

Fruits of *Podocarpus imbricata* bored by an Anthribid and a microlepidopteron in Java

by

L. G. E. KALSHOVEN

Blaricum, the Netherlands

During botanical investigations of fruits and seeds of forest trees in the jungle reservation of the Tjibodas Botanical Gardens, West Java, 1500 m, my friend Dr. D. BURGER Hzn. noticed insect damage to the ripening fruit of *Podocarpus imbricata* (fam. Taxaceae) in August 1923. He handed me some fair samples, which provided the unique opportunity to study material which had been gathered from the crowns of this giant forest tree, ordinarily very hard to obtain.

The fruits had a pea-like seed stalked on a smaller swollen petiole (fig. 1); most of them were still green, part were fully mature with a red colour.

Two main types of damage were noticeable. Firstly several seeds had a neat round hole in them, which proved to have been made by the emerging beetle of a small Anthribid (fig. 1, top). Very thin entrance holes, sometimes covered with a bit of white resin and corresponding with a narrow gallery piercing the protective layers were discovered on the ventral side of infested seeds. Apparently this was the place of oviposition.

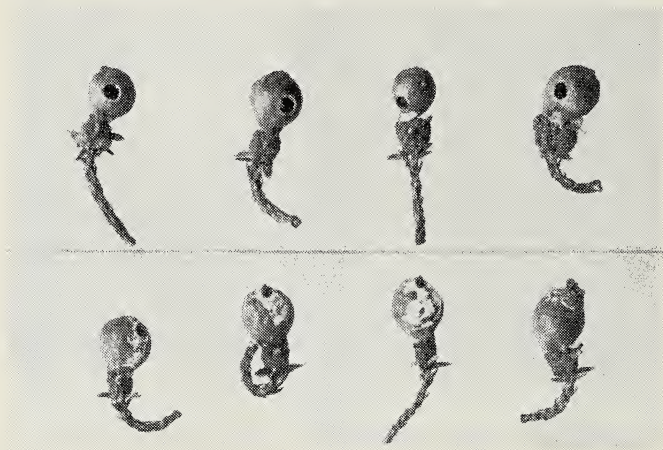


Fig. 1. Fruits of *Podocarpus imbricata* spoilt by borers, top: by *Araecerus conabilis*, bottom: by larva of microlepidopteron (about nat. size).

Further observations made at the time, are the following: The larvae feed on the white endospermum, consuming most of it. Young larvae are transparent and scarcely visible amidst the white frass. The pupal cell is walled by compressed frass. The pupa rests in it with its anterior part close to a small slit gnawed by the larva through the hardest inner layers, just short of the outer seed-skin. When exposed the pupa swirls its abdomen rapidly; the same is done by mature larvae.

The emerging beetle pierces the outer skin and removes small bits of tissue along the margin of the slit, the debris being ejected. This work is interrupted every now and then and the beetle turns around till the circular opening is complete and it can leave its abode. The beetles are very lively; when disturbed they drop to the ground and sham death. They take little food nibbling at the seedskin and can be kept alive in captivity for weeks.

Samples of the beetle were submitted to the well-known specialist K. JORDAN who described the species as *Araecerus conabilis* n.sp. in 1931.

The second type of damage, much less frequent in the material available, consisted of a small hole in the top of the seed surrounded by a crust of excrements cemented together with white resinous matter, which in some cases had spread all over the seed (fig. 1, bottom). Most holes were empty but in a few seeds a tiny larva was found apparently belonging to a microlepidopteron. I did not succeed in rearing the moth for lack of sufficient material and because the little borer appeared to be parasitized to a large extent.

The separation of sound seeds from material collected in the field could be carried out by submerging the whole lot in water and selecting the 'sinkers'. In a batch of some 1500 seeds about 20% appeared to be sound, 50% bored by the Anthribid, 10% by the caterpillars and 20% unsound through various other factors.



Hansen, Victor. Fortegnelse over Danmarks biller (Coleoptera), Ent. Meddelelser 33, p. 1—507, 1964. Prijs 96 Deense kronen.

Nadat in Denemarken in de loop der jaren reeds een compleet determinatiewerk der kevers van uitstekende kwaliteit verschenen was (20 deeltjes in de serie „Danmarks Fauna”), komt thans als sluitstuk deze catalogus uit. Doch het is geen catalogus in de gebruikelijke zin van het woord. Naast de op de hoogte van de tijd gebrachte nomenclatuur, wordt de meeste aandacht besteed aan de biologie der soorten, de omstandigheden waaronder ze in Denemarken gevonden worden en de verspreiding over het Deense grondgebied. Bij elke soort wordt verwezen naar het deel van „Danmarks Fauna” waarin deze behandeld is. In vele gevallen komen daarin beschrijvingen en afbeeldingen der larven voor (een Deense specialiteit), doch waar dit niet het geval is verwijst de catalogus naar larvenbeschrijvingen elders. Ook aan de fenologie der larven wordt veel aandacht besteed. Een literatuuroverzicht en uitgebreide registers besluiten het lijvige boek.

Behalve een compleet en modern determinatiewerk voor de kevers bezit Denemarken dus thans ook nog een aan alle eisen voldoende catalogus. Een unicum in Europa.

Het besproken werk is uiteraard in het Deens geschreven. Deze taal levert echter bij enige oefening weinig moeilijkheden op, zodat het boek ook voor ons leesbaar is. Alleen reeds om de vele biologische gegevens en de aandacht die aan de larven wordt besteed een kostelijk bezit. — P. J. BRAKMAN.

Ornithonyssus sylviarum Can. & Franz. (Acari). Naar aanleiding van de opmerking van VAN ROSSEM c.s. in *Ent. Ber.* 24: 146, laatste regel (1964), deel ik mee, dat deze soort, de noordelijke vogelmijt, regelmatig in ons land kan worden aangetroffen.

D. SWIERSTRA, Instituut voor Veterinaire Parasitologie, Biltstraat 168, Utrecht.