

## Chapter 2

# Wildlife Watching

Peter Valentine and Alastair Birtles

### Introduction

This chapter is concerned with wildlife tourism that is focused on watching free-ranging animals in their natural habitats. It begins with a review of wildlife watching and classifications used to describe the activities and attractions involved. A central element is a global assessment of critical natural resources needed for wildlife watching including their geographical distribution. The chapter also provides a number of examples of different types of wildlife watching to assist the reader in appreciating some of the more experiential dimensions of this form of tourism. Several key aspects of sustainability are discussed using an example from marine wildlife watching.

Humans often have extremely intense and deeply personal experiences through wildlife watching and this may lead to outcomes that are extraordinary in their impacts on people's lives. At least some, if not most, forms of wildlife-watching tourism seek to provide just such an experience for their clients. There are many examples of intense encounters with wildlife in the literature, and the following account is from a famous scientist, co-author of the theory of evolution through natural selection. In this description one can sense the depth of emotion and excitement generated by his first encounter with a birdwing butterfly in the wild.

'I found it to be as I had expected, a perfectly new and most magnificent species, and one of the most gorgeously-coloured butterflies in the world. ... more than 7 inches across the wings, which are velvety black and fiery orange .... The beauty and brilliancy of this insect are indescribable.... On taking it out of my net and opening the glorious wings, my heart began to beat violently, the blood rushed to my head, and I felt much more like fainting than I have done when in apprehension of immediate death. I had a headache the rest of the day so great was the excitement produced by what will appear to most people a very inadequate cause.' Alfred Russel Wallace, *The Malay Archipelago*, Chapter xxiv p257-258 [1962 reprint of revised 1869 edition].

### Description and classification of wildlife watching

Although a dichotomous distinction is often made between free-ranging and captive animals there is in fact a continuous spectrum of wildlife-watching experiences (see Chapter 1). Other variations among different forms of wildlife watching may relate to one or more of the following: primary objective, level of interpretation provided by operator or site manager, type of transport or platform, seasonal or diurnal variations, concentration or dispersion of the wildlife, managerial and social settings, degree of wilderness, type of environment and price variations (Higginbottom et al. 2001).

Tourism experiences involving wildlife vary greatly in the emphasis or intensity of encounters. In some cases the wildlife forms the basis and entirety of the tour package, as in dedicated birdwatching or whale-watching trips. In some, while wildlife may provide a focus and incentive, there are other attributes of significance within the trip. For example, some wildlife safaris in east Africa include cultural elements. In much

landscape-based tourism the wildlife may be part of the backdrop and occupy an incidental (but sometimes significant) element of the experience as, for example, free-ranging kangaroos seen from a regional tour bus in Australia.

The type of wildlife, environmental variations and design or context of the wildlife experience provide further planning and management divisions of wildlife watching. The actual animals that form the basis of wildlife watching include butterflies in Mexico and California (Monarch over-wintering sites), through migrating birds in most continents – from hummingbirds and hawks to waders – to spectacular aggregations (flamingos and cranes). The ‘big five’ mammals in east Africa (elephant, rhinoceros, buffalo, lion and leopard) are well known, but numerous large and appealing species throughout the world are also important for wildlife watching. Most countries have actual or potential target species for wildlife watching. Aggregations of mammals from whales to wildebeest attract significant interest from tour operators and some of these are associated with life-cycle activities such as breeding and migrating. A key element in the better-known species is predictability, which enables a tourism venture to be developed, enhanced and offered to the visitor. Environmental distinctions include broad categories of marine, terrestrial, coastal areas and specific habitat types (e.g. wetlands, rivers, rainforests, savannah, mountains, deserts, coral reefs, pelagic areas). Although it is true that some environments may be more species-rich than others, there are wildlife watching opportunities in almost every type of natural environment.

The design or context of the wildlife experience is quite varied (Higginbottom and Buckley, 2003) and includes:

- Unguided encounters with wildlife in natural areas (e.g. National Parks) with no direct involvement of commercial tourism operators. This is a common form of wildlife watching in the USA, Canada, Australia and parts of Europe.
- Specialised wildlife tours (e.g. bird-watching tours, safari tours, whale-watching tours).
- Managed locational attractions featuring a natural aggregation of wildlife (e.g. penguin breeding colonies, fish aggregation areas, migratory pathways for birds and mammals including waders and whales, overwintering insect aggregations, glow-worms in caves).
- Nature-based tours that include wildlife (e.g. National Park tour with game drive; regional protected area tour, day trip to specific habitat areas (e.g. rainforest) with wildlife component).
- Research, conservation or education tours involving wildlife, offered by organisations whose primary role is not tourism (e.g. university groups, Earthwatch, conservation NGOs, some government and NGO alliances).
- Sightseeing tours that include some element of incidental wildlife-watching.
- Accommodation or other tourism facilities that feature surrounding wildlife (e.g. resorts, farm-stays).

Valentine (1992) also provides a set of dimensions that apply to wildlife watching, divided into broad categories of experience, style and location. Each of these dimensions is useful for description, analysis and management of wildlife-watching tourism. There remains a number of unknowns, including the precise role of individual species in attracting tourists.

## **Importance of Wildlife Watching**

The US Fish and Wildlife Service has been conducting national surveys of wildlife-related activities and expenditures for many years and provides an excellent indicator of the significance of wildlife for recreation within a single country. Most recently the publication of the final results from the 2001 study of economic impacts of wildlife watching based on a study of 15,000 wildlife watchers across the USA provides further evidence of its importance in that country (Caudill, 2003). The study excluded visits to captive wildlife sites and included data on activity close to home and further afield. Expenditure levels were very large and indicate the generally high level of technical equipment used. In one year wildlife watchers alone spent US\$2.6 billion on cameras and other photographic gear and spent US\$507 million on binoculars and spotting scopes. In 2001 more than 66 million adults participated in feeding, observing, and photographing wildlife and spent US\$38.4 billion, an increase over the previous study five years earlier (Caudhill and Laughland, 1998). As Caudill (2003) notes, rural areas attract thousands of wildlife watchers each year, generating millions of dollars. Across the USA wildlife watching expenditures in 2001 generated US\$95.8 billion in total industry output including US\$6.1 billion state and federal taxes as well as over 1 million jobs.

Measures of simple participation and estimates of expenditure may be supplemented by studies that seek to understand the significance of wildlife to human communities (Kellert, 1996). Such studies reveal that humans have favourite species (those they might fight hard to protect) and less-favoured species. Not surprisingly mammals and birds are more favoured than reptiles and insects although there are regional variations. Outside North America information on the importance of wildlife tourism is difficult to obtain, though a few scattered statistics are available (see Chapter 1).

Although the available information is limited in terms of geographical coverage and accuracy, the evidence points to wildlife watching being economically important on a global scale (Higginbottom and Buckley, 2003). However, as Higginbottom et al. (2001) point out, caution is required in drawing conclusions about the level of demand. Overestimating demand can lead to undesirable outcomes flowing from unhealthy competition between operators and inappropriate investment of scarce resources. Underestimating demand can also lead to management problems, with infrastructure and resources lagging behind requirements. Apart from the broad data on participation, sustainable management practices require much more detailed information on visitors, notably the kinds of experiences sought, levels of specialisation and particular settings desired. These form the basis for visitor-management programs, themselves essential components of managing tourism in protected areas. McCool (1996) examines links between wildlife watching, protected areas and sustainability. This field is of crucial importance to protected area managers and IUCN has recently prepared best practice guidelines to ensure sustainable tourism in protected areas (Eagles, McCool and Haynes, 2002).

