

HUMAN USE OF WORLD HERITAGE NATURAL SITES

A GLOBAL OVERVIEW

A Contribution to the Global Theme Study of World Heritage Natural Sites

Working Paper 4

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Working Paper 1: Earth's Geological History - A Contextual Framework
Assessment of World Heritage Fossil Site Nominations

Working Paper 2: A Global Overview of Wetland and Marine Protected Areas
on the World Heritage List

Working Paper 3: A Global Overview of Forest Protected Areas
on the World Heritage List

Working Paper 4, Part I: Human Use of World Heritage Natural Sites - A
Global
Inventory

Further volumes (in preparation) on biodiversity, mountains, deserts and
grasslands, and geological features.

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"The question of questions for mankind...is the ascertainment of the place which man occupies in Nature...what are the limits of our power over nature and of Nature's power over us?"

T. H. Huxley (1862)

1. INTRODUCTION

In 1996, IUCN's Natural Heritage Programme initiated a series of global overviews on various subjects that would eventually constitute a global strategy for natural World Heritage sites. These overviews are designed to review the current state of the World Heritage natural site "system" as it has evolved since the Convention came into force in 1975. The compilation of these overviews is meant to provide a global perspective on the natural World Heritage site coverage of the various biomes of the world (forests, marine, wetlands, mountains, grasslands, etc.) as well as geological features, biodiversity and management issues. Close cooperation was required with the World Conservation Monitoring Centre (WCMC) where the main database on protected areas and biodiversity is held.

Working papers prepared to date are:

1. *Earth's Geological History A Contextual Framework For Assessment of World Heritage Fossil Site Nominations* - Prepared By Assoc. Prof. Roderick T. Wells of Flinders University, Adelaide, Australia;
2. *A Global Overview of Wetland And Marine Protected Areas on The World Heritage List* - Prepared By Jim Thorsell, Renée Ferster Levy and Todd Sigaty;
3. *A Global Overview of Forest Protected Areas on The World Heritage List* - Prepared By Jim Thorsell and Todd Sigaty;
4. *Human Use of World Heritage Natural Sites - A Global Overview* - Prepared By Jim Thorsell and Todd Sigaty
5. *A Framework for Assessing Geological Features and Landforms of Global Importance (in prep).*

2. OBJECTIVES

Human influence on the planet is pervasive. Anthropogenic disturbances of nature have transformed natural landscapes through the process of fire, hunting, agriculture, climate change and industrial pollution. Humans have become the main force in an already dynamic system on a scale that Huxley, in the above opening quotation, never imagined.

No natural World Heritage site is immune from human influence or can be considered ecologically pristine. All have been affected one way or another by the above agents of change. Nor is it the objective of many natural World Heritage sites to totally preclude human use. Indeed, many natural World Heritage sites are not nature reserves in the strict sense and some are multiple use areas that allow a range of extractive activities to take place. Many others permit and encourage tourism which, even though is not extractive, can have major impacts on a site.

Thus the objectives of this working paper are to:

1. Review the number of human residents in the 126 natural and mixed sites on the World Heritage list and the uses which are undertaken in the sites; and
2. Compile a statistical record of the annual number of visitors to natural World Heritage sites.

An initial draft of this paper was presented at a regional workshop on the "Role of Local Communities in the Management of World Heritage Sites" held in Huay Kha Khaeng Wildlife Refuge, Thailand in January, 1998. Other natural World Heritage site managers were then contacted with a request to update the data and provide available statistics on the demographics of their sites. In this way information was obtained on all but 4 of 126 natural and mixed sites.

The objective of this overview is **not** to review or suggest management strategies used to control the human element in natural World Heritage sites. Our aim is only to provide an overview of the numbers of people and users that these areas experience. A short annotated reference list of relevant publications on management issues, however, is provided.

Finally, a note on data is required. It has proved difficult to obtain information on a number of sites. In some cases, estimates had to be made based on historical records in IUCN files. Some managers did not reply to requests for information and some do not keep records of visitors. Comparability of figures also presented a problem and simple numbers of visitors are a less accurate gauge than visitor days. However, as an overall global "snapshot" was more important than exact information on every site, we felt the adequacy of the data was sufficient. Future revisions of this Working Paper will improve the reliability of the data and IUCN welcomes updated figures on any of the sites.

3. SUMMARY OF INFORMATION ON HUMAN POPULATIONS RESIDING IN NATURAL WORLD HERITAGE SITES

Annexes 1 and 2 bring together data on the number of people that reside in the current 110 natural and 16 mixed cultural and natural sites on the World Heritage List. Not included in these totals are the number of management staff that may also reside in the site. These may sometimes be a large factor in some sites (for example, the Canadian Rockies which has several thousand staff during the peak season) and non-existent in others (for example, Henderson Island which has no staff attached to it).

Of the total of 126 natural and mixed World Heritage sites, data on human residents are available on 120. Of these 120 sites the summary results are:

- **the majority of natural World Heritage sites (73), have no resident human population** (these are listed in Annex 1);
- **47 natural World Heritage sites have resident human populations varying in number from a low of 38 (Willandra Lakes) to a high of 50,000 (Lake Baikal)** (these are listed in Annex 2);
- **The four sites on which data are missing also have resident populations but specific numbers are not available;**
- **A total of 266,576 people live in the 47 natural World Heritage sites that have human residents, an average of 6,268 per site;**
- **OECD countries, with one exception (Canadian Rocky Mountain Parks), have few humans living in their natural World Heritage sites while the majority of natural World Heritage sites in less-developed countries have resident populations (with the exception of India).**

4. SUMMARY OF INFORMATION ON VISITORS TO NATURAL WORLD HERITAGE SITES

Annex 3 brings together data on the number of visitors to the 110 natural and 16 mixed cultural and natural sites on the World Heritage List. They are included in this global overview as the second human element which affects natural World Heritage sites, albeit of a transient nature. Where available, figures on the economic aspects of tourism are included in the Annex. Visitors bring with them a separate set of management challenges and were the subject of a workshop in 1993 in Senegal which produced the publication "Managing Tourism in Natural World Heritage Sites".

Of the total of 126 natural and mixed World Heritage sites, data on tourism is available on 116. Of these 116 sites the summary results are:

- **Recorded annual visits to 116 World Heritage natural sites total almost 63 million people** (Listed in Annex 3);
- **15 natural World Heritage sites record over 1 million visitors per year (eight of these in the USA) with the Great Smoky Mts. site having the highest number (9,265,667);**

- **14 natural World Heritage sites record no visitors, due to civil disturbances, security concerns, difficulty of access or government policy to discourage;**
- **The 31 World Heritage natural sites in USA, Canada, Australia and New Zealand accommodate over 84% of all World Heritage visitors (52 million annually);**
- **Economic valuations are available for a number of sites with the highest impact recorded for Yosemite (\$1.13 billion);**
- **For the 30 sites in Africa for which data are available, the average visitation is 22,705/year while the average for the 16 sites in Canada and the US is 2.6 million/year;**
- **Data for almost all sites show a trend to increasing levels of visitation.**

**TABLE 1 SUMMARY OF NATURAL WORLD HERITAGE SITE
RESIDENT POPULATIONS (SEE ANNEX 1 AND 2)**

Region	Sites with Resident Populations	Resident Population Totals	Sites With No Residents	No Exact Data
Africa	10	88,200	19	3
USA & Canada	3	12,650	14	0
E. Europe & CIS	5	69,765	6	0
Asia	9	18,379	3	1
Australia / New Zealand	7	3,933	7	1
S. America	7	51,049	3	0
S. Asia	2	8,500	7	0
W. Europe	1	800	8	1
C. America & Mexico	2	10,800	6	0
Middle East	1	2,500	0	1
TOTALS	47	266,576	73	6

