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ARCTIC'S FIRST HERITAGE SITES

FIVE new natural World Heritage Sites, including the first-ever designated sites in the Arctic, were inscribed at the recent 28th session of the World Heritage Committee held in Suzhou, China.

The two natural Arctic sites — at Ilulissat Icefjord in Greenland and Wrangel Island off Russia's north-east coast — were, following the positive recommendations of IUCN (The World Conservation Union), unanimously approved for listing by the committee of 21 countries.

Located 250 km/155 miles north of the Arctic Circle, Greenland's *Ilulissat Icefjord* includes one of the most active glaciers in the world, moving at the rate of 19 metres/62 feet per day. The subject of studies for more than 250 years, the icefjord has helped develop understanding of climate change and ice-cap glaciology. Its combination of a huge ice-sheet and a fast-moving glacial ice stream carving into a fjord covered by icebergs makes for a dramatic and awe-inspiring natural phenomenon.

The Natural System of Wrangel Island Reserve in far eastern Russia, although far above the Arctic Circle, was not glaciated in the last Ice Age, resulting in exceptionally high levels of biodiversity for this region. The island has the world's largest population of Pacific walrus, the world's highest density of ancestral polar bear dens, hundreds of species of unique flora, is a major feeding ground for the gray whale migrating from Mexico, and



Picture: Jim Thorsell

Ilulissat Icefjord, in Greenland, contains one of the world's most active glaciers.

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Picture: Jeanne Pagnan / Alexei Blagovidov

IUCN has carried out independent technical evaluations of 20 properties nominated for designation over the past 18 months, and in the year ahead will evaluate the following new nominations received for the year 2004-2005:

NATURAL SITES

- Wadi Al-Hitan, Egypt;
- Valley of Flowers National Park, India;
- Trans-Border Rainforest Heritage of Borneo, Indonesia and Malaysia;
- Shiretoko, Japan;
- Islands and Protected Areas of the Gulf of California, Mexico;
- West Norwegian Fjords, Norway;
- Mbaracayú Forest Nature Reserve, Paraguay;
- Vredefort Dome, South Africa;
- Glarus Overthrust, Switzerland;
- Dong Phayayen-Khao Yai Forest Complex, Thailand.

MIXED SITES

- Parque Nacional Natural Serrania de Chiribiquete, Colombia;
- Lopé-Okanda and Massif de Minkébé, Gabon;
- Solovetsky Islands, Russian Federation.

CULTURAL LANDSCAPES

- Gnishikadzor Area Cultural Landscape, Armenia;
- Historic Centre of Innsbruck, Austria;
- Issyk-Kul, Kyrgyzstan;
- Trakai Historical National Park, Lithuania;
- Azougui, Mauritania;
- Osun-Osogbo Sacred Grove, Nigeria;
- Meadow-Pasture Landscape of Slovakia.

Wrangel Island has large populations of walrus and polar bear, and unique species of flora.

is the northernmost nesting ground for 100 migratory bird species, many of which are endangered.

"The inclusion of these two sites in the high Arctic is a very exciting development," said Adrian Phillips, Vice-Chair for World Heritage with the IUCN World Commission on Protected Areas. "The World Heritage Convention is now becoming a truly global instrument for conservation."

Three further natural sites to be inscribed were the Tropical Rainforest Heritage of Sumatra, Indonesia; the Cape Floral Region Protected Areas of South Africa; and the Pitons Management Area, St Lucia.

The Tropical Rainforest Heritage of Sumatra, a cluster site which includes the three national parks of Gunung Leuser, Kerinci Seblat and Bukit Barisan Selatan, straddles the Bukit Barisan mountain range containing Indonesia's highest active volcano, Gunung Kerinci (3,800 metres/12,465 feet). Protecting significant remnants of the once-vast Sumatran montane and tropical lowland forests and their exceptional diversity, including threatened species such as the Sumatran rhinoceros, Sumatran endemic orang-utan, Sumatran elephant and Sumatran tiger, it also features the world's largest and tallest flowers.

However, the Committee expressed its grave concern over the serious threats to the site highlighted in the IUCN report, including illegal logging, encroachment

and road construction. It approved a IUCN proposal which requested the Indonesian government to prepare a detailed emergency action plan for review in one year, followed closely by a mission to the site to monitor progress. At that time the Committee would consider whether to place the site on the List of World Heritage in Danger in a bid to attract international attention and support for Indonesia's efforts in protecting this unique site of outstanding universal value.

David Sheppard, Head of the IUCN Programme on Protected Areas, said: "The inscription of these immensely rich forests of Sumatra is good news, but now the Indonesian Government urgently needs to effectively address the numerous serious threats to the site. Saving the remaining Sumatran forest is just about the highest conservation priority in the world."

The designation of the *Cape Floral Protected Areas*, one of the richest concentrations of plants in the world, was the result of joint efforts by the South African government, NGOs and local people living in the area to refine the boundaries and improve protection of the site as recommended by IUCN three years ago.

The fifth new natural World Heritage Site to be inscribed, the *Pitons Management Area* in St Lucia, features two steep-sided volcanic remnants of lava domes rising side by side from the Caribbean.

Three existing World Heritage Sites to be extended on IUCN's recommendations were the Area de Conservación Guanacaste in Costa Rica; Gough and Inaccessible Islands in the South Atlantic, and the St Kilda archipelago off the west coast of Scotland.

Decisions on nominations for two natural sites — the Hawar Islands, (Bahrain) and Coiba National Park (Panama) — were deferred to allow their governments to consider extending the boundaries of the proposed sites to include areas of greater value to conservation.

Three new sites have been added to the list of World Heritage in Danger.

The 13th-16th century ruins of Kilwa Kisiwani and Songo Mnara, part of an old Indian Ocean seaport off the coast of Tanzania, were inscribed on to the list due to threats to the integrity of the site caused by sea erosion, lack of maintenance leading to the collapse of buildings, and inadequate management. The Portuguese government has now offered assistance to the Tanzanian authorities to preserve the site.

Other sites added to the danger list were Cologne Cathedral in Germany and the Bam Cultural Landscape in Iran.

Three properties removed from the danger list were Cambodia's



Picture: IUCN

Gunung Kerinci in Sumatra is the highest active volcano in Indonesia.

celebrated temples and palaces at Angkor; Bahla Fort in Oman, and Uganda's Rwenzori Mountains National Park.

At Angkor, the committee noted that the preservation of the site from destruction was reasonably secure, and that the restoration activity co-ordinated by UNESCO since 1993 could be considered a success story.

The immense earthen fort of Bahla was placed on the danger list in 1988, mainly because of development plans which endan-

gered the integrity of the site. Its removal from the list is the result of improved management and Oman's decision to desist from using modern materials and construction techniques near the site.

Lack of resources and security in Rwenzori Mountains National Park led to its inscription on the danger list in 1999. The committee was satisfied that the authorities had regained control of the park, that security has been restored and proper management re-established.



Picture: Jim Thorsell / Paul Dingwall

The Pitons, in St Lucia, are steep-sided volcanic remains of lava domes.

ADDING AN ASTRONOMICAL PERSPECTIVE

RECOGNISING the under-representation of properties related to science on the World Heritage List, a UNESCO-organised meeting of international experts, held in Venice earlier this year with the support of the Netherlands and UK governments, elaborated an implementation strategy for developing a new thematic project, *Astronomy and World Heritage*.

Properties to be considered for evaluation and inscription were defined as:

- * properties whose design and/or landscape setting have significance in relation to celestial objects or events;
- * representations of the sky and/or celestial bodies and events;
- * observatories and instruments;
- * properties with a strong connection to the history of astronomy.

Among many sites to be evaluated are the ancient Indian observatories at Jaipur and Delhi, India; the Great Pyramids of Egypt; the Temple of Heaven in Beijing, China; the Lowell Observatory in Arizona, USA; and the megalith groups at Stonehenge and Avebury in Wiltshire, England, whose circles of menhirs are arranged in a pattern whose astronomical significance is still being explored.

UNESCO's project strategy document states:

"The sky is our common and universal heritage and forms an integral part of the total environment that is perceived by mankind. Including the interpretation of the sky as a theme in World Heritage is a logical step towards taking into consideration the relationship between mankind and its environment.

"This step is necessary for the recognition and safeguarding of cultural properties and of cultural or natural landscapes that transcribe the relationship between mankind and the sky.

"Properties relating to astronomy

stand as a tribute to the complexity and diversity of ways in which people rationalised the cosmos and framed their actions in accordance with that understanding. This includes, but is by no means restricted to, the development of modern scientific astronomy.

"This close and perpetual interaction between astronomical knowledge and its role within human culture is a vital element of

the outstanding universal value of these properties which are found in all geographical regions and span all periods from prehistory to the present day.

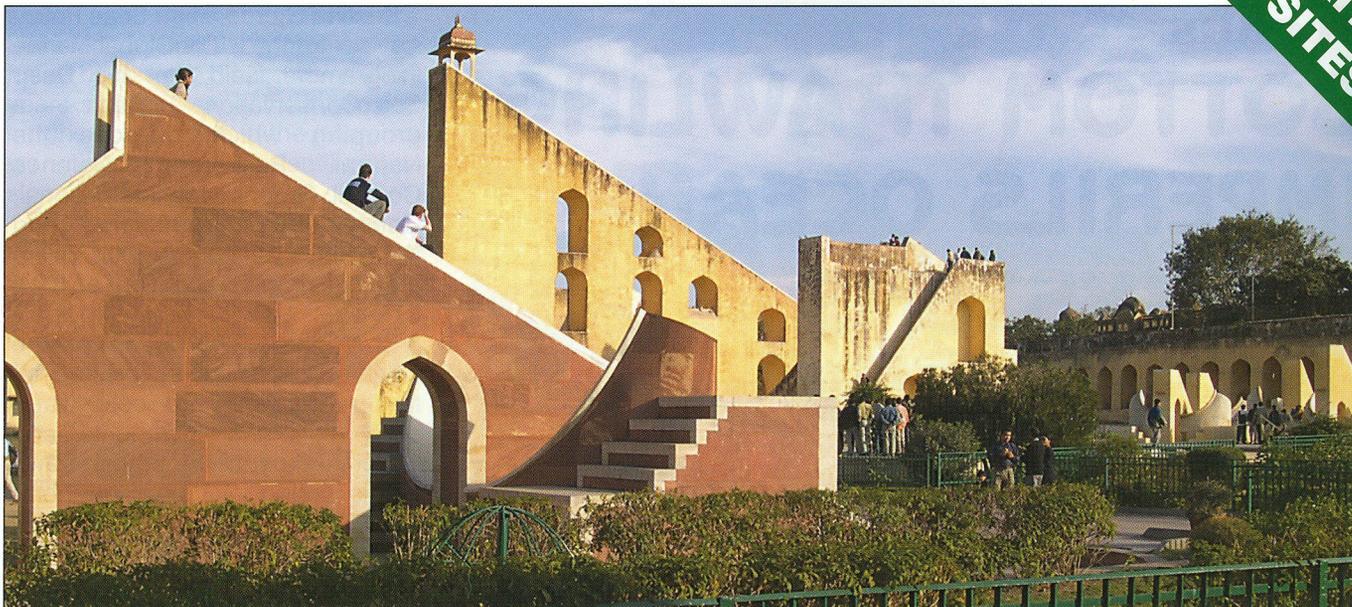
"The diverse and outstanding architectural expressions of people's interpretations of the sky encompass both direct and indirect connections to astronomy.

"The comprehension of the development of astronomical knowledge through its material expressions therefore depends strongly upon research combining academic disciplines within both the sciences and the humanities.

"Understanding the role of these world heritage properties connected with astronomy, as well as promoting them through public awareness-raising campaigns, are crucial and vital steps in our common efforts to safeguard them for future generations."



Delhi Astronomical Observatory, the first of five masonry observatories built in India during the early 18th century by Maharaja Sawai Jai Singh II, known as the "Newton of the East".



Above: Built in the early 18th century by Maharaja Sawai Jai Singh II, Jantar Mantar is the largest astronomical observatory in India. Located in Jaipur's old town and adjacent to the City Palace, this national monument was restored in 1901.

Right: Seven megalithic temples are to be found on the islands of Malta and Gozo. The two temples of Ggantija, on Gozo, are notable for their gigantic Bronze Age structures.



Picture: Bernard Galy / UNESCO

Anna Sidorenko-Dulom, the project co-ordinator, who gave a presentation on the project to a UNESCO meeting in Paris in June, said:

"Our goal is to establish a link between science and culture on the basis of research aiming at the acknowledgement of the cultural and scientific values of properties connected with astronomy. The identification, safeguarding and promotion of these properties are the three lines of actions for the implementation of this programme.