Nevertheless, there are major gaps in our understanding of the nature of wildlife-watching demand. Higginbottom et al. (2001) note that very little is known about:

- the levels of demand for watching particular species;
- the levels of demand for different types of wildlife encounters such as free-range versus captive and remote versus easily accessible;
- the characteristics of tourists who seek wildlife encounters;

- the range of different types of wildlife tourism markets; and
- whether existing growth reflects an increasing interest in wildlife or the filling of latent demand.

Moscardo and Saltzer provide a review of current knowledge about some of these elements (see Chapter 9). They also point out that the most desirable features of wildlife tourism included seeing rare and distinctive wildlife behaving naturally in their natural environment. Box 2.1 provides an example that fits most of the listed desirable features. It also serves as an example of a specialised form of wildlife watching available to non-specialist visitors. The new tourism also brings positive outcomes to local communities - a key feature of sustainability.

### **Box 2.1: An example of a wildlife watching experience in a National Park**

#### **Tiger watching in India**

'It is still dark when I walk from the forest rest house to the elephant loading platform and join the mahout who will be my driver. He speaks no English, and I no Hindi, but we greet each other, he with a welcoming smile and I with excited grin. I am in Kanha National Park in the heart of India and Dr M.K. Ranjitsinh, the Director of National Parks in Madhya Pradesh, has arranged for me to learn more about the tiger management program. This early morning start is to locate a suitable tiger for the daily tourist tiger-watching activity. Elephants were previously used in the logging industry but are now a cornerstone for park management, providing tiger monitoring duties and, critically, transport for tourists to see wildlife, especially tigers. Kanha National Park is India's oldest and its 100 000 ha provide a home for up to 100 adult tigers and the game on which they feed (mainly Chital). The tourism industry is predominantly national but provides income and work for the former forest workers and their elephants.

The elephant negotiates trails throughout the Sal forest (*Shorea robusta*) leaving minimal impacts with its huge padded feet and from its back we have an excellent view. Each tiger is known to staff by its distinctive face pattern and pug mark and this morning it takes only an hour or so to find one at rest after a kill. We approach cautiously and it seems to me that the closer we get to this large male tiger, the smaller the elephant we are riding. There is mutual respect between these two great animals here in their home ground. From long experience the mahout knows that he must keep the elephant at least 5 metres from the tiger. I consider 20 or 30 metres much more prudent and notice that all the hairs on my body are on edge. Nothing I had read or seen before prepared me for this amazing experience. The first thought was that the tiger is much, much bigger than I had imagined. The beauty of the tiger's huge head frames a pair of wide-set almost glowing eyes that draw my attention. I sense intelligence and power and only the relaxed attitude of the tiger calms my fear. When the tiger rises and strolls a few metres through the undergrowth the striped patterns cause it to vanish from view and I appreciate the stalking value of these markings. I also further realize its size and again feel fear rising. I am grateful to be aloft on the back of an elephant and hope that the mahout is very experienced. I know then that the power of this encounter will be with me all my life. Tigers are indeed fearsome and magnificent creatures and Blake's immortal lines come back to me whenever I recall this experience.

*'Tiger, tiger, burning bright  
In the forests of the night...'*

Later we returned to the village and loaded many more elephants with tourists for their own very special experience.' PV.

This encounter occurred in 1982 – unhappily poaching subsequently decimated the tigers of Kanha due to the demand for dead tigers from Asian medicine. Gradual recovery has occurred more recently and numbers are reportedly above 100 once more (Wildlife Protection Society of India, web site 2003).

### Where is the wildlife?

The world's highest levels of biodiversity occur in less-developed countries and these offer some of the world's most well-known wildlife-watching destinations. Shackley (1996) ranked the world's most 'popular' destinations for international wildlife watching based on numbers of tour operators. These were Eastern Africa (particularly safari-style viewing of large cats and ungulates), followed by Central and Southern America (rainforest wildlife and the Galapagos National Park). In some of the countries in these regions (e.g. Kenya, Costa Rica, Ecuador), wildlife is the major motivation for tourism.

Although wildlife occurs across the world, there are several variables that may influence the development of a wildlife-watching tourism industry. Global biodiversity is far from uniformly spread across the planet. In general, tropical regions have the greatest proportion of biodiversity and these coincide with the relatively less developed countries. For most life on earth we do not have accurate counts of the numbers of species, and many scientists acknowledge the limited prospect of identifying all the species before some disappear in the face of the present extinction spasm (Wilson, 1988). Even the estimates of numbers of species vary widely (from about 5 million out to 100 million) but all are well above the current number of described species (around 1.5 million). Only a much more limited number feature prominently in wildlife tourism. For these groups, not surprisingly, we are better informed. In particular, the global totals for amphibians, reptiles, birds and mammals are reasonably accurate now (Table 2.1). Even the fish are reasonably well known with the exception of those from the deepest parts of the ocean.

**Table 2.1: Estimates of total numbers of species of various groupings of wildlife**

Mammals	>4000
Birds	>9000
Reptiles	>6300
Amphibians	>4200
Sharks & Rays	>800
Bony fish	>18000

Adapted from Wilson, 1988

While the distribution of wildlife is uneven across the world, accurate numbers by continental region are difficult to estimate and many countries in the tropical world have no good estimates for even the best-known groups. Even at the continental level there are little comprehensive data, although some generalisations may be made. Africa (>2300 species), Asia (2700 species) and South America (>3000 species) have

very rich bird life and countries in Central America may be locally diverse and prolific. Africa (1150 species) is exceptional for mammal diversity but Australia has very high mammalian endemism (79%).

Clearly the type of wildlife of interest to tourists is a subset of the total figures and there are several variables that might influence the popularity of a particular animal class. As Higginbottom and Buckley note (2003) attractive wildlife resources for tourism mostly fall into one of the following categories:

- large numbers of large animals
- single iconic species, usually of large body size (what may be termed charismatic megafauna)
- areas of high diversity (species richness) where many different species may be seen

Table 2.2 shows the broad patterns of wildlife-watching tourism destinations with indications of the types of wildlife that are prominent at the locations and additional comments related to sustainability issues at those destinations.