**TABLE 2 SUMMARY OF TOURISM IN NATURAL WORLD HERITAGE
SITES (SEE ANNEX 3)**

Region	Total Sites	No. of Sites With Data	Number of Tourists	No. of Sites Without Data
Africa	32	30	681,154	2
USA & Canada	17	16	40,857,844	1
E. Europe & CIS	11	9	1,948,343	2
Asia	13	12	1,945,650	1
Australia / New Zealand	15	15	11,498,400	0
S. America	10	9	2,068,740	1
S. Asia	9	8	183,006	1
W. Europe	10	9	3,131,037	1
C. America & Mexico	8	7	182,381	1
Middle East	1	1	150	0
TOTALS	126	116	62,496,705	10

**5. SUMMARY OF INFORMATION ON HUMAN ACTIVITY IN NATURAL
WORLD HERITAGE SITES**

From the above figures on the number of residents and tourists that natural World Heritage sites accommodate each year, it is evident that there is substantial human pressure on the 126 natural sites on the list. But human influences are also evident in the wide range of activities, both legal and illegal that occur in the sites or directly adjacent to them. It has proved difficult to assess the actual extent of all these but the data that are available give an indication of the many uses that natural World Heritage sites are put to. Of course many natural World Heritage sites are not fully protected from exploitation in the form of IUCN category I and II strict nature reserves, wilderness and national parks. Indeed about 20% of all natural areas on the list are IUCN categories V and VI protected landscapes and multiple resource use areas. A number of others have "non-conforming uses" or experience significant illegal resource use.

In any case, there is a wide range of human activity that takes place in natural World Heritage sites. For instance, sport hunting is allowed in the Wrangell/St. Elias Reserve in Alaska and the Selous Game Reserve in Tanzania. Selective logging was allowed in Croatia's Plitvice Lakes before the war. Commercial fishing takes place in Mauritania's Banc d'Arguin National Park, Vietnam's Halong Bay and the Great Barrier Reef and in Shark Bay, Australia. Natural gas is extracted from the sub-surface zone of Canada's Dinosaur Provincial Park. Wood, grass and medicinal plant collection is allowed in Peru's Huascarán, Nepal's Royal Chitwan and Uganda's Bwindi Impenetrable national parks. Human uses in natural World Heritage sites then are common with the main guiding principle being that they should not significantly affect the values for which the site was inscribed.

From data available from WCMC's data sheets on all natural World Heritage sites and from IUCN's own Technical Evaluations, Annex 4 has been compiled which identifies what uses occur in each site. From Summary Table 3 below the following results are apparent:

- **there are substantial differences in human uses of natural World Heritage sites between OECD and non-OECD countries.**
- **the four main human uses of natural World Heritage sites in OECD countries are domestic stock grazing (27% of sites), commercial hunting and /or poaching (24%) and commercial fishing (24%).**
- **the five main human uses of natural World Heritage sites in non-OECD countries are commercial hunting and poaching (57% of sites), agricultural activity (57%), domestic stock grazing (40%) and forestry and mining (both 26%).**
- **only 16 of the 123 sites surveyed recorded no extractive activities (apart from tourism).**
- **fully 54% of all sites face threats from developments external to their boundaries.**

TABLE 3 SUMMARY TABLE OF HUMAN ACTIVITIES IN AND ADJACENT TO WORLD HERITAGE NATURAL SITES (SEE ANNEX 4)

Human Activity	OECD 48 Sites		Non-OECD 75 Sites		Total 124 Sites	
Commercial Hunting; Poaching	12	24%	43	57%	55	44%
Domestic Stock Grazing	12	24%	35	45%	46	37%
Agricultural activity, Slash-burn, Plant Collection	4	8%	42	57%	46	37%
Forestry and local logging	4	8%	28	37%	32	26%
Mining; Oil and Gas	8	16%	22	29%	30	26%
Commercial and Subsistence Fishing	11	22%	15	20%	26	20%
Hydro Development	5	10%	13	19%	18	15%
Other development	23	41%	44	59%	67	54%

Explanatory Notes:

- This table only lists the human activities which were reported or identified in WCMC data sheets, conservation status reports or other articles. It is not conclusive of the total activities which occur in World Heritage Natural Sites nor is it a complete total for each activity.
- Although tourism is an activity which occurs in nearly every natural site, it is not included in this table.
- This table does not include information from three of the natural sites inscribed in 1997: Mount Kenya National Park (Kenya), Sibiloi/Central Island National Parks (Kenya), and Cocos Island National Park (Costa Rica).
- The table primarily includes activities which occur within the boundary of the site. In certain instances activities were included which occur within the buffer areas since they may impact the natural World Heritage site. Most sites do not differentiate whether or not the activity occurred in the buffer zones.

6. CONCLUDING COMMENTS AND SUGGESTED REFERENCES

As with all protected areas, the human factor is the major issue that today's natural World Heritage site manager must deal with. In all parts of the world, nature, even in its modified form is retreating in extent and declining in quality. World Heritage natural

sites are the last line of defence in many places as human influences continue to reach the furthest corners of the earth.

Over the past two decades there has been a huge increase in the attention to social factors in conservation. This has led to the "new generation" of approaches to protected area management that were initiated at the IIIrd World Congress on National Parks and Protected Areas held in Bali in 1982 and were amplified and extended in 1992 at the IVth Congress in Venezuela. The following references are particularly recommended as sources relevant to this Working Paper:

IUCN/UNEP/WWF. 1991. Caring for the Earth. A Strategy for Sustainable Living. This book remains as the best basic philosophical source document on conservation.

Holdgate, Martin. 1996. From Care to Action. Making a Sustainable World. Earthscan/IUCN. The more readable and action-orientated follow-up to Caring for the Earth.

McNeely, J. & K.R. Miller. eds. 1984. National Parks, Conservation and Development. Smithsonian Institute Press. The path-breaking proceedings of the 1982 World Parks Congress.

Mackinnon, J. et. al. 1987. Managing Protected Areas in the Tropics. IUCN/UNEP. The first major practical guide to how to address issues dealing with people and protected areas. Available in four language editions.

McNeely, J. 1993. Parks for Life Report of the IVth World Parks Congress. IUCN. Builds, updates and expands on the approach of the Bali Congress that opened the door to more partnerships and involvement of local people in protected areas.

Anon. 1992. Protected Areas and Demographic Change. IUCN. Proceedings of one of the more relevant IVth World Parks Congress Workshops on people.

Hamilton, L. et. al. 1993. Parks, Peaks and People. East-West Centre/IUCN/USNPS. Specifically looks at social issues in mountain areas and led to a particularly useful additional publication compiled by Duncan Poore for IUCN in 1994 - Guidelines for Mountain Protected Areas.

Lucas, P.H.C. 1992. Protected Landscapes A Guide for Policy Makers and Planners. IUCN. The best existing reference on IUCN protected area category V.

Wells, M. & K. Brandon. 1992. People and Parks: Linking Protected Area Management with Local Communities. World Bank/WWF/USAID. Best for its case studies, many from Natural World Heritage sites.

Kiss, A. ed. n.d. Living with Wildlife: Wildlife Resource Management with Local Participation in Africa. World Bank. Particularly good for the specialised needs of Africa and for the design of good projects.

Hannah, L. 1992. African People, African Parks. USAID/CI. Again good for the specialised needs of Africa and for the design of good projects

UNESCO/UNEP. 1984. Conservation, Science and Society Proceedings of the 1st International Biosphere Reserve Congress. Still the best volumes on how the Biosphere Reserve approach can be used for addressing human and social issues.

Kemf, E. ed. 1993. Law of the Mother. Protecting Indigenous Peoples in Protected Areas. Sierra Club. Good resource book on native residents with a good Afterword by Jeff McNeely.

McNeely, J. ed. 1995. Expanding Partnerships in Conservation. IUCN. Another essential reference on how to expand the relevance of protected areas in today's society.

