
taking over the elephant's grazing areas which results in a permanent loss of the elephant's habitat.

Riddle's Elephant Breeding Farm and Wildlife Sanctuary, Inc. has many goals. The foremost being the establishment of breeding herds of both African and Asian elephants; building more facilities at our sanctuary for these animals; giving refuge to any needy elephants; and educating the general public about the importance of safeguarding these majestic creatures for future generations.

You can be very important in helping to protect these rare and unusual animals. We need your donations. For further information or to answer any of your questions, please contact: Scott or Heidi Riddle, Riddle's Elephant Breeding and Wildlife Sanctuary, Inc., Post Office Box 715, Greenbrier, Arkansas 72058. Tel: (501) 589 3291.

Press release

Reserve for Rare Rhino

In 1989 George Schaller, Wildlife Conservation International director for science, and three Vietnamese researchers found solid proof that the Javan rhino still existed in Vietnam. They estimated that perhaps 10-15 of the animals survived near the Dong Nai river, in the Budang district of Song Be Province. Last year Le Dien Duc, of the University of Hanoi, and other biologists surveyed Budang and two other districts with WCI support to identify the rhino's range and recommend areas for protection. On the basis of reports from local people that five or six rhinos live along the Dong Nai in Budang, the Song Be government has set aside about 66 square miles for a rhino reserve. In the Cat Tien district there are six or seven animals, and Duc and his colleagues are proposing that a reserve be created there too.

The only other place where this most endangered of species is known to exist is Udjong Kulon National Park, in Java, where there are about 50.

Wildlife Conservation International

For White Rhinos, Guarded Condition is Good News

Under the watchful eyes of 180 well-motivated guards, the world population of northern white rhinos jumped nearly 20% last year (1989) with the births of four babies to the rhinos in Zaire's Garamba National Park. Now numbering 26 up from a mere 15 in 1983 this subspecies of the white rhinoceros survives only in the 3,000-square-mile park. It once ranged through five countries in Central Africa.

The heavy poaching that nearly wiped out the sub-species and which together with habitat destruction, disease, and drought, has reduced all rhino populations by 85 percent in the past 25 years, came to a halt in Garamba six years ago when a vigorous rhino protection programme was launched. The Zairean government, with the help of conservation groups, increased the number of

guards, raised their monthly salaries from US\$ 4 to US\$ 16, and provided uniforms, better equipment, and other benefits and pay incentives.

Muhindo Mesi, the park warden, plans to pursue yet another approach to save the rhinos in Garamba: actively courting the support of the 100,000 or so people living around the perimeter of the park, through a conservation education programme and, possibly, by improving goat and sheep herds to reduce the temptations for villagers to come to the park for meat.

The New York Times

Vitamin E Levels Measured in Rhino Browse Plants

Previous work in our laboratory and others has shown differences in plasma alpha-tocopherol levels between zoo (0.2 micrograms/ml) and free-ranging (0.8 micrograms/ml) black rhinos. Because this is a measure of vitamin E activity, the result suggested that many captive animals may be suffering from vitamin E deficiency. The original comparison was made with 31 blood samples taken during a 1988 translocation exercise in Zimbabwe. Later we measured plasma alphatocopherol in samples from 44 free-ranging black rhinos in South Africa, 7 in Kenya, 4 in Namibia, and an additional 24 animals in Zimbabwe. These results averaged 0.6, 0.2, 0.8 and 0.5 micrograms/ml respectively.

Because plasma and dietary levels of alpha-tocopherol are closely correlated, the differences seen among these various rhino populations suggested widely varying diets and/or habitat quality. To investigate this possibility, a collaborative field study with Fred K. Wawereu, Wildlife Conservation International, Kenya, R. DuToit, Zambezi Rhino Project, and R. Brett, World Wildlife Fund, Kenya, was organized to quantify alpha-tocopherol levels in major browse species consumed by black rhinos. Two national parks and two private reserves in Kenya, and the Zambezi Valley, Zimbabwe, were chosen as study sites.

Tocopherols must be extracted from fresh plant tissues, and, to our knowledge, have not before been measured in a field study. In order to do so, a portable laboratory containing necessary chemicals and a hand-held homogenizer, as well as a full-sized tank of nitrogen gas, was loaded into vehicles and taken to makeshift labs. Converted storerooms or kitchens generally met our relative minor requirements of bench space, electricity and water, although we were treated to a proper laboratory at the Rukomechi Tsetse Fly Research Station in the Zambezi Valley! Samples were weighed, homogenized, extracted, evaporated, reconstituted, sealed, and freezer-stored until shipment back to the United States for high-performance liquid chromatography analysis.

The experienced African field researchers identified a minimum of ten species of major food plants for each site. Results indicated wide variation in vitamin E levels in fresh rhino browse plants. Leaves contained two to fifty times more alpha-tocopherol than stem fractions of the same plant; mature tissues had higher concentrations than young, growing tissues. Environmental