"Among project objectives will be the promotion of co-operation between countries with the aim of promoting these sites through international and regional thematic

programmes; the creation of partnerships between scientists and other stakeholders involved in the process of identification, conservation and management of this specific category of heritage; and to strengthen capacity building for site managers and technical staff for the improved management of these sites."

The World Heritage Centre's statutory activities for this thematic project will be:

- acquiring an in-depth knowledge of the outstanding properties connected with astronomy in all geographic regions through their identification and study, and the promotion and realisation of pilot projects and training seminars.

- creating networks of co-operation between scientific communities, governmental bodies and site managers in order to promote the most outstanding of these properties through their inscription on the World Heritage List.

One of the pilot projects under consideration, titled *Astronomical Sites Seen from the Sky*, would create a database of astronomical sites through the use of Remote Sensing and GIS to identify and monitor these properties; and develop a new collaboration between UNESCO, Space Agencies, the International Astronomical Union and international, national and regional bodies.

BOTTOM TRAWLING IMPERILS OCEAN ECOSYSTEMS

PRESSURE is mounting for international action to be taken as a matter of urgency to protect the world's high seas from over-exploitation.

On World Environment Day in June, IUCN (The World Conservation Union) and other leading environmental organisations called on nations to seize the opportunity to change the way we manage the global marine environment.

The high seas are those parts of the world's oceans which lie beyond territorial waters and the 355 kilometre/200 nautical mile exclusive economic zones of coastal nations. They represent 64% of the world ocean surface and form the largest habitat on the planet which does not benefit from any form of protection.

While the deep ocean is increasingly recognised as a crucial global reservoir of Earth's biodiversity, only a tiny fraction of ecosystems found at depths below 200 metres/656 feet has been studied with research revealing remarkable diversity and many unique species.

Carl Gustaf Lundin, Head of the IUCN Global Marine Programme, said: "Damage caused to high-seas biodiversity and productivity by growing human activities continues to escalate, harming or destroying species and habitats, and altering ecosystems faster than scientists can study them."

By far the most widespread activity affecting the biodiversity of the deep sea is bottom trawl fishing, described as the most destructive fishing practice on the high seas, which involves dragging heavy chains, nets and steel plates across the ocean floor.

Surveys have shown that this method of fishing is the single greatest threat to highly vulnerable deep sea environments such as seamounts and deep sea corals, which are critical habitats for many fish species.

"Urgent and immediate action is required to reduce the known risks from high seas bottom trawling, and to provide protection to important biodiversity areas," added Mr Lundin.

More than 1,000 marine scientists from around the world have expressed their profound concern that bottom trawling is causing unprecedented damage to deep sea coral and sponge communities on the continental margin, as well as to seamounts and mid-ocean ridges.

The UN General Assembly is being urged to put forward a resolution this November calling for the immediate protection of seamounts, deep water corals and other biodiversity hotspots from high seas bottom trawling until these vulnerable areas can be identified, and measures to protect them adopted and enforced consistent with the UN Convention on the Law of the Sea, the UN Fish Stocks Agreement, the FAO Compliance Agreement, the Convention on Biodiversity and the UN-FAO Code of Conduct for Responsible Fisheries.

Kristina Gjerde, High Seas Policy Advisor for the IUCN Global Marine Programme, said that the Deep Sea Conservation Coalition — a grouping which includes the Natural Resources Defence Council, Greenpeace International, Conservation International and WWF International — was calling for an interim prohibition on bottom-trawling.

She said: "The areas of the world's oceans worst affected by bottom trawling are cold water coral reefs and seamounts, and currently most of the bottom trawling is taking place in the north Atlantic.

"Most of the trawl damage occurs in the first few trawls, so it is most damaging as it expands into new areas, both in the north Atlantic but also into other areas such as the south west Indian Ocean, where it is entirely unregulated."

Professor Andre Freiwald, of the University of Erlangen-Nuremberg, author of a research report on the problem which was published on World Environment Day, said that cold water coral reefs (in waters with temperatures between 4 deg C and 13 deg C) can be found in water as shallow as 40 metres/130 feet. It was previously thought that they were confined to the north Atlantic, but now scientists have detected them in the coastal waters of more than 40 countries.

He said: "We are finding not only new species of coral, and cold water corals in new locations, but also associated organisms like



Deep sea corals in Oceanographer's Canyon, George's Bank, off Massachusetts, USA.

Picture: NOAA Office of Ocean Exploration

snails and clams — which were believed by palaeontologists to have become extinct two million years ago. We expect many more surprises like these in the future as we undertake more scientific missions.”

Simon Reddy, of Greenpeace, said: “Bottom trawling could be wiping out many unknown creatures which could help provide cures for diseases or teach us more about the origins of life on this planet.”

A report prepared by fisheries expert, Matthew Gianni, *High Seas Bottom Trawl Fisheries and Their Impacts on the Biodiversity of Vulnerable Deep-sea Ecosystems*, revealed that estimates of the number of species inhabiting the deep ocean ranged between 500,000 and 100 million.

Fragments taken from the Sula Ridge cold water coral reef complex in Norwegian waters at a depth of 300 metres/985 feet have been dated to 8,500 years old. Studies in four different Norwegian cold water coral reefs have identified 744 species associated with the reefs and remarkably only 15 species were common to all sites, indicating that the number of species on the reefs is probably much higher than those identified so far.

The flagged fishing vessels of 11 nations — Denmark, Estonia, the Faroe Islands, Iceland, Japan, Latvia, Lithuania, New Zealand, Norway, Portugal, Russia and Spain — took 95% of the fish caught in bottom trawl fisheries on the high seas in 2001.

The report noted that this type of fishing was likely to grow in coming years as deep sea fish stocks within national jurisdiction became depleted and/or increasing restrictions were placed on fisheries within national jurisdiction.

Most high seas bottom trawl fishing over the past several years had



Scientists with a sample of coral taken from the Pacific Ocean off the Aleutian Islands, Alaska.

Picture: Robert Stone, NOAA Fisheries

taken place in the north west Atlantic Ocean, the north east Atlantic Ocean, the south west Indian Ocean and the south west Pacific Ocean, and the majority of the bottom trawl catch was taken in a relatively small area of the north west Atlantic.

The overall contribution of the high seas bottom trawl fisheries to global food security was negligible, as most of the catch was sold on the European Union, USA and Japanese markets.

His report concluded that a moratorium on bottom trawling over sea mounts and deep sea coral ecosystems was essential to protect these

biodiversity hotspots. Losses of up to 95-98% of the coral cover of seamounts as a result of deep sea bottom trawl fishing had been documented and — given the localised species distribution and high degree of endemism associated with seamount ecosystems — bottom trawl fishing was likely to pose a serious threat to a large percentage of species inhabiting these ecosystems.

VITAL FOOD SOURCE

MORE than 3.5 billion people depend on the ocean for their primary source of food. It is estimated that, in 20 years, this number could double to seven billion.

Artisanal fishing communities, who harvest half the world's fish catch, are seeing their livelihoods increasingly threatened by illegal, unregulated or subsidised commercial fleets.

More than 70% of the world's marine fisheries are now fished up to or beyond their sustainable limit. Populations of commercially attractive large fish — such as tuna, cod, swordfish and marlin — have declined by as much as 90% in the past century.

norway

NEW SVALBARD MARINE AREA

A NEW Marine Protected Area announced by the Norwegian government, covering 40,000 sq kms/15,445 sq miles of coastal waters off Svalbard (the northern archipelago which includes Spitsbergen), has been designated by the Norwegian government.

Within the MPA all mining and oil and gas exploration will be

prohibited, and bottom trawling will not be allowed in waters less than 100 m/330 feet deep.

Last year the government, which aims to make Svalbard one of the best managed wilderness areas in the world, created five new protected areas which increased the extent of Svalbard's land area under protection to 65%.

baltic

MOVES TO SAVE MARINE SPECIES

A MEETING of the Baltic Marine Environmental Protection Commission's Nature Protection and Biodiversity Group (Helcom Habitat), which took place in St Petersburg, Russia, called for the compilation of national lists of the most threatened species in the Baltic Sea by October 2005.

The meeting expressed the opinion that Helcom can play an important role in mitigating the environmental impacts of fisheries by co-ordinating the monitoring of coastal, non-commercial and non-target fish species, as well as in assessing their status and the impact of fisheries on them.

This would enable Helcom to produce inventories, especially of Baltic Sea non-commercial fish species, thus contributing to a Red List of threatened species in the Baltic Sea area. It would also identify gaps in the network of Baltic Sea protected areas and propose measures to be taken to enhance protection of species and habitats, and suggest potential action plans aimed at recovering species threatened by fisheries.

A report by Greenpeace, 'Rescuing the North and Baltic Seas: Marine Reserves — a Key Tool', outlines threats caused by over-fishing, mineral extraction and global warming, and calls for 40% of the seas to be declared marine reserves.

The report contains maps based on scientific survey data of 10 proposed reserves in the Baltic and seven in the North Sea, which include ecologically important habitats as well as fish spawning and nursery grounds.

Once among the most productive seas in the world, the North and Baltic Seas are today among the most degraded, with a steep decline in fish stocks and marine mammal populations and increased levels of pollution.

Between 1996 and 2001 North Sea cod stocks dropped by almost half, and this year Danish fisheries in the Baltic were closed for two species due to high dioxin concentrations in the landed fish.



High seas swordfish and tuna fishing is endangering white-tip shark numbers.

Picture: Dr Elliott Norse, President, Marine Conservation Biology Institute.

MORE FISH JOIN THE RED LIST

MORE than 50 experts who gathered at the Mote Marine Laboratory in Florida, USA for the fifth in a global series of IUCN regional workshops focusing on the world's shark and ray species, have re-assessed the status of five species in North and Central American waters.

Nearly 200 regional species of sharks and rays are being evaluated in terms of the IUCN Red List criteria for species deemed vulnerable, endangered or critically endangered, and the week-long workshop's recommendations, which have yet to be accepted by the entire IUCN Shark Specialist Group, included the following additions to the Red List:

CRITICALLY ENDANGERED

- The oceanic white-tip shark of the Gulf of Mexico, due to by-catch in the high seas tuna and swordfish fisheries, combined with demand for their fins.
- The thorny skate of New England, taken from US waters for European markets until last year and still being caught due to by-catch in regional cod, had-dock and flounder fisheries.

ENDANGERED

- Scalloped and great hammer-

head sharks, whose decline in numbers is due to a combination of factors, including recreational overfishing, by-catch and the high commercial value of their fins.

- The US Atlantic sand tiger shark. Alarm has heightened for this shark, which has moved from a 'vulnerable' listing to 'endangered'. The species produces only two young every two years and is not recovering, despite being granted protection in 1999.

The group decided to retain the 2000 vulnerable classification for the now-protected Atlantic dusky shark, but stressed an urgent need for a new population assessment for this exceptionally slow-growing species.

There was more positive news about black-tip sharks. Following a decade of US catch controls, populations are increasing and it is now considered to be in the lowest Red List category of 'least concern'. However, the species is still considered threatened off Mexico and Central America due to a lack of fishing regulations and persistent fishing pressure.

SLEEPING GIANTS AWAKE TO FACE THEIR PROBLEMS

DESCRIBED as an "arctic island" in the heart of Europe, the Giant Mountains (Krkonoše in Czech, Karkonosze in Polish) are an important natural, cultural and historical region straddling the border between the Czech Republic and Poland.

The highest massif of the Sudetes mountain system, a 30 km/19 mile length of the Inner Bohemian ridge forms a shared boundary between Poland's Karkonosze National Park and the Czech Republic's Krkonoše National Park.

Both were established in the communist era, in 1959 and 1963 respectively, and when they were ravaged by severe industrial air pollution during the 1970s and 1980s, state forestry managers — who were unable to

discuss joint action — adopted contrasting strategies as swathes of spruce forest in both parks were destroyed.

Happily, in recent post-independence years, the administrations of both parks have developed a close working partnership, enabling them to find joint solutions to shared problems, including the regeneration of their natural forests.

Officially recognised by the Europarc Federation for their effective transboundary co-operation, personnel from both parks meet regularly to share expertise and discuss the new opportunities presented by membership of the European Union.

by **STEWART BONNEY**

czech republic

CHASING SUSTAINABLE TOURISM

KRKONOŠE NATIONAL PARK

ONE of the most visited national parks in Europe, with up to six million day visits annually, Krkonoše was the first national park to be established in the country in 1963.

Within an area of 363 sq km/140 sq miles, and a buffer zone totalling 184 sq km/70 sq miles, the park — which achieved UNESCO World Biosphere Reserve status in 1992 — contains a unique natural diversity. Included are broad-leaved and mixed forests at the foot of the mountains, natural and secondary mountain spruce forests, dwarf pine stands and flower-rich mountain meadows, glacial corries, peat bogs, and the only arctic alpine tundra in central Europe, found on ridges above 1,450 m/4,757 feet stretching to the highest Czech mountain — the 1,602 m/5,255 feet high Sneška (Śnieżka in Polish). Scientists have described more than 1,250 species of vascular plants in the Giant Mountains, and almost 300 species of vertebrates.