Borrini-Feyerabend, G. 1996. Collaborative Management of Protected Areas. IUCN. An excellent resource book on a widespread concept that is gathering steam.

Borrini-Feyerabend, G. & D. Buchan (Eds.) 1997. Beyond Fences Seeking Social Sustainability in Conservation. IUCN.

WWF. 1997. WWF Integrated Conservation and Development Projects Lessons from the Field. WWF. A good summary of what was learned from the first generation of ICDP's over the last decade.

PARKS. 1998. Populations and Parks. Special Issue. February. IUCN. An up-to-date look at the demographic parameters affecting protected areas.

Ceballos-Lascuráin, H. 1996. Tourism, Ecotourism and Protected Areas. IUCN. The most comprehensive overview of this topic in print.

WTO/UNEP. 1992. Guidelines: Development of National Parks and Protected Areas for Tourism. Needs updating but a useful reference. Available also in Spanish and French.

UNEP. 1995. Environmental Codes of Conduct for Tourism. A good collection of practical codes and how to monitor compliance with them.

ANNEX 1

NATURAL WORLD HERITAGE SITES WITH NO HUMAN RESIDENT POPULATION (76) (Resident park staff not included)

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Los Glaciares 445,900ha	ARGENTINA	0	
Iguazu / Iguacu 225,000ha	ARGENTINA / BRAZIL	0 in Iguazu, No Info on Iguacu	Caingangues and Tupi- Guaranies Indians no longer exist in park.
Macquarie Island (12,785ha) and marine park (527,215ha)	AUSTRALIA	0	Seasonal scientists.
Cent. Eastern Rainforests 370,000ha	AUSTRALIA	0	
Fossil Mammal Sites 10,300ha	AUSTRALIA	0	
Heard and McDonald Islands 673,000ha	AUSTRALIA	0	Seasonal scientific visits only.
Tasmanian Wilderness 1,383,640ha	AUSTRALIA	0	Aboriginals numbered 300 to 400 when Europeans arrived.
Sundarbans 139,700ha	BANGLADESH	0	Seasonal use
Beloveshzkaya / Bialowieza 147,872ha	BELARUS / POLAND	0	No people live in restricted area, but Bialowieza village is 1 km from park.
Belize Barrier Reef 96,300ha	BELIZE	0	Several thousand people live in coastal areas adjacent to site.
Pirin 40,060ha	BULGARIA	0	
Srebarna 600ha	BULGARIA	0	

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Dinosaur 7,493ha	CANADA	0	
Gros Morne 180,500ha	CANADA	0	
Nahanni 476,560ha	CANADA	0	
Tatshenshini- Aisek/Kluane Wrangell-St. Elias/Glacier Bay	CANADA / USA	0	Champagne and Aishihik First Nations subsistence hunt and fish in Tatshenshini, but live in Yukon.
Manovo Gounda St. Floris 1,740,000ha	CENTRAL AFRICAN REPUBLIC	0	Locals who live outside park use park for illegal grazing
Garamba 492,000ha	CONGO (DEMOCRATIC REPUBLIC OF)	0	
Cocos Island (2,400ha) and marine park (97,700ha)	COSTA RICA	0	Park provides temporary harbour for fishermen
Talamanca / La Amistad 740,142ha	COSTA RICA / PANAMA	0	10,000 indigenous peoples live near border within Biosphere Reserve..
Comoé 1,149,250ha	CÔTE D'IVOIRE	0	Ethnic groups reside outside of park and rely upon agriculture/hunting inside park.
Morne Trois Pitons 6,875ha	DOMINICA	0	
Messel Pit 70ha	GERMANY	0	
Tikal 57,600ha	GUATEMALA	0	8,000 live in five towns within entire Maya Biosphere Reserve, but none in Tikal.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Mt. Nimba 18,000ha	GUINEA/ CÔTE D'IVOIRE	0	Several thousand people live in 10 villages outside of reserve. Since 1991, population pressure has been increasing from arrival of Liberian refugees.
Caves of Aggtelek and Slovak Karst	HUNGARY / SLOVAKIA	0	World Heritage sites consists only of caves.
Kaziranga 42,996ha	INDIA	0	Human settlements and tea plantations border three sides of park and 39 villages are within 10km of park, with a population of 22,300 in 1984.
Manas 50,000ha	INDIA	0	54,000 people live in 144 villages in buffer zone.
Keoladeo 2,873ha	INDIA	0	17 villages and the town of Bharatpur are near the park.
Sundarbans 133,010ha	INDIA	0	Each year, 35,000 people fish and collect wood and honey from within the park. In 1991, 3 million people lived near the park.
Nanda Devi 63,033ha	INDIA	0	Two small villages border the west of the park. Local people used to graze 4,000 animals in park before it was closed in 1983.
Yakushima 10,747ha	JAPAN	0	Population of the entire island is 14,000.
Shirakami Sanchi 16,971ha	JAPAN	0	2,600 people reside in village nearby the park. Traditional use within the park is permitted on a seasonal basis.
Mount Kenya 182,400ha	KENYA	0	Intensively settled up to boundary.
Sibilo Central Island 157,085ha	KENYA	0	Illegal seasonal grazing.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Lake Malawi 9,400ha	MALAWI	0	16,000 people reside in 5 shoreline village enclaves outside the park. The park is zoned to allow traditional fishing in limited areas.
El Vizcaino Whale Sanctuary 370,950ha	MEXICO	0	38,000 people live in the buffer zone of the reserve, mainly in towns along the transpeninsula highway.
Royal Chitwan 93,200ha	NEPAL	0	Some lodge employees reside in park. In 1980, 261,300 people lived in 320 settlements around the park, an increase from 36,000 in 1950.
Te Wahipounamu 2,600,000ha	NEW ZEALAND	0	500 people live in the park to work as staff for tourist related services. 10,000 people reside in the buffer zone, 200 being Maori.
Tongariro 79,596ha	NEW ZEALAND	0	300 people live in the park to work as staff for tourist related services. 11,000 people reside in the areas surrounding the park.
“W” 220,000ha	NIGER	0	Thousands of cattle farmers frequent the park during annual migrations.
Rio Abiseo 274,520ha	PERU	0	Surrounding communities (Los Andes and Pias) are known for cooperation with park authorities, but illegal cultivation and livestock tending occurs.
Tubbataha 33,200ha	PHILIPPINES	0	110 people live in Cagayancillo, village located in the buffer zone, and use temporary shelters on reefs within park during the fishing season.
Virgin Komi Forests 3,280,000ha	RUSSIAN FEDERATION	0	The Komi people and the Old Believers, a religious sect reside near the park. About 5,000 people live nearby.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Volcanoes of Kamchatka 3,300,000ha	RUSSIAN FEDERATION	0	Some portions of Bystrinsky Nature Park are used by small numbers of indigenous Itelmeni and Eveni.
Djoudj 16,000ha	SENEGAL	0	
Niokolo-Koba 913,000ha	SENEGAL	0	
Aldabra Atoll 35,000ha	SEYCHELLES	0	About 20 park staff reside in park.
Vallée de Mai 19.5ha	SEYCHELLES	0	
Doñana 50,720ha	SPAIN	0	Few families reside within the park.
Garajonay 3,984ha	SPAIN	0	16,000 people live on island and are dependant upon agriculture, fishing and tourism.
Pyrénées - Mont Perdu 30,639ha	SPAIN / FRANCE	0	Seasonal grazing.
Bwindi 32,092ha	UGANDA	0	10,000 families of the Bachiga, Bafumbira and Barwanda (all Bantu) cultivate the land around the park. A zone for forest collection exists within the park. This region is one of Uganda's most densely populated with 160 to 320 people per sq. km.
Rwenzori 99,600ha	UGANDA	0	300,000 Bakanjo and other tribes live outside the park, but use the park's resources regularly.
Giant's Causeway 70ha	UNITED KINGDOM	0	A few villages exist adjacent to the park.
St. Kilda 853ha	UNITED KINGDOM	0	A military presence exists within the park. In the past, 200 people lived on the island, but were evacuated in 1930.
Henderson 3,700ha	UNITED KINGDOM	0	
WH SITE AND	COUNTRY	HUMAN	COMMENTS

