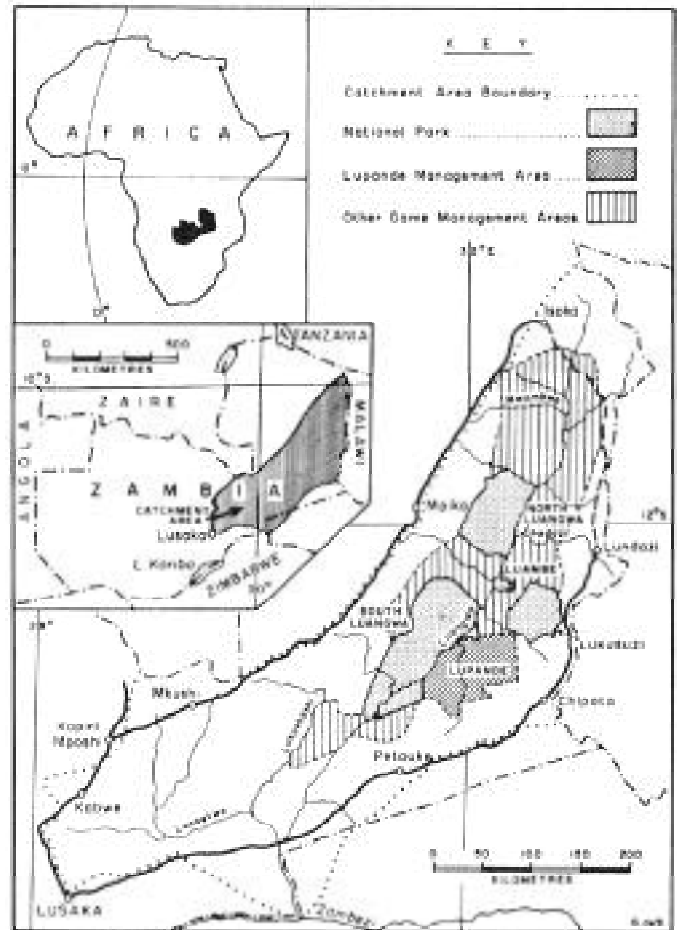


- 4) The people of the Luangwa Valley's Wildlife Management Areas must participate in the development and management of the Catchment and benefit from the yields from those resources.
- 5) Extensive research pertaining to the management and development of the Luangwa Catchment is required and that a Luangwa Research and Education Institute should be established.
- 6) An interim planning group, based within the Provincial Planning Unit in Chipata, be established to prepare project designs and budgets to support development of the LDP within one month."

The real significance of this workshop will be judged as the Government of Zambia studies these resolutions and the specific management proposals that the Interim Group has already presented. Zambians and friends of Zambia await anxiously for a new course that will lead the development of Luangwa Valley, the jewel of Zambia's natural resources, to a future where both man and wildlife can coexist. The Lupande Development Workshop is clearly seen as the first step in the right direction. The beneficiary will be more than the endangered rhino and elephant populations or the rural villagers who share their lands with these species of wildlife. The beneficiary will be a major ecosystem in southern Africa with a heritage and resource potential of monumental importance to this continent.

Dale M. Lewis



Luangwa Catchment Area including national parks and game management areas

Ecology of The Forest Elephant in Tai National Park, Ivory Coast

Investigated in numerous studies, research on the ecology of the forest elephant in Africa began only a couple of years ago. This is mainly because of its habitat, the tropical rain forest.

In the tropical rain forest direct observations are almost impossible because of the dense vegetation. The thick forest canopy cuts out nearly all the sunlight.

In Tai National Park, Ivory Coast, an attempt was made to gain some knowledge about the hidden life of the forest elephant. Tai National Park covers 340,000 ha which consist mainly of primary rain forest. This offers possibilities for studying larger rain forest mammals, particularly elephants.

