive if they feel that their infant is being threatened. Male orangutans can become aggressive if anyone approaches their consort and may threaten, chase or even attack.
- Visitors or guides should not call out to the orangutans or otherwise lure them to change their behaviour. Calling or luring the orangutans can cause stress and it automatically disrupts natural behaviour.
- Visitors should refrain from making any sudden movements and should not attempt to gain the attention of the orangutans by waving their arms, etc., for the same reasons given above. In addition to disrupting their behaviour, this can annoy orangutans and evoke threats or more serious aggression.
- Visitors should refrain from making too much noise within the forest and try to talk quietly. Loud noise can be interpreted as a threat by the orangutans and they can respond either by fleeing or threatening back.
  - If an orangutan begins to make kiss-squeak vocalisations, throaty grunts or growls, or ‘raspberry’ sounds, breaking and throwing branches, or shakes trees, these are signs of irritated disturbance and aggressive threats. It is best to move on and leave the orangutan alone.

#### Visitor Responsibilities

- Visitors must not enter the forest if they are feeling unwell or recently had an illness and/or diarrhoea. It is each visitor’s moral responsibility to report any sign of disease to their guide before entering the forest. Spending time around the orangutans whilst unwell can seriously risk infecting them, which could easily result in their death—and has, in the past. Any orangutan infected by humans could potentially infect other orangutans as well.
  - If the guide feels that a visitor is not well enough to enter the forest, it is within his/her authority to refuse entry to the visitor.



A not uncommon scene at tourism sites involving ex-captive orangutans, illustrating the potential for both aggressive encounters and disease transmission. Photo © Steve Unwin.

- No food should be brought into the forest by visitors. If necessary (for longer treks or in special cases), all food should be carried by the guide for safe-keeping.
  - Eating or even having food visible whilst in the forest increases the risk of both disease transmission and attacks from orangutans. One of the main reasons that orangutans contact and attack humans is to steal food, and seeing food is therefore a major provocation. If no food is brought in, the orangutans will learn that there is nothing to attack for, which will make a safer experience for ALL of the orangutans and ALL future visitors and guides.
- Visitors should take any litter they have out of the forest when they leave.
  - This includes fruit skins as discarded foods may later attract orangutans and allow for disease transfer
  - It is most preferable to bring as little as possible into the forest, only the essentials should be taken in. This will limit chances of loss/damage.
  - Refrain from smoking in the forest. Smoking is NOT permitted when in the presence of orangutans.
- If the visitor needs to defecate within the forest, he/she must ensure that it is away from the orangutans and that a hole is dug (at least 30cm deep) and subsequently filled in. Where possible, visitors should try and wait until they are out of the forest.

### Forest Responsibilities

Like any tropical forest, Bukit Lawang and its surrounding areas represent a complicated and diverse (but above all, fragile) habitat. The whole forest system is a delicately balanced network of animal and plant species and many species are heavily dependent upon one-another. We therefore ask visitors to follow this simple guideline:

- Visitors should not remove, damage, or alter any of the vegetation within the forest. Leaves, seeds and shells all play a role within the forest ecosystem and should not be taken out.

It is the responsibility of every person entering the forest to help ensure the survival of this critically endangered species and its habitat. Visitors should discourage other members in their party, including their guides, from acting in a way that contradicts these guidelines and should express their disapproval and report to the national park office any activity which puts either the visitors or the orangutans at risk.

With your help and cooperation, the orangutan can continue to flourish in Bukit Lawang and visitors for years to come will also be able to enjoy and appreciate them in their natural forest home.

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## Appendix II – Information on Face Masks/N95 Respirator Masks

**Facemasks/Surgical Masks vs. N95 respirator masks:** This document has recommended as best practice that all visitors, including staff, tourists and researchers, who approach to a distance of 10 metres or less from wild great apes wear surgical N95 respirators. As there are a large variety of masks on the market, variously called ‘face masks’, ‘surgical masks’ or ‘respirators’, the following information describes the differences in mask types and provides additional information. All of this information is adapted from material produced by human health networks (CDC 2004; CDC 2006; Dreller *et al.* 2006; FDA 2009) and/or adapted from recommendations from great ape veterinary experts (MGVP 2008; MGVP 2009).