SIZE		POPULATION	
Gough Island 6,500ha	UNITED KINGDOM	0	
Serengeti 1,476,300ha	UNITED REPUBLIC OF TANZANIA	0	Nomadic Maasai around park boundary. Population in Serengeti District increased by 54% from 1967 to 1978. Population of the seven west districts totalled 1,733,958 in 1988, with annual growth of 4%.
Selous 5,000,000ha	UNITED REPUBLIC OF TANZANIA	0	The entire local population within the reserve was relocated. Tsetse fly has prevented traditional pastoralism within reserve.
Kilimanjaro 75,353ha	UNITED REPUBLIC OF TANZANIA	0	A high density of people exist in all areas around the park.
Yellowstone 898,349ha	USA	0	300 to 500 park staff reside in the park.
Everglades 592,920ha	USA	0	200 park staff reside in the park. The Miccosukee Indian Tribe live on a 50ha site on the park's north boundary with a special use permit.
Grand Canyon 493,077ha	USA	0	A 809ha village houses the park administration and staff.
Redwood 44,610ha	USA	0	10% of the region's population are Native American.
Mammoth Cave 21,191ha	USA	0	240 people reside in the buffer zone and 1,500 in the transition area.
Olympic 369,660ha	USA	0	16,500 people live in nearby Port Angeles with another 3 million in Seattle 80 km to the east.
Great Smoky 209,000ha	USA	0	A large tourist village exists at the park entrance.
Yosemite 308,283ha	USA	0	Some staff reside in the park and 100,000 people live in communities outside of the park.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Hawaii Volcanoes 92,934ha	USA	0	
Carlsbad Caverns 18,926ha	USA	0	
Victoria Falls / Mosi-oa-Tunya 6,860ha	ZAMBIA / ZIMBABWE	0	
Mana Pools 676,600ha	ZIMBABWE	0	Sleeping sickness, bilharzia and malaria have kept humans from inhabiting the park.

ANNEX 2

NATURAL WORLD HERITAGE SITES WITH RESIDENT HUMAN POPULATIONS (46) (Resident park staff not included)

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Lake Baikal 8,800,000ha	RUSSIAN FEDERATION	50,000 (est.)	Population consists of many Russians, Buryats, Evenks and other ethnic groups. Thousands of others reside in urban towns in Lake basin outside of park.
Ngorongoro 809,440ha	UNITED REPUBLIC OF TANZANIA	42,500 (1994 census)	Over 300,000 livestock graze 75% of the conservation area. No people live within the crater or forest area.
Virunga 790,000ha	CONGO (DEMOCRATIC REPUBLIC OF)	20,000	The park population resides in three fishing villages. 60% of the park's border areas are populated.
Manu 1,532,806ha	PERU	20,000	Nomadic forest Indian tribes (Amahuaca, Sepanda, Curanga, inuya and Yaminahua) live in park and are permitted to practice shifting agriculture. 70,000 Quecha speaking inhabitants live in 30 communities near the park.
Danube Delta 679,222ha	ROMANIA	16,000	Ukranian orthodox and Lipki descent reside in park, but number declining due to poor health and economy.
Galapagos 766,514ha	ECUADOR	15,000 (in enclaves in park)	Population has increased from 4,000 in 1974.
Canadian Rocky Mt. Parks 2,306,884ha	CANADA	12,000 (includes some park staff)	Population lives within four towns of Banff, Lake Louise, Field and Jasper inside parks.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Rio Platano 500,000ha	HONDURAS	10,000	The Meskito (4,500), Pesch Amerindians, and Garfunas inhabit the northern zone of reserve, whilst Tawahka Amerindians live next to the western zone. Low scale agriculture is practised in coastal region by Garfunas, and on the banks of rivers by Meskito and Pesch.
Canaima 3,000,000ha	VENEZUELA	10,000	Population of the park consists of Pemon. The Pemon live mainly in the savanna sector of the park in small communities of 400-1000 people and maintain traditional lifestyles of swidden agriculture, hunting and gathering.
Kahuzi-Biega 600,000ha	CONGO (DEMOCRATIC REPUBLIC OF)	9,000	Although 9,000 ethnic people live in the park, the area surrounding the park is one of the most densely populated areas of Africa with 300 people per sq. km.
Wulingyuan 26,400ha	CHINA	6,600	Population lives within core area, with few others in buffer zone.
Air and Ténéré 7,736,000ha	NIGER	5,000 (est.)	Most of population is Tuareg. The nomadic population is estimated between 1,500 and 4,500, whilst the sedentary population consists of 2,000 to 2,500 Iferouane and Tin and Telloust.
Sinharaja 8,864ha	SRI LANKA	5,000	8% of population in park are completely dependant on the rain forest for subsistence.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Simen 22,000ha	ETHIOPIA	4,500 resident subsistence farmers	1,800 of the approximate 2,500 people who inhabited the park in 1979 were forced to relocate from the lower slopes of the northern escarpment. After civil unrest in the 1980's, villages began to develop within the park.
Thugyai - Huai Kha Khaeng 577,464ha	THAILAND	3,800 Karen live in a few villages in Thungyai	10,000 people live in 26 villages in buffer zone. Hill tribes people were relocated from Huay Kha Khaeng in translocation packages in 1976 and 1986.
Sagarmatha 114,800ha	NEPAL	3,500 (est.)	In 1997, the population consisted completely of Sherpas in 63 settlements in the south of the park, however, there has not been an accurate census since the park was established in 1979.
Machu Picchu 32,592ha	PERU	3,000	12 settlements in park include Aguas Calientes with 1200 residents.
Arabian Oryx 2,750,000ha	OMAN	2,500	2,500 Harasis, a small nomadic tribe, live within the park. The nomadic Bedu also practice pastoralism.
Plitvice 19,200ha	CROATIA	2,200	Population resides in 18 rural villages and has doubled since 1949.
Mt. Emei 15,400ha	CHINA	2,000	Monks and nuns
Tassili N'Ajjer 8,000,000ha	ALGERIA	2,000 (est.)	Sedentary and nomadic Tuaregs within park. Outside park, the Da'ira people number 20,000.
Okapi Faunal Reserve 1,372,625ha	CONGO (DEMOCRATIC REPUBLIC OF)	2,000 (est.) pygmies	Only few permanent settlements of Pygmies within forest.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Ha Long Bay 150,000ha	VIETNAM	2,000 "sea gypsies"	The "sea gypsies" are seasonal fisherman who reside on boats within the park. 374,000 people make their living in and around the Bay, which is a major centre for fishing, agriculture, industry, tourism and maritime transport.
Kakadu 1,980,400ha	AUSTRALIA	1500	The 500 Aboriginals reside within park. Town of Jabiru, built to service uranium mine, has 1,000 people.
Salonga 3,600,000ha	CONGO (DEMOCRATIC REPUBLIC OF)	1,500 (est.)	
Sangay 271,925ha	ECUADOR	1,500	Settlements on west border outside park have had an increase in hunters and vaqueros.
Durmitor 32,000ha	YUGOSLAVIA	1,500	8,000 people live in Zabljak on the eastern boundary of the park.
Los Katios and Darien 669,000ha	COLOMBIA / PANAMA	1,200 Kuna and Chocos	In 1981, 150 families were resettled from Los Katios.
Komodo 219,322ha	INDONESIA	1,129	Population has increased 100% since 1980.
Wet Tropics 894,420ha	AUSTRALIA	1,000	374,000 people live in urban and rural areas within 50km of park.
Jiuzhaigou 72,000ha	CHINA	1,000	Population lives within 6 villages in park along with Buddhist monastery in Zaru Valley.
Ujung Kulon 123,051ha	INDONESIA	1,000 (est.)	42,000 people reside in 19 villages in buffer zone.
Sian Ka'an 528,000ha	MEXICO	800	Population in the park is Mayan descent and depends on fishing and agriculture.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Banc d'Arguin 1,200,000ha	MAURITANIA	800	The population consists of Imraguen tribesman residing in seven villages in the park. Their economy relies on subsistence fishing using traditional methods. Use of area by nomads is decreasing due to desertification.
Huanglong 60,000ha	CHINA	800	Tibetan villages are outside of park.
Shark Bay 2,197,300ha	AUSTRALIA	750	Two small towns are located on private enclaves within the site.
Ichkeul 12,600ha	TUNISIA	130 families (500 est.)	This area has been settled over many millennia with 130 families currently residing in park, most working in a quarry and intensive farming. 800ha are impacted by the cultivation of over 2,000 cattle, sheep and goats.
Wood Buffalo 4,480,000ha	CANADA	350	6,600 live in three towns outside park.
Huascaran 340,000ha	PERU	349 (74 families)	250,000 people live within the buffer zone and the valleys are grazed under agreement with local people.
Lord Howe 1,176ha	AUSTRALIA	320	
Laponian Area 940,000ha	SWEDEN	300 and additional 500 in summer season	Park population consists of Saami people (nomadic reindeer herders who have lived in area for 5,000 years).
Waterton / Glacier 52,525ha	CANADA / USA	300	There is a townsite in Waterton with 300 summer and 80 winter permanent residents.
Uluru-Kata Tjuta 132,566ha	AUSTRALIA	250	Aboriginal Pitjantjatjara and Yankunytjatjara live in park with traditional rights of occupation in Mutitjulu Community.