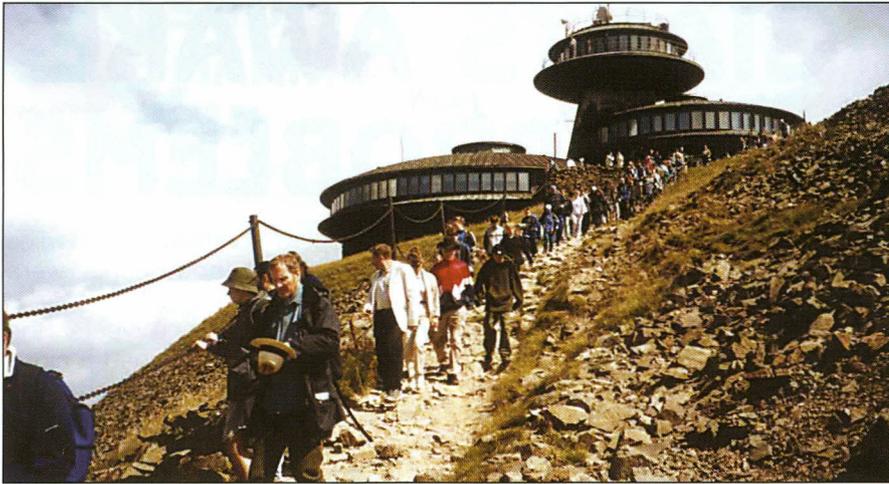
Upland peat bog on the high plateau near Sneška mountain is a Ramsar site of international importance.

With 700 kms/435 miles of marked walking trails, 200 kms/125 miles of bike trails, five visitor centres and 10 small field information centres, the park is well equipped to cope with summer visitors, but three quarters of its six million day visits are recorded in winter months.

Over 100 ski and chairlifts cater

for an ever-increasing volume of skiers from the Czech Republic, Germany, the Netherlands and Belgium. Most are located in the park's buffer zones but a number operate within a zone of natural protection, and two chairlifts have upper stations in the strictly protected mountain ridge zone.

Dr Jan Stursa, who joined the



Snezka, the highest point in the Czech Republic, is a magnet for visitors to the Giant Mountains.

park's team straight from university in 1965, served for three years as its director and is now the park's plant ecologist, said:

"There was a lot of opposition to the area having national park status in the 1960s, but now we have a good relationship with the 5,000-plus people who live in the park and the 15,000 who live on the margins. For many of them tourism is their only source of income, but the message we emphasise is that without measures to protect the landscape there would be no tourism. We need a realistic management plan to ensure that any future tourism development is sustainable."

A successful move to reduce road congestion, as well as cut air and noise pollution, was the park's introduction of traffic tolls on three mountain roads.

Dr Stursa said: "All car drivers, other than local residents, are charged 300 crowns, which is 10 times greater than the cost of using a shuttle bus service up into the mountains. Since we introduced this charge in the early 1990s there has been a big reduction in the volume of traffic, and the money raised is used to maintain these roads."

Further income is generated for local communities through a tax paid by local accommodation providers of 15 crowns per night per occupied bed.

OVERCOMING ACID RAIN

Sulphur dioxide emissions from coal-burning power stations in East Germany, Poland and Czechoslovakia, which brought devastating acid rain pollution in the 1970s and

1980s, resulted in Krkonose qualifying for endangered park status in 1984.

Dr Stursa said: "During the communist regime, some bad forestry management decisions were made. It was decided to clear-fell all affected areas rather than rely on natural regeneration. This involved the use of heavy equipment which altered water courses, caused landslides and damaged the soil structure, microclimate and microbiology affecting tree nutrition.

"The acid rain particularly affected Norway spruce above 900 metres/2,950 feet, and this pollution resulted in the destruction of some 8,000 hectares/30 sq miles, with a further 8,000 hectares damaged to various degrees."

A second deadly blow to hit the park's ailing forests was a major insect infestation in the early 1980s. This prompted what Dr

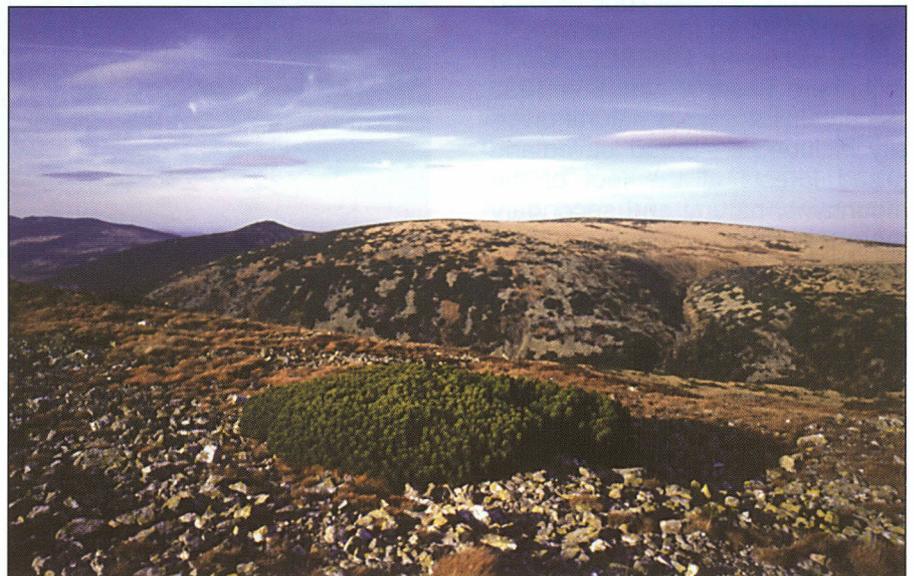
Stursa describes as a harmful "chemical war" using helicopter aerial spraying to fight the outbreak.

Following the emergence of the Czech Republic, the national park administration was given responsibility for forest management in 1994, and today almost two thirds of its 340 strong staff and four fifths of its budget is dedicated to this role.

While Dr Stursa was the park's director, between 1990-3, the Dutch foundation, Forests Absorbing Carbon dioxide Emission (FACE), provided finance to help regenerate the Krkonose forest ecosystems. Over a period of 10 years and with overall funding in the region of 35 m crowns (about £1m) more than 5,200 hectares/20 sq miles of forest were renewed using genetically local species of trees and environmentally friendly technology.

To reduce damage to young trees, the project identified a need to reduce local populations of red and roe deer by 30% over a three-year period. Following this cull, the park has established 15 fenced winter enclosures where regular feeding attracts 80% of the park's red deer and regulated shooting is monitored by park staff.

Referring to the active trans-boundary co-operation which the Czech park has with its Polish neighbour, Dr Stursa said: "It is extremely important that we harmonise forest management and technology on both sides of the border, and we do this by exchanging forest plans, joint field trips and regular meetings."



Arctic and alpine tundra covers the highest ground in the national park.

poland

BIG TASKS ON A SMALL BUDGET

KARKONOSZE
NATIONAL PARK

ESTABLISHED in 1959, this small park — which covers an area of only 5,500 hectares/21 sq miles with a 11,265 hectare/43 sq mile buffer zone on the northern slopes of the Giant Mountains — attracts 1½ million annual visitors.

A total of 4,000 hectares/15 sq miles is forest, of which 294 hectares/1 square mile is strictly protected and a further 3,700 hectares/14 sq miles partially protected. The mountain slopes are mainly covered with spruce mixed with beech, sycamore and linden, while higher altitude areas are dominated by dwarf pine.

The high moors and rocky plateaux above 1,200 m/3,940 feet are occupied by a large number of endemic and alpine plants species. The park protects many rare species facing extinction and has 30 animal, 18 vascular plant, 14 moss and 27 lichen species listed in the Polish Red Book of endangered species.

Although there has been human exploitation of the region's forests since the 15th century, many areas of high-altitude forest ecosystems have retained their natural character. However, lower parts of the mountains have been significantly changed as a result of acid rain pollution and growing tourism pressures.

In the wake of the fast-growing winter tourism industry across the border in the Czech Republic, there has been some local pressure in recent years for the development of skiing facilities, but a joint tourism monitoring project between the two parks established that 80% of Karkonosze's visitors come in spring, summer and autumn.

One of the main pressure points in the park is created by a chairlift that takes visitors to the top of Sniezka. While some visitors travel to the summit to begin a three-hour



Lake Wysokosc is a popular destination for walkers who visit Karkonosze.

trek to Lake Wysokosc, many more leave the chairlift at a lower station for a shorter one-hour walk to the historic 16th century lakeside mountain lodge, making it one of the park's visitor hotspots.

Andrzej Raj, deputy director of Karkonosze National Park, said: "One of our big problems is the cost of maintaining our 138 km/85 miles of walking trails and repairing erosion damage. As we only have a small budget, we raise some of the money we need by asking all visitors to buy a ticket to enter the park."

With no public roads running through the park, visitors can only enter on foot. When they buy tickets — costing €1 — at one of eight main entry points, they are given an information leaflet which explains how they are helping to

fund footpath improvements and litter removal.

Mr Raj said: "The people employed to sell tickets all have to take an examination to ensure that they are able to give visitors good information about walk times, the degree of difficulty of walk routes and weather information, which is very important in the mountains. We have found that if people pay to be in the park, their behaviour is completely different. They act more responsibly and value the mountain experience more."

Since May 1 this year, under powers given to them through new Polish conservation legislation, the park's rangers have been empowered to remove anyone in the park who has not purchased a ticket.

LONG-TERM REGENERATION

By the mid-1980s severe air pollution had decimated large areas of spruce forest in the park but, unlike Czech state foresters across the border, the Polish park authorities decided not to clear-fell the affected areas. Dead and dying trees were left *in situ* and within a short time some natural regeneration began.

However, a survey revealed that natural regeneration alone would not restore the park's forests. Due to timber exploitation over several centuries and the commercial introduction of fast-growing Norway spruce, it was discovered that

fewer than 800 native silver firs remained, and the once-dominant natural beech forests on the lower slopes of the mountains had been reduced to less than 10% of their original size.

A long-term regeneration project was set in motion. Organised collection of seeds from selected trees in the surviving natural forest began and a tree nursery was established by the park management to begin large-scale seedling production.

Once established, all seedlings are moved into individual pots containing a "natural woodland"

Pictures: Stewart Bonney

SHARING A BORDER

mixture of soil, spruce bark and peat, then nurtured by a workforce consisting of four full-time workers and a 25-strong female workforce drawn from local villages.

The scale of the operation can be gauged by the fact that, this spring, the nursery held 40,000 silver fir and 80,000 beech seedlings.

Now a vital gene bank for native species on both sides of the border, the nursery keeps computerised records detailing the specific trees used for seed collection and monitors those producing the best germination levels and sturdy growth once planted in the wild.

Mr Raj said: "We have a very different climate from other mountain ranges in central Europe, with low average annual temperatures at the highest elevations similar to those in northern Scandinavia and Greenland.

"As a result, we have special planting-out areas in the forest where seedlings are given two years' acclimatisation before the strongest are selected for planting out permanently."

Now young beech forest represents between 35 and 40% of the park's regenerated forest, and the ultimate goal is to increase this to 50-70%. Another long-term target is to build up the indigenous silver fir population to between 16 and 18% of the total forest.



Karkonosze deputy director Andrzej Raj with young plants being grown at the park's own nursery.

Other trees grown at the nursery in smaller numbers include mountain elm, wild cherry, Silesian willow, maple, and red oak. Surplus young oak trees are sold to local gardeners for one highly practical reason. Mr Raj explained: "There is a proverb in Poland that stolen plants grow faster, and as we don't want people digging up the young trees we have planted in the forest, we offer surplus trees for sale at low prices. It is a very popular service."

Another key function of the nursery involves the propagation of several rare plants. Surveys

revealed that only three individual *Salix herbata* remained in the Polish park, and four in the Czech park. Now the nursery is producing between 30 and 40 of these young plants annually.

Karkonosze is also the only location in central Europe for the herb *Saxifraga nivalis*, a plant normally found only in northern Scandinavia and Greenland. When a survey found only 11 individual plants remained in the park, immediate action was taken by nursery staff and this year they have raised 100 young plants.

EU MEMBERSHIP RAISES

THE enlargement of the European Union earlier this year involved the new membership of 10 countries — Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia — with a combined population of 75 million people.

An IUCN report has outlined some of the long-term challenges for the rich natural heritage and biodiversity assets of the new member states, and highlighted the opportunities and challenges for biodiversity conservation in the enlarged EU.

The new members harbour about one fifth of the continent's forests and are rich in animal and plant diversity. Europe's large carnivores continue to survive in the natural or virgin forests of eastern and central Europe in areas such as the Carpathians.

