

## SEED DISPERSAL BY CHIMPANZEES: Supplementary Note 1

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**ABSTRACT** Six species of fruit (*Saba florida*/*Landolphia owariensis*, *Garcinia huillensis*, *Azanza garckeana*, *Parkia filicoidea*, *Zanha golungensis*, and *Strychnos innocua*) seeds collected from chimpanzee feces were tested for germinability in the Mahale Mts., western Tanzania. Among the seeds tested, there were viable ones from all 6 species. This indicates, together with the previous study, that virtually all fruit species whose seeds are commonly seen in chimpanzee feces between September and November in Mahale are effectively disseminated by chimpanzees.

As previously reported (Takasaki, 1983), the seed dispersal by chimpanzees is an important topic in the ecology of the chimpanzee habitat. This paper reports the results of a germination test of seeds collected from chimpanzee feces for an additional 6 species of fruit plants which were not successfully tested in the previous study (Takasaki, 1983).

The seeds for the test were collected from chimpanzee feces in the home range of the M group in the Mahale Mountains, western Tanzania (6°S, 30°E). Tested were *Saba florida* (Benth.) Bullock/*Landolphia owariensis* P. Beauv. (Apocynaceae)<sup>(1)</sup>; *Garcinia huillensis* Oliv. (Guttiferae); *Azanza garckeana* (F. Hoffm.) Exell et Hillcoat (Malvaceae); *Parkia filicoidea* Oliv. (Mimosaceae)<sup>(2)</sup>; *Zanha golungensis* Hiern (Sapindaceae); and *Strychnos innocua* Del. (Loganiaceae). (The scientific names follow the lists in Nishida & Uehara [1981, 1983].) The test procedures and conditions were similar to those of the test in 1981 (see Takasaki, 1983), although no comparison was made this time between the seeds collected from feces and those directly obtained from ripe fruits.

The sowing and germination data are summarized in Table 1. Note that the tested seeds, which chimpanzees once ingested and discharged in feces, contained viable ones from all 6 species, although the germination rate differed from species to species. This means, together with the test in 1981 (Takasaki, 1983), that virtually all species of which seeds are commonly found in chimpanzee feces in the September-November season (e. g., *Myrianthus holstii*, *Pycnanthus angolensis*, *Pseudospondias microcarpa*, *Saba florida*/*Landolphia owariensis*, *Gar-*

Table 1. Dates (1983) and numbers of seeds sown (s) and germinated (g) of the tested 6 species of fruit plants obtained from chimpanzee feces.

	29 Sept.	23 Oct.	17 Nov.	28 Nov.	25 Dec.	Germination rate
<i>Saba florida</i> / <i>Landolphia owariensis</i>	s 67				g 14	14/67 (21%)
<i>Garcinia huillensis</i> *	s 65				g 3	3/65 (5%)
<i>Azanza garckeana</i>	s 74			g 20		20/74 (27%)
<i>Parkia filicoidea</i>		s 4	g 4			4/4 (100%)
<i>Zanha golungensis</i>		s 2			g 1	1/2 (50%)
<i>Strychnos innocua</i>				s 4	g 3	3/4 (75%)

\*The fruit crop of this species was poor in 1983.

*cinia huillensis*, *Azanza garckeana*, *Parkia filicoidea*, *Zanha golungensis*, *Strychnos innocua*) are effectively dispersed by chimpanzees<sup>(3)</sup>.

Only one-fourth of the year (September–November) has been covered so far for this important topic of seed dispersal by chimpanzees in the Mahale Mountains. In this particular season, chimpanzees are clearly efficient disseminators of fruit species they consume. The other seasons and unsolved issues discussed previously (Takasaki, 1983) should be further studied.

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#### NOTES

- (1) Since, belonging to the same Apocynaceae family, their seeds are too similar to distinguish one from the other, here they are lumped together.
- (2) Chimpanzees usually chew soft (unripe) beans while feeding on this species, and only occasionally swallow intact beans to discharge in feces.
- (3) However, the seed germinability of yet untested *Ficus* spp., of which fruits are important chimpanzee food, remains unknown.

#### REFERENCES

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