

International and Regional Issues in African Elephant Management

by Lovell Jarvis and Douglas Larson

African elephants have been the focus of international attention for more than a decade, since it became known that their numbers had declined sharply during the 1980s, largely due to poaching for ivory. Humans generally have great affection for elephants because of their size, strength, and intelligence. Elephant populations are a major attraction that bring foreign visitors into several African countries, notably Kenya, Tanzania, Zambia, Botswana, South Africa, and Namibia, for both wildlife viewing and trophy hunting.

What is less appreciated, especially by people in countries without wild elephant populations, is that elephants can and do cause substantial damage to agriculture, infrastructure, and (on occasion) people in local villages. Elephants are widely recognized to be keystone species, capable of altering (or maintaining) specific ecosystems. Their great appetites, diet, size, strength, intelligence and mobility make them formidable competitors for many of the resources that are also used by humans. The types of damage incurred by local villagers include, for example, crop trampling and eating as well as uprooting piping and pumping equipment for "bore holes" (wells) dug to provide water supplies for villages.

Therein lie some interesting dilemmas in wildlife management, as countries in southern and eastern Africa seek to balance competing pressures regarding "optimal" sizes of elephant and other wildlife populations. Foreign visitors, who provide valuable foreign currency and revenues for some domestic firms, prefer more elephants than less; but those who live and farm in and near elephant habitats suffer more harm as elephant populations increase. Add to this mix the fact that many products made from elephants, notably ivory, are quite valuable commercially, and poaching becomes quite central to the elephant management issue.

These topics were the focus of a workshop on African elephant and wildlife management held on the Davis campus in mid-August. Attended by scholars and managers from Namibia, Zimbabwe, Australia, and the Davis and Berkeley campuses of the University of California, workshop attendees discussed obstacles to, and possibilities for, regional and international cooperation in African wildlife management. Elephants, and thus their social costs and benefits,

often span national boundaries. For example, important areas in Namibia (Caprivi), Botswana (Chobe) and Zimbabwe (Matabeleland) constitute one large elephant habitat with substantial potential for elephant migration in response to food availability and protection. Elephants move freely across national borders, creating a need to consider coordination of government activities related to elephant management.

Although cooperation can be advantageous, it need not result in larger elephant populations, particularly in southern Africa. An interesting observation echoed by several at the workshop was that in southern Africa, unlike eastern Africa, there may be *too many*, rather than too few, elephants. Populations are generally robust, and with no natural predators, herds numbering in the thousands or even tens of thousands of elephants can wreak tremendous havoc on habitat for other species, in addition to the other damages noted earlier. Thus the nature of the problems with, and solutions to, African elephant management are likely to vary regionally.

In the remainder of this article, we briefly survey the main dimensions of the southern African elephant management problems, where the issues tend to be somewhat different from those publicized widely in the 1980s for eastern Africa. We note the areas where countries of the region have found scope to cooperate, issues over which there is conflict, and some areas for potential further cooperation.

Areas of Recent Regional Cooperation

International marketing of (listed) animal products such as ivory, skins, and hides. Following the rapid decline of East African elephant stocks in the 1980s, widely associated with poaching for ivory, many countries agreed to a ban on international marketing of ivory to reduce the incentive to poach. Southern Africa countries had fewer poaching problems, in part because of more effective anti-poaching programs that were financed by ivory sales. They jointly appealed for temporary release from the ivory ban and were able to market part of their ivory stocks. Since southern African countries may control as much as 40% of the world's elephant stocks, cooperative marketing strategies could be beneficial.

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Areas of Regional Conflict

Poaching. Angolan citizens are reported to poach elephants in Namibia, while Namibians are reported to poach elephants in Botswana. While not as widespread as in East Africa before the ivory ban, better cooperation between countries should improve poaching deterrence.

Animal disease control. Botswana was forced to kill 300,000 head of cattle last year due to the introduction of Bovine pleural pneumonia, which it believes was carried via wildlife from Namibia. Namibia has poor animal health control in the northern part of the country due to a low level of veterinary care and the ease of wildlife movement across its border with Angola. Animal disease transmission via wildlife and elephants destruction of disease control infrastructure are important issues needing regional cooperation.

Infrastructure development (fencing). In response to the Bovine pleural pneumonia outbreak, Botswana constructed a 70 km double steel girder-cable fence to stop wildlife migration across its border with Namibia along the western part of the Caprivi Region. This disrupted traditional wildlife migration routes, resulting in deaths of thousands of (wildlife) animals and causing higher elephant densities in the populated Caprivi Region. This allegedly increased forest destruction and on-farm damage. After lengthy negotiations, Botswana has agreed to remove part of this fence. Given that wildlife naturally migrate across national boundaries, coordination of fencing decisions is essential.