However, the greatest challenge for the new member states is to

retain their natural resources while offering their citizens opportunities for improving their well-being.

FARMING. With agriculture's share of employment in the new member countries totalling 21% of the population, there are fears that EU money directed for rural development and structural funds could lead to the destruction of traditional landscapes. The report noted that it would be desirable if farmers more consciously contributed to safeguarding and managing the environment in rural areas.

FORESTS. The forest area of the enlarged EU will be approximately 1.38 million sq km/533,000 sq miles, of which 17% — 238,000 sq km/92,000 sq miles — lies within the 10 new EU member states.

In the 1990s the former communist countries of central and eastern Europe privatised between one third and one half of all forests

through restitution of property and/or compensation schemes. Many of the two million new forest owners are unskilled in techniques of sustainable forest management, and may be attracted to gaining short-term profit through over-exploitation and clear-cutting.

FISHERIES/FRESHWATER RESOURCES. The amount of fish caught in eastern European freshwaters has declined by nearly one third in the past 10 years. The reasons for this, and freshwater biodiversity loss in general, are over-fishing and by-catch, loss of natural spawning areas and contamination by agents like PCBs and heavy metals.

MARINE/COASTAL AREAS. While no official and clear marine legislation exists at the EU level, a European Marine Strategy is currently under development. In 2003 European Environment ministers committed to implement a network of marine pro-

CROSS-BORDER CO-OPERATION

IN addition to their joint efforts to harmonise forest management, the two parks have developed a good working relationship in a number of other areas.

With the decline in traditional alpine farming, both parks face the problem of managing the wild-flower-rich meadows once grazed by cows, goats or horses.

Dr Stursa said: "After the Second World War many local farmers were relocated, and gradually the biological quality of the mountain meadows and species diversity fell lower and lower, until we received some funds from our Ministry of Environment to restore them to a healthy condition."

Mr Raj said: "Before we started a programme to manage our meadows we counted less than 200 individual plant species and found *Crocus vernus* in only one meadow. Our botanist received a lot of good advice from the Czech side, and in recent surveys we have counted more than 1,000 species and in one half-hectare/one and a quarter-acre meadow we now have more than 100 species of herbs."

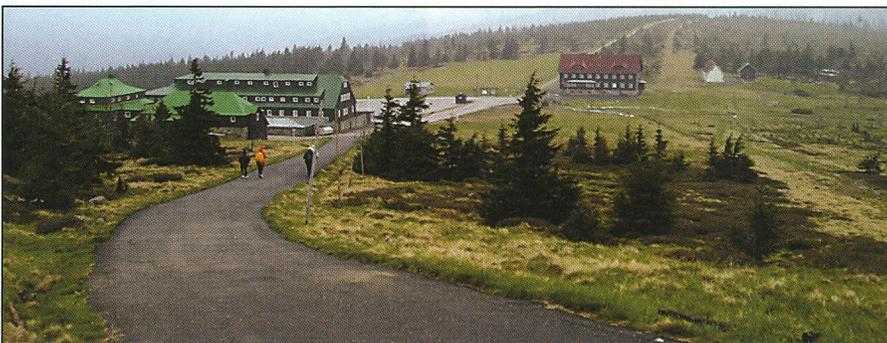
The Czech park, which has established a large mountain ecology museum that attracts 40,000 visitors annually, was also able to assist the Polish park in establishing what is now an eight-strong team that offers a range of ecological field courses. Polish children are welcomed at the mountain environmental study centre across the border in Krkonose.

The two park administrations are also liaising over the implications of their states' membership of the European Union. Dr Stursa said: "Our membership of the European Union will have a big influence on

the national park. It will involve stricter rules concerning nature and environmental protection, and hopefully financial support for such activities as landscape and forest management and water treatment technology."

In the Polish park, a number of environmental improvement Natura 2000 projects are already under way, involving the improvement of sewage disposal and waste recycling in seven local communities.

Mr Raj said: "People are now aware that living in a protected area has advantages for them. Money is a strong argument to encourage them to promote and support nature conservation. We have had some problems in the past trying to explain the importance of protecting the local environment, but this has brought us huge support."



The crossing point between the two Giant Mountains National Parks.

NEW CHALLENGES

ected areas by 2010, but little progress has yet been made.

Four Baltic countries are among the new member states, doubling the number of Baltic states in the Union. In April this year all eight countries approved the designation of the Baltic Sea as a Particularly Sensitive Sea Area (PSSA) for which urgent protection measures are needed and stricter regulations developed. However, Russia remains opposed to the PSSA agreement.

With studies suggesting that up to 90% of marine life in the Baltic is at risk, the challenges of conserving the Baltic environment and dealing with threats such as pollution and oxygen depletion caused by nutrients and invasive species, still have to be met (* see also Page 8).

PROTECTED AREAS. Approximately 18% of the current EU's

land surface is designated under NATURA 2000. This European ecological network of protected areas — an important objective of the EU Habitats and Birds Directives — will contain special areas of conservation where habitats will be maintained or restored to a favourable conservation status.

The Habitat Directive assumes adaptation of its Annex lists of habitats and species when new states join the EU, but accession countries face the risk of losing potential NATURA 2000 sites due to rapid infrastructure development.

ENDANGERED SPECIES. Some 780 European species are listed in the IUCN Red List of Threatened Species as being of global conservation concern and, of these, 64 animals and plants are classed as critically endangered.

Numerous large carnivores —

including brown bears, wolves and lynx — used to occupy the extensive forests that once covered Europe. To survive, these animals need large undisturbed territories, natural prey and as few conflicts with people as possible. The Romanian Carpathians, which cover only 1.4% of Europe's territory, are home to 43% of Europe's bears and 30% of the continent's wolves.

ENERGY/CLIMATE CHANGE.

Under the Kyoto Protocol, all 25 of the enlarged EU's member states have committed to reducing overall greenhouse gas emissions by 8% from 1990 levels between 2008 and 2012. Emissions in the accession countries declined sharply in the 1990s due to economic decline and restructuring, but as economic growth accelerates in all the new member states, emissions from transport and energy are bound to rise.

slovenia

TRIGLAV, Slovenia's only national park, is embroiled in a political battle. It is threatened with severe reduction of its nature protection powers, opening the door to extensive commercial development. This would take place within the 838 sq km/323 sq mile park, which covers almost all of the Slovene area of the Julian Alps.

Expressing serious concern about present government proposals, Marija Zupancic Vicar, Slovenian-based senior advisor for WCPA/IUCN, said: "The national park is characterised by beautiful mountain valleys, high peaks, lakes and rivers, waterfalls and typical Karst phenomena. It has a rich and varied plant and animal biodiversity, and all this beauty is cherished by the local people and enriched by an outstanding historical and cultural tradition.

"The park has been legally protected since 1981 by the Triglav National Park Act. However, since Slovenia became an independent state in 1991 — and a member of the European Union in May this year — there was a need to update the Act. Unfortunately, the governing party of Slovenia outlined a new law which proposed to loosen the protection of the core zone, to reduce it substantially in size, and permit land development.

"The population of the national park — some 1,800 inhabitants — the national park administration and non-governmental environmental protection organisations believe that such amendments would lead to a substantial increase in building and commercial exploitation within the national park area.

"The opponents of the new law are against the expansion of such developments, which would undermine the purpose and main goal of

NEW LEGISLATION THREATENS TO



Traditional farm buildings at Pocar, in the Radovna Valley.

the national park — the protection of nature and cultural heritage. Since the local people and NGOs were unable to influence the process of the adoption of the new law, they arranged a referendum and the Slovenian nature protection organisations, with international support from WCPA, WWF and PAN Parks, held a symposium."

The symposium concluded that the proposed new law was against international national park criteria and conventions, and that the law should not be aligned to economic interests. Describing Triglav National Park as an area of national importance with both high natur-

al and cultural landscape values, demands were expressed that nature conservation experts, scientists, NGOs and local people must be given the opportunity to take part in the legislative procedure.

by STEWART BONNEY

Although the conclusions of the symposium, which was held in February this year, were sent to the Slovenian Ministry of Environment, no written reply has yet been received.

To gain wider support for their fight to preserve Triglav, a coalition of NGOs, including CIPRA Slovenia, DOPPS Birdlife International, the Association for the Conservation of Slovenian Natural Heritage, Mountain Wilderness Slovenia, and the Slovenian Academy of Sciences and Fine Arts, issued an appeal for public support.

This called for the entire process involved in formulating the new National Park law to be started anew from a basic draft document guaranteeing permanent preservation of the natural, cultural and spiritual values of the protected area, and demanded that there should be a 60-day period of public debate on this draft document conducted in accordance with



Triglav's modern three-storey visitor centre, at Trenta.

TION RIGLAV

Article 58 of the Slovenian Nature Conservation Act.

The coalition stressed that the national park should “be based not only on ethics and conservation, but also sustainable development of tourism and the local economy, to give people living in the park a better life”.

It pointed out that Slovenia’s Nature Conservation Act, passed in 1999, was the legal basis for the creation of all protected areas including national parks, and stated that “the entire procedure for making the new law should follow this legal act. Unfortunately this is not the case.

“Nature conservation experts and NGOs interested in nature conservation were not involved in the first stages of drafting this new law, which will not provide permanent protection for this sensitive environment. On the contrary, it will open up possibilities for building and commercial exploitation of natural and cultural resources, even in the present core area of the park. If this law is passed it will enable commercial interests to prevail over nature protection.”

In response to this appeal, the Slovenian parliament did allow for a two-month period of public debate which resulted in a number of amendments to the new law being submitted for consideration by the Slovenian National Assembly when it was due to vote on the new legislation in June.

However, this debate was postponed and is now expected to take place later this year, following national elections.

Marija commented: “The outcome is still unpredictable. The civil society fears that the politicians might adopt a law against the will of the Slovenian people. This would be a very sad story for a very prosperous new European Union member, and would also be a big loss for European and world natural heritage.

“We hope that the new government will take into account the comments and proposals made during the public debate, which would establish the conditions for a national park under the international standards, IUCN Category II.”



Dreznica village, with the 2,244m/7,362 ft Krn mountain in the background.

NATIONAL PARK PROFILE

TRIGLAV National Park, which lies in north-western Slovenia, has been legally protected since 1981. Its designation as a protected area was first proposed by Dr Albin Belar in 1908 and part of this alpine area was first given protection as a natural park in 1924.

Dominated by the 2,864 m/9,396 ft Mount Triglav, the north east sector of the park has an alpine climate, while the valleys to the west open towards the Mediterranean and are more temperate.

Measurements of the Triglav glacier have been taken since 1946 and in the mid-1990s showed that its surface area had contracted to only three hectares/seven acres: a reduction of 80% since the 1950s.

The park has a 553 sq km/213 sq mile high protection core area and a 284 sq km/110 sq mile cultural landscape zone, where sustainable local economic development is permitted. The national park, which has 42 staff including 18 rangers, has its headquarters on the lakeside at Bled.

A large, modern, three-storey visitor centre, located centrally in the park at Trenta, is open between April and October, mainly attracting coach parties due to its remote location. A £3 entrance fee is payable to see nature films, art and photographic exhibitions and to tour a wide-ranging series of informative displays about wildlife, ranging from lynx, golden eagles, alpine swifts, capercaillie

and 16 rare or endangered plant species found within the park.

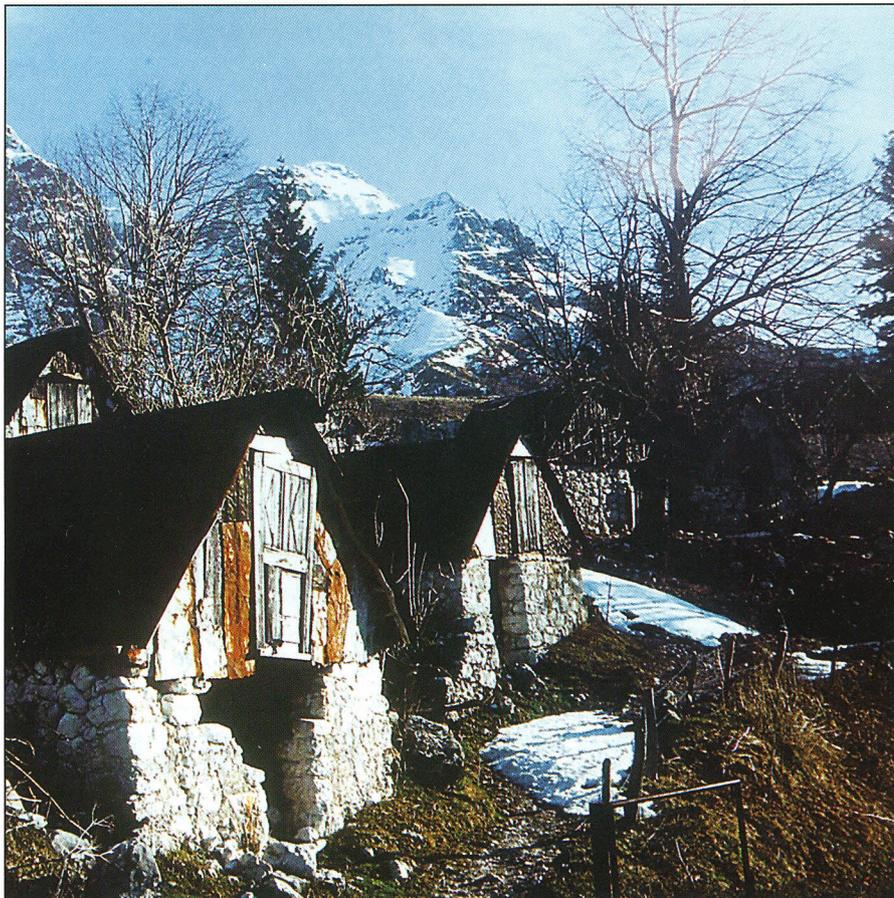
The opening of the centre seven years ago halted a population decline in this rural valley by creating jobs for 10 local people, and saved the village school from closure.