**Table 2.2: Major international destinations for wildlife watching**

<b>Region</b>	<b>Wildlife</b>	<b>Comments</b>
Eastern and Southern Africa (especially South Africa, Kenya, Tanzania, Zimbabwe, Namibia, Rwanda)	Large mammal (and sometimes bird) watching as part of safari-game lodge experience. Principally in public protected areas; also private game reserves especially in South Africa.  Mammals with high diversity, high abundance, large body size. Open plains and plateaus with large vistas make it easy to find and observe wildlife. Penguins and whales in marine and coastal areas (southern), hippos and crocodiles in wetlands and rivers.	Long experience of nature/ wildlife (safari) tourism.  Ban on sport hunting and trophy trade in Kenya.  Except for South Africa, most tourists are international.  Significant environmental and socio-political threats.  Many reserves fenced (South Africa) and wildlife professionally manipulated for sustainable management.
North America (USA and Canada)	Mainly large mammals and birds. Key species include several species of bears (especially polar bears in Churchill, Manitoba), large ungulates, arctic foxes, red wolf, coyote, bobcat, river otter, alligators, snakes, invertebrates. Centred on protected areas. Significant marine and coastal wildlife watching from cetaceans to pelagic birds.	Trend away from hunting to wildlife watching. Growth in birding. Strong domestic component to terrestrial wildlife-watching tourism. Major initiatives to link wildlife watching to conservation. Migratory component significant (adds seasonality and concentration).
Central and South America (especially Costa Rica, Belize)	Mainly forest fauna in areas of high biodiversity including Amazon basin. Some as part of general nature-based experience. Key species include various primates and birds. Increasing use of water-based marine and freshwater systems.	Central America generally better developed for tourism than South America due to greater political stability, closer to large market, strong protected area systems, multinational initiatives. Significant environmental and socio-political threats.
Southeast and South Asia (especially India)	Various forest fauna in areas of high biodiversity in SE Asia, mostly as part of general nature-based experience. Key species including orang-utans and Komodo dragon. More specialised wildlife watching in India. Mainly in protected areas. Some growth in marine wildlife tourism.	Wildlife tourism generally small but new areas and species becoming available. Significant environmental and socio-political threats. Significant future potential in some countries.
Pacific Ocean, includes Micronesia and Hawaiian Islands, New Zealand, Fiji, Galapagos	Primary focus on dive tourism with some focus on marine species (manta rays, sharks including whale sharks, coral reef organisms, whales and dolphins)	Marine tourism especially subject to growing pressures and need for close management. Many uncertainties needing research.
Australia and Papua New Guinea	International visitor interest in icon species (koala, kangaroo) and some specialised focus on marine environments including coral reef diving, whale watching, whale sharks. Endemic birds also a focus. Mainly in protected areas.	Well developed specialist infra-structure.

Partly based on Higginbottom and Buckley, 2003

In some countries much of the natural environment has been transformed into farmland with a subsequent loss of species richness. Small reserves may provide temporary refuges for species. In other countries the fauna are spread over very large distances, making tour operations quite challenging and expensive. Some particularly

favoured areas with high faunal diversity within relatively small areas are hotspots for wildlife tourism. For example, wildlife watching takes advantage of great concentrations at predictable times of the year (ungulates and associated predators in east Africa; forest birds in Costa Rica or Peru; migratory whale aggregations throughout the world; coral reefs and tropical rainforests). Remote oceanic islands, especially rich in sea birds and other wildlife, are increasingly visited by tourists. Part of this attractiveness probably reflects the ease of sighting individuals. For example, savannahs provide good opportunity for ungulate watching, especially if infrastructure (vehicles, hides, etc) is developed. Rainforests may, by contrast, be very difficult environments within which to see wildlife (unless guided by an expert). In some situations wildlife may be most active at night and require very specialised watching arrangements (for example Australian rainforest mammals are almost entirely nocturnal). The previous experience of the wildlife tourist will be an important factor in successful watching of new species. This has led to the development of very specialised guides and guiding services in wildlife watching that ensure even the most challenging animals may be seen.

### **What makes a great wildlife-watching tourism destination?**

Table 2.2 provides a regional synopsis of wildlife watching elements, but for greater detail most data are compiled at the national level. In the end comparisons made by selected countries give at least a hint of the regional concentrations of wildlife. Given the diversity of wildlife, environments and total area of different countries, are there ways in which the key natural resources of wildlife-watching destinations can be assessed and some estimate made of potential success and sustainability of wildlife tourism for a given country? The data collated by the World Resources Institute on global environmental parameters allow a useful comparative analysis to be undertaken. Although there are similarities across the groups, the following analysis first examines birdwatching and then mammal watching as examples of wildlife-watching natural resource assessment. Similar analyses should be done at a finer scale both within countries and within other animal groups (for example, reptiles, fish and insects). Ryan (1998), for example, has reviewed crocodiles as target species for tourists. In this analysis the critical socio-economic and political variables of particular places are not considered, but these may well have an over-riding effect on visitor choice of destination, especially in the context of increasing personal safety concerns.

### **The top global birding prospects**

Birds are fascinating to many people and the prolific literature in this area attests to the lure of birdwatching, partly at least, because birds are relatively easy to see and identify and they are at times abundant and sometimes conspicuous. The key natural resource variables proposed, and represented in Table 2.3, are as follows: the total number of species, the mean number of species per unit area, the percentage endemic species, threatened species and the percentage area protected. These variables relate to prospects of encountering a wide range of wildlife, relatively unusual species (not previously seen by tourists), rare species (threatened) and the likely sustainability of the resource (through protected area designation). At this global scale of assessment these figures are broad summaries of national condition and there is a need to be cautious in using them. Even so, some useful categories of potential birdwatching destinations emerge.

**Table 2.3: Wildlife and protected area data for countries across the world**

Region/Country	%PA	BIRDS					MAMMALS				
		N	C	E	%E	T	N	C	E	%E	T
AFRICA											
Egypt	0.8	153	33	0	0.0%	11	98	21	7	7%	15
Oman	16.1	107	39	0	0.0%	5	56	20	2	4%	9
Iran	NA	323	60	1	0.3%	14	140	26	6	4%	20
Botswana	18	386	101	1	0.3%	7	164	43	0	0%	5
Cameroon	4.4	690	193	8	1.2%	14	409	114	14	3%	32
Eritrea	4.3	319	141	0	0.0%	3	112	50	0	0%	6
Ethiopia	5	626	133	28	4.5%	20	255	54	31	12%	35
Ghana	4.6	529	186	0	0.0%	10	222	78	1	0%	13
Kenya	6	847	222	9	1.1%	24	359	94	23	6%	43
Madagascar	1.9	202	53	105	52.0%	28	141	37	93	66%	46
Mozambique	6	498	117	0	0.0%	14	179	42	2	1%	13
Namibia	12.9	469	109	3	0.6%	8	250	58	3	1%	11
Sudan	3.4	680	110	1	0.1%	9	267	43	11	4%	21
Nigeria	3.3	681	153	2	0.3%	9	274	62	4	1%	26
South Africa	5.4	596	122	8	1.3%	16	255	52	35	14%	33
Rwanda	13.8	513	373	0	0.0%	6	151	110	0	0%	9
Tanzania	14.6	827	184	24	2.9%	30	316	70	15	5%	33
Uganda	7.9	830	290	3	0.4%	10	338	118	6	2%	18
Zimbabwe	7.9	532	159	0	0.0%	9	270	81	0	0%	9
Congo DR	NA	929	153	24	2.6%	26	450	74	28	6%	38
OCEANIA											
Vanuatu	0	76	71	9	11.8%	6	11	10	2	18%	3
New Caledonia	6.2	107	87	22	20.6%	10	11	9	3	27%	5
Samoa	3.6	40	61	8	20.0%	6	3	5	0	0%	2
Solomons	0	163	115	43	26.4%	18	53	37	21	40%	20
Australia	7	649	72	350	53.9%	45	260	29	206	79%	58
New Zealand	23.4	150	51	74	49.3%	44	2	1	2	100%	3
Papua New Guinea	0	653	184	94	14.4%	31	222	63	65	29%	57
Kiribati	36.6	26	62	1	3.8%	4	X	X	0	0%	0
Fiji	1.1	74	61	24	32.4%	9	4	3	1	25%	4
F.S. Micronesia	0	40	96	18	45.0%	6	6	14	3	50%	6
ASIA											
Indonesia	10.1	1530	271	408	26.7%	104	457	81	222	49%	128
Malaysia	4.6	508	160	18	3.5%	34	300	95	36	12%	42
Thailand	13.8	616	168	2	0.3%	45	265	72	7	3%	34
Vietnam	3	535	168	10	1.9%	47	213	67	9	4%	38
Philippines	4.8	196	64	186	94.9%	86	158	51	102	65%	49
Brunei-Darussalam	21	359	430	0	0.0%	14	157	188	0	0%	9
Japan	6.8	250	75	21	8.4%	33	188	57	42	22%	29
China	6.2	1103	114	70	6.3%	90	400	41	83	21%	75
Mongolia	11.5	426	80	0	0.0%	14	133	25	0	0%	12
India	4.4	926	137	58	6.3%	73	316	47	44	14%	75
Bangladesh	0.7	295	122	0	0.0%	30	109	45	0	0%	18
Nepal	7.6	611	252	2	0.3%	27	181	75	2	1%	28
Pakistan	4.7	375	88	0	0.0%	25	151	36	4	3%	13
Afghanistan	0.3	235	59	0	0.0%	13	123	31	2	2%	11
Kazakhstan	2.7	396	62	0	0.0%	15	178	28	4	2%	15
EUROPE											
France	13.5	269	72	1	0.4%	7	93	25	0	0%	13
Germany	26.9	239	73	0	0.0%	5	76	23	0	0%	8
United Kingdom	20.4	230	80	1	0.4%	2	50	17	0	0%	4
Spain	8.4	278	76	5	1.8%	10	82	22	4	5%	19
Turkey	1.3	302	72	0	0.0%	14	116	28	2	2%	15
Belarus	6.3	221	81	0	0.0%	4	74	27	0	0%	4
Russian Federation	3.1	628	54	13	2.1%	38	269	23	22	8%	31
N&S AMERICA											
Canada	9.1	426	44	5	1.2%	5	193	20	7	4%	7
USA	13.1	650	68	67	10.3%	50	432	45	105	24%	35
Mexico	3.4	772	135	92	11.9%	36	491	86	140	29%	64
Belize	20.9	356	271	0	0.0%	1	125	95	0	0%	5
Jamaica	0.1	113	110	26	23.0%	7	24	23	2	8%	4
Panama	18.8	732	376	9	1.2%	10	218	112	16	7%	17
Costa Rica	14.2	600	350	6	1.0%	13	205	120	7	3%	14
Guatemala	16.8	458	208	1	0.2%	4	250	114	3	1%	8
Colombia	8.2	1700	356	67	3.9%	64	359	75	34	9%	35
Ecuador	42.6	1388	460	37	2.7%	53	302	100	25	8%	28
Argentina	1.8	897	140	19	2.1%	41	320	50	49	15%	27
Guyana	0.3	678	246	0	0.0%	3	193	70	1	1%	10
Chile	18.7	296	71	16	5.4%	18	91	22	16	18%	22
Venezuela	35.4	1340	302	40	3.0%	22	323	73	19	6%	24
Peru	2.7	1541	310	112	7.3%	64	460	93	49	11%	46
Brazil	4.4	1500	162	185	12.3%	103	417	45	119	29%	71



