

SAVANNAH PERSPECTIVE

a real difference. I will continue to work and throw back my share of starfish as long as I am able, and I hope you will be out there doing your part. I encourage you to accept and embrace the many challenges that come your way; I know I plan to. See you on the beach.

Gary Meffe is a Professor at the University of Georgia and the Savannah River Ecology Laboratory, and is senior author of Principles of Conservation Biology (Sinauer Associates, 2nd edn, 1997).

NEWS AND VIEWS

Biodiversity and base values – a response

I was surprised by Gary Meffe's perspective, 'Biodiversity and base values', in the April 1997 issue of *Oryx*, in which he agrees with Gretchen Daily's view that conservation biologists too often focus on issues such as biodiversity and fragmentation, while ignoring the human pressures that produce conservation problems. Perhaps this is true of some academic conservation biologists, such as those who attended the meeting he described at Providence, Rhode Island, in August 1996, but it is surely very far from true of most of those who work in international conservation planning and policy-making, including many *Oryx* readers and contributors. Since the publication of the *World Conservation Strategy* by IUCN, UNEP and WWF in 1980, it has become almost a dogma that conservation must go hand-in-hand with the sustainable development of human societies. So faithfully has this approach been followed that it is now not unusual for conservation projects to place more emphasis on satisfying human needs than on protecting wild animals and plants from extinction, as I described in *Oryx*, 29, 115–122.

Ironically, in the same issue as Meffe's perspective, you published Bruce Powell's news from the Niger Delta. Powell notes that in the last few years large numbers of foreign consultants have visited the area on missions to formulate conservation action and that the vast majority of these consultants, spending large sums of money, have focused on human social and economic issues. Very little has been done to improve the protection of the

delta's unique and threatened wildlife, in part because the annual operating budget of the relevant state government department in Nigeria is so meagre. The only project currently on the ground that is endeavouring to protect any part of the extensive delta ecosystem is being conducted by CUNY student Lodewijk Werre who, while studying the endemic red colobus monkey, is working with local people, the state government and oil companies to organize better protection for part of the proposed Apoi Creek Forest Reserve (J. L. Werre and C. B. Powell, *Oryx*, 31, 7–9). Perhaps because efforts aimed primarily at increasing both our knowledge and the protected status of a rare animal are no longer very fashionable activities compared with projects aimed at the development of human communities, Werre has found it difficult to raise funds for his work from international conservation organizations and is therefore struggling to cover even his basic living costs.

My second major disagreement with Gary Meffe's perspective concerns his argument about the importance, in conservation planning, of taking account of human 'base values', as delineated by social scientist Harold Lasswell. These values, said to be those that all people seek to achieve in life and which therefore affect the development of societies and their institutions, are: power, enlightenment, wealth, well-being, skill, affection, respect and rectitude. At an intellectual level, there are some obvious attractions in this model of social processes and in Meffe's view that the satisfaction of all eight values produces personal freedom. And I would not disagree that, provided priority is given to the protection of threatened nature,

conservation aims are more likely to be achieved if they also gratify rather than ignore human values or needs. But Meffe's view that conservation arguments that satisfy basic and selfish human interests are 'an easier sell than arguments about scientific value, morality or species diversity' is one that, put into practice, can start us on a slippery slope. It seems to me that many of the horrors of man's inhumanity to man that I read about daily in my *New York Times* are the result of the operation in societies around the world of such basic human desires and emotions as greed, hatred and lust. The more that we turn to material rather than moral arguments as the basis for making decisions about how we run our societies, the harder it is to counter the operation of human attributes such as these: greed, for instance, is often rewarded. Similarly, the more we base arguments for the conservation of other species on the satisfaction of human needs rather than on the right of other species to occupy some small portion of this planet without being significantly disturbed or used by people, the sooner we will find most of our planet covered in highly modified ecosystems from which we have lost many species (such as the Sumatran rhinoceros or the red colobus monkey) that do not provide obvious material benefits to a majority of the increasing billions of humans.

John F. Oates

Department of Anthropology
Hunter College of CUNY

695 Park Avenue, New York, NY 10021, USA

Expanding ivory production in Myanmar threatens wild elephants

Burmese craftsmen have been carving elephant ivory for over 100 years. Since the beginning of World War II the main ivory centre has been Mandalay. At that time there were about eight businesses there employing 56

craftsmen. In the early 1980s there were about 30 craftsmen but by late 1995 the number had risen again to nearly 60. Although the quality of carving has always been fairly poor compared with that of other Asian ivory centres, and production is slow because only hand tools are used, business is now expanding, increasing concern for Myanmar's wild elephant population.