The methods used were mainly based on indirect observations. Signs of the elephants such as footprints, trails, droppings, browsing patterns etc. were noted. This was done along fixed transects characterizing different vegetation types of the Tai National Park (Fig. 1). Transects 2, 3 and 4 were covered by primary rain forest, transects 1 and 5 primary and secondary vegetation change and transects 6 and 7 were characterized by secondary forest and bush vegetation. All these transects are strip transects with a width of 3m each and a length of 8km (h_2 , h_3 , h_6), 7km (h_5), 5.5km (h_1 , h_7) and 4.5km (h_4). Over three years, patrols were carried out in a 39-day cycle, on average.

The forest elephant is well adapted to its environment. In comparison with the savanna elephant, its body size is smaller, and its ears are relatively small and round. Its head is bent forward, with thin, slightly curved tusks going down to the

ground.

Like many species of mammals living in the rain forest, the elephant forms only small groups of about three to four animals on average (Fig. 2). The formation of larger herds, as known in savanna areas, was not observed. Only in swamp forests are aggregations of 20 to 40 animals possible.

In the tropical rain forest there is enough food and water all the year round, so the elephant is not forced to travel great distances to meet those demands. During the rainy season, however, the elephant shows a higher mobility than in the dry season. During the hours of daylight the elephant moves about 5km on average; its annual home range is estimated to be about 150 to 200km².

The primary rain forest is the original habitat of the forest elephant, a habitat now declining on a huge scale because of forestry and agriculture. In the Ivory Coast, statistics show that between 1956 and 1966 approximately 280,000 ha of rain forest were exploited per annum. Between 1966 and 1974 this figure rose to 450,000 ha. In 1982 only about 12% of the area which was still covered by primary rain forest in 1956 remained, i.e. more than 90% of the country's original rain forest has been transformed into man-made landscapes or has been ecologically modified.

If the ecology of the forest is only slightly changed, e.g. in selective logging, the forest elephant can adapt itself to this new environment. The clearing of the rain forest could even be attractive to the elephant, depending on the extent and