[compiled from WRI Earthtrends data collected by the World Resources Institute based on their 2003 digital database. (<http://earthtrends.wri.org/>). %PA = percentage of country in protected areas; N = number of breeding species; C = number of species per million hectares; E = number of endemic species; %E = percentage of species endemic; T = number of species threatened; Countries organised by region from Africa, Oceania, Asia, Europe, North America, South America.]

Table 2.4 provides a summary of the top ten countries for each of the variables identified in Table 2.3.

**Table 2.4: Top scoring countries for the natural resource parameters in Table 3.**

rank	BIRDS			MAMMALS			%PA
	N	C	%E	N	C	%E	
1	Colombia	Ecuador	Philippines	Mexico	Brunei-Darussalam	New Zealand	Ecuador
2	Peru	Brunei-Darussalam	Australia	Peru	Costa Rica	Australia	Kiribati
3	Indonesia	Panama	Madagascar	Indonesia	Uganda	Madagascar	Venezuela
4	Brazil	Rwanda	New Zealand	Congo DR	Cameroon	Philippines	Germany
5	Ecuador	Colombia	F.S. Micronesia	USA	Guatemala	F.S. Micronesia	New Zealand
6	Venezuela	Costa Rica	Fiji	Brazil	Panama	Indonesia	Brunei-Darussalam
7	China	Peru	Indonesia	Cameroon	Rwanda	Solomons	Belize
8	Congo DR	Venezuela	Solomons	China	Ecuador	Brazil	United Kingdom
9	India	Uganda	Jamaica	Colombia	Belize	Mexico	Panama
10	Argentina	Belize	New Caledonia	Kenya	Malaysia	Papua New Guinea	Chile

[Abbreviations as for Table 2.3.]

Combining the different elements of this assessment reveals clusters of very well- (natural) resourced countries for birdwatching tourism. Indonesia is a prime example of a very high scoring country. It has extraordinary diversity, very high concentrations, high endemism and a good start to a habitat protection program. Brunei-Darussalam is another potential high quality birdwatching destination with security built in with its 21% protected area. Ecuador is also a standout country for birdwatching investment. Very high species richness and the world's highest concentration, coupled with >40% of the country protected, overshadow the lack of national endemics. Venezuela is also first ranked and despite current political problems is well placed for the long run. In Africa the longer term prospects are not so good but may be enhanced by increased protection of habitat (including through private reserves managed in an integrated way). Tanzania is best placed along with Rwanda and Namibia. Kenya and Uganda have great resources but lack protection programs adequate to the task. Some other countries stand out because of the distinctive nature of their birds. Australia and Papua New Guinea have groups of endemic species so very different from birds elsewhere that birders will come anyway. In both countries some areas are very rich locally and already attract significant birdwatching tours (for a recent review of Australian birdwatching tourism see Jones and Buckley, 2001). Box 2.2 gives an example of bird watching tourism in Costa Rica and indicates the combination of wildlife resources and local community involvement that is a hallmark for successful destinations.

## **Box 2.2: Birdwatching in Costa Rica**

### **Birding in Monteverde Cloud Forest**

'The rough road climbs through cleared and degraded landscapes from the foothills through the midslopes to finally reach the thin ribbon of cloud forest at 2000 metres ASL. Appropriately shrouded in cloud these forests are extremely complex with each tree adorned with myriad epiphytes from many plant families. Within the forest is a magnificent diversity of bird life that, to the visitor, is spectacular. There are the ever-present motmots with distinctive calls and great beauty when finally sighted, somewhat reminiscent of the bee-eaters of Africa, Asia and Australia. Once embarked upon the forest-walking track the birds are more challenging to see but very rewarding. Amongst those fruit-eating species is the emerald toucanet whose green plumage blends well with the foliage of the trees. The aptly named resplendent quetzal, national bird of Guatemala and denizen of these Costa Rican cloud forests, is often elusive but once seen is never forgotten. The male is a gorgeous mix of red and green with glowing tones and magnificent tail.

Another forest species is the toucan – beautifully coloured with such an improbable beak. As expected in such forests there are numerous song birds many of which combine colourful plumage with extravagant songs. The golden chlorophonia is one example.

For me the peak experience, however, is the variety and beauty of the hummingbirds. These exquisite swift-flying jewels continuously zip and dart through the forest and cluster in gaggles around flowering patches. In one place we counted 7 of the 24 species known from this forest, each a living gem of tiny proportions and brilliant colour. Those visitors from beyond the range of hummingbirds find it hard to believe that these creatures are birds! I recall seeing a glass showcase at the British Museum of Natural History with 50 species displayed and not being able to imagine what it would be like to see one flying. Now, as I gasp at the beauty before my eyes, it is quite amazing and I know that this experience will remain permanently vivid.

The Monteverde Cloud Forest Reserve is privately owned and managed for conservation outcomes and funded by entry fees. Its presence, and the tourists it attracts for these peak wildlife-watching experiences, support a thriving community of lodges, restaurants, souvenir factories and stores developed by the local communities, as well as value-added facilities like butterfly gardens.'