WH SITE AND SIZE	COUNTRY	HUMAN POPULATION	COMMENTS
Fraser Island 166,283ha	AUSTRALIA	75	Several tourist resorts are located within the protected area.
Skocjan Caves 400ha	SLOVENIA	65	Park population resides in three villages (Skocjanpri Divaci, Matavun and Betanja) which are national cultural monuments.
Willandra Lakes 240,000ha	AUSTRALIA	38	All park residents are Aboriginal.
Mount Huangshan 15,400ha	CHINA	50	Resident Monks
Great Barrier Reef 34,870,000ha	AUSTRALIA	N/A	No official population count, but Aboriginal and Torres Strait Island communities reside in the Reef area. Some people reside on various islands around the Reef.
Tsingy de Bemaraha 157,710ha	MADAGASCAR	N/A	No official population, but several families reside within the reserve illegally. Parts of the reserve are affected by people living in villages adjacent to the reserve.
Dja Faunal 526,000ha	CAMEROON	N/A	A few pygmies (Fulani, Fulbi and Bandu) live in the park and hunt traditionally.
Taishan 25,000ha	CHINA	N/A	
Tai 330,000ha	CÔTE D'IVOIRE	N/A	Some Baoule and Kromen people reside in park.
Cape Girolata, Cape Porto, Scandola 12,000ha	FRANCE	N/A	There are several small villages or hamlets within the protected area, but there has been a depopulation movements this century except for the villages on Route #81.

ANNEX 3

TOURISM IN NATURAL WORLD HERITAGE SITES (Listed from highest to lowest)

