Seeds of karaka (*Corynocarpus laevigatus*) cached by a rat

Rhys Gardner

The photograph (Fig. 1) was taken in July this year at 5 Ward Terrace, Sandringham, Auckland City, and shows a group of karaka kernels by a rat-hole near the property's compost-bin. The brittle husk (endocarp) of each kernel has been chewed open and the seeds are completely missing.

Fig. 1. Karaka kernels cached by rat. Pencil approx. 130 mm long. Photo: R.O. Gardner, July 2011.

There are several old karaka trees close by. I am inclined to think the cache was made from the trees' current (summer) crop, if only because there is no great accumulation of kernels under the trees themselves. Presumably the fruits fall to the ground, the fleshy, orange (non-poisonous) mesocarp erodes away or gets eaten by rodents, and the seeds gradually lose their poisonous substance (a nitrotoxin) through desiccation and water-logging. Because karaka very readily establishes in and around parent stands (at least, through the germination of fresh seed) this loss of immunity to predation would seem likely to be more important to the rat than to the tree.

Until recently the affinity of the Corynocarpaceae was unclear, but DNA evidence now puts the family in Cucurbitales, a placing hardly suggested by its morphology. Even more remarkably, its closest relative there is the Coriariaceae, plants which also contain a deadly (but chemically unrelated) substance. One has to suppose a coincidence here, such as is bound to appear now and again in a huge mass of data -- no need to postulate a "Toxic Terrane" in the biogeographical history of Zealandia.

Unequal sex-ratios in *Geniostoma ligustrifolium* var. *ligustrifolium* (Loganiaceae) – a genetical interpretation

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[submitted posthumously by his family]

Introduction

Geniostoma ligustrifolium A.Cunn. (Maori: *hangehange*) is a small bushy tree, 1-4 m tall when reproductive, with numerous, pale greenish-yellow flowers 4-5 mm in diameter. No work on the breeding system was known to the author prior to his previous paper (Rattenbury 1980) apart from: Bureau (1856) in a study of *Geniostoma* and *Logania,* (including *G. ligustrifolium*), states "that these plants are not only unisexual, but dioecious" and "the males appear to me much more frequent" (my translations); and Valeton (1902) in an examination of ten *Geniostoma* species (including *G. ligustrifolium*) concluded that all were gynodioecious.

Polliniferous and female *G. ligustrifolium* flowers at anthesis are very similar in appearance at low magnifications, especially when the latter have already been pollinated. Because putative hermaphrodite plants cannot be distinguished from males in the field, the term "male(s)" will be used for polliniferous plants at large. Females develop staminodes - similar to the stamens with their precociously-discharged (empty) anthers in open, pollen-bearing flowers (Fig. 1). "Male" flowers, themselves, contain well-developed, though somewhat smaller, gynoecia. For these reasons, the gender status of the genus has often been mistaken for hermaphrodite, i.e. flowers perfect (Cheeseman 1925, Allan 1961, Eagle 2006).