ON THE GERMINATION OF SEEDS IN THE DUNG BALLS
OF THE AFRICAN ELEPHANT
IN THE VIRUNGA NATIONAL PARK

by R.L. BRAHMACHARY

Indian Statistical Institute, Calcutta 35.

In a preceding paper (Brahmachary, 1978) the rationale of
searching for seeds germinated inside the dung heaps of the
African elephants has been explained. Meanwhile Alexandre
(1978) has reported on his work on the elephants of Tai.

In March/April 1978 I once again had the opportunity of
examining the dung heaps of African elephants in Parc National
des Virunga, in the Republic of Zaire.

Collection and examination of dung balls were carried out
in station Rwindi near the Rwindi river and at station scientifique
de Lulimbi, near Ishasha river. Obviously fresh dung heaps were
not examined in this context. Some of the larger seedlings
bearing leaves could immediately be roughly identified while
other, young ones, were allowed to grow in small pots and cans
as available in the field. Herbarium sheets were made from the
plants which had grown a little. Capparis and Maerua seeds
and seedlings at many different stages of growth were observed
for precise identification.

Of the 414 dung balls I examined, 241 (i.e. \( \approx 50\% \)) contained
seedlings, and 22 balls contained only seeds. Of the remaining
219 balls, 9 contained dead seeds. The rest have been listed in
table I. Two balls (No. 15 and 111) contained more than 100 ger­
minated seeds (in each). Considering these as 100 in each, the
total number of seeds germinated in 219 dung balls is at least 2576,
of which at least 1591 were Capparis. On the very first few days
of observation I did not recognize the species (273 seedlings).

In this season no Acacia plants were noted in the dung though,
as in 1975/76, a good number of plants belonging undoubted­
ly to the Solanaceae and Curculitaceae families was detected.

Douglas-Hamilton (1972) gave a comprehensive account of
elephant food plants and seed dispersal in East Africa. As

reported by Alexandre (1978) the elephants in Tai, Ivory coast, consume a large quantity of fruit and play a major role in the dispersion of seeds. The same is undoubtedly true for the elephants in the Virunga National Park. This year, two species of fruit, Capparis tomentosa and Maerua sp. were found to feature very prominently in the Elephant diet. At least 1591 out of 2576 little plants inside the dung were C. tomentosa. 23 seedlings which died after germination were found in a few dung balls (not entered in this table). At Lulimbi region 36 dung balls contained 302 plants of which 292 were alive. Of these 104 and 132 were C. tomentosa and Maerua sp. (probably M. mildbraedii). In a few fresh dung balls numerous seeds of Maerua were visible. Many of these were on the point of germination. All the rest at Lulimbi belonged either to the Solanaceae or Cucurbitaceae families.

The luxuriant growth of seedlings of Capparis and Maerua were detectable only in Elephant dung. Nowhere else, under the groves or individual trees of these species did I notice any significant germination of these seeds. Baboons too eat a lot of Capparis seeds but the quantity eaten and the contribution to germination and dispersion are probably much less than in elephants. Baboon dung, being much smaller in volume than that

--- 140 ---
of Elephant dries out quickly. Elephants are undoubtedly the most significant agents for dispersion of *Capparis* seeds in the Virunga National Park. It is surprising that Robyns (1948) did not mention elephants at all in this context. But most of the seeds are germinating in the droppings in the woodland, while only a few are transmitted far away from the woods. Douglas-Hamilton mentions *C. fascicularis* in East Africa. Elephants are a prominent agent in dispersing the seeds of *Maerua*. Alexandre (1978) points out that the fruit chiefly dispersed by elephants are dull coloured but *Maerua*, which has a bright red fruit, is an exception.

As in last year, direct observation was carried out on the feeding of a wild Elephant who frequently visits the Rwindi station and is approachable. While grazing on short grass near the station one can watch the food species. Of 112 mouthfuls torn from the ground level and eaten, 65 were non-grass, i.e. dicot species.

**CONCLUSION**

2576 plants germinated inside 219 old elephant droppings were collected. The elephants play a major role in the dispersion of seeds, especially those of *Capparis tomentosa* and *Maerua sp*.

**SUMMARY**

At least 1591 out of 2576 seeds germinated in the Elephant dung at Virunga National Park belonged to one species, *Capparis tomentosa*. Elephants play a significant role in the dispersion of seeds, especially those of *Capparis tomentosa* and *Maerua sp*.

and various wild Curcurbitaceae and Solanaceae. Direct observation showed that 65 out of 112 mouthfuls were non-grass species, even when the elephant was grazing on short grass.

**RESUME**

Parmi les 2576 plantules ayant germé dans des crottes d’Éléphant au Parc National des Virunga (Zaïre), 1591 au moins appartenaien à une seule espèce *Capparis tomentosa*. Le rôle disseminateur de l’éléphant est certain dans le cas de cette plante.

**ACKNOWLEDGEMENT**

I thank *l’Institut Zaïrois pour la Conservation de la Nature* for providing me with free accommodation and partial transport so that I could accomplish the study at my personal expense. I thank Prof. G. Kallianpur, Director, Indian Statistical Institute for financing my passage to Zaire in 1978.

— 141 —
BIBLIOGRAPHY


— 142 —