The Socha trail, a popular walking route starting from the centre, is part of a 3,000 km/1,865 mile network of mountain footpaths in the park — almost half of all the mountain paths in the country — which are looked after by alpine clubs affiliated to the Mountain Club of Slovenia.

While walkers have an abundance of routes, high visitor densities are becoming a problem in other areas.

Josef Mihelic, who is responsible for the park’s wide-ranging educational and communications programmes (and whose photographs accompany this article) was a keen mountaineer in his younger days. He said: “Twenty years ago you knew everyone you met in these mountains; now we have thousands of winter visitors. Mountaineering has become very popular and the number of alpine skiers is increasing by between 30 and 40% every year.

“At present the mountains are open to everyone without any payment but in future it may be necessary to charge for access to certain places which are becoming too crowded.”



Rustic stone and wood-built grain stores in the foothills in the north of Triglav National Park.

The park's central location, close to borders with Italy and Austria, and its growing popularity with visitors from Croatia, the Czech Republic, Germany, the Netherlands, Slovakia and the UK, present the park's management with numerous information translation problems.

As part of the Alpine Network (Alparc), it prints leaflets in French, German and Italian as well as in Slovenian, and also provides much information in English, but Mr Mihelic added: "Being such a small nation, we find that having to translate and print information in so many languages is very expensive."

Relying on the state for some 70% of its funding, the park generates other income from sponsorship and from sales of information literature, guided walks and fees charged for accommodation in its alpine huts, which sleep from four to 12 people.

One of the most popular visitor destinations in the park is the 4.1 km/2.5 mile long Lake Bohinj, the largest and deepest natural lake in Slovenia. The lake's shoreline and adjoining forests are facing one of the most severe threats under the proposed new National Park Act, which anticipates considerable

urbanisation of the area involving the construction of extensive water sports facilities and tourist accommodation.

Recognising the importance of community involvement and support for the protected area, the park publishes 10,000 copies of a twice-yearly newspaper which is distributed to households and 14 schools in the park and surrounding communities. Park staff also make regular visits to schools and arrange educational visits and guided walk programmes in the park.

Referring to an educational project which has the specific aim of encouraging local farmers to maintain traditional activities such as hand-cutting hay and horse-drawn ploughing, Mr Mihelic said: "It is our responsibility to take care of nature and the traditional economy, and our agronomists are working on programmes to encourage practices such as organic farming.

"With the support of state money, farmers working within the park are given financial incentives in recognition of the difficult conditions posed by alpine farming. If we want to keep them here, which is very important if we are to preserve the cultural landscape, we must support them."

letters KEEPING US UP TO DATE . . .

SOME time ago I asked for a free issue of this fine bulletin, and since then I have been receiving regular magazines, for which I thank you. I remain very impressed by its quality and the news it brings.

For us, in Venezuela, these are difficult times since we are not able to buy foreign currency to pay for subscriptions. I was a former national parks planner for the Venezuelan National Parks Service (Inparques) and now work for a university offering a course on protected areas planning and management.

NPIB has been a great medium to keep me informed about what is going on out there in the rest of the world, and it allows me to keep my students updated — and also national parks officers who are regularly in touch with me.

Thank you for your efforts.

— **Prof. Edgard Yerena,**
Departamento de Estudios
Ambientales, Universidad
Simón Bolívar, Venezuela.

. . . AND WIDENING OUR KNOWLEDGE

I AM a civil servant in a natural resources conservation office at province level and my office was sent a copy of the NPIB May 2004 issue. This magazine is very much needed.

It is very useful for me to have a wider knowledge of national parks and protected areas. My office has responsibility for managing seven wildlife reserves and a national park, about 700,000 hectares/2,700 sq miles in total.

I hope you can continue to send me free magazines to help me improve my conservation ability.

— **Hendra Koswandi, Balai**
KSDA Sumatera Selatan,
Indonesia.

south africa

WHITE RHINO INCREASES HIT AUCTION TAKINGS

THE annual wildlife game auction staged annually by Ezemvelo KZN Wildlife at the Centenary Game Capture Centre in the Hluhluwe-Umfolozi Park, South Africa, saw a downturn in money earned this year, partly as a result of the organisation's success in conserving the once-highly endangered white rhinoceros.

Acknowledged as the largest and best sale of its kind in South Africa, and designed as a sustainable method of disposing of surplus game from the 100 protected areas under the direct control of Ezemvelo KZN Wildlife, this year's sale — the 16th to be staged — raised 9.8 million rand rather than its target figure of 12 million rand.

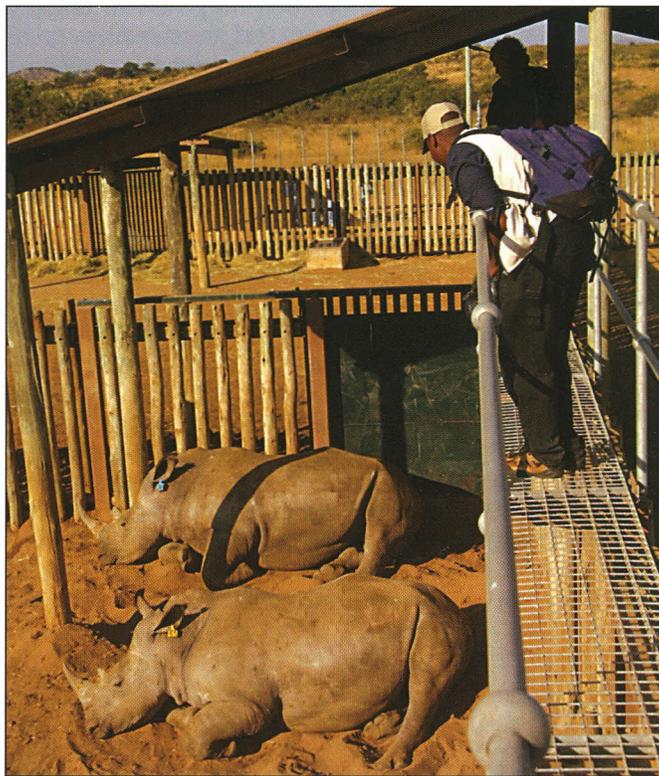
Confirming that there had been a fall in demand and prices paid for white rhinoceros, chief executive officer Khulani Mkhize said: "The drop in price of white rhinoceros was predicted five years ago and is currently attributed to two things: the value of the rand against the US dollar, and — important to us — the fact that through our conservation efforts over the years there are now so many white rhinoceros all over southern Africa that their price is levelling out."

Some compensation for the disappointing white rhino prices was gained with new record South African prices being paid at the auction for three other species: dassies, duiker and ostrich.

Animals offered for sale at the

auction included 57 white rhinoceros, 67 giraffes, 3 black rhino bulls, 995 impalas, 407 nyalas, 96 blue wildebeest, 82 red hartebeest, 70 zebras, 12 hippos, 50 dassies, eight ostrich and 86 springbuck.

The auction is a valuable financial provider for Ezemvelo KZN Wildlife, which runs poverty relief programmes that have in the past year created employment for 214,000 man days. A recently-completed community empowerment project, using black-owned small businesses to upgrade the main entrance and road to the Hluhluwe-Umfolozi Game Reserve, involved contracts totalling 3.2 million rand and provided 15,000 man days of employment.



A journalist takes a critical view of two snoozing rhinos at the KwaZulu-Natal Game Auction.

democratic republic of congo

POACHING WRECKS PARK POPULATION

AN aerial survey carried out last month in Garamba National Park has found that over half of the world's only wild population of northern white rhinoceros have been lost in the past 15 months, due to armed poaching gangs.

The survey was carried out under the auspices of the Garamba National Park Project, which was launched in 1984. In that year a mere 15 northern white rhinos remained but thanks to two decades of conservation, and despite setbacks caused by

poaching and political instability, a survey in April last year recorded a population of at least 30 animals.

While four calves were born this year, the recent aerial survey counted a minimum population of between 14 and 19 rhinos. Despite the efforts of the park's guards — several of whom have lost their lives — increasing numbers of heavily-armed poaching gangs are known to be operating and are believed responsible for the recent slaughter.

• Meanwhile in Kenya, new esti-

mates recently announced by the African Rhino Specialist Group of the IUCN Species Survival Commission and WWF indicate that Africa's endangered black rhinoceros could be on its way to recovery if present trends continue, and that white rhinoceros numbers appear to be stable.

Reduced to only 2,400 in the mid-1990s, latest findings show that black rhino numbers have increased to just over 3,600, while the white rhino population, down to just 50 individuals 100 years ago, now stands at 11,000.

south africa

NO MIRACLES IN PROBLEM ANIMAL MANAGEMENT

by **TIM SNOW**,

Chairman of the Game Rangers' Association of Africa and Field Operations Manager of the Endangered Wildlife Trust's Poison Working Group, which responds to about 70 major wildlife poisoning cases annually.

LEGAL POISON METHODS

THERE are a few chemical poisons *legally* registered in South Africa for the purpose of 'problem animal' control. These are strychnine (in meat baits); sodium cyanide (in 'coyote getter' and 'foxbuster' devices); and sodium monofluoroacetate, or Compound 1080 (in livestock protection collars). All of these are strictly controlled under the Hazardous Substances Act, Act 15, of 1973.

Strychnine is dispensed via the network of state veterinarians across the country, who may supply a farmer with four to five grams per prescription; this is probably enough to kill 40 jackals. It is a bitter-tasting powder, so problem animals which take the baits very often regurgitate the poisoned meat and develop a bait-shyness as a result of their unpleasant experience. Death from strychnine poisoning is fairly rapid, but accompanied by terrible convulsions. It is

difficult to place meat baits in such a manner that they remain target-specific and target selective to a specific problem animal.

The coyote getter and generic devices consist of a small trigger-like mechanism which is held in place by a base peg that is hammered into the ground. The head of the device contains a cartridge which fires the sodium cyanide into the mouth of the animal when the device is pulled. Death is rapid, but the device may be triggered by any carrion-eating animal. These devices are perhaps a step more target-specific than poisoned baits.

Livestock protection collars containing sodium monofluoroacetate can be fitted onto sheep and other small stock. The collar consists of straps onto which sachets of poison are attached. These are fairly robust and under normal circumstances are only punctured by a problem predator which attacks the sheep. As a problem animal control method, this is very target-specific.

One of the problem animal control methods used in the past was the PDB-1 livestock protection collar which contained the chemical carbofuran, and caused very many secondary poisonings of vultures and other scavenging birds and animals. The positive intervention to reduce these secondary poisonings has been to change to a South African-designed collar; and to change the toxin. Of course, the argument against poisons remains, but the collar will only kill animals which attack sheep.

FARM CHEMICAL ABUSE

The toxins described above are the *only* chemicals which may be used legally for problem animal management in South Africa. The use of anything else off the shelf in the farm shed, for a purpose other than for which a product was registered, is illegal. Many people abuse agricultural chemicals which they purchase as crop protection and animal health products, because they find themselves at their wits' end, and unable to solve the problem by conventional methods.

Unfortunately there are also those who abuse poisons because they are either unconcerned about the environmental effects, or they don't care, or they are not prepared to put in the extra effort required to be target-specific.

The most common method used is to either poison a carcass of an animal which has been recently killed, or to cut such a carcass into meat baits which are spread on the farm where they believe the problem animal will pick them up. This causes the death of very many other non-target animals from

burkina faso

HIPPO HUNTING COULD RETURN

PLANS are being made to lift a ban on the hunting of hippopotamus which has been in force since 1991.