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Great Smoky Mts.	USA	9,265,667 (1996)	Economic impact of \$689,220,799 and 10,338 jobs in 1994. Most visited park in USA.
Canadian Rocky Mts.	CANADA	9 million	Total includes visitors to four of seven park complex.
Grand Canyon	USA	4,537,703 (1996)	Economic impact of \$495,955,903 and 14,879 jobs in 1994.
Yosemite	USA	4,046,207 (1996)	Economic impact of \$1,130,590,972 and 22,612 jobs in 1994. After recent floods and years of heavy tourism, park has proposed drastic changes to reduce vehicle access.
Wet Tropics	AUSTRALIA	3,400,000 (1997)	Economic impact of over \$500 million (US) per year. 30% visit as part of guided tours. 56 tour companies have services in the park.
Olympic	USA	3,348,723	Economic impact of \$171,857,382 and 5,156 jobs in 1994. Most visitors remain near coast and road near border of park. 125,000 visitors in backcountry per year.
Yellowstone	USA	3,012,171 (1996)	Economic impact of \$643,070,526 and 12,861 jobs in 1994. Only 100,000 visit in winter and only 20,000 backcountry. Over 600 km of roads and 1,930 km of trails in the park.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Great Barrier Reef	AUSTRALIA	2,291,000 (1993)	The 2 million + tourists in 1993 were taken to the park in 542 vessels and spent 1.8 million visitor nights on the reefs and islands generating \$70 million.
Glacier / Waterton	CANADA / USA	2,100,805 (1996)	1,720,805 people visited Glacier and 350,000 visited Waterton in 1997. In 1994, the economic impact from tourism at Glacier was \$159,486,238 and 2,392 jobs.
Central Eastern Rainforests	AUSTRALIA	2 million (1997)	Recent study has been conducted on tourism.
Pyrénées - Mont Perdu	SPAIN / FRANCE	2 million (1997)	Most visit in concentrated 2 month period.
Mammoth Cave	USA	1,896,829 (1996)	Economic impact of \$45,377,008 and 681 jobs in 1994. 60% visit in the summer. Average of 1.5 million visitors per year since 1979.
Iguazu / Iguacu	ARGENTINA / BRAZIL	Argentina has 530,000 and 1 million on Brazil side (1993)	10,300 visited during Holy Week alone. Plans exist to increase tourism and build new facilities.
Hawaii Volcanoes	USA	1,231,557 (1996)	Economic impact of \$215,748,160 and 5,394 jobs in 1994. Kilauea Volcano was first climbed in 1974 and has been a tourist attraction since 1840.
Tongariro	NEW ZEALAND	1,200,000 (1997)	An increase from 90,000 in 1960. Economic impact of \$1 million (NZ) to the local economy from tourism.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Te Wahipounamu	NEW ZEALAND	1,000,000 (1997)	The Park has nine visitor centres, the newest being Haast (1991), specifically built to interpret the World Heritage site.
Everglades	USA	890,167 (1996)	Economic impact of \$55,583,245 and 1,667 jobs in 1994. Tourist facilities are extensive for many activities with five visitor centres.
Lake Baikal	RUSSIAN FEDERATION	840,000 (1994)	Many local, national and international tourists visit the Lake each year,
Carlsbad Caverns	USA	557,217 (1996)	Economic Impact of \$20,008,950 and 600 jobs in 1994.
Tasmanian Wilderness	AUSTRALIA	500,000 (est.)	Economic impact of \$308 million (US) in 1997. Peak season is in January. The most popular site is Cradle Mountain which received 178,000 visitors in 1995.
Mount Huangshan	CHINA	500,000 (1989)	
Garajonay	SPAIN	450,000	Mostly day visitors
Redwood	USA	426,938 (1996)	Economic Impact of \$38,714,919 and 774 jobs in 1994. 15% of visitors are foreigners, 42% of which are German.
Tatshenshini Asek/ Kluane/ Wrangell-St. Elias/ Glacier Bay	CANADA / USA	411,310 (1997)	304,374 visitors to Glacier Bay, 74,469 to Kluane, 31,467 to Wrangell-St. Elias and 1,000 to Tatshenshini-Asek. In 1994, the economic impact of Glacier Bay was \$62,211,600 and 622 jobs. The economic impact of Wrangell-St. Elias was \$9,450,403 and 21 jobs.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Uluru-Kata Tjuta	AUSTRALIA	400,000 (1997)	64% visited from May to September, 85% arrive by road and the remainder by air. Tourism steadily increasing.
Pirin	BULGARIA	400,000	
Ha Long Bay	VIETNAM	370,000 (1997)	Economic impact is over \$10 million each year and increasing rapidly. 50% of visitors are foreign.
Wulingyuan	CHINA	350,000	
Giant's Causeway	UNITED KINGDOM	350,000	50% of visitors are foreigners. Northern Ireland's most visited site.
Mt. Emei	CHINA	300,000	
Victoria Falls Mosi-oa-Tunya	ZAMBIA / ZIMBABWE	290,000 (1997)	As one of the most frequently visited parks in Zambia, the tourism numbers are expected to rise to 1.5 million per year in next decade.
Plitvice	CROATIA	270,000 (1997)	Tourism reached 800,000 in mid 1980's (70% foreign) with peak numbers in July and August and revenue over \$2.5 million (US), but with outbreak of civil war in 1991 and occupation of the park, tourism ceased and buildings were damaged. In 1996, a tourism revitalisation program began.
Machu Picchu	PERU	252,000 (1996)	
Gros Morne	CANADA	250,000 (1994)	
Doñana	SPAIN	250,000	A local guide is required. Each day, two four wheel drive excursions are permitted with a maximum of 125 people per trip.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Kakadu	AUSTRALIA	240,000 (1991)	Tourism increased from 45,800 in 1982. Annual gate revenue A\$2.4 million of which 38% goes to park's traditional owners.
Fraser Island	AUSTRALIA	200,000 approx. (1997)	In 1997, 140,000 passengers (71% day visitors) use commercial boat operators and 90,000 camping permits were issued (overlap with boat passengers).
Caves of Aggtelek and Slovak Karst	HUNGARY / SLOVAKIA	200,000	Tourism began in 1806.
Jiuzhaigou	CHINA	200,000	Increasing rapidly with 500,000 expected in 2000.
Ngorongoro	UNITED REPUBLIC OF TANZANIA	164,000 (1994)	Tourism has quadrupled since 1983. 50% of visitors are foreigners.
Huanglong	CHINA	160,000 (1991)	Increasing rapidly
Shark Bay	AUSTRALIA	160,000 (1997)	Increasing slowly. 60% of tourists visit the Dolphin site.
Belize Barrier Reef	BELIZE	128,000 (1994)	Tourism generates \$75 million per year.
Danube Delta	ROMANIA	100,000	Permission needed to visit the nature reserves which are closed during bird breeding season. The number of tourists has dropped dramatically in recent years, but in 1990, 40 private agencies operated.
Canaima	VENEZUELA	100,000	90% of visitors to the park visit the Gran Sabana since it is near the road on the east side and travel to the west side is restricted to air.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Huascarán	PERU	83,240 (1994)	5% of visitors are foreigners. The park has the largest and most developed trekking system in Peru.
Belovezhskaya / Bialowieza	BELARUS / POLAND	80,000	30% visit the core protected area.
Keoladeo	INDIA	80,000 (1984)	In 1994-95 an education and interpretation centre was established.
Los Glaciares	ARGENTINA	78,000 (1995)	78,000 was the average from 1990 to 1995 mainly in the Nov. to March season.
Lapponian Area	SWEDEN	75,000	Most tourists visit one area - Sjöfallet National Park.
Serengeti	UNITED REPUBLIC OF TANZANIA	63,000 (1990)	From 1978 to 1985, tourism numbers decreased due to isolation as a result of the closed border with Kenya, but number of tourists increased 400% from 1985 to 1991. Further expansion of new lodges and other infrastructure projects have increased visitor numbers.
Galapagos	ECUADOR	62,000 (1996)	1986 figure was 26,000. \$55 million generated by tourism in 1996.
Fossil Mammal Sites	AUSTRALIA	57,000 (1997)	42,000 used commercial tours and additional 15,000 visited Riversleigh. Number of non-paying tourists to site is unknown, but small.
Vallée de Mai	SEYCHELLES	53,000	Day visits only.
Skocjan Caves	SLOVENIA	41,343 (1996)	The caves have been used for tourism since 1819. 50% of visitors are foreign.
Willandra Lakes	AUSTRALIA	40,000 (1997)	Interpretative tours offered by Aboriginal resident guides. 80% of tourists are Australian, 90% of whom arrive April to October.
WH SITE AND	COUNTRY	ANNUAL	COMMENTS

SIZE		TOURISTS	
Manas	INDIA	32,860 (1984)	Closed 1989-1997 due to civil strife in Assam.
Komodo	INDONESIA	32,174 (1996)	Tourism has increased from only 100 visitors in 1980, creating over 1,800 local jobs. 90% of visitors are foreign
Royal Chitwan	NEPAL	31,446 (1989)	An increase from less than 1,000 in 1974.
Tikal	GUATEMALA	31,000 (1989)	Tourism is increasing.
Ichkeul	TUNISIA	23,000 (1987)	Visitor composition is 41% school groups and 7% foreign.
Mount Kenya	KENYA	19,000 (1992)	This site was inscribed in 1997.
Sagarmatha	NEPAL	17,500 (1996)	An increase from only 1,400 visitors in 1972. The local economy has become dependant on tourism.
Morne Trois Pitons	DOMINICA	17,000 (1997)	Day use.
Kaziranga	INDIA	15,700 (1997)	Reduced from 49,300 in 1995 due to unrest in Assam.
Volcanoes of Kamchatka	RUSSIAN FEDERATION	15,000 (1995)	30% of visitors are foreign. 2,000 people visit the Valley of the Geysers each year, the only geysers in Russia. Eco-tourism projects are being planned.
Yakushima	JAPAN	13,000 (1997)	Trail access only.
Kilimanjaro	UNITED REPUBLIC OF TANZANIA	10,800 (1995)	91% of hikers use the Marangu Trail.
Lord Howe	AUSTRALIA	10,000 (1997)	Number is legislatively limited by LHI Regional Environmental Plan. There are 393 bed licenses.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Lake Malawi	MALAWI	10,000 (1997)	There is some tourist development in the park and several small hotels are planned which will be designed to blend with local environment. Cape Mclear is most used recreation site.
Thungyai - Huai Kha Khaeng	THAILAND	10,000 (1997)	Tourism is restricted with permits given annually to naturalists, and scholars.
Selous Game Reserve	UNITED REPUBLIC OF TANZANIA	1,000 (1997) (8,700 bed-nights)	Hunting is permitted in 45 of the 47 plots in Selous generating \$1.5 million per year with an extra \$150,000 from lodging. 3% of the park is reserved for photo safaris.
Mana Pools National Park and Sapi and Chewore Safari Areas	ZIMBABWE	8,429 (1997)	Most of site is not developed for tourism and the number of cars is limited. A tourist camp is located at the convergence of the Chikwenya, Sabi and Zambezi rivers. Recreational hunting is permitted.
Virunga	CONGO (DEMOCRATIC REPUBLIC OF)	7,160 (1988)	None at present due to civil unrest.
Wood Buffalo	CANADA	6,200 (1994)	
Ujung Kulon	INDONESIA	5,976 (1997)	An unspecified number of tourists visit Krakatoa (within site) as well. 50% of visitors are foreign.
Sundarbans	BANGLADESH	5,500 (1996)	This site was inscribed in 1997.
Messel Pit	GERMANY	5,000 (1997)	Access by guided tour only.
Djoudj	SENEGAL	5,000	A new eco-tourism museum was recently constructed.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Bwindi	UGANDA	3,600 (1991)	Most tourists come to see the mountain gorillas. 10-12 permits are issued each day at \$150 each generating over \$1 million per annum.
Sangay	ECUADOR	3,000 (1991)	
Shirakami-Sanchi	JAPAN	3,000	Visitors come to climb the mountain. There are no roads or services in the park.
Whale Sanctuary of El Vizcaino	MEXICO	3,000 (1990)	Tourists visit Laguna San Ignacio to watch the whales.
"W"	NIGER	3,000	Visitors arrive from December to May.
Niokolo-Koba	SENEGAL	2,711 (1997)	Tourism is moderate with an average of 2,617 visitors per year since 1990. Visitors arrive from up to 38 different countries each year.
Cocos Island and Marine Park	COSTA RICA	2,000 (1997)	Site inscribed in 1997.
Virgin Komi	RUSSIAN FEDERATION	2,000	Trails and helicopters used for access.
Tsingy de Bemaraha	MADAGASCAR	1,228 (1997)	Despite lack of facilities, tourism has increased 1,000% past 5 years with visitors from 29 countries (80% European).
St. Kilda	UNITED KINGDOM	1,037 (1997)	Charter companies run short trips, but visitors must remain on board at night. NTS and other scientists visit more often and are housed in cottages.
Tubbataha Reef	PHILIPPINES	1,500	Visitors are foreign divers who visit between March and June.
Nahanni	CANADA	1,350 (1993)	Tourist season is short with 89% of visitors in July and August.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Rwenzori	UGANDA	1,325 (1991)	7,000 mountaineers visited between 1990 and 1995.
Aldabra Atoll	SEYCHELLES	1,300 (1996)	All tourists arrive by cruise ships.
Sian Ka'an	MEXICO	1,000 (1991)	Increased since then but no data available.
Manu	PERU	500 (1986)	The first lodge was built in 1986. A tourism study undertaken in 1989.
Macquarie Island	AUSTRALIA	400 (1991)	
Talamanca / La Amistad	COSTA RICA/ PANAMA	381 (1997)	Increase of 600% since 1995, 90% of which are nationals.
Simen	ETHIOPIA	150	Tourism expected to increase since a road was built to the park.
Arabian Oryx	OMAN	150	Tourism limited due to lack of accommodation.
Banc d'Arguin	MAURITANIA	100	Ecotourism plan recently developed.
Sibiloi Central Island	KENYA	75 (1996)	
Heard and McDonald Islands	AUSTRALIA	0	
Dja	CAMEROON	0	Closed to tourism
Manovo Gounda St. Floris	CENTRAL AFRICAN REPUBLIC	0	Tourism ceased due to civil unrest and poaching.
Tai	CÔTE D'IVOIRE	0	Tourism proposed for one area of park.
Garamba	CONGO (DEMOCRATIC REPUBLIC OF)	0	Tourism has ceased due to civil unrest.
Okapi Faunal Reserve	CONGO (DEMOCRATIC REPUBLIC OF)	0	Tourism has ceased due to civil unrest. Population within the forest is relatively low with few permanent settlements.
Salonga	CONGO (DEMOCRATIC REPUBLIC OF)	0	No visitors due to remoteness and access difficulty.

