Drinking by *Certonotus fractinervis* (Hymenoptera: Ichnuemonidae) at a fungal fruiting body

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An adult male *Certonotus fractinervis* (Vollenhoven, 1873) was observed drinking from a droplet on the surface of a stroma fruiting body of the fungus *Cyttaria nigra* Rawlings, 1956 (Figure 1). The site was near Black Gully in the Blue Mountains, Southland (45.902ºS, 169.370ºE), at 800m altitude in a bushline stand of silver beech (*Lophozonia menziesii*) where galls caused by the fungus were common and in all stages of fruiting. It was about 13:30 NZST on 11 January 2017, with calm, cool, overcast conditions without rain. The position as in the photograph lasted 2 to 3 minutes during a period of 10 minutes when the wasp was seen flying and walking within an area of approximately 2 m^3 in the sub-canopy (about 4 m above ground). The wasp was actively waving its antennae in an apparent search, with attention paid to immature stroma and the occasional droplets seen on them. It did not alight on any other part of the tree.

This ichneumon wasp is a parasite of the larvae of the elephant weevil (*Rhynchodes ursus* White, 1846), which bore into live trees including beech species throughout New Zealand. *Cyttaria* (Cyttariaceae) are Ascomycete fungi and the three species in New Zealand (*Cyttaria nigra*, *C. pallida* and the misnamed *C. gunni*; see Peterson and Pfister 2010) are all restricted to silver beech, occurring across its range (Rawlings 1956). Silver beech is found from Auckland to Southland but is absent from Taranaki, central Westland and Stewart Island, and is sparsely distributed in eastern South Island.

Fruiting of each *Cyttaria* species seen in 2017 on the eastern slopes of Maungatua (45.875ºS, 170.150ºE) lasted about one month, starting with *C. pallida* in early October, *C.* '*gunni'* in early November and *C. nigra* in early December. *Cyttaria nigra* seemed to be mainly found on the higher slopes. Droplets were again observed on *C. nigra* at Maungatua but were not noticeably sticky or sweet tasting. There are no reports of excretions

from *Cyttaria* stroma, although they have structures such as mucus-containing apotheca and papillae venting to the surface (Rawlings 1956) and they contain sugar (Toledo et al. 2016). *Cyttaria* stromata are eaten by people in Australia and South America (Schmeda-Hirschmann et al. 1999) and in New Zealand by kereru and possums (Rawlings 1956).

Many invertebrates are known to utilise fungi for feeding or breeding and they in turn attract predators and parasites (Hodge et al. 2010). It seems that this male parasitic wasp was seeking food, as consuming sugars can improve ichneumon survival (Khatri 2011). No other sources of nectar or water were seen at the time, and honeydew produced by scale insects (*Ultracoelostoma* spp.) is rare in silver beech (Beggs & Wardle 2006). The possibility that *Cyttaria* fungi may be a valuable resource for some invertebrates in silver beech forest warrants further investigation.

References

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Figure 1. Adult male *Certonotus fractinervis* drinking from a droplet on a *Cyttaria nigra* stroma.