In the 1980s, it was estimated that there were fewer than 100 hippos in this west African country, and it was feared they were on the verge of extinction. However, following the state-imposed hunting ban and the creation of a number of privately-managed reserves, it is now thought that the pop-

ulation has grown to about 1,400 animals.

Numerous complaints about damage caused by hippos have been made recently by farmers living near rivers in the south of the country, and this year environment department officers have had to kill three hippos following an attack which left one farmer seriously injured, and two incidents of serious crop damage.

The government, which says it

cannot afford to pay compensation for lost crops, has announced that it will fix an annual hunting quota once a Department of Wildlife hippo population survey has been carried out.

A spokesman said that special permits costing up to US\$ 1,100 would be sold to hunters. He added that the resumption of hunting would provide jobs for guides, and that local communities would be entitled to one third of the meat from each hippo kill.

secondary poisoning. This type of agrochemical abuse is rife in South Africa, yet little attention appears to be given to this issue by conservation and law enforcement agencies. Very few cases find their way to our courts.

It's clear that there are very many grossly irresponsible people in South Africa, for whom the abuse of poisons is part of their daily life. They don't see the bigger picture of the effect that this abuse is having on South African wildlife.

NON-LETHAL LOSS PREVENTION METHODS

There are very many other methods to protect small stock, which include King collars, bell collars, guard dogs, fencing, kraaling and many other techniques. I personally believe that for those who remain sceptical without trying the methods, there is no hope. Progress requires innovation and experimentation.

In partnership with Cape Wools, the Endangered Wildlife Trust's Poison Working Group runs a Problem Animal Management Helpline (082 463 4104), where farmers can get advice or just discuss the problem.

WHERE TO NOW?

Research has been conducted over the past few years into the possible use of a Single Lethal Dose Bait (SLDB), which contains a toxic substance at the correct dosage for the particular problem animal. This principle is based on the use of meat-based baits, but aims at a chemically formulated and manufactured bait to remove any guesswork in the field. The research has aimed primarily at sodium monofluoroacetate, or Compound 1080, for this purpose, for specific chemical reasons. This compound is widely used in Australia, but their objective is total onslaught against foxes and other animals introduced to Australia from elsewhere. A crucial issue for any possible application in South Africa must be that the SLDB must be designed, if possible, to eliminate only the target problem animal; not just predators at random.

The research has been strongly criticised and much alarmist propaganda and misinformation has been circulated, and continues to circulate. Much of this originates from poorly informed sources, and adds emotion to the issue. Added to this have been a number of

zimbabwe

PRIVATE GAME PARKS UNDER THREAT

AS the government considers a new law to nationalise the remaining white-owned private game parks which hold most of the remaining black rhinos, conservationists fear the species is now only a few months away from extinction in the country.

Before President Mugabe started his seizure of farms in 2000, Zimbabwe had more than 500 rhinos in its national and private game parks. More than half of these have been lost to poaching in the past two years alone and only about 200 remain, according to Johnny Rodrigues, head of the Zimbabwe Conservation Task Force.

"If they seize the remaining private game parks, the VIPs will move in and shoot all the remaining rhinos," Mr Rodrigues said. "The term VIP is regularly used in Zimbabwe to refer to those close to the president. A single rhino horn fetches £60,000 in China, and that's a good enough incentive for them to destroy the few that are left."

Mr Rodrigues added that private parks no longer offered the animals protection, as they were

being invaded and occupied by supporters of the regime. He claimed that in several national parks various species of animals had already been wiped out.

One game park owner, who requested anonymity, said that the plan to nationalise the remaining private game parks would mark the end of Zimbabwe as a recognised wildlife haven. "I spend at least US\$400,000 to maintain my game park with little in return every month," he said. "Since the government doesn't have money to invest and maintain these parks, Mugabe's supporters will just move in and kill after nationalisation."

He said that the African wild dog was also close to extinction in some parts of Zimbabwe, while the elephant population had been falling dramatically.

"In Gonarezhou, which once had Zimbabwe's largest elephant population, boundary fences have been destroyed and used to set up snares. It's a disaster."

(from The Independent newspaper, UK)



Jackals are a common target for poisoning, but the poison can be passed on by scavengers.

media releases stating that such a product would soon become available. But to gain acceptance and to be approved by the authorities as an agricultural remedy, such bait would have to break down in an acceptable time period, be target-specific, and have minimal risks to other creatures via secondary poisoning, as well as any other criteria imposed by the authorities.

Those farmers who have been

waiting for a miracle to happen should think again. They should stick with the tried and tested methods of responsible problem animal management which work on their farms. They should not waste time waiting for the great miracle, but get on with their work of protecting their livestock, using old plans that work and thinking out new plans.

There is definitely no pot of gold at the end of the rainbow!

nepal

HERDING HITS PANDA NUMBERS

THE activities of yak herders in the Cholanpti area of Langtang National Park are said to be seriously threatening endangered red pandas. Negative impacts caused by the 600 yak kept by local herds-men include cases where stressed adult red pandas have abandoned their young.

In talks with national park officials, the herds-men — who have admitted that the red panda population is declining — said that they had no alternative means of income and that yak herding had been carried out in the area for many generations, long before the park was established in 1975.

Park authorities believe one possible solution to the problem would be to help the yak herders find other sources of income if the area was developed as a tourist destination by constructing nature trails around panda-populated areas.

POACHERS CONTINUE

POACHING activities are continuing to hit Nepal's threatened populations of rhinoceros, tiger, leopard and musk deer.

Of 28 rhino recorded killed in the country last year, evidence revealed that at least half the deaths were due to poachers.

The Nepalese Department of National Parks and Wildlife Conservation has mounted a strong anti-poaching campaign which involves mobilising local communities living near wildlife sanctuaries, the creation of well-equipped anti-poaching units, and the offer of payments to informants.

bangladesh

CROCS RETURN

INDIA has agreed to send 40 marsh crocodiles and 50 crocodile eggs to Bangladesh. Once widely found in freshwater lakes, marshes and rivers, the native population has been completely eradicated by poaching.

The only three remaining marsh crocodiles in Bangladesh are in captivity, but attempts to breed from these survivors have been unsuccessful.

SOUTH ASIAN ROUND-UP

by PANKAJ SEKHSARIA

myanmar

WILD ELEPHANTS IN DECLINE

THERE is growing concern in Myanmar (formerly Burma) over the dwindling population of wild elephants due to illegal logging and hunting in the country's forests.

Despite the fact that poaching is punishable by heavy fines and up to seven years' imprisonment, the killing of elephants by poachers continues to affect the ratio of males to females in herds, which in turn is leading to a decline in the birthrate.

Reports in recent months claim that the country's ruling military junta has allowed state and private logging companies to catch wild elephants in two areas near the capital, Yangon (Rangoon), on the grounds that there had been an increased number of elephant attacks on people in populated areas.

The state forestry company uses about 4,000 elephants for timber extraction operations and a further 3,000 are used by the private logging sector — a practice strongly criticised by the World Wide Fund for Nature for the impact it could have on the country's remaining 5,000 wild elephants.

The Myanmar Nature & Wildlife Conservation Division plans to declare four new elephant reserves within the next three years.

** All stories have originally appeared in Protected Area Update No 48-49, produced by Kalpavriksh, a Delhi-based voluntary group dedicated to environmental education, research and campaigns involving South Asian local, national and global issues. Editor Pankaj Sekhsaria can be contacted at pankajs@vsnl.com*

india

A LONG LINE OF WOLVES

SCIENTISTS at the Centre for Cellular and Molecular Biology in Hyderabad have claimed that Indian wolves are the most ancient in the world. Analysis of the findings produced by their genetic investigation — involving molecular characterisation studies of Indian wolves and comparison with data available from other wolf populations worldwide — indicated that the Himalayan wolf and the gray wolf were genetically unique and represented the world's oldest lineage.

orissa

DOLPHINS RECOVER

A COUNT carried out in the Chilka Lake protected area has revealed that the population of endangered Irrawaddy dolphins has increased from 89 in 2003 to 124.

Although the dolphins are not hunted for their meat in the region, 11 were killed in 2001-2 as a result of injuries caused by collisions with trawlers and tourist boats.

ALBINOS COUNTED

15 rare albino crocodiles were counted by Forest District officials during a recent census at Bhitarkanika National Park. The total number of crocodiles recorded in the park was 1358.

karnataka

TREKKING AHEAD

FIVE national parks and 20 wildlife sanctuaries are to be opened to trekking, starting with the Bandipur National Park. The ecotourism initiative is supported by the state's forest department to help increase awareness about forest conservation.

lakshadweep

CORAL SUFFERS

THE coral reef system in the Lakshadweep Islands is under threat from oil spillage and fuel discharge caused by passenger vehicles and the growing number of power generators being used by islanders. A study by Cochin University of Science and Technology found that 25% of the outer cells in the reefs were dead, and identified high concentrations of metals including cadmium, lead, mercury and zinc.

rangers

SEAN BEGINS WORLD TOUR OF DISCOVERY

SEAN Willmore, a park ranger from Victoria, Australia, has embarked on a world tour to make a film about the work and lives of national park and protected area rangers. This ambitious project, which is almost entirely self-funded, will result in a documentary to be premiered at the 2006 International Ranger Federation 5th World Congress in Scotland.

Explaining why he has undertaken such an arduous global journey, Sean said: "I would like the film to give a snapshot of rangers' work, what we do well, what needs to change to help us do our jobs better, and to capture the personal stories of rangers, the situations that have changed their lives and

hopefully some stories that will make you laugh out loud."

The following extracts are taken from his reports sent from the first leg of his journey through South and Central America, when he was accompanied by Matthew Stahmer, a fellow ranger from Warrington Park, who has now returned to Australia.

Sean's enthusiasm for the project remains undiminished, despite the fact that on his travels to date he has broken a toe, injured a leg when falling off a horse, and almost drowned during a river rafting trip.

Sean's travels are taking him to Costa Rica, the USA, Canada, the UK, Scandinavia, France, Germany, Austria, Spain, Portugal,

Morocco, Kenya, Uganda, South Africa, India and Vietnam.

CHILE

Villarica National Park

"With Marcello San Martin Mora, we have filmed rangers climbing the Villarica Volcano to check on tourist operators and on their general patrols. We heard how two rangers recovered 50 bodies from the slopes of the volcano when it erupted in 1971, and how two others both lost legs in motorbike accidents.

There is little money for conservation work here and only one car for the use of 25 rangers, who are often based in remote areas. Pay is poor but the dedication of the rangers is something to see — a theme I think I will see around the world.

Southern Chile

Torres del Paine, Patagonia, where staff were busy in the visitor centre office but in this, the busiest park in Chile, it was hard to find a ranger actually in the park. This was similar to our experience when we visited Chiloé Island National Park where Mapuche volunteers were doing most of the work deep inside the park.

There appeared to be very little



Sean Willmore (front, centre) with fellow Australian ranger Matthew Stahmer (back, second right) and local rangers in the Central Pacific region of Costa Rica.

effort put into visitor education and apparently none put into actual conservation. Most visitors I spoke to complained that they were charged a lot of money but received no educational material or insights into the park from a ranger. If they wanted more in-depth understanding of the park they had to pay additional money to a guide."

ARGENTINA

"At Los Glaciares National Park, I learned that El Calafate, El Chaltén and many other towns were created for the sole purpose of servicing tourism. Over the last 15 years the towns have grown at the rate of 10% a year, as have visitor numbers. Unfortunately the number of park rangers has not kept pace with this.

It's interesting that so many businesses are making good money from tourism associated with the parks, while the parks are making very little money and have a very small operating budget — if any — due to the current financial situation in Argentina.

At El Chaltén the rangers, who again lack resources, have chosen not to charge entry fees and put the onus on visitors to help look after the park. They give an informative talk — in English and Spanish — to all bus passengers arriving in the town, ask visitors to behave in an environmentally-sensitive manner, and invite them to make a donation to help maintain the park.

The town mayor has the key to the donation box and, after counting the money with the rangers, they decide on what project the money should be spent. The town/park co-operation goes further, with rangers helping flush drains or drive the ambulance, and local people help the rangers by providing equipment when needed. It was a really encouraging scene.

I was also privileged to go on a two-day back country horse patrol with Javier Aguado, who was showing the area to a new ranger recruit who was German.

Our next stop was to see Pedro Pietro in Lanín to film his work with the indigenous community, the Mapuche, who live within the park where they raise cattle, sheep and horses. Part of Pedro's job is to manage their activities and try to find ways of reducing the number of cattle by finding alternative work for the local people. Some innovative stuff.

Marcello Ochoa took us to the Argentina Ranger University in Tucumán. Rangers spend one year

here, then two years in a park working with an experienced ranger before they officially graduate. I think this model is one reason why Argentinian rangers are so professional.

Overall, Argentinian rangers are very enthusiastic and well trained and have great passion for their work. Unfortunately the economic situation has had an impact on the management of the parks and more funding is required, especially for weed control and other programmes."