Since the 1980s smuggling of tusks and ivory objects from Myanmar into neighbouring Thailand has been steadily increasing. Thailand's several million foreign tourists who visit Bangkok each year provide a ready market for ivory carvings. Thais also often buy ivory ornaments and small polished tusks to decorate their houses. In September 1993 Tim Redford, a conservationist based in Thailand, counted 30 pairs of illegal small elephant tusks in the Burmese town of Tachilek, across from the Thai border town of Mae Sai, where many Thais go to shop.

Some worked ivory is also smuggled from Myanmar into China by the Shan people. Items carved in the Chinese design, such as gods, Buddha figures and traditional fishermen, are especially popular, and there is also a market for ivory chopsticks. In late 1995 a Burmese middleman commissioned a craftsman in Mandalay to make 400 pairs of chopsticks for nearly \$US27 a set and sold them at the Chinese border for almost \$US30 a set. Although the ivory trade to Thailand and China cannot be quantified, it is significant.

Foreign tourists visiting Myanmar started to boost the country's ivory industry in the mid-1970s when tourist visas were extended from 24 hours to a week. Tourism slumped in 1988 following political rioting and did not recover until the early 1990s. With the recent increase in tourist numbers, the ivory trade in Myanmar has been growing once more, especially since 1994. The main customers are Japanese (who buy name seals and chopsticks), South Koreans, Taiwanese and Italians (who prefer elephant bridges, animal carvings and jewellery). Since the international ivory ban in 1989/90, foreign visitors have had to smuggle the items they buy out of Myanmar in their luggage, but many take this risk



Myanmar is one of the few countries in the world where only hand tools are used to carve ivory (*Esmond Martin*).



Large tusks such as these, photographed in Mandalay in 1981, are seldom seen in Myanmar today (*Esmond Martin*).

because the chances of being caught are slim.

The local demand for ivory items is small. Burmese women used to buy ivory combs but since the late 1970s they have bought wooden and plastic combs, being unable to afford the rising price of ivory owing to economic hardship in the country. However, Burmese people still commonly wear ivory amulets and traditional astrologers encourage those born on a Tuesday to wear lion amulets made of ivory (those born on other days wear wooden amulets featuring other animals). Some craftsmen concentrate solely on making these small amulets, not only in Mandalay but also in Yangon (formerly Rangoon) and Bago.

The main raw-ivory dealers are based in Mandalay. All the tusks on the market today are from Myanmar's elephants, both domestic and wild. During the 1988 political riots, many files in the Forest Department dealing with official ivory sales were destroyed, so detailed records exist only from then. In 1989/90 the Forest Department sold 575 kg of elephant tusks to two traders, the largest for \$US76/kg and the smallest for \$US23/kg. In 1990/91 three dealers bought all the government ivory for a total of \$US37,571. In 1992/93 one dealer bought the entire 603 kg (209 pieces) for an

average of \$US141/kg. In 1994 Myanmar's Arts and Crafts Association requested that its members be allowed to buy all the government ivory to carve and exhibit at the 50th anniversary of Resistance Day on 27 March 1995. About 100 members bought the 337 kg for an average of \$US204/kg. This sharp increase in price reflects a growing demand for ivory in Myanmar. In 1995 there was no government sale and by January 1996 the Forest Department had accumulated 538 kg of tusks.

Most of this c. 0.5 tonne of official ivory sold annually comes from government-owned domestic elephants that have died of natural causes. Each year at least another 0.5 tonne comes from private sources. A little of this comes from privately owned domestic elephants that have had their tusk tips cut off or have died; most is from wild elephants, a few having died naturally but the majority having been poached. Ivory dealers in Mandalay said that they had been offered tusks from wild elephants killed illegally in various parts of the country, especially around Toungoo, the Pegu-yoma Hills and the Rakhine Mountain Range, but also from areas around Pinyinana, Pyi and Myitkyina. Prices for this non-government raw ivory have also been rising steadily.

Large tusks sold for \$US26/kg and small ones for \$US13.50/kg in 1981. By December 1995 the price was \$US239/kg for large tusks and \$US128 for small tusks. The price rise is putting greater pressure on elephants.

Myanmar still has the second largest elephant population in Asia after India, but for how much longer? There are an estimated 4150 wild elephants and an additional 5250 in captivity, of which 3000 are government-owned by the Myanmar Timber Enterprise (R. Sukumar, Deputy Chairman, IUCN/SSC Asian Elephant Specialist Group, pers. comm., 1996). With an illegal and growing border trade in ivory and ivory products to Thailand and China, and with increasing foreign tourism to Myanmar, elephant poaching is becoming a serious problem.

