

Long-tailed macaque feeding on flowers of the mangrove apple tree

Subjects: Long-tailed macaque, *Macaca fascicularis* (Mammalia: Primates: Cercopithecidae); Berembang or mangrove apple, *Sonneratia caseolaris* (Magnoliophyta: Myrtales: Lythraceae).

Subjects identified by: Contributors.

Location, date and time: Singapore Island, Sungei Buloh Wetland Reserve, Wetland Centre; 16 January 2017; 1530 hrs.

Habitat: Over a freshwater pond next to concrete buildings and estuarine water channel lined with mangrove vegetation.

Observers: Contributors.

Observation: A long-tailed macaque was observed on a *Sonneratia caseolaris* tree, feeding on its flowers (Fig. 1) and flower buds (Fig. 2 & 3).

Remarks: The omnivorous long-tailed macaque eats mostly fruits, while consuming other plant parts, animals, and, opportunistically, anthropogenic food (Lucas, 1995; Hambali et al., 2014; Lim & Sasekumar, 1979). With regards to mangrove plants, they have previously been recorded to consume fruits of the genus *Sonneratia*, leaf shoots of *Bruguiera cylindrica* and *Rhizophora apiculata*, as well as leaves, leaf shoots and twigs of *Bruguiera parviflora* in an estuary in Kuala Selangor, Malaysia (Lim & Sasekumar, 1979). A few years ago, both contributors have seen a macaque eating the fruit of *Sonneratia caseolaris*, but they were unable to obtain photographic or fruit evidence as the monkey took the fruit away. The present observation shows that *Macaca fascicularis* also eats the flowers and flower buds of *Sonneratia caseolaris*.

Besides the long-tailed macaque, the proboscis monkey (*Nasalis larvatus*) and silvered langur (*Trachypithecus cristatus*) are other primates known to consume the fruits and leaves of *Sonneratia* (Phillipps & Phillipps, 2016; Lim & Sasekumar, 1979). Although mangroves disperse their fruits via water (Tomlinson, 1986), it has been postulated that silvered langurs might contribute to dispersal of *Sonneratia* seeds by eating the fruits (Phillipps & Phillipps, 2016). Since long-tailed macaques mainly spit out seeds before consuming the flesh of the fruits (Lucas, 1995), there exists a possibility that they may also assist with mangrove fruit dispersal. As studies on the diets of long-tailed macaques in Kuala Selangor, Malaysia, have shown the proportion of mangrove fruits eaten to be small (Lim & Sasekumar, 1979) or none at all (Hambali et al., 2014), their contribution to mangrove fruit dispersal may be negligible. However, it is not known if these observations also apply to macaques elsewhere.

References:

- Hambali, K., A. Ismail, B. M. Md-Zain, A. Amir & F.A. Karim, 2014. Diet of long-tailed macaques (*Macaca fascicularis*) at the entrance of Kuala Selangor Nature Park (anthropogenic habitat): food selection that leads to human-macaque conflict. *Acta Biologica Malaysiana*. 3 (2): 58–68.
- Lim B. H. & A. Sasekumar, 1979. A preliminary study on the feeding biology of mangrove forest primates, Kuala Selangor. *The Malayan Nature Journal*. 33 (2): 105–112.
- Lucas, P. W., 1995. Long-tailed Macaques. *The Gardens' Bulletin*. Supplement No. 3: 105–120.
- Phillipps, Q. & K. Phillipps, 2016. *Phillipps' Field Guide to the Mammals of Borneo and Their Ecology*. Sabah, Sarawak, Brunei, and Kalimantan. John Beaufoy Publishing Ltd., United Kingdom. 400 pp.
- Tomlinson, P.B., 1986. *The Botany of Mangroves*. Cambridge University Press, New York. xii + 413 pp.

Contributors: **Mishak Shunari & Benjamin C. Lee**

Contact address: benjamin_cf_lee@nparks.gov.sg (Lee)

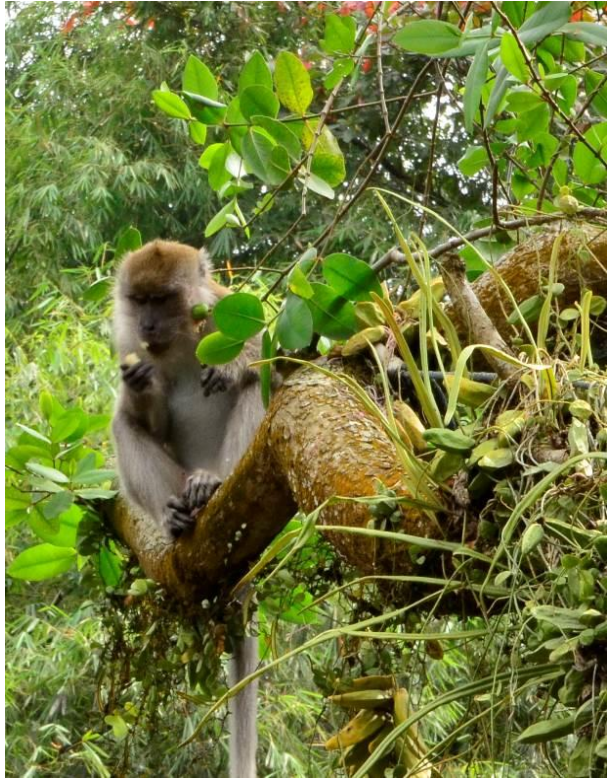


Fig. 1: Macaque eating *Sonneratia caseolaris* flower.



Fig. 2. A flower bud in front of the macaque's head.



Fig. 3. Macaque chewing on the flower bud.

Photographs by Mishak Shunari