URUGUAY

"Stayed with Juan Carlos Gambarotta (Vice-President of the International Ranger Federation) at Aguas Dulces, where I learned that most public land — 97% — has been sold into private hands, so any effort in conservation has to involve the community.

On the boundary of the Laguna de Castillos protected area where Juan works, you can see the obvious link with private landholders. Due to the lack of native herbivores, Juan actually uses limited numbers of their stock to maintain the ecosystem.

Along the way, we saw some 500-year-old palm trees. As cows love to eat the seedlings of these trees, part of Juan's work is to convince *estancia* owners of the importance of looking after this unique species. While I was there, Juan conducted several education programmes, patrolled the area's unique swamps, carried out maintenance work on the fence line and negotiated with landowners for access to the park.

At Laguna Negra met Coco, an ex-poacher turned park ranger, who now protects the capybaras — large rodents once threatened with extinction (see *NPIB, Issue 7*) — and has the big advantage of knowing all the poachers' tricks. The rangers here are doing a great job because outside the protected area it was difficult to see any animals but inside there were plenty.

Unfortunately it was not all good news. A former political leader of Uruguay owns one of the larger *estancias* next to Laguna Negra with a lake which is a migratory bird haven with Ramsar protection and is part of a World Biosphere Reserve. This politician used his contacts to create a seven kilometre/four mile long canal to the ocean — built with public money — to lower the level of the lake by more than a metre to create more land and stop his road from being flooded.

From Uruguay we travelled along the Peruvian and Ecuadorian coasts and across to the:

GALÁPAGOS ISLANDS

"Our difficulties in obtaining official permission to film here were overcome thanks mainly to Roslyn Cameron, who works at the Charles Darwin Research Station, and national park ranger, Susanna Valverde.

There are over 300 staff at the national park and the rangers here have five main types of jobs: protection including captive breeding, exotic plant control, control of introduced animals, illegal fishing patrols and communications.

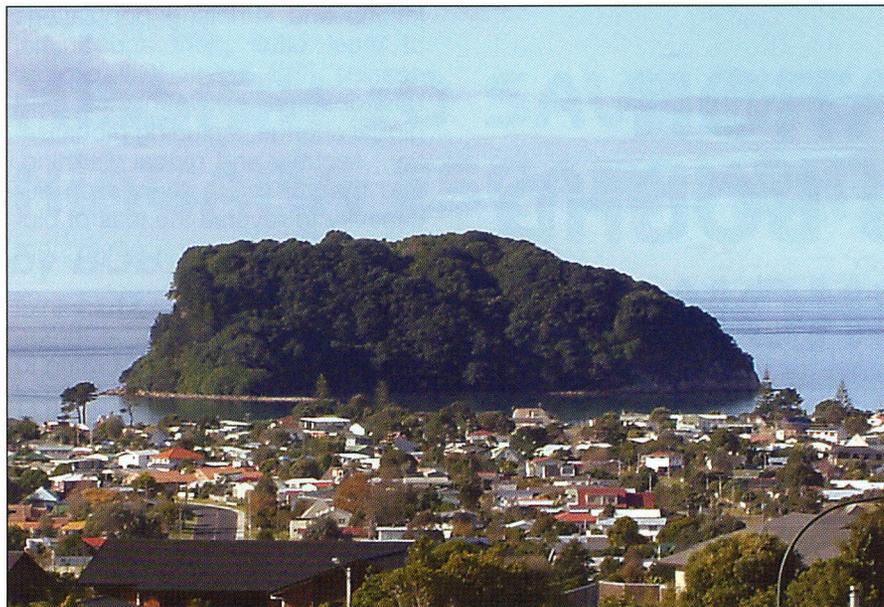
They have a close working relationship with the research station staff, who are helping find solutions for pest animals and plants, and generally conduct important scientific research. We got a great overview of the set up there. It's certainly the most resourced and well funded national park in all of South America.

Unfortunately, even here there is politics and greed. We witnessed an illegal shark fisherman being caught — and a protest on the park offices by fishermen (see *NPIB, Issue 13*). I was told that it takes four to five dead sharks to provide one kilogram/two pounds of shark fin that is worth about \$80. One ranger said it was very disheartening to watch some shark fishermen set free, as only the navy or police have powers to prosecute.

But there are good people fighting back. Local dive companies and rangers have formed a group called Tiberon Vivo. They are giving free dive tuition to local fishermen to help them get their dive master ticket so that they can take tourists out on dive tours and earn money without killing sharks.

In summary, rangers are generally doing a good job out there. It's apparent that governments and individual businesses make a lot of money from protected areas. Unfortunately, little of this is returned to park management, and the rangers charged with protecting these areas are usually paid very poorly. A better balance needs to be struck."

* *Sponsors who have helped the project include Mornington Peninsula Shire, who supplied Sean's camera, and Snowgum Clothing, who supplied his camping gear at cost price. He would be very happy to hear from anyone interested in offering sponsorship support.*



Picture: Des Williams/DOC.

Hauturu Island, monitoring site for rat movements, sits off the New Zealand coast from the town of Whangamata.

new zealand

MAKING THE MOST OF A PEST

By **DES WILLIAMS**,
Waikato Conservancy journalist.

CLEARING a small island of its resident rat population in order to reintroduce rats may not, at first glance, seem like such a smart venture — especially when the island is close to shore and adjacent to a popular holiday and tourist destination.

It's fair to say some residents of Whangamata were not immediately enamoured by the idea, fearing their sunny corner of the Coromandel Peninsula's east coast might become some modern-day rodent refuge like Robert Browning's Hamelin town of old.

But there is very definitely sound and even compelling logic to this research proposal, planned for Hauturu/Clark Island over the next three or four years, as Department of Conservation scientist, David Towns, explains.

"New Zealand is a world leader in eradicating rats, having effected permanent removal from 40 islands," says Dr Towns. "The largest-ever rat eradication was recently completed by Department of Conservation staff, at a cost of \$2 million, on

Campbell Island in the Southern Ocean below New Zealand (see *NPIB, Issue 2*).

"The problem is that all those islands we have made rat-free islands could be re-invaded, either accidentally from shipwrecks or naturally by rats swimming from other islands. Should rats reinvade large and remote islands like Campbell Island, for instance, treating the entire island for rats a second time would be prohibitively expensive.

"We therefore need to study rat invasion behaviour to discover how far rats move when they arrive, and how quickly the populations increase. This will help identify the size of the area that would require treatment after an invasion, and how soon after an invasion detection is likely to be possible."

David Towns says the existing rats and mice on Hauturu Island (which is 800 metres/875 yards offshore and owned by local Iwi [Maori people] Ngati Pu) will be removed using traps and poison, most likely in winter when alternative foods for rodents are limited.

"The research experiment, to be undertaken by a PhD student from the University of Auckland, will then begin with the release of a pregnant female Norway rat (*Rattus norvegicus*), fitted with a radio transmitter so movements and survival after release can be monitored and detection methods tested.

"Norway rats probably escaped from Captain James Cook's ships in the late 18th century and they are now the most common rats around New Zealand's harbours and waterways. They are also the most proficient swimmers, known to cross water gaps of at least 500 metres/550 yards.

"The release of a single, radio transmitter-carrying rat on Hauturu should therefore provide answers to some serious questions: how far a rat moves on arrival; how long it remains near its landing place; and whether it shows interest in the wax tabs or gnaw-sticks presently used to detect invasions.

"The rat we release will be allowed to give birth and breed naturally for one season, at the end of which there could be up to 50 rats present. They will all then be removed from the island."

David Towns says that once the rats produce offspring, the research should provide a much better understanding of the rate of increase, and the speed at which rats spread across the island. Rat-free islands are unsuitable for this research because of likely damage to their flora and fauna.

Towns suggests some of the publicly-expressed fears about the wisdom of spending taxpayers' money on the Hauturu proposal were due to the fact that the project's objectives were not clearly understood by the people of Whangamata.

"This is not a high-cost item when you think about what we stand to gain," he says. "For a total cost of some \$25,000, spread over three or four years of study, the knowledge gained from Hauturu Island will more than repay the initial taxpayers' investment. The information will be used to protect the millions of dollars already spent over many years on our most important conservation islands."

* For further information, contact Des Williams, tel (+64) 7 838 3363 or David Towns, tel (+64) 9 307 9279.

CONSERVATION CONGRESS BOUND FOR BANGKOK

THE 3rd IUCN World Conservation Congress, an assembly of more than 1000 IUCN member organisations, will open on November 17 in Bangkok.

Under the theme *People and Nature: Only One World*, the Congress will have at its heart the question "How can our planet meet the needs of growing populations and expanding markets without sacrificing nature?"

IUCN Director General, Achim Steiner, said that the Congress would play "a unique and urgent role in bringing the knowledge we have about biodiversity, ecosystems and species into the mainstream of development decision-making in our societies."

Yolanda Kakabadse, Ecuador's former environment minister, who has served two terms as IUCN president, will step down after the Congress. The two candidates for the post are Dr Parvez Hassan, a prominent environmental leader in Pakistan and former chair of the IUCN Commission on Environmental Law; and Mohammed Valli Moosa, former South African Minister of Environment and Tourism.

As part of the Congress, the World Conservation Forum — which is expected to attract more than 3,000 delegates — will discuss and define solutions for urgent problems such as loss of species and ecosystems; globalisation and related health concerns; poverty alleviation; and economic and legal steps to ensure the sustainable use of natural resources.

The Forum's four themes are:

1. ECOSYSTEM MANAGEMENT: BRIDGING SUSTAINABILITY AND PRODUCTIVITY.

This workshop will consider lessons learned from around the world to manage land and seascapes, as well as explore the tools and mechanisms best suited to sustainable use of biodiversity and productivity.

Examples range from the latest science on assessment of ecosys-

tems to the links between resource tenure and management, and from policies for fisheries management to evaluation of the benefits of wise use of the goods and services provided by ecosystems.

These include:

Ecuador. Investment in upper watershed forest management, which is saving the Paute Hydroelectric Scheme up to US \$40 million of direct costs.

Cameroon. Restoration of the Waza-Logone floodplain is creating benefits of around US \$3 million annually in fish catch and productivity, flood farming, surface water availability, wildlife and a wide range of plant resources.

2. HEALTH, POVERTY AND CONSERVATION: RESPONDING TO THE CHALLENGE OF HUMAN WELL-BEING.

Given the urgent need for worldwide poverty alleviation, this workshop will explore how natural resources can be sustainably managed and positively employed to help the poor. Examples of issues that will be considered will include assessment of the role of wild species in the livelihoods of the poor; how to integrate conservation in poverty reduction strategies; and providing more benefits of conservation to the rural poor.

These include:

Thailand. Of the estimated 8.2 million people living in poverty, 86% live in rural areas, and research has revealed that 260 species of wild plants, 130 fish species and 70 species of wild rice are used for food.

Uganda. While mountain gorilla ecotourism provides over 50% of tourism revenue, the poor health of people is compromising this important source of income for local communities, jeopardising the survival of these critically endangered ape species and undermining national efforts to alleviate poverty.

3 BIODIVERSITY LOSS AND SPECIES EXTINCTION: MANAGING RISK IN A CHANGING WORLD.

In a world of growing human popu-

lations and shrinking populations of most other plant and animal species, this theme will explore relationships between risk and global change, including globalisation, security and global warming, and the impact of change on our capacity to reverse the loss of biodiversity and secure ecosystem integrity.

* Globally, 12,259 plant and animal species are known to be threatened with extinction according to the 2003 IUCN Red List of Threatened Species. (The 2004 IUCN Red List will be published shortly before the Congress.)

* After habitat loss, biological invasion by alien species constitutes the greatest threat to biodiversity. Pests, weeds and pathogens, introduced deliberately or accidentally, reduce crop and stock yields, and degrade marine, freshwater and terrestrial ecosystems. About one third of globally threatened birds — 326 species — are harmed by invasive alien species.

4. MARKETS, BUSINESS AND THE ENVIRONMENT: STRENGTHENING CORPORATE SOCIAL RESPONSIBILITY, LAW AND POLICY.

A growing expectation from consumers, investors, governments and NGOs that markets and business should be more socially and environmentally responsible has resulted in new definitions and standards of corporate social responsibility and a variety of legal and policy responses.

Among topics to be explored in this theme will be ways of developing new business based on conservation and sustainable use of biodiversity; and the role of the private sector in sharing investment costs for biodiversity conservation.

* Many countries now attribute a significant portion of their tourism industry to protected area tourism. It has been estimated that destruction of the Great Barrier Reef's corals could cost the Australian tourism sector US \$6.2 billion and more than 12,000 jobs by 2020.

* Losses from natural catastrophes, which are often linked to poor landscape management and global climate change, run into billions of dollars each year. According to UNEP, worldwide economic losses due to natural disasters appear to be doubling every 10 years and, on current trends, will reach almost US \$150 billion in the next decade.