The military government, which took control in 1962 and survived the political riots of 1988, shows very few signs of stopping the illegal trade in animal products, and appears to have little commitment to wildlife conservation. Myanmar is neither party to CITES nor to any other international wildlife convention. The government itself sells valuable natural resources for greatly needed hard currency. The country's hardwoods are sold mostly officially, the majority to Thailand. As a result the forest areas are fast decreasing in size and prime elephant habitat is being destroyed. Certain wild animal species are also exported officially. The government has even been selling live elephants for shipment abroad, some of which may have been captured in the wild. From 1987 to 1994 the government sold 44 elephants for a total of \$US681,000, most of them to a Dutch dealer. The price he paid to the government for an elephant rose from \$US13,000 in 1987 to \$US18,000 by 1994. In 1990 CITES requested member states not to buy Myanmar's elephants without details of their birth in captivity, one of the requirements for buying CITES Appendix I species. Despite dubious documents the trade unfortunately continued at least until 1994.

According to R. Sukumar, the number of wild elephants in Myanmar is shrinking. The government needs to act urgently to protect these elephants by several means, notably by

minimizing ivory smuggling into Thailand and China, controlling the domestic ivory industry, stopping elephant poaching, preventing the domestic trade in illegal raw ivory, reducing habitat destruction (especially timber felling), and ending all exports of wild-caught elephants. Are Myanmar officials able to carry out these measures? In a country where the illegal trade in opium, gemstones, timber and wildlife is rife, and often controlled by influential people and where the infamous golden triangle trading route shows no signs of being stopped, there is little hope that the current military government will give greater priority to protecting the wild elephants.

*Esmond Martin and Lucy Vigne
PO Box 15510 Mbagathi
Nairobi, Kenya*

Kaziranga National Park extended

Kaziranga National Park (KNP) in Assam, India, is noted for its role in the conservation of the great Indian rhinoceros *Rhinoceros unicornis*. Since the beginning of this century, when it was believed that only 12 rhinos remained in the area, a series of conservation measures initiated by the government of Assam has resulted in the rhinoceros population in the park increasing to around 1164, 75 per cent of the global population.

Rhino poaching has been a problem for some time in KNP and other sanctuaries in Assam that contain rhinos, but Assam's Department of Forests strengthened efforts to control poaching in 1994. Since then the number of rhinos killed annually has declined: from 48 and 40 rhinos in 1992 and 1993, respectively, to 18, 25 and 26 in 1994, 1995 and 1996, respectively. This success has been achieved despite the financial constraints affecting the park. Despite the difficulties, morale of the forest staff has been kept high by the effective range officers as well as by assistance from non-governmental organizations

in the form of provision of drinking water filters for forest camps, warm clothes and boots. In addition, in 1996 a non-governmental organization based in Delhi gave KNP three four-wheel-drive vehicles. That year park staff recovered 37 rhino horns in and around KNP.

Due to immense public pressure a proposal by the Forest Department of Assam to extend KNP received positive attention from Assam's political leaders in 1996. As a result the park has been increased in size from 430 to c. 582 sq km by the incorporation of areas of land proposed as additions as long ago as 1984. The increasing rhinoceros population will benefit from the extension but the park will continue to need assistance, both from government and non-governmental organizations, if protection measures are to be strengthened further to secure the future of the rhino population.

*Bibhab Kumar Talukdar
Aaranyak Nature Club, PO Beltola
Guwahati-781 028, Assam, India*

The issue of Asian freshwater biodiversity

At the Fourth Conference of the Parties to the Convention on Biological Diversity in November 1997, a major topic for discussion will be the status and trends of biodiversity in inland water ecosystems and identification of options for conservation and sustainable use. A recent report compiled to contribute to the discussion highlights the lack of data on the subject in Asian countries, from Afghanistan to Papua New Guinea and from Mongolia to Indonesia. It says that, in comparison with terrestrial systems, freshwater systems have been neglected in biodiversity studies but they are affected by a wider range of development projects than probably any other system. Dams, flood control, supplying water, mining, fisheries management, introduction of exotic species, irrigation, bridges, industrial and domestic waste, waterway modification for navigational and other purposes, and forest

clearance all have the potential to affect adversely natural freshwater systems.

Asian freshwater biodiversity is exceptionally high and contains five of the world's 10 countries that have the richest freshwater fish fauna. Asia is home to some 3500 species of fish and hundreds of other aquatic organisms, many of which are of considerable economic value to people. Indeed many of the world's poorest people depend on freshwater biodiversity for their animal protein needs.

