

Elephant Survey in Ceylon

By Fred Kurt

The Ceylon elephant is in serious danger, due largely to the spread of cultivation in the island bringing destruction of its habitat and interruption of the migration routes. As an essential preliminary to devising ways of protecting the elephants, the Smithsonian Institution and the World Wildlife Fund have sponsored a field survey. Dr Kurt is one of the team of zoologists who started work in April 1967, and for whom the FPS/WWF Revolving Fund last year supplied a much needed Land Rover.

IN the first year of the survey we confined our work mainly to the Ruhunu (Yala) and Gal Oya National Parks and to the Lahugala Sanctuary. In Yala where we built a big camp, with several houses and tents, most of the work is done on foot or in the two Land Rovers given by the Fauna Preservation Society and the World Wildlife Fund; these vehicles will be handed over to the Wild Life Department on completion of the survey. In Lahugala, a huge disused tank and the home of a large number of elephants, we built three tree-houses on a promontory from which we can observe the whole area.

Five aspects of the elephant's ecology and behaviour are of special importance for their protection: population density in the known elephant areas; population structure and dynamics; seasonal movements; relation to the biotope (especially food and water), and relation to other big mammals. For the census work, except in two areas, Nilgala and Tamankaduwa, it is practically impossible to use aeroplanes in the dense jungles that most of the elephants inhabit, so our method is to drive or walk along a track for a known distance counting the elephants we see and also estimating the distances at which they are seen. The total number of elephants seen divided by the controlled area (length of sector \times average of observation distance) gives us a figure for the population density in a particular type of jungle. Since it is known that elephants have to drink and bathe at least once every 24 hours, we can also estimate the population by counting the numbers of elephants at all waterholes in a certain area.

It is too early to summarise our data, but we know that water and grass are two factors which influence the concentration of elephants and their seasonal movements; in the dry season we find big concentrations in Gal Oya park and Lahugala and Polonnaruwa Sanctuaries where the dry jungle borders on open grass plains beside rivers, lakes or artificial tanks.

Before we could describe the structure of the elephant populations we had to find criteria to enable us to sex and age the animals. The tusks cannot be used because fewer than 20 per cent of Ceylon elephants have tusks; in Polonnaruwa area no tuskers have ever been seen. However, the males can be recognised because they react to the slightest stimulus by

Plate 9 opposite: Ceylon elephant family





**DRUG-DARTING
AN ELEPHANT.**
Plate 10:
Melvyn Lockhart,
carrying the Cap-
chur gun, and
Ranger Bevis
Ekanayake stalk
the selected
animal.

**Plate 11: Shot
with the drug-
loaded dart, the
elephant rolls up
its trunk as if to
charge – some
anxious moments
for the two men . .**



Plate 12:
... But it fled to
the forest and
within seven
minutes was
completely
immobilised,
numbered ...



Plate 13:
... ear-tagged
and given the
antidote for the
immobilising
drug in its ear.



**Plate 14: UP AND AWAY, completely
recovered but a marked elephant.**

Photographs by Fred Kurt

the extension of their penis; this happens whenever they get wind of man, or come to an open patch in the jungle, and before and after a bath. The most reliable criterion is shoulder height; this we discovered after measuring and photographing 108 tame elephants of known age. Based on this we distinguish eight size classes in the cows, and nine in the bulls, which grow faster and taller than the cows; each size class reflects a certain age. We are also completing a key which will allow us to age the skulls of elephants found dead in the jungle.

The Ceylon elephants live in herds of 2 to 30 animals – between 8 and 22 is the most usual number – comprising cows and calves and usually one adult male. Whether all herds are accompanied by a male we do not know, since males are often a long way from their herds and cannot be recognised. Most males are solitary, though for short periods two or more may form male groups. In the dry season and for the seasonal movements herds and solitary males concentrate and form aggregations of 60 to 130 animals. Their food, already described by Ted Norris, is the subject of a detailed study by George McKay.

We try to include in our study as much data as possible on other big mammals such as leopard, sloth bear, wild boar, sambhur, axis deer and buffalo, in order to get a better understanding of the mammal communities in the different biotopes and the role played by the elephant. In the south buffalo occur in large herds and it seems as if their presence in and around the waterholes during the dry season causes an elephant movement out of the park.

Dr Clinton Gray and Dr Eisenberg spent two weeks in Ceylon training our Ceylonese staff, in the use of the Cap-chur gun. In October 1967, at Inginiyagala in Gal Oya National Park, we captured three elephants using the drug M 99 and its antidote M 285. This was the first time that M 99 had been successfully used on Asiatic elephants. One Cap-chur gun, one crossbow and one pistol have been donated to the Wild Life Department and the staff of the Dehiwala Zoo by the Smithsonian Institution, which should help the Wild Life Department to transport elephants easily from one area to another when required.

The Smithsonian Elephant Survey is directed by Dr H. K. Buechner and Dr John F. Eisenberg. The team includes, in addition to Dr Kurt, Mr George McKay, Mr Anil Jayasuriya and Mr A. P. W. Nettosinghe, who work in close collaboration with the Warden of the Ceylon Department of Wild Life, Mr Lyn de Alwis, and his staff, and two other groups of scientists – the botanists of the Smithsonian Institution led by Dr Muller-Dombois and veterinarians from the University of Ceylon Peradeniya, Dr Jainudeen and Dr Jayasinghe.

When to see Wildlife

IT is generally assumed that the best time for seeing wildlife is the early morning and that the afternoon is never so good. But Juan Spillett in his census of the Kaziranga Sanctuary in Assam found just the reverse. The census parties worked 158 hours in the morning and only 96 in the afternoon, but the figures for seven animals, including rhino, showed that more animals were seen per hour in the afternoon than in the morning.