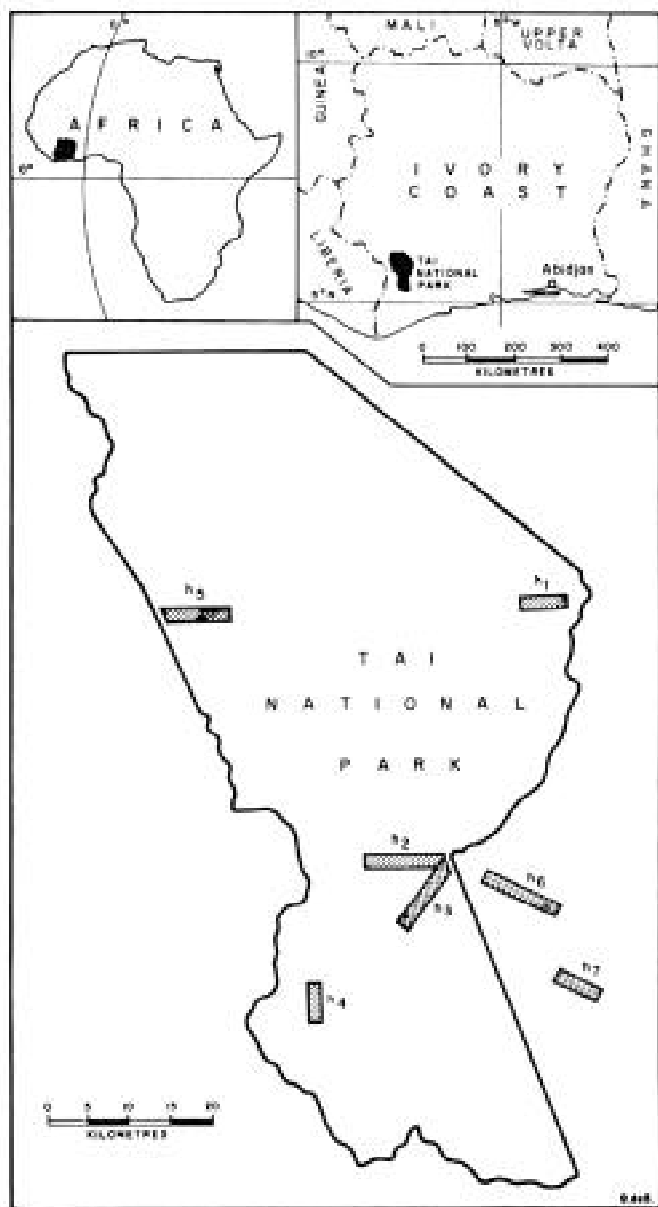


Fig. 1

age of the modifications. Elephant densities in these habitats were observed to reach 2.6 animals per km² on average in comparison with primary forests, where densities are under 0.5 animals per km².

There is a distinct attraction to areas which are influenced by logging activities. The preference of the secondary rain forests can be confirmed by the χ^2 test. As a result of the clearing of the original forest a new heliophile vegetation has produced a richer range of fodder plants containing a greater amount of crude protein than sciophile species. A nutritive analysis of heliophile fodder plants selected by elephants shows a crude protein content of 18% compared with 10% in plants of the primary rain forest, which are much less used by the elephant. Furthermore, the alternating occurrence of open, grass-covered areas and dense vegetation is highly appreciated by the forest elephant.

Gunter Merz
University of Juba

RHINO WORKSHOP AT PILANESBERG

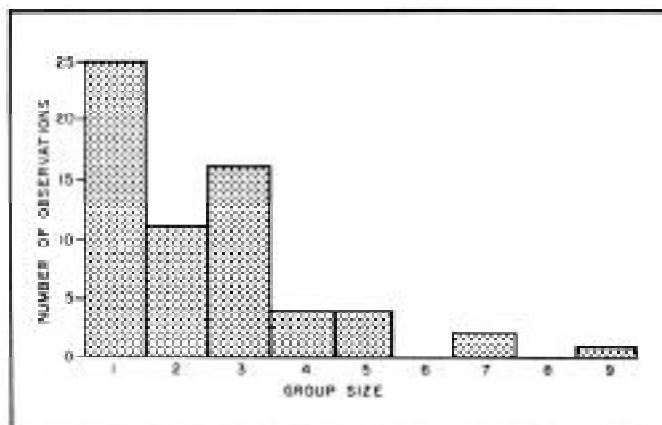


Fig. 2

News in Brief

Following an initial suggestion by Peter Hitchins, that the status of rhinos in southern Africa should be investigated, a workshop on the topic was sponsored by the Endangered Wildlife Trust and hosted by the Pilanesberg Game Reserve in Bophuthatswana. Fifteen delegates, including a colonel of the South African Police, several officers of nature conservation authorities, zoological gardens and non-government organisations, gathered in February 1984 for two full days of discussion on the rhinos of South Africa and Namibia. The main focus of attention of course was the black rhinoceros whose statistics in South Africa have been largely covered by Martin Brooks in the previous newsletter.

Three subspecies of the black rhino occur in the two countries. About 610 animals of the *minor* subspecies were estimated for South Africa (including 21 in Pilanesberg), and the

Natal population has 19 animals per year for translocation. The population in the Kruger National Park, currently estimated at 110 animals, has a great potential for expansion. South Africa also holds 14 *michaeli* rhinos in the Addo Elephant National Park; these are genetically pure as hybrids have been removed (and one *minor* bull castrated).

About 400 animals of the nominate subspecies are estimated for Namibia, of which 350 occur in the Etosha National Park. This latter population is expanding and animals could be translocated to three other game reserves in the north of the country. Meanwhile, the desert rhinos of Damaraland and Kaokoland have declined to an estimated 50 and .5 animals respectively. These animals live on communally-owned land, and they are very vulnerable to poaching; they are the only black rhinos not in a game reserve. There is considerable concern over their future, and as befits