MISSION TO SAVE THE NIAGARA ESCARPMENT

by **BOB BARNETT**,
Executive Director, Escarpment Biosphere Conservancy, Toronto.

THE Escarpment Biosphere Conservancy (EBC) is one of 32 land trusts in Ontario which have conserved more than 20,235 hectares/50,000 acres of land to protect it from damaging development. In southern Ontario, these trusts now protect more private land every year than the Ministry of Natural Resources, conservation authorities and municipal authorities combined.

The Niagara Escarpment, which was designated a UN World Biosphere Reserve in 1990, is a continuous series of natural areas consisting of forests, meadows, marshes, rocky cliffs and shorelines, centred on a spectacular 400-million-year-old geological formation around an ancient tropical sea. It is home to the most ancient and least disturbed forest ecosystem east of the Rocky Mountains, containing 1,000-year-old cedar trees and a wide diversity of plants and animals.

The EBC was established with charitable status in 1997 with the aim of counteracting threats to natural features posed by development including housing, industry, resource extraction and some recreational activities.

Its stated mission is to establish, maintain and manage a system of nature reserves in the area of Ontario's 1,000 km/620-mile-long Niagara Escarpment including the Biosphere Reserve, to maintain, enhance or restore areas of native species or natural habitat, to educate the public about conservation and preservation of the landscape, ecology and wildlife, and encourage low impact, ecologically sustainable, recreational opportunities such as hiking and birdwatching.

To date the EBC has created 27 nature reserves protecting a total of 933 hectares/2,305 acres, and this area was significantly extended with the recent purchase in July this year of 440 hectares/1,090 acres on the Bruce Peninsula, with the help of \$240,000 from a donor foundation and \$140,000 from a corporate sponsor.

This property almost joins the Bruce Peninsula National Park (see NPIB Issue 7) with the huge Bruce County forest located near Stokes Bay. Overall, the property is 4 by 2.4 km/2.5 by 1.5 miles and parts of it have been designated provincially significant for their rare species, wetlands and important alvars (limestone pavements).

This is our largest acquisition by far and will make a great addition to our Huron Shore project. Only 25 km/15.5 miles of shoreline remain undeveloped — or unconserved, while every year about 50 new cottages disturb the remaining shoreline, which is believed to contain more endangered wetlands, alvars and rare species than any

part of Ontario north of the Carolinian zone.

EBC has to date created six reserves protecting 254 hectares/627 acres along this shore to help form what will be an ecological corridor of 20,235 hectares/50,000 acres stretching 50 km/31 miles.

Our aim is to protect globally rare species such as Ram's Head orchid, Hill's thistle, Dwarf Lake iris, Northern dropseed, Rand's goldenrod and the threatened Eastern Massasauga rattlesnake (see also NPIB, Issue 10).

Each time I leave Toronto, I see more fields stripped of their trees, ploughed flat and covered by roads. Only a narrow strip along the streams or slopes is protected from new houses and lawns.

When I travel three hours north to the Bruce Peninsula, the threat comes from cottage development on top of the rare limestone pavement, cutting out the ancient cedars and putting roads through the few remaining fens. In places, the shores have been reinforced with stone walls and backfilled to create lawns and the silence replaced with noise from radios and lawnmowers.

Authoritative studies clearly indicate that the long-term economic value of natural land is tens of times greater than industrial land for farming, mining, logging or houses. This natural value comes from water quality, flood prevention, air quality, carbon sequestration and natural products like sustainable fishing or forestry.



ESTABLISHED RESERVES

Among the reserves that EBC has helped establish are:

- A 14 hectare/34 acre reserve near MacGregor Point Park, Port Elgin, protecting a stream, dune remnants and a variety of rare plants and birds, established through the purchase of land by a group of local residents determined to prevent further development.
- The Cup and Saucer Reserve, which protects 140 hectares/347 acres on Manitoulin Island, and offers 8 km/5 miles of hiking trails. This reserve now attracts more than 10,000 visitors annually who spend \$380,000 in the local economy.

EBC's long-term goal is to create a 450 km/280 mile long trail along Manitoulin's Escarpment and create a World Biosphere Reserve on the island.

- The 120 hectare/300 acre Barney Lake reserve, which contains an inland lake used by migrating birds, is part of EBC's concentrated effort to protect the west shore of the Bruce Peninsula on the Lake Huron shoreline from further housing development. This area has some of the world's finest alvars (limestone pavements) and many rare plants including orchids and stunted 800-year-old cedar trees.

This means that we could save billions of dollars a year by concentrating development in the Greater Toronto area alone.

The way in which we can achieve our goals is either by land acquisition through purchase and donations, or by establishing conservation easements with landowners.

These agreements allow people to continue to own and enjoy their property while at the same time protecting their land from sub-divisions, new buildings, gravel and water extraction, tree felling and perhaps from hunting, pesticides and motorised vehicles.

We can help the landowner create such a 'conservation' agreement, which involves nominally dividing the property into use zones such as residential, farming and protection, and setting out which uses are to be prevented in specified zones.

We then appraise the value of the agreement — normally from \$30,000 to \$200,000, secure government approval of the value and ecological significance; give the landowner an income tax receipt for the appraised value; register the agreement which is normally in perpetuity to prevent future owners

from breaking the agreement; help the landowner reduce their property taxes accordingly; and monitor the agreement, especially if the land is subsequently sold.

Since each taxpayer saves cash worth 46.3% of the donation value, such a donation through Canada's income tax system often creates a dramatic financial reward. Despite this, many landowners want a conservation agreement just to make sure that future owners cannot spoil the natural features.

To spread the message, EBC regularly attends community workshops for landowners where we advise them how they can protect their own property and learn how to manage forest areas or wetland and encourage wildlife.

The Federal and provincial governments offer strong tax benefits to encourage landowners to work with NGOs like ours. As an example of the financial benefits for landowners of a conservation easement agreement, one farmer we worked with who had a 74 hectare/182-acre farm, saved about \$44,000 in income tax and had his property taxes reduced by \$500 a year while continuing to live on the property.

GREEN LIGHT FOR ROAD WORK

DESPITE vociferous protests from environmental groups, work has started on the construction of a four-lane, 7.5 km/4.6 mile long highway which will stretch from the Niagara Escarpment to Lake Ontario.

Cutting through the heart of Ontario's largest urban park in

the Red Hill valley, which is designated an Environmentally Significant Area, the road will, say opponents, damage an important wetland area.

Work to build the road will involve the felling of an estimated 45,000 trees and rock blasting on part of the Niagara Escarpment.

DONATION ENSURES DEVELOPMENT BAN

A CHARITABLE donation of CAN\$ 40 million has been given by the W. Garfield Weston Foundation to create a 100 sq km/40 sq mile development-free buffer zone around the Waterton Lakes National Park in south-western Alberta.

Declared a World Heritage Site in 1995, the park — which offers a range of habitats supporting wildlife ranging from grizzly bears to sandhill cranes, has been facing growing commercial development pressures on its borders.

For the past seven years, the

Nature Conservancy of Canada has been negotiating with local ranchers who have, due to financial pressures resulting from the BSE crisis, begun selling land for housing on the park's eastern boundary.

Now the huge donation will be used to buy and lease back land, or pay for conservation easements with 24 local ranchers who will be allowed to continue agricultural activities on land where commercial development will be forbidden in perpetuity.

NEWS REVIEW

NPIB@powdene.com

africa

SAVING COAST FROM TOURISM

A NEW project to examine ways of reducing the environmental impact of coastal tourism development in Africa has been drawn up by the World Tourism Organisation in partnership with the United Nations Environment Programme and the UN Industrial Development Organisation.

Funded by the Global Environment facility, the project will seek to address the negative impact of tourism on the coastal and marine environment in sub-Saharan Africa through the implementation of pilot demonstration schemes and the promotion of sustainable tourist policies.

Countries participating in the project will be Gambia, Ghana, Kenya, Mozambique, Nigeria, Senegal, Seychelles and Tanzania.

usa

BIENNIAL CONFERENCE

THE George Wright Society Biennial Conference on Parks, Protected Areas and Cultural Sites will be held in Philadelphia, Pennsylvania from March 14 to 18, 2005.

With the theme *People, Places, and Parks: Preservation for Future Generations*, the conference will have four broad focus areas: science, scholarship and understanding; preservation and management; environmental justice/civic engagement; and education appreciation.

Proposals for sessions, papers and workshops are now invited. The deadline for abstracts is October 8, 2004.

For further information, e-mail: conferences@georgewright.org

australia

IMPAC1 DATE

THE first International Marine Protected Areas Congress is to be held in Geelong, Australia in October 2005 — not this year as was indicated in the last issue of NPIB. Interested readers are encouraged to visit the website www.impaccongress.org for the latest information.

democratic republic of congo

RANGERS' COURAGE RECOGNISED

AN International Ranger Federation delegation led by IRF executive director, Gordon Miller, visited the Virunga and Bwindi Impenetrable National Parks to meet rangers who have risked their lives in the line of duty during many years of conflict in the region.

Jobogo Mirindi, senior ranger in the Lulimbi sector of Virunga, reported that during their stay in the eastern region of the DRC, the delegation met political leaders, parks managers and field staff and expressed, on behalf of rangers worldwide, their admiration for the work done by Congolese rangers.

They visited a monument erected in memory of 23 rangers who have been killed carrying out their duties, and later visited the location

where the most recent ranger casualty, Boniface Kwibesha, was killed; they presented gifts of cloth to the widows of seven rangers.

During the visit, Gordon Miller said there was an urgent need to

- increase the international community's awareness regarding the neutral status of Congolese rangers during the conflict;
- develop strong support for the DRC to help them manage their unique reserves;
- recognise the courage of the rangers and create a fund to help ranger widows who have lost their partners, and
- urge the international community to create a Green Helmet Brigade, able to help protect the protectors of the environment in countries where conflicts arose.

france

ISLANDS LIMIT VISITOR NUMBERS

STRINGENT new restrictions on tourism have been introduced on two islands — the Ile de Porquerolles and Ile de Port-Cros — by the Iles d'Or National Park authorities.

The islands, which lie off France's Mediterranean coast between Marseille and Nice, face a growing problem of ecological damage as a result of the number of day visitors rising to 1.5 million a year.

New limits set a maximum of 6,500 daily visitors who will face a complete smoking ban to help prevent forest fires.

costa rica

COCOS CLEARANCE

A FIVE-STRONG team of experts from the Invasive Species Specialist Group of IUCN's Species Survival Commission, have visited Cocos Island National Park to assess the viability of a planned project to save the island's unique native biodiversity by eradicating alien species.

One of the main threats to the national park, which has a high number of endemic plant and animal species including the Cocos Island cuckoo, finch and flycatcher, are domestic animals introduced many years ago including pigs, rats and cats.

spain

ECO-TAX PLEA

HERIBERTO Davila, of the Ecologists in Action group, has called for the reintroduction of a tourist "eco-tax" in the Balearic islands of Mallorca and Menorca following a report into the damage caused by mass tourism. Problems highlighted included beach erosion, pollution from cars, excessive energy use and inadequate sewage systems.

A €1 per day per tourist levy to help pay for waste management was introduced in the Balearics in 2002 by the regional socialist government, but this was scrapped last year when a new governing party was elected.

uk

NEW FOREST IS 14th PARK

THE British government has confirmed that the New Forest, in southern England, will become the 14th national park in the UK.

This historic 388 sq km/150 sq mile area, which has had special protection for over 900 years since William the Conqueror made it a royal hunting forest, is said to be the largest remaining open heathland in northern Europe.

The government decision, which followed a seven-month-long public inquiry, was announced by Rural Affairs Minister, Alun Michael, who said that national park status would: "help protect the unique character of the New Forest while recognising that it is a working, living place with social and economic needs".

Ted Johnson, chairman of the New Forest Committee, an umbrella organisation set up in 1990 to conserve and enhance the special character of the area, said: "The decision ends any uncertainties about the conservation significance of the area and will bring funding from government to safeguard the Forest's special qualities in perpetuity."

But he and the committee's chief officer, Maddy Jago, expressed disappointment that the proposed boundary of the new park had been significantly pruned, omitting a number of villages and land which would have benefited from the added protection afforded by national park designation.

georgia

CAMERA CATCHES LEOPARD

AN infra-red camera, installed after rangers had identified wildcat tracks in the Vashlovani National Park, has recorded the first sighting of a leopard in the Caucasus for 50 years.

The discovery is the result of biodiversity research carried out under the Protected Areas Dev-

elopment Project supported by GEF and the World Bank. The project has provided the park administration with communication equipment and motor vehicles, horses and boats to mount patrols of the park.

* More information on e-mail from: psfanshiashvili@gpadc.org.ge

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