Decision Time on African Ivory Trade

An international meeting to be held next week must decide whether halting trade in ivory would protect elephant herds

TRUE OR FALSE? Elephant numbers in Africa are declining steeply as a direct result of the trade in ivory. Answer: True. Now try this one: Elephants in Africa are thriving as a result of the trade in ivory. Answer: Also true.

Both statements are correct, depending on which parts of Africa you look at, and this is making the job of the more than 100 national delegations gathering in Lausanne, Switzerland, next week for the biennial meeting of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) that much more difficult. Should they vote to ban trade in ivory, or not?

Tusks for sale. *Ivory assembled in a warehouse in Tanzania in the late 1970s. Some trading is still permitted.*

Across Africa as a whole, the number of elephants has fallen from about 1.34 million in 1979 to 622,000 today. But in Botswana, South Africa, and Zimbabwe numbers are rising: Botswana had roughly 20,000 in 1979 and has 51,000 today; South Africa's small national herd of 7,800 has swelled to 8,200; and Zimbabwe's elephants have grown from 30,000 10 years ago to some 43,000 today. The numbers are going up because those states have little poaching and manage their elephant populations actively.

The exact numbers may be open to some dispute because counting elephants in the bush is not easy. Richard Barnes, a zoologist supported by the New York Zoological Society, has spent much of the past 4½ years trying to survey forest elephants in West Africa. By counting piles of dung along straight lines through the forest, Barnes established a relationship between the number of elephants in a given area and other factors. The prime factor is people; elephants avoid them.

Because people tend to be most heavily concentrated around roads, Barnes used a database created by long-time elephant researcher Iain Douglas Hamilton, which maps all the roads in Central and West Africa, to estimate human population densities in various areas. He plugged the relationship between elephant density and human density into the calculations, and "Bingo! You've got an estimate of the number of elephants for each country."

Because this is the first time the method has been used, he cannot calculate any trends. But he has a feeling, based on his 4 years in the field, that numbers have declined drastically.

Joyce Poole, a senior research associate of the African Wildlife Foundation, has seen drastic declines in East Africa. Poole has been studying elephants for the past 14 years, and she has detected an especially disturbing change: "Females aren't breeding." On a recent survey of East Africa, Poole found populations in which there were not only few babies, but fewer than half the females had visible breasts. That compares with the almost 90% that you would expect to find in an undisturbed population.

The reason is that females definitely prefer mature males, those above about 30 years old. And these are precisely the big tuskers that attract the poachers. In Mikumi National Park in Tanzania, Poole saw only one male over 25 in a group of 466 elephants.

But while Poole, Barnes, and their colleagues lament the threat to elephants across almost their entire range, the elephants apparently are secure in southern Africa, where active management of the populations combined with strong antipoaching measures have allowed the animals to flourish. But the rise in ivory trade—legal and illegal—is primarily responsible for the decline in elephants outside southern Africa.

This has created quite a dilemma for CITES, which regulates trade in endangered species. Threatened populations are listed in one of three appendices to the CITES convention. All commercial trade is banned for those listed in appendix I, while trade under some circumstances is permitted for those listed in appendix II. Appendix III allows a country to protect its own wildlife from international trade. The African elephant has been listed in appendix II since 1977, but that has not stopped a precipitous decline in almost all populations. To stop that decline, seven countries, led by Tanzania, are proposing that all African elephants be put in appendix I.

In distinct contrast, Zimbabwe has put forward a document "on behalf of several southern African states" that outlines a new mechanism for trading in ivory from southern Africa. The proposal would establish the Southern African Centre for Ivory Marketing (SACIM) and permit each country that is a member of SACIM to set its own production limits. All southern Africa's ivory would be traded by auction from a central depot, probably in Gaborone, Botswana. In effect, this would mean continuing to class elephants in appendix II.

According to Rowan Martin, assistant director of research at the Department of National Parks and Wildlife Management of Zimbabwe, the document "is not a proposal for the meeting to bless. It's what we're going to do."

Although Martin portrays the SACIM proposal as nonnegotiable, compromises are possible. CITES could decide to put all elephants on appendix I except for those in southern Africa, which would remain on appendix II and thus could be traded. At issue is whether SACIM could prevent ivory poached in other countries from entering its system. Even now, "a great deal more ivory has been coming out of southern Africa than southern Africa can produce," says Steve Cobb, a biologist at Oxford University who calls himself the "ringmaster of a loose assemblage of people concerned about the ivory trade."

But Martin thinks such fears can be assuaged. For one thing, the Zimbabwean proposal says that "techniques recently perfected within the region will be used to determine the origin of tusks." Martin explains that researchers in South Africa are using a combination of spectrographic and dating processes to identify tusks. "They are

reasonably confident that they can identify the ivory accurately," Martin said, but conceded that as yet there was no data to support this statement.

But opponents of the proposal say that this is naïve in the extreme. Richard Leakey, director of Wildlife in Kenya, dismisses Martin's claim saying, "It'll be years before that's going." And though he seems to have put an end to poaching in Kenya, Leakey points out that populations elsewhere in East Africa "are way down, and most of that ivory is probably going south."