Based on field notes of a study tour in 1992 (PV)

## **Birdwatching choices – some additional social and demographic dimensions**

Many birders focus on identifying the greatest number of species possible from a given location (within local, regional or national boundaries). The increase in a birder's life list of species is an important element in the outcomes from birding activities. In some circumstances competitive birdwatching occurs amongst birders (sometimes on a lifetime/region basis, sometimes during a specified period). Achievement in these activities may take considerable skills and technical support and depending on the geographic scope may be expensive.

Jones and Buckley (2001) cite an example of measuring the appeal of a birding destination with regard to the cost per added species. Thus they indicate that seeing a

new species in the USA may cost, on average, \$75 whereas a visit to Costa Rica (species rich country but relatively cheap to travel to and within) may be much more cost-effective – about \$8–10 per species (anecdotal data based on 300 new species). The same authors suggest a trip to Australia may also be efficient for the international birder with their estimate of \$22–26 per species (based on a recent trip yielding 340 new species).

The highly dedicated specialist birders market, already well developed and expanding, can involve considerable cash flow (see Vardaman, 1980, 1982; Valentine, 1984). Such birders called ‘twitchers’ in some parts of the world (Oddie, 1980, Millington 1981) are frequently impatient with the presence of lesser-skilled individuals and desire small group size with comparable experience base. Satisfaction comes almost entirely from nature observations, or related activities. By contrast a ‘nature tour group’ would tolerate a wider variety of skills; would not focus simply on birds and would be comfortable with a larger group and more variable individuals. Satisfaction would come partly from social elements not directly related to nature observation. A third example might be non-specialist tourists whose interest is in ‘seeing somewhere different from home’. These tourists may also have an interest in nature and typically make up a high proportion of visitors to nature destinations accessible by road (e.g. National Park front country). Satisfaction for this group comes mainly from the superficial interaction with nature and the sense of discovery associated with it. Such market segregation may be desirable to maximize satisfaction but the advantages and disadvantages of particular styles for nature conservation are uncertain.

The most recent account of birdwatching resulting from the US Fish and Wildlife Service studies of watchable wildlife (La Rouche, 2003) concluded that there were 46 million birdwatchers in the USA. The average birder in this study was 49 years of age with a higher than average income and education, female, married and white. In this US study the environments used for birding and the types of birds watched were explored. The most common setting was woods, followed by lakes and streamsides, brush covered areas and fields (all above 60%). Ocean areas were less favoured (27%). The kinds of birds watched to some extent reflect this environmental preference. Waterfowl and songbirds were the most common groups followed by birds of prey and waders. The people identified as birders in this survey all claimed that they had an active interest in birds. The study attempted to refine a number of categories of avidity using the number of birds that people stated they could identify by sight or sound, the number of days spent birdwatching and whether they kept a life list (a record of all birds sighted during the birder’s life). Interestingly the 2001 results closely paralleled the results of the 1980 survey that asked the same questions (La Rouche, 2003). Only 10% could identify more than 40 species and around 5% kept a life list (usually a sign of a particularly ardent birder).

In the USA the American Birding Association (ABA) is a non-government society with aims to inspire all people to enjoy and protect all birds. It publishes the journal *Birding* and also *American Birds* within which may be found much evidence of the nature of the very keen birder, including the idea of ‘big days’ in which a birder or a team of birders seeks to set a record number of bird species sighted in a single day. A big day may target personal records for the particular location, for the State or country or for other parameters. It may be for given months also and may be a single or team effort. For example the ABA lists its big day results on the Internet by state (Florida’s

best is 179, Kansas is 225). International birding big days are also promoted and recorded. The results accord somewhat with the outcomes of the analysis on ideal birding potential earlier in this chapter. For Peru, for example, the highest big day was 331 species; for Costa Rica 308; for Australia 249; and for South Africa 247 (see the ABA web site <http://www.americanbirding.org/bigday/bigchamp1.htm>). The ABA also compiles life lists covering specific regions (for South America for example the top 30 life lists are all over 2000 species seen from that region, for Africa and Eurasia the best are also over 2000 species and for Australasia nearly 1000 species). The best world life list in 2002 reached 8195, a remarkable total but with many others almost as high. There are many other organisations around the world that support recreational bird watching including Birdlife South Africa, Birds Australia and the British Trust for Ornithology. On the Internet, virtual groups like Eurobirdnet provide support and coordination for birdwatching regionally (in this case most countries of Europe have Eurobirdnet coordinators). Additional appreciation of the birding phenomenon can be found in accounts by some of the more famous and articulate birders.

Increasing knowledge and participation in bird-watching has seen the development of large numbers of dedicated birders globally. Their needs are increasingly met by specialised tour operators who provide extremely high-level naturalist and local knowledge. Some firms are regional or national but others are global, catering for the demand for international birding experiences. Peregrine Bird Tours is an example of a global firm (administratively based in Australia), operating for many years and taking birders from many countries to the most highly diverse birding places on the planet. As an example of the global reach and diversity, Peregrine Bird Tours operated tours over the past two years to Northern India and Nepal, Peru, Namibia, Christmas Island, Ecuador and Galapagos, Cameroon, Cape York Peninsula (Australia) and Burma. In 2004 they will go to Taiwan and Okinawa, Madagascar, Malawi, Australia East Coast and Argentina.

### **The very best prospects for mammals**

In assessing the natural resources for mammal-based tourism, the comparison between countries utilised the same basic variables – species richness, concentration (species per unit area), endemism and protected areas (see Tables 2.3 and 2.4). Initially the most diverse countries for mammals are Mexico, Peru, Indonesia, the Congo and the USA. In the top 15 are also the east African mammal giants of Kenya, Uganda and Tanzania along with India and Ecuador, all above 300 species. Some additions to the first ranked countries occur due to density or concentration including Central American, south-east Asian and African countries. The existence of high levels of endemism draws attention to Australia, Madagascar and other island countries.

A significant additional factor for mammals relates to the kind of environment in which the animals occur. Some of the highest species richness and concentrations occur in tropical rainforests. These environments are notoriously difficult to view wildlife within (species that are well concealed in dense foliage and/or nocturnal). Savannahs are potentially more attractive for popular mammal watching and it is here that the east African and south African countries prevail. Not only are these countries rich in species (250 – 300 species) but they also have the very large and very numerous ungulates and their associated predators occurring mostly in environments that allow relatively easy watching from the backs of comfortable vehicles. It is this combination that has allowed the dominance of mammal watching tourism to develop

in eastern and southern African countries. This current opportunity is not as well matched with longer-term protection (with generally inadequate protected areas in most of these countries). The exceptions (e.g. Tanzania) may have stronger long-term prospects if the resource can be properly managed. Box 2.3 gives a typical example of the widely available wildlife safari opportunities in east Africa.

A recent development in both south and east Africa is the provision of ‘walking safaris’ in which visitors are accompanied by expert guides on walks that may range from a half-day to many days within game reserves. This new form of wildlife watching has a high-risk component when species such as lions, rhinos and buffalo are present. Occasionally the armed guides are forced to shoot individual animals to protect the tourists. This development also raises insurance issues for operators.

