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## OBSERVATIONS OF BIRDS AND OTHER FRUGIVORES FEEDING AT

TETTORCHIDIUM DIDYMOSTEMON

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Fruit represents an important resource for many birds, and a recent review provided data on frugivory by tropical birds (Snow 1981). I report here observations on feeding competition between avian and mammalian frugivores at fruiting trees of Tetrorchidium didymostemon, a previously unreported food resource for birds. This study was undertaken in 1983 and 1984 at the Botanic Reserve of Fourah Bay College, Freetown, Sierra Leone. The Reserve is adjacent to the campus of Fourah Bay College on Mt Aureol (08 28'N, 13 14'W) and is a type of regenerating secondary forest (Field 1974) in which T. didymostemon is relatively common (Hutchinson and Dalziel 1958).

T. didymostemon produces a large number of fruits per tree, and, being a common tree, produces a large number of fruits in the Reserve as a whole, relative to other trees. I established 65 phenology plots, each 10 by 50 metres, to record plant phenology. I monitored these plots monthly, recording fruit and flower development of all reproductively active plants. A total of 23 individuals of T. didymostemon were present in these plots, and most were reproductively active during my study. On average, trees produced 6500 fruits per year, with a range of c. 700 to c. 40,000 fruits for other trees.

I conducted observations on two adjacent trees c. 3m apart which were large individuals containing about 30,000 fruits each, or 4 to 5 times the average for this species. These observations permitted me to note how this resource was depleted through

The trees were visited by a relatively large number of bird species. A total of 18 bird species were observed feeding on fruits from this tree, representing a wide taxonomic array: Turtur afer, Tockus fasciatus, Pogoniulus bilineatus, P. scolopaceus, P. subsulphureus, Oriolus brachyrhynchus, Corvus albus, Pycnonotus barbatus, Andropadus gracilirostris, Baeopogon indicator, Chlorocichla simplex, Anthreptes collaris, Nectarinia olivacea, Zosterops senegalensis, Ploceus nigerrimus, P. nigricollis, Nigrita bicolor and N. canicapilla. The fruits of these trees were also eaten by squirrels Heliosciurus rugobrachium and monkeys Cercopithecus campbelli.

When actively eating fruits from a productive branchlet, squirrels and monkeys ate approximately 12 fruits/min (N=11,

s.d.=2.4) while birds of all sizes on average ate only 5 fruits/min (N=15, s.d.=2.1). That is because birds ate only ripe, dehiscent fruits, and thus had longer search times to find acceptable fruits. However, because of their apparently greater total biomass birds probably remove a larger total number of fruits than either squirrels or monkeys.

It also appeared that birds were the only seed dispersers for this plant. The fruits are dehiscent, but both squirrels and monkeys ate the fruits before they dehisced, discarding the skin and flesh, eating only the seeds. They acted as seed predators, chewing and digesting the seeds, which did not appear in the faeces of both either captive or free-ranging animals. Birds ate only the dehiscent fruits, and swallowed the flesh and seeds whole, defaecating the seeds intact. Therefore, birds, but not squirrels and monkeys, may be important in ensuring the reproductive success of this plant.

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