Wetlands have attracted considerable conservation attention but this has mostly been because of their ornithological importance. Rivers and streams, the diversity of freshwater life and processes scarcely get a mention in biodiversity assessments. If freshwater conservation is to gain the attention it deserves, conservationists may need to identify and promote flagship species and habitats, as has been done for other ecosystems. Asia has suitable candidates for both: the giant Mekong catfish, the Chinese sturgeon and freshwater porpoises would be ideal flagship species and flagship habitats could be biologically rich rapids and peat swamps.

One of the factors hampering progress in freshwater studies is the lack of appropriately qualified personnel. Only 13 zoologists with taxonomic training in official positions in the 24 countries covered by the report are actively concerned with freshwater biodiversity: one works on amphibians, two on fish, two on crabs and shrimps, two on insects, one on midges, three on molluscs, one on zooplankton and one on parasitic worms. Only three of these are of international stature and five will be retiring in the next 5 years. One reason for this situation is that in some Asian countries getting wet and handling dead animals is not considered a fitting occupation for people with higher academic degrees. Another is that students are often trained abroad and their experience may not be relevant to their home countries.

The economic value of freshwater resources to humans living along rivers is hard to assess because there are few data available. Most of what is available is in the form of unreliable fisheries statistics, which do not distinguish

between aquaculture and captive fisheries, and represent only catches sold in markets. They completely overlook subsistence fisheries, which represent a much larger biomass, on which many rural communities depend heavily. In the Danau Sentarum Wildlife Reserve in Indonesia, for example, of 180 species of fish only one is not used. Even species reported to be poisonous are eaten after the poisonous organs are removed and species too small to eat are fed to larger fish kept in cages. Small fish are usually eaten whole and are nutritionally a richer source of vitamins and minerals than pond-cultivated fish, which cannot be eaten whole.

Some species are economically important for the aquarium fish trade. Possibly the most important, in terms of biomass, wild-caught pet fish in the world – the clown loach *Botia macranchanthus* – occurs in Indonesia. Around 10 million individuals of this species are exported each year and the economic viability of the trade depends on maintaining the integrity of the freshwater system. Trade in freshwater turtles is also of considerable economic importance in some Asian countries, especially to serve the food and medicine markets of China. Aquatic plants are valuable too: of 237 species in Peninsular Malaysia, 61 have uses for humans.

Most of Asia's freshwater habitats are threatened. Some, such as the Javan freshwater swamp forests, have been destroyed and with them half the freshwater fish species recorded from the island. Coastal peat swamps, which were once considered to be poor in biodiversity, are now known to contain 10 per cent of fish species in Peninsular Malaysia. Large areas of coastal peat swamps and mangrove in Thailand, Malaysia and Indonesia have been turned into ponds for prawn culture. This type of aquaculture is not sustainable – after about 5 years the ponds have to be abandoned because of the accumulation of faecal matter and blooms of toxic algae.

As in other parts of the world, introduced species have had a devastating effect on native freshwater species. For example, the artificial stocking of grass carp in Donghu Lake,

Wuhan, China, cause the virtual disappearance of submerged macrophytes and dramatic blooms of planktonic algae. The new conditions favoured carp and the yield of these fish trebled, but most of the 60 fish species native to the lake all but disappeared, the number of benthic invertebrate species fell from 113 to 26 and zooplankton from 203 to 171 species.

The report says that current mitigation measures for development projects are not adequate to prevent unnecessary loss of biodiversity. Standard mitigation measures should include maintaining shoreline vegetation and bottom heterogeneity, and preserving samples of intact habitat. Fish ladders, which were developed in temperate countries for fish that are able to leap, have failed to allow Asian fish, dolphins and shrimp to pursue normal movements in dammed rivers.

Conservation of freshwater biodiversity also suffers from being placed under both a conservation agency (often within a forestry department) and a fisheries agency. The interests of the two are in conflict and communications may be minimal.

The report outlines straightforward and relatively inexpensive steps to ameliorate the situation:

- encouraging awareness of and attention to freshwater biodiversity issues;
- acknowledging that, in order to make appropriate environmental management decisions, it is important to collect good and current data;
- executing studies to understand the whole economic values of freshwater biodiversity;
- preparing field guides and manuals;
- nurturing partnerships between engineers and biodiversity specialists to achieve better project design and more effective mitigation measures;
- encouraging release of scientific data collected by project proponents as part of environmental assessments.

Source: Kottelat, M. and Whitten, T. 1996. *Freshwater Biodiversity in Asia With Special Reference to Fish*. World Bank Technical Paper No. 343.