### **Box 2.3: Wildlife safari experience in east Africa**

#### **A Crater full of wildlife**

Ngorongoro Crater World Heritage Area in Tanzania is a magnet for wildlife-watching tourists. It provides a classic east African wildlife experience and offers elephants, lions, rhinos, buffalo and giraffes as well as hippos and hordes of grazing ungulates. The physical geography provides controllable access and accommodation is situated along the rim of the crater (in the forested areas) with day trips descending 500 metres to the floor of the crater. This pattern helps protect the wildlife from poaching with after-dark patrolling guards given orders to shoot on sight. In the early morning numerous safari vehicles disperse over the extensive grasslands and woodlands in the huge caldera – 20 km diameter. This is a place where most of the big five are easily seen and where the herds of wildebeest and zebra are hard to avoid. Once the desire for large mammals has been partially sated there are great opportunities for birding from the crowned cranes to flamingos, many shrikes, hornbills, woodpeckers, larks, stonechats and coucals, mousebirds and hoopoes, sunbirds and raptors.

Each safari vehicle, with open top and high sides, carries a group of passengers bristling with cameras and binoculars. The larger animals are approached to enable close viewing (sometimes not close enough for some passengers who may try to persuade the guide to go too close, for better views or photographs). Everyone has a chance to see the animal and many take photos. Little interpretation occurs on most vehicles. As the vehicles traverse the floor of the crater they congregate from place to place, attracted to specific animals as they rest or feed, or sometimes hunt. The larger or less common species create a flurry of attention for a while before the vehicles move on to other opportunities. A dusty pan might hold a pride of lions basking in the heat. A woodland edge protects two or three rhinos with enormous pointed horns – amazing animals to see so close. Elephants may be wary but sometimes allow a vehicle near. In this reserve vehicles are confined to tracks, unlike Masai Mara in Kenya where vehicles traverse the grasslands at will.

At midday the vehicles gather in droves at wetlands where hippos bathe in public gaze. Out come the specially packed lunches, each with its chicken leg atop a salad, much to the delight of the black kites who swoop and grasp the morsel from the fingers of the unsuspecting tourist. The drivers hide their chuckles.

The evenings at the Crater rim lodges may be cool and misty and zebra graze amongst the lodges. Stories of encounters are traded and species lists compared. Owls hoot’

From a field note book in 1995 (PV)

### **An expansion to other wildlife: from birding to butterfly watching**

An interesting recent development is the emergence of new taxa as subjects for wildlife watching. For example during the past decade, there have emerged an increasing number of people engaging in butterfly watching. The first field guides for watching rather than collecting butterflies have appeared (Glassberg, 1993) and the development of digital imaging and the internet has enabled a rapid growth of this

wildlife-watching interest. This development is likely to mature much more quickly than was possible for birdwatching last century and is already taking advantage of the experience from the birdwatching industry. Amongst other emerging specialisms are marine organisms such as nudibranchs and leafy sea dragons.

### **Sustainability Issues - Lessons from marine wildlife watching**

This section presents an overview of some of the key considerations for ecological sustainability in wildlife watching using a marine example. Additional material on ecological sustainability relating to terrestrial wildlife watching is given in Chapter 11.

There are very many marine wildlife watching opportunities globally and these have been developed into a significant and growing industry in many countries. In a recent review of Australian marine wildlife watching Birtles, Valentine and Curnock (2001) identified over 70 target species ranging from penguins, turtles, sea dragons, sharks and other fish to seals, dugongs, dolphins and several species of whales. Marine wildlife watching may be divided into three distinct elements: shore-based observations, boat-based observations and the very widely available in-water activities. The latter includes swimming and diving that is focussed on marine wildlife including some very specialised opportunities (diving with leafy sea dragons or aggregating giant cuttlefish in South Australia, swimming with whale sharks in tropical waters or with dolphins and whales across a wide latitudinal range). Subjects of marine wildlife watching are frequently part of species and/or populations that are recovering from gross over-exploitation. Numbers may therefore be low anyway and animals are particularly vulnerable. Sometimes marine wildlife encounters occur at critical life history stages with complications for management. For example during migration (high energy requirements, greater vulnerability to predators, individuals and groups more easily separated), breeding (courting, mating, birthing, suckling), feeding, resting and socialising. One interesting additional element of marine wildlife watching is that the industry may sometimes find itself competing with other resource exploitation activities. For example commercial fishing may produce changes in the size classes of target species that have an adverse effect on scuba diving resources.

### **The whale watching industry**

Hoyt's recent (2000) update of his original seminal work on the worldwide whale watching industry and its economic value provides a comprehensive review of the extraordinary scale and growth rate of this international wildlife phenomenon. His surveys showed that the number of whale watchers (his definition included all cetaceans) grew from 4 million in 1991 to 5.4 million in 1994 and 9 million in 1998 with the growth rate being most rapid (13.6%) in the mid to late 1990's. Three countries (USA, Canada and Spain – the latter mainly because of the Canary Islands) had over 1 million whale watchers and Australia and South Africa were fast approaching this figure. He documented that whale watching was taking place in 87 countries around the world, in contrast with only 31 in 1991. Thirty-four of the 40 International Whaling Commission (IWC) member states were involved in whale watching. This generated an estimated US\$1,049 million of total expenditure in 1998 from direct and indirect revenue. The number of communities involved in whale watching had jumped by 200 from 1994 to a total of 492 and in many cases the benefits were substantial and the community involvement was profound.

There is a significant lack of knowledge about biology and behaviour of the target species involved. Rarity, uniqueness, status as an intelligent mammal, interactivity (including curiosity and sometimes highly developed boat or swimmer-seeking behaviour), often-large size and history of exploitation all contribute to growing status of whales as iconic ‘must see’ species. Low numbers and iconic status mean that the probability of encounter is sometimes low and there is high pressure on operators to deliver encounter experiences and hence overly-energetic attempts to engage reluctant animals. There is little research on direct impacts of wildlife watching on whale species and has mostly been focussed on odontocetes and especially dolphins. Very little research has been done on baleen whales and most of that is on coastal species (Humpbacks, Gray and Right whales). The oceanic rorquals (*Balaenoptera* includes Blue, Finback, Sei, Brydes and Minke) have been largely ignored apart from recent work on Dwarf Minke Whales in the Great Barrier Reef (Birtles et al. 2002, Valentine et al. 2003). As a consequence short-term impacts are poorly understood and long-term impacts virtually unstudied. There is considerable difficulty in linking short-term and long-term effects. Cumulative impacts are often highly likely but are particularly difficult to measure. These require long-term identification of known individuals. It has proven difficult to find consistent research funding for the required long-term photo ID studies.

Direct impacts of wildlife encounters, including whale watching, have to be examined in the context of other threats to marine wildlife including: bycatch and entanglement; noise pollution including low frequency sound; ship strikes (a consequence of recovering populations, increase in traffic and higher speed vehicles); hunting; coastal and oceanic pollution and litter.

The scientific basis for much management of whale and dolphin watching is tenuous. Many of the current recommendations in guidelines and codes of practice have been based on experience rather than detailed experimental research. Sometimes legislation and guidelines developed on one species are applied inappropriately to others (eg. regulations for large coastal whales such as Humpback and Right being applied to small whales such as Minkes that behave more like large dolphins). There are particular management challenges for the fast growing swim-with cetacean interactions – both from the dedicated tourism industry but also from incidental encounters and private recreational interactions.

Given our lack of knowledge about many quite basic aspects of the biology and behaviour of target species and of our impacts on them, there is a need for use of the precautionary principle (see Chapter 11). There is also a need for greater understanding of this important management tool. Both elements of this principle need to be appreciated: (a) caution in the face of our lack of knowledge but also (b) lack of scientific certainty is not an excuse for management inaction if the consequences are severe or irreversible.