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Mt. Nimba	GUINEA / CÔTE D'IVOIRE	0	Tourism is prohibited within the strict nature reserve, but is allowed within the Biosphere Reserve in organised groups.
Nanda Devi	INDIA	0	The park was closed to tourism in 1982, but prior 4,000 visitors per year visited, mainly expeditions from around the world.
Air and Ténéré	NIGER	0	War in 1991 ceased tourist activities, but tourism had been increasing. In 1990 a visitor centre was built by a IUCN/WWF project at Iferouane.
Rio Abiseo	PERU	0	Park has been closed to tourism since 1986 due to the fragility of the archaeological ruins, security and the lack of park infrastructure.
Sinharaja	SRI LANKA	0	An unknown number of naturalists visit each year.
Gough Island	UNITED KINGDOM	0	No tourist facilities exist and access is prohibited without prior written approval.
Henderson	UNITED KINGDOM	0	Cruise ships visit occasionally and Pitcairn islanders visit once or twice a year to cut "miro" tao and sandalwood.
Kahuzi-Biega	CONGO (DEMOCRATIC REPUBLIC OF)	0	Temporarily closed due to civil unrest. Formerly popular for gorilla-watching.
Tassili n'Ajjer	ALGERIA	N/A	Before civil disturbances began in 1994, tourism was an important source of income for the local population.
Srebarna	BULGARIA	N/A	A museum exists within the park.
Dinosaur	CANADA	N/A	

WH SITE AND SIZE	COUNTRY	ANNUAL TOURISTS	COMMENTS
Mount Taishan	CHINA	N/A	No current numbers, but during the Ming Dynasty (1368-1644) hundreds of thousands of worshippers each year visited the Azure Cloud Temple.
Los Katios / Darien	COLOMBIA / PANAMA	N/A	Security concerns limit entry to Los Katios.
Comoé	CÔTE D'IVOIRE	N/A	Visitors arrive only from November to April when 500 km of tracks are open.
Cape Girolata, Cape Porto, Scandola	FRANCE	N/A	Tourism numbers are currently low, but plans to develop tourism have begun.
Rio Platano	HONDURAS	N/A	No tourists visit the core protected area due to difficult access.
Sundarbans	INDIA	N/A	Visitors are not allowed in the protected area, but can visit the tiger reserve by permit.
Durmitor	YUGOSLAVIA	N/A	

ANNEX 4

HUMAN ACTIVITIES AFFECTING WORLD HERITAGE NATURAL SITES (Not Including Tourism)

OECD Countries (48 countries)

WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil – Gas	Threats From Nearby Development
Great Barrier Reef	Australia	Yes	Yes					Oil shale extraction being considered	Major tourism, agriculture and residential development adjacent to reef.
Kakadu	Australia	Yes							Uranium mining in enclaves
Willandra Lakes	Australia			Yes					
Tasmanian Wilderness	Australia								
Lord Howe	Australia	Yes	Yes						
Uluru-Kata Tjuta	Australia	Yes							Private land inholdings
Central Eastern Rainforest	Australia								
Wet Tropics of Queensland	Australia			Yes	Yes		Yes		Land tenure issues
Shark Bay	Australia			Yes	Yes				Private land inholdings
Fraser Island	Australia		Yes			(In past)		(In past)	

WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil – Gas	Threats From Nearby Development
Fossil Mammal Sites	Australia								
Heard and McDonald	Australia		Yes						
Macquarie Island	Australia		Yes						Waste disposal
Belovezhskaya Pushcha/ Bialowieza	Belarus/ Poland								Reservoir near park
Nahanni	Canada	Local hunting						Mining in buffer	Native land claims
Dinosaur	Canada							Gas wells on boundary	
Wood Buffalo	Canada		Yes			Canceled in 1990	Yes		Pulp mills, native land claims
Canadian Rocky Mt. Parks	Canada						Yes	Open-pit coal mine proposed 5km from boundary.	4 downhill ski areas and 4 townsites
Gros Morne	Canada	Local hunting							
Tat-Alsek/ Kluane/St. Elias/ Wrangell/ Glacier Bay	Canada/ USA	Yes	Yes						
Waterton/ Glacier	Canada/ USA								
Cape Girolata, Cape Porto, Scandola	France			Yes					
WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil – Gas	Threats From Nearby Development
Messel Pit	Germany								Fossil extraction