Areas For Further Regional and International Cooperation

Tourist promotion. Each country in southern Africa is seeking to develop its tourism infrastructure, including its national parks and its stock of wildlife, and to attract larger numbers of tourists. Countries are potentially rival sellers of tourist services. Nonetheless, it appears possible that countries in the region have sufficiently different types of wildlife environments that they might benefit from cooperative advertising. Combining resources could more effectively market a tourist promotion program in Europe, North America, and elsewhere.

Hunting, especially trophy hunting. Hunting, especially trophy hunting, has high economic returns per tourist attracted. An average tourist visiting Namibia for photo safaris might spend U.S. \$50-200 per day during a 10-14 day stay, while hunters seeking elephant trophies probably spend more per day and premiums of as much as U.S. \$10,000 for trophies, if obtained. Although relatively few animals are taken as trophies, the total return from trophy hunting is a significant component of potential tourist revenues.

An especially interesting observation to emerge from the wildlife workshop was that cooperative strategies for managing trophy hunting may be a very important ingredient in assuring the long-term survival of elephant populations faced with development pressures, increased conflict with human populations, and shrinking habitat. The reason is that trophy animals are older, typically forty years old or more, and

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African elephants grazing in the Mahongo Game Reserve on the Caprivi Strip, Namibia. Photo by Doug Larson.

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(1) the adoption of new varieties to capture niche markets; (2) adjustments in production practices to take advantage of market windows, and (3) utilization of quality differentials to remain in lucrative markets. It is possible that these supply-side adjustments may lower the seasonal boom-bust cycle of fresh strawberry prices. Smoothing, however, is achieved through the reduction of high prices. The possibility exists, then, that the strawberry industry's adjustments may lower industry profits. Consequently, there may be a trade-off between greater market stability and greater expected or average profits.

References:

- Bertelsen, Diane, "The U.S. Strawberry Industry," *USDA Statistical Bulletin*, 1993.
CA. Commission, *Strawberry Review* (1990-1998), CDFA, *California Agricultural Resource Directory* 1997.

Goodhue, Rachael E., G.C. Rausser and T. Selby. "Value Differentiation in the California Strawberry Industry." Working Paper, UC Berkeley, Berkeley, California 1998.

Processing Strawberry Advisory Board, *Annual Reports* (1984-1997).

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their exceptionally high economic value provides strong incentives for conservation of stocks to assure a supply of trophy animals.

Culling Strategies. Culling elephants to reduce and control elephant densities is highly controversial. While some wildlife managers feel this is a necessary management strategy, prominent international organizations object to the killing of elephants for any purpose, and can bring substantial political weight to this position. To the extent that culling yields valuable products such as ivory, countries have incentives to cull, which could affect region-wide elephant densities and impose costs on their neighbors. Cooperative strategies for culling thus seem potentially beneficial.

Developed Country Assistance. Developed countries outside of Africa can also play important roles. First, they can police their own imports to enforce bans in listed animal products. Second, they have financial and human resources useful in design and implementation of wildlife management systems, an "in-kind" form of foreign aid. Third, to the extent that their citizens are willing to pay for the preservation of elephants *in situ*, they should contribute to management costs.

Conservancy Development. The willingness to pay for elephant populations *in situ* by the developed world places great burdens on local African communities located in elephant habitat. Greater elephant populations cause more problems with damage to crops, infrastructure, and people. Historically, relatively little ecotourism and hunting revenues have flowed to these people, who bear the greatest cost of maintaining large elephant populations. The revenues are captured by tour and concessions operators who typically live in

urban areas or outside Africa entirely. This increases incentives for locals to poach or otherwise defend against wildlife incursions.

Namibia has recently begun some exciting experiments aimed at reversing this problem, by allowing local villages to form "conservancies", that have broad powers over the management and utilization of local wildlife. This transfer of property rights to local residents provides needed incentives to maintain elephant and other wildlife stocks at the local level, because better conservation yields something for them. This helps "internalize" costs of elephants because it entitles the bearers of wildlife damage costs to a share in the benefits from those stocks.

Elephant-human interactions are many and various, with many positive and some negative dimensions. The conservancy concept seems to have great promise for helping resolve some of the conflicts while maintaining the prospect of healthy and viable elephant stocks.

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