There is considerable importance in understanding both the animals and the humans who are watching them, particularly for the closer, more intimate interactions involved in swim programs. These are two-way interactions with the behaviour of the animals impacting on the people and vice versa. The successful management of such encounters requires the best available natural science and social science research. Ultimately it is usually not the wildlife being managed but people (Chapter 11). It is therefore very important to understand the attitudes, motivations and experiences of the human participants (Davis, Birtles, Valentine, Cuthill and Banks 1997, Valentine

et al. 2003). They are managed principally through education and good management by the crews and also through the use of good interpretive material. Even so, it is often unclear what are the best indicators of sustainability.

While management of all wildlife watching tourism is crucial (see Chapter 11), marine situations have added complexity. Remoteness contributes to difficulties with surveillance and enforcement (including significant cost factors). Cooperation between management agencies and industry operators is particularly critical for marine based wildlife watching. A very good example of how this might work is the relatively new Dwarf Minke Whale tourism in the northern Great Barrier Reef (Birtles et al. 2002). This example demonstrates collaboration between individual tourism operators, their wildlife-watching customers, a research team and the various management agencies responsible for the whales.

### **Issues for environmental sustainability of wildlife-watching tourism**

As already noted in the analysis of national wildlife-watching resources (above) the key foundation for wildlife watching is conservation of the wildlife. Without this wildlife tourism is simply short-term mining of the resource and has no role in a modern sustainable society. But such conservation has many dimensions and is a challenge for all countries. In wealthy countries there will often be high-yielding alternative uses for the habitat. In poorer countries the choices may appear to be impossible – short-term personal survival versus long-term intergenerational benefits. In all countries there are many stakeholders in wildlife watching and ensuring the development and sustainability of such tourism is a difficult task. While Governments have special, often central, roles in ensuring proper legislative protection and resources for conservation, other partners are also crucial. The habitat managers (protected area managers, private landowners, conservation NGOs, traditional owners) have high responsibility for the day to day outcomes. Community groups may offer political, financial and intellectual support for wildlife-watching ventures. Tour operators need to be part of planning and management. Finally tourists are critical for the financial and political success and if properly managed and nurtured (in particular through interpretation) may become valuable advocates for more resources and better conservation outcomes. Underpinning these components of sustainable wildlife watching is capacity-building at all levels.

Eagles et al. (2002), in their guidelines for planning and management of tourism in protected areas, conclude that governments should make improvements to a number of critical areas. These include support for effective legislation with adequate resources for implementation, creation of national policies on protected areas and the management of tourism and development of a management plan for each protected area.

Some countries have formalised close relationships between the environmental management arms of government and the tourism and recreation arms. For example in the USA the National Park Service has a policy to develop and maintain constructive dialogue and outreach effort with state tourism and travel offices (as well as private businesses in the tourism industry). In Australia the Ministerial Councils responsible for management of World Heritage sites usually consist of the Minister of the Environment and the Minister of Tourism, thereby ensuring close collaboration. The European Charter for Sustainable Tourism similarly emphasises not only the core need to protect and conserve the natural environment but the significance of partnerships



(including local residents, local businesses, tourists and the management agency). One key element of the Charter is to prepare and implement a sustainable tourism strategy and action plan for each protected area.

### **Prospects for the future of wildlife-watching tourism**

The classic paper by Budowski (1976) exploring the prospect of symbiosis between wildlife and tourism has been frequently cited. Many subsequently have been sceptical about the potential for tourism to be a positive force for wildlife and have identified potential problems (Valentine 1984, 1992, Isaacs 2000, Chapter 6) as well as opportunities (Valentine 1993, Chapter 6).

There is scope for misinterpretation by visitors about wildlife and their needs, and there is a large literature reflecting that (for example relating to provisioning wild animals – see Orams (2002) for a recent review). However, much habituation of wildlife is accidental or incidental. Whether it is kangaroos or possums in camping grounds in Australia, bears in the USA and Canada, coatimundi in Argentina, black kites in Ngorongoro Conservation Area, the outcomes certainly change wildlife behaviour. There are some examples of deliberate provisioning to ensure predictable tourist outcomes and the long term sustainability and behaviour modification consequences are sometimes weighed up against the immediate economic benefits from the industry. Wright (1998) notes that changing views of urban populations about animals may lead to incorrect interpretation and skewed influence of management policies. Hughes (2001) raises a related issue with regard to dolphins in the UK. The rise of concerns for individual animals may help ensure better management guidelines (for example in the wild dolphin and whale tourism industry) but may also create difficulty for the more interventionist management practices required through habitat fragmentation and reduction (culling programs for instance).

The enthusiasm of wildlife tourists for their target species creates a different kind of challenge. Here our urges to get too close discomfort the very creatures we desire. Whale sharks in Ningaloo marine park in Australia, hunting cheetah in Kenya, elephants in South Africa and numerous rare birds everywhere have been subject to disturbance from wildlife watchers. In many instances the desire for greater proximity is driven by the thirst for a close up photograph and is often enabled by professional guides in need of better tips. In this context sustainable tourism needs better training and salaries for guides, better performance management for parks staff and better ethics and guidelines for tourists. These are all important elements of sustainable tourism. For many elements of the wildlife watching industry such guidelines (for operators and tourists) are now being supplemented with regulations associated with permits for operators. A good example of cooperation in the development and implementation of these guidelines and codes of practice is the new Dwarf Minke Whale swim program in the Great Barrier Reef (Birtles et al. 2002; Valentine et al. 2003). A coalition of industry, researchers and managers, with input from tourists, has worked to ensure the emerging industry is well placed to ensure sustainability. Knowledge is a critical element in such codes of practice and guidelines. One important lesson is that each species may be different and require careful research and monitoring as a standard part of any wildlife-watching program. Chapter 11 provides many examples of approaches to sustainable management of wildlife encounters.

One of the very interesting prospects for wildlife watching is a shift or expansion of the industry into private property (see also Chapter 6). Already there are examples

in South Africa of many private landowners managing their land for wildlife watching. In some cases such owners are collaborating with government protected areas so that a larger extent of area may be jointly managed (dropping fences for example between private game parks and the Greater St Lucia Wetlands Park in South Africa). Abandoned grazing lands may also be developed as wildlife parks – one of the best examples is also in South Africa, the Pilanesberg National Park. Monteverde Reserve in Costa Rica is a famous example of private (in this case cooperative) landowners managing their land for conservation for wildlife watching (see Box 2.2 above). In the USA there are many examples (Benson 2001) and in Canada, the number one activity of vacation farm visitors is wildlife watching (Fennell and Weaver, 1997). As private landowners increase their interest in managing lands for wildlife watching, the overall security of conservation efforts should increase due to the ecological benefits of increased habitat area. The subsequent challenge will be to ensure coordinated management within the ecosystem-based model of modern landscape ecology (Brunner and Clark 1997; Soule and Terborgh 1999)

Ecosystem-based management as a philosophy and practice is already official policy in, for example, the US National Park Service, the US Fish and Wildlife Service and the US Forest Service, three major land management agencies involved with wildlife watching. This commitment to ecosystem-based management is now widespread through IUCN and other conservation organisations.

A final aspect of future wildlife watching is the role of technology (Higginbottom and Buckley, 2003). The enthusiasm for proximity to wildlife and its adverse effects on target species may sometimes be addressed through technology. Already virtual access is provided at many sites from penguin rookeries to seal breeding grounds. Where this is in association with physical proximity to the site (but slightly removed) visitors may actually enjoy enhanced experiences in greater comfort and safety, with little or no impact on the wildlife. Using sophisticated video, transmission and screening equipment visitors can obtain even more intimate encounters. In some instances such images are now available on the internet as a form of ersatz tourism (although this is unlikely to be a substitute for real tourism). Perhaps of greater significance is the prospect of technology supporting the essential monitoring needs of wildlife watching. Already some partnerships exist between management agencies, tour operators and tourists to provide continuous monitoring for management purposes.