Fossil Site									
Aggtelek Cave /Slovak Karst	Hungary/ Slovakia								Pollution problems
Yakushima	Japan								
Shirakami – Sanchi	Japan	Yes							
Sian Ka'an	Mexico	Yes	Yes	Yes	Yes	Yes			Sewage and urban growth
Whale Sanctuary of El Vizcaino	Mexico		Yes					Salt extraction	Ship traffic in lagoons
Te Wahipounamu	New Zealand					Some	Yes		
Tongariro	New Zealand								Ski fields and infrastructure
Garajonay	Spain			Yes		Yes			
Doñana	Spain	Yes		Yes					Factories – toxic waste
Pyrénées/ Mt. Perdu	Spain/ France	Yes		Yes					
Lapponian	Sweden			Yes					Vehicle use, acid Rain
Giant's Causeway	UK								
St. Kilda	UK		Yes	Yes	Turf cutting				Oil spills
Henderson Island	UK								
Gough Island	UK		Yes						
Yellowstone	USA								
Everglades	USA								Major urbanisation in S. Florida, severe water management issues
Grand Canyon	USA			Yes			Yes		Intensive tourist overflights
WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil – Gas	Threats From Nearby Development
Redwood	USA								
Mammoth Cave	USA							Oil – gas wells in buffer	Waste problems, cave vandalism and degradation

Olympic	USA							2 oil spills since 1988	
Great Smoky Mountains	USA	Yes							Traffic and adjacent village, air pollution, acid rain
Yosemite	USA								Traffic and tourist village
Hawaii Volcanoes	USA								
Carlsbad Caverns	USA			Yes				Oil, gas exploring	DDT effects on bats
TOTALS	48 Sites	12	11	12	4	4	5	8	23

NON-OECD Countries (45 countries)

WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil - Gas	Threats From Nearby Development
Tassili n'Ajjer	Algeria	Yes		Yes					Waste effluent
Los Glaciares	Argentina	Some		Yes					
Iguazu/Iguacu	Argentina/ Brazil	Yes		Yes	Yes		Yes		
Sundarbans	Bangladesh	Low	Yes		Yes	Yes		Oil spills	Diversion and irrigation of water
Belize Barrier Reef	Belize		Yes					Sand mining	Coral damage, mangrove removal
Srebarna	Bulgaria			Yes	Yes				
Pirin	Bulgaria								
Dja Faunal	Cameroon	Yes			Yes, cocoa & coffee			Cement mine in buffer	
Manovo-Gounda St. Floris	Central African Republic	Severe		Severe	Yes				
Taishan	China				Yes				
Huangshan	China								
Jiuzhaigou	China			Yes	Yes	Some			Pollution
Huanglong	China			Yes	Yes	Some			Pollution
Wulingyuan	China	Yes			Yes	Some			Pollution
Mt. Emei	China								Pollution
Los Katios/Darien	Columbia/ Panama				Yes		Yes	Yes	
Virunga	Congo (Democratic Republic of)	Yes	Yes	Yes	Yes				Population pressures and civil strife
Kahuzi-Biega	Congo (Democratic Republic of)	Yes			Shifting cultivation	Illegal		Gold prospecting	High demand for food from park

WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil - Gas	Threats From Nearby Development
Garamba	Congo (Democratic Republic of)	Yes		Yes					
Salonga	Congo (Democratic Republic of)	Yes			Shifting cultivation	Yes			High resource use by local people
Okapi Faunal	Congo (Democratic Republic of)	Yes			Yes	Yes		Gold mining	
Talamanca/ La Amistad	Costa Rica/ Panama			Yes	Yes, in buffers	Yes		Copper mine and oil drilling	Land squatters
Tai	Côte d'Ivoire	Yes			Yes	Yes		Gold mining	
Comoé	Côte d'Ivoire	Yes		Yes	Low				
Mount Nimba	Côte d'Ivoire				Slash and burn			Iron ore	
Plitvice Lakes	Croatia		Yes		Shifting cultivation	Yes			
Morne Trios	Dominica				Yes		Yes		
Galapagos	Ecuador			Yes					
Sangay	Ecuador	Yes		Yes	Yes	Yes		Some	Road construction
Simen	Ethiopia	Yes		Yes	Grass burning	Yes			High resource use by local people
Tikal	Guatemala	Yes			Yes	Yes			Industry in buffer, theft of Archaeological remains
Rio Platano	Honduras	Yes		Yes	Shifting cultivation	Yes	Proposed	Yes	Resettlement in buffer area
Kaziranga	India	Yes							Pressure from human population
Manas	India	Yes		Yes					Pressure from Boda tribe in south
Keoladeo	India			Yes					Pollution problems

WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil - Gas	Threats From Nearby Development
Sundarbans	India/ Bangladesh	Yes	Yes			Yes			Fertilizer plant, siltation and sedimentation
Nanda Devi	India								
Komodo	Indonesia		Yes		Grass burning				Dynamite fishing
Ujung Kulon	Indonesia	Yes	Yes	Yes					Dynamite fishing
Tsingy de Bemaraha	Madagascar	Some		Yes					
Lake Malawi	Malawi		Yes						Motor boat pollution
Banc d'Arguin	Mauritania		Yes	Yes					Desertification
Sagarmatha	Nepal	Yes		Yes	Yes	Yes	Yes		Landscape altered
Royal Chitwan	Nepal	Yes		Yes					Pressure from human population
Air and Ténéré	Niger	Yes		Yes	Some				Pressure from human population
"W"	Niger	Yes		Yes	Yes				
Arabian Oryx	Oman			Yes				Oil	Trading settlement
Machu Picchu	Peru				Yes				
Huascarán	Peru			Yes					
Manu	Peru	Yes		Yes	Yes			Gold mine	
Rio Abiseo	Peru	Yes		Yes	Yes				Highway proposed
Tubbataha Reef	Philippines		Yes						
Danube Delta	Romania	Yes	Yes	Yes	Yes	Yes			Smelter, electric wires, toxic pollution and human population pressures
Virgin Komi Forests	Russian Federation	Yes				Yes		Proposed	Industry in north, Radioactive waste
Lake Baikal	Russian Federation		Yes			In buffer			Pulp mill, Urban waste & resource use in buffer

WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil - Gas	Threats From Nearby Development
Kamchatka Volcanoes	Russian Federation		Illegal fishing			Yes		Gold mining	
Djoudj	Senegal						Yes		Water issues
Niokolo-Koba	Senegal	Yes			Fires		Yes	Quarry mining	
Aldabra Atoll	Seychelles	Yes							
Vallée de Mai	Seychelles	Yes							
Skocjan Caves	Slovenia								Factory, upstream pollution
Sinharaja	Sri Lanka				Medicinal plants	In buffer	Yes	Gems – illegal	Human pressure from poverty
Thungyai Huai Kha Khaeng	Thailand	Yes			Shifting cultivation	In buffer	Yes – buffer		
Ichkeul	Tunisia		Yes	Yes	Yes	Yes	Two dams	Rock quarry	Human pressure
Bwindi	Uganda	Yes			Yes	Yes		Gold mining	Pressure from high buffer population
Rwenzori	Uganda	Yes			Yes				
Ngorongoro	United Republic of Tanzania	Severe		Yes – in 5%	Yes	Fuel wood			Pressure for food, fuel from people
Serengeti	United Republic of Tanzania	Yes		Yes	Yes	Low			High pressure from local population
Selous	United Republic of Tanzania	Yes					Yes	Oil drilling	
Kilimanjaro	United Republic of Tanzania	Yes		Yes		Yes			High resource use by local people
Canaima	Venezuela	Yes			Shifting cultivation				Proposed Highway would open access

WH Site	Country	Hunting	Commercial Fishing	Domestic Stock Grazing	Agriculture	Forestry	Hydro	Mining; Oil - Gas	Threats From Nearby Development
Ha Long Bay	Vietnam	Yes	Yes		Yes			Coal mine in buffer	Ship traffic, pressure from increase tourism, population and industry zone.
Durmitor	Yugoslavia			Yes		Yes			Lead plant
Victoria Falls/ Mosi-oa-Tunya	Zambia/ Zimbabwe			Yes			Yes		Park facilities and tourism use
Mana Pools	Zimbabwe	Yes					Planned	Proposed	Plan for oil and dam projects
TOTALS	75 Sites	43	15	35	42	28	13	22	44