Workshop Stream V: Evaluating Management Effectiveness

Sessions 4a and 5a: Collapse From the Inside: Threats to biodiversity and ecological integrity of protected areas from unsustainable hunting for subsistence and trade

Introductory overview: review of the scale of the problem in protected areas throughout the humid tropics, and the implications for the ecological integrity and local people

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Introduction

People have been hunting wildlife in tropical forests for at least 10,000 years in Latin America, at least 40,000 years in Asia, and probably at least 100,000 years in Africa. This led to some species extinctions, such as giant lemurs in Madagascar and giant sloths across the Americas. In general, however, especially on large continental land masses, people and wildlife managed to co-exist, and for the vast diversity of large terrestrial vertebrates in tropical forests today, any past hunting must have been sustainable.

This is no longer true for many species in many tropical forests today – even in protected areas. Some protected areas are turning into classic "empty forests". They look wonderful on satellite images or aerial photos, but they might have lost their wildlife due to over-hunting.

This talk reviewed:

- reasons why hunting in tropical forests has increased in recent years;
- the scale of hunting in tropical forest protected areas today;
- the implications of this for: the ecological functioning of the forest and the well-being of local peoples.

The talk concluded with a brief summary of potential solutions.

What has changed?

In recent years, many changes have caused the rates of hunting to increase throughout the world's tropical forest protected areas:

- human populations have greatly increased;
- protected areas are increasingly becoming isolated islands or with logging or other roads coming up to their boundaries. This means that hunters and wildlife traders can easily enter the protected area and wildlife can easily be carried out;
- hunters now use modern weapons. Traditional hunting methods such as bows and arrows, blowpipes and traditional snares have largely been replaced by wire snares, shotguns and high powered weapons. All are more efficient and

less discriminating, so they result in the hunting of more animals, of a wider range of species;
- hunting has now become commercialized, and in many cases is big business for meat, skins, trophies, furs, and parts for traditional medicines. Examples are: annual sales in one Malabo market include: 12,974 mammals, or 112 t of dressed meat; in May 2003, 4.5 t of pangolins were seized in Hanoi; in 2000, 20 t of turtles were exported from Sumatra every week; annual sales in one north Sulawesi market included 3850 wild pigs, 200 macaques, 75,000 rats & 15,000 bats. In South-east Asia at least, much of this is from protected areas;
- political instability and warfare also drive up hunting rates and make high-powered weapons more readily available.

The problem of hunting in tropical forests

The problem of over-hunting is especially acute in tropical forests and other habitats with very low productivity for terrestrial vertebrates. The wildlife which people eat from tropical forests mainly comprises primates, ungulates and sometimes rodents; primates especially have low reproductive rates.

A tropical forest sustainably produces about 150 kg/km^2 of vertebrate biomass per year, yet annual hunting rates in many tropical forest reserves are much higher than this. Examples of annual offtake rates are:

- Arabuko-Sokoke Reserve, Kenya: 349 kg/km^2;
- Manembonembo Wildlife Reserve, Sulawesi: 701 kg/km^2.

In addition, management capacity, whether by local communities, governments or others, is extremely limited in most protected areas across the tropical forest world. Thus, hunting pressure is often no different between inside and outside protected areas, resulting in wildlife disappearing across the landscape, irrespective of the protected status of the land.

The problem is especially acute in Asia where human population densities are extremely high so pressure on land is often acute, and where the demand for wildlife products for food, pets and traditional medicines is often high.

The result is that wildlife populations in many protected areas across the humid tropics are being reduced. For example, in Asia:

- hunting has extirpated all elephants, tigers and wild cattle from Doi Inthanon and Doi Suthep National Parks, northern Thailand;
- between 1981 and 2000, hunting has resulted in the loss of all gibbons and siamang from Kuala Lompat, Krau Wildlife Reserve, Malaysia;
- all of the primates and hornbills have been extirpated from Kubah National Park, Sarawak, Malaysia as a result of hunging;
- between 1978 and 1993, the number of crested black macaques in Tangkoko Duasudara Nature Reserve, Sulawesi, Indonesia declined by 75%, anoa and maleo birds declined by 90%, and bear cuscus by 95%. All were due to hunting.

The trend is not unique to Asia, however:

- over the past 50 years, hunting has extirpated many species of large mammals from Kilum Ijim, Cameroon;
- in parts of the Okapi Reserve, Democratic Republic of Congo, duiker populations have been reduced by 42% because of hunting;
- the hunt in Banyang-Mbo Wildlife Sanctuary, Cameroon has switched from being duiker-dominated to rodent-dominated in the past five years;
- in 23 heavily-hunted sites in Amazonia, wildlife densities have been reduced by an average of 81%.

In reality, in most areas the only real protection is lack of access, irrespective of the legal status of the land. For example, land status notwithstanding:

- in Sarawak, density of primates, ungulates and hornbills is directly and inversely correlated with the degree of access;
- at 25 sites across Latin America, Africa and Asia, hunting rates in the sites were significantly correlated with human population density within or around sites.

Implications of unsustainable hunting for the ecological integrity of tropical forest protected areas

The animals hunted first are usually the large mammals and birds, which pollinate flowers, disperse seeds, and browse on plants. In some Central African forests, up to 75% of the plant species depend on animals for seed dispersal. The effect of the loss of those animals will have on the biodiversity and ecological functioning of the forests is unknown, but is likely to be significant. Hunting can have other effects on the biological community. For example, in India, tigers are sometimes hunted illegally but in many parks, they are not. In some parks, however, up to 90% of the prey animals of the tigers have been hunted illegally; that in turn results in loss of many of the tigers.

Implications for local peoples

Loss of wildlife has impacts on the local forest communities who rely on it for their subsistence lifestyle. The people who suffer most as the forest is opened up are the remotest forest people; these are often the people living on less than a dollar a day, and who have few or no alternatives. In extreme cases, this can lead to drops in protein consumption; for example, the protein intake of the Yuquí Indians in Bolivia dropped from 88g to 44g per person per day after major immigration by colonists.

Some forest peoples also rely on selling wildlife as one of their few sources of income. This issue is highly complex and nuanced, but local sales (e.g., to local villages within walking distance of the hunter's village) of some fast-breeding species might be sustainable in some areas. It is the large-scale, long-distance, capitalized commercial trades involving middle men which are so highly damaging to wildlife populations, and to local communities who depend on them.

Solutions

Solutions are complex, and must be individually tailored to each area, with its own very specific mix of biological, social, cultural and political conditions. In all cases, and whoever the management authority (be it the local communities, government, other agency, or combination of them all), essential components of a successful management programme are:

- a high appreciation amongst all parties of the problem, and of the need to address it;
- some clearly understood regulations (e.g., on hunting by outsiders; hunting for subsistence or sale); and
- effective management capacity to implement the regulations.