### **The way forward**

Wildlife watching tourism is a major element of nature-based tourism and is present across a wide spectrum of environments and countries. Some countries are particularly well-endowed with natural resources for wildlife watching. For this form of wildlife tourism to be translated into successful future growth of the industry there needs to be consideration of a number of other factors and many of these are addressed in parts 2 and 3 of this volume. For the industry to be sustainable, a collaborative approach using ecosystem-based management approaches offers greatest prospect. There is a significant need for capacity building at all levels and for strong government leadership to enable best-practice codes and guidelines to be implemented. All stakeholders should participate to ensure a full spread of benefits but the crucial task is conservation of the wildlife already threatened by extensive habitat loss and in most countries inadequate habitat protection. There is also a large number of uncertainties

associated with wildlife watching. These include inadequate knowledge about the effects of wildlife watching on target species; a lack of clarity about the desire for proximity in wildlife watching tourists (including the willingness to take risk and uncertainty as part of the experience); the scope for expansion into new groups of target species and their likely appeal; the kinds of economic developments that are compatible with, or at least not destructive of, wildlife watching; the sustainability of an increasingly interventionist management style for wildlife and identification of appropriate indicators for monitoring and sustainability measures. It will take considerable cooperation between researchers, industry and management to address these concerns and take advantage of the opportunities.

## References

- Benson, D.E. 2001 Wildlife and recreation on private lands in the United States *American Journal of Agricultural Economics* **84**(5):1384-1389.
- Birtles, A., Valentine, P. and Curnock, M. 2001. Wildlife Tourism Research Report No. 11, Status Assessment of Wildlife Tourism in Australia Series, *Tourism Based on Free-Ranging Marine Wildlife: opportunities and responsibilities*. CRC for Sustainable Tourism, Gold Coast, Queensland.
- Birtles, A., Valentine, P., Curnock, M., Arnold P. and Dunstan, A. 2002 *Incorporating visitor experiences into ecologically sustainable dwarf minke whale tourism in the northern Great Barrier Reef*, CRC Reef Research Centre Technical Report No 42, 60 pp.
- Brunner, R.D. and Clark, T.W. 1997 A practice-based approach to ecosystem management. *Conservation Biology* **11**(1): 48-58.
- Budowski, G. 1976 Tourism and conservation: conflict coexistence or symbiosis. *Environmental Conservation*. **3**(1): 27-31.
- Caudill, J. 2003. 2001 National and State Economic Impacts of Wildlife Watching, Report 2001-2, US Fish and Wildlife Service, Arlington.
- Caudill, J. and Laughland, A. 1998. 1996 National and State Economic impacts of Wildlife Watching, Report 1996-1, US Fish and Wildlife Service, Arlington.
- Davis, D., Birtles, A., Valentine, P., Cuthill, M., and Banks, S. 1997. Whale sharks in Ningaloo Marine Park: managing tourism in an Australian marine protected area. *Tourism Management*. **18**(5): 259-271.
- Eagles, P. F. J., McCool, S.F. and Haynes, C.D. 2002 *Sustainable Tourism in Protected Areas*, IUCN, Gland.
- Fennell, D.A. and Weaver, D.B. 1997 Vacation farms and ecotourism in Saskatchewan, Canada. *Journal of Rural Studies* **13**(4):467-475.
- Glassberg, J. 1993 *Butterflies Through Binoculars*. Oxford University Press, New York.
- Higginbottom, K., Rann, K., Moscardo, G., Davis, D. and Muloin, S. 2001. Wildlife Tourism Research Report No. 1, Status Assessment of Wildlife Tourism in Australia Series *Wildlife Tourism in Australia Overview*. CRC for Sustainable Tourism, Gold Coast, Queensland.
- Higginbottom, K. and Buckley, R. 2003. Wildlife Tourism Research Report No. 9, Status Assessment of Wildlife Tourism in Australia Series, *Viewing of Free-Ranging Land-Dwelling Wildlife*. CRC for Sustainable Tourism, Gold Coast, Queensland.
- Hoyt, E. 2000 Whale watching 2000. Worldwide tourism numbers, expenditures and expanding socio-economic benefits. IFAW.
- Hughes, P. 2001 Animals, values and tourism – structural shifts in UK dolphin tourism provision. *Tourism Management*. **22**(4):321-329.
- Isaacs, J.C. 2000 The limited potential of ecotourism to contribute to wildlife conservation. *Wildlife Society Bulletin*. **28**(1)61-69.
- Jones, D. and Buckley, R. 2001. Wildlife Tourism Research Report No. 10, Status Assessment of Wildlife Tourism in Australia Series, *Birdwatching Tourism in Australia*. CRC for Sustainable Tourism, Gold Coast, Queensland.
- Kellert, S. R. 1996 *The Value of Life: biological diversity and human society*. Island Press, Washington.
- La Rouche, G.P. 2003 Birding in the United States: A Demographic and Economic Analysis. US Fish & Wildlife Service, Washington.
- McCool, S. M. 1996. Wildlife viewing, natural area protection and community sustainability and resilience. *Natural Areas Journal*. **16**(2): 147-151.
- Millington, R. 1981 *A Twitchee's Diary*, Blandford Press, Dorset.
- Oddie, Bill 1980 *Bill Oddie's Little Black Bird Book*. Methuen, London. 148pp
- Orams, M.B. 2002 Feeding wildlife as a tourism attraction: a review of issues and impacts. *Tourism Management*. **23**(3) 281-293.

- Ryan, C. 1998. Saltwater crocodiles as tourist attractions. *Journal of Sustainable Tourism*. **6**(4): 314-327.
- Shackley, M. 1996. *Wildlife Tourism*. International Thomson Business Press, London. *Tourism*. **6**(4): 314-327.
- Soule, M. and Terborgh, J. 1999 *Continental Conservation: Design and Management principles for long-term, Regional Conservation Networks*, Washington DC, Island Press.
- Valentine, P.S. 1984 *Wildlife and tourism: some ideas on potential and conflict*. In O'Rourke B (ed) *Contemporary Issues in Australian Tourism*, University of Sydney, pp 29-54
- Valentine, P.S. 1992 Nature-based Tourism, Chapter 9, pp 105-127 in *Special Interest Tourism* edited by B. Weiler and C.M. Hall, Bellhaven Press, London.
- Valentine, P.S. 1993 Ecotourism and nature conservation: a definition with some recent developments in Micronesia, *Tourism Management* **14**(2):107-115.
- Valentine, P.S., Birtles, A., Curnock, M., Arnold, P. and Dunstan, A. 2003 Getting closer to whales – passenger expectations and experiences, and the management of swim with dwarf minke whale interactions in the Great Barrier Reef. *Tourism Management* (in press) **24**(3):
- Vardaman, J.M. 1982 Birding around the world : 1041 species in ten days. *Birding* **XIV**(5):182-191.
- Vardaman, J. M. 1980 *Call Collect, ask for Birdman*. St Martin's Press, New York.
- Wilson, E.O. 1988 *Biodiversity*. National Academy Press, Washington.
- Wright, R.G. 1998 A review of relationships between visitors and ungulates in National Parks. *Wildlife Society Bulletin*. **26**(3):471-476.