Two new larval host-plants of the moth *Lophonotidia melanoleuca* (Lepidoptera: Agaristinae)

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ENTOMOLOGY

Two new larval host-plants of the moth *Lophonotidia melanoleuca* (Lepidoptera: Agaristinae)

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Abstract

South Africa is exceptionally rich in endemic species. However, we continue to lack a detailed understanding of the ecology and life history of many of these taxa, including the 11,000 species of native Lepidoptera (butterflies and moths). Here, we document the caterpillars of the moth *Lophonotidia melanoleuca* feeding on Red bush willow *Combretum apiculatum* and Bushveld grape *Rhoicissus revoilii*. It has previously only been recorded feeding on the foliage of Ivy-grape *Cissus cornifolia*. Taxonomically, Red bush willow is an unusual host-plant for this sub-family of Lepidoptera, and highlights persistent gaps in our knowledge of even these relatively familiar insect species. Such knowledge is fundamental for effective conservation and further biological research.

Introduction

Southern Africa is a hotspot of global biodiversity, with around 64% of terrestrial taxa thought to be endemic to the region (SANBI 2018*a*)—proportions comparable to those typically found on oceanic islands (Linder 2003). The Lepidoptera (butterflies and moths) are one of the most species-rich insect orders in southern Africa, with 11,000 known species—exceeding, for example, the 8,300 species found in the whole of Europe (Karsholt and Razowski, 1996). Lepidoptera are important components of food-webs globally, exerting top-down pressure on plants via herbivory and providing an abundant but often ephemeral food source for insectivorous predators, such as birds (Marquis & Koptur 2022). However, butterflies (approx. 800 species in SA) are often the only group of terrestrial invertebrates mentioned in reports such as the National Biodiversity Assessment (Edge & Mecenero 2015, SANBI 2018a, 2018b, Staude et al. 2023). This is largely due to a lack of data on other groups of Lepidoptera (Staude et al. 2023), and insects more generally. Of this narrow subset of Lepidoptera, we find that some 52% of butterfly species recorded in South Africa are endemic (SANBI 2018a). Agriculture, habitat loss, and land use modification have all been identified as important threats to butterfly populations in the region, and 36% of threatened butterfly taxa have only been recorded *outside* of areas with formal environmental protection (SANBI 2018a). It is therefore very likely that many of the region's Lepidoptera are at persistent and serious risk from human activities.

A major obstacle to the conservation of all insect groups is that we lack even very basic details of the life history and ecological interactions of most described African species (Staude et al. 2023). Recent efforts have been made to systematically remedy this situation (LepSoc