Countries are free to enter reservations to any CITES decision they do not like, and CITES regulations themselves do not have the force of law. Martin says "the reservations are all prepared." That would free SACIM members to trade with nonmembers of CITES, with no controls. But many observers do not think it will come to that. The key vote could be that of Japan, destination for much of Africa's ivory.

Japan is keen to host the next meeting of CITES, and to recover some of the prestige it has lost in the international environmental community because of its support for whaling. If Japan backs a compromise allowing trade in ivory from southern Africa, and if SACIM really can control ivory within its borders, elephants in the rest of Africa may be more secure. ■ **JEREMY CHERFAS**

NRC Unveils Agriculture R&D Plan

The National Research Council's Board on Agriculture is publicly calling on the Bush Administration and Congress to get behind a $500-million competitive grants program for agricultural research. The figure is staggering, given the fact that the U.S. Department of Agriculture will spend only about $45 million in fiscal year 1990 for such grants. But proponents argue that the investment is essential to keep U.S. farmers competitive and to address environmental problems and food safety concerns connected to farming.

The proposal, outlined in an NRC report published this week, *Investing in Research*, has been under discussion in the agricultural research community for some time (*Science*, 14 April, p. 140). "We have to substitute knowledge for low wages," says Board on Agriculture Chairman Theodore Hullar, the chancellor of the University of California at Davis. Huller argues that without improvements in agricultural productivity, the United States may see food exports decline in the face of competition from the European Economic Community and developing nations.

A strong coalition of agricultural organizations, including the American Farm Bureau, is reportedly rallying behind the NRC plan. Says Huller, who helped initiate the funding campaign, "$500 million is not an unreasonable request for what is one of America's basic industries." Secretary of Agriculture Clayton Yeutter also is supportive of an expanded competitive research program at USDA. But the level of funding that Yeutter and the Office of Management and Budget are willing to support may not be clear until early next year when President Bush submits his 1991 budget proposal to Congress.

Charles Hess, assistant secretary for science at the Department of Agriculture, however, openly backs a $500-million program. He told *Science* that dollar for dollar, the agricultural R&D program will deliver far more economic bang than the $6-billion Superconducting Super Collider. This kind of funding is necessary to accelerate the application of genetic engineering to create drought- and pest-resistant crops and to reduce farmers' use of pesticides and fertilizers.

The expanded program envisioned in the NRC's plan would encompass six areas: plant genetics and plant-pest interactions, animal systems, nutrition and food quality, natural resources and the environment, product and process engineering, and marketing strategies and trade policy. The existing $45-million annual budget for competitive grants would be combined with an additional $500 million a year and distributed in the following way:

- $250 million to fund about 800 principal investigator grants for an average duration of 3 years.
- $150 million for an estimated 180 fundamental multidisciplinary team grants spanning an average of 4 years.
- $100 million to support approximately 60 mission-linked multidisciplinary team grants for an average period of 4 years.
- $50 million to strengthen the infrastructure of research institutions and to fund individual fellowships.

The NRC report emphasizes that these grants should be financed with new money, not funds taken from existing land-grant research programs or the budget of USDA's Agricultural Research Service. With Congress having to reduce the federal budget deficit to $64 billion in 1991, winning support for the R&D program will be hard. Says Hess, "We have to convince people in this very difficult fiscal environment that this kind of investment in the future still should be made." ■ **MARK CRAWFORD**

Abortion: Litmus Test for NIH Director

Washington University chancellor William Danforth is (or was) on the short list for the NIH director's job. Last week, he got a call from someone in the White House personnel office who had just two questions on his mind. "What are your views on abortion?" he reportedly asked Danforth. "And what are your views on fetal research?" Danforth told a colleague that his response was simple and direct. "If that is all you want to know, I'm not your man."

In a telephone interview with *Science* shortly after word of the White House call spread through inside circles in Washington, Danforth said he preferred not to comment "on what someone did or did not ask me," but he was not at all reluctant to comment on the chances that he would become director of the National Institutes of Health. "It's not my thing," said Danforth. "I am wedded to Washington University where I have been chancellor since 1971."

Danforth is out. The "A" word is in.

If the White House insists on an NIH director who is opposed to abortion, the search might as well begin anew because no one on the current list of candidates (*Science*, 15 September, p. 1181) has taken a strong pro-life stance. Furthermore, none believes that abortion should be the litmus test in any case.

News of the "abortion call" has reinforced the idea that the only way to depoliticize the NIH directorship is to establish it in law as a 6-year position that survives changes in Administration. The National Science Foundation directorship is a precedent for this and a couple of biomedical leaders are hoping that sympathetic members of Congress can be persuaded to introduce such a bill.

NIH has been without leadership at the top since the end of July when former director James B. Wyngaarden resigned after 7 years at the helm because Louis Sullivan, President Bush's Secretary of Health and Human Services, wanted him out. As the Wyngaarden case illustrates, even a mandated 6-year term would not be sufficient to "depoliticize" a job that is, after all, a Presidential appointment.

Wyngaarden, however, is not out of work. This week he will join the White House Office of Science and Technology Policy (OSTP) as an associate director to presidential science adviser D. Allan Bromley.

Meanwhile, the NIH director's office is vacant and is likely to remain so for quite a while. ■ **BARBARA J. CULLITON**