**Facemasks:** A facemask is a loose-fitting, disposable device that creates a physical barrier between the mouth and nose of the wearer and potential contaminants in the immediate environment. Facemasks may be labelled as surgical, laser, isolation, dental or medical procedure masks. Facemasks are made in different thicknesses and with different abilities to protect the wearer from contact with liquids. These properties may also affect how easily the wearer can breathe through the facemask and how well the facemask protects the wearer. If worn properly, a facemask is meant to help block large-particle droplets (greater than 50-100µm diameter), splashes, sprays or splatter that may contain infectious agents from reaching the wearer’s mouth and nose. Facemasks may also help reduce exposure of others to respiratory secretions of the wearer. While a facemask may be effective in blocking splashes and large-particle droplets, a facemask, by design, does not filter or block very small particles in the air that may be transmitted by coughs or sneezes. Facemasks also do not provide complete protection because of the loose fit between the surface of the facemask and the wearer’s face.

**N95 Respirators:** Although appearing similar to face masks to the layperson, an N95 respirator is a respiratory protective device designed to achieve a close facial fit and efficient filtration of airborne particles including very small airborne particles. The ‘N95’ designation means that in laboratory tests, the respirator blocks at least 95% of very small (less than 10 µm) particles, which include

small particle aerosols generated directly from a cough or sneeze. Mask ratings above N95, i.e. N99 or N100, are also acceptable as they block a higher percentage of particles. An N95 respirator requires a proper fit, tight but comfortable, to the wearer's face to be effective. A proper fit check is relatively simple: when inhaling, the respirator should collapse, and when exhaling there should be no leakage around the face. If properly fitted, the filtration capabilities of N95 respirators exceed those of face masks. However, even a properly fitted N95 respirator does not completely eliminate the risk of disease transmission. N95 respirators are not designed for children or people with facial hair, because a proper fit cannot be achieved. As N95 respirators achieve a tighter facial fit, they may require more effort to breathe and this should be explained to the wearer before use. Some people with chronic respiratory, cardiac, or other medical conditions find it harder to wear N95 masks, but great ape tourism activities, especially those that require strenuous hiking, will probably not attract this sort of tourist. Some N95 models have exhalation valves that can make breathing out easier and help reduce heat build-up, although these will be more expensive. A type of N95 respirator called the Duck-Bill N95 respirator allows more room and has been tested by the MGVP (MGVP 2008) for comfort and reduced fogging of binoculars and glasses.

**'Surgical' N95 Respirators:** There are N95 respirators sold for use in construction or other dusty situations to protect the wearer from inhaling noxious particles. Surgical quality N95 respirators are approved for use in medical situations and meet additional performance standards for surgical face masks, and therefore it is the 'Surgical N95 Respirator' that is recommended as best practice for great ape tourism.

**Mask Information Sources:** More information on the types of masks and respirators described above can be found on a number of public health information websites. An excellent resource, including pictures of the different types, can be found at the website below, which also describes in great detail the host, pathogen and environmental factors that affect a particle's infectivity: <http://pandemicflu.gov/plan/healthcare/maskguidancehc.html>

**Disposal of Used Masks and Respirators:** Masks and respirators may only be used once. Used masks or respirators must be placed in a plastic bag and carried out of great ape habitat or back to a base camp and disposed of hygienically – as they are paper based, they can be burned. Staff members should wash hands or use a hand sanitizer after handling used masks.

**Mask Procurement:** As this document is intended to be a global resource, it is difficult to provide a list of mask suppliers. Veterinary support networks and relevant public health ministries should be able to provide guidance on mask procurement options in each geographic region.



Ranger wearing a duck-billed N95 surgical mask, Virunga National Park, DRC. Photo © Christina Ellis

# Occasional Papers of the IUCN Species Survival Commission

1. *Species Conservation Priorities in the Tropical Forests of Southeast Asia*. Edited by R.A. Mittermeier and W.R. Konstant, 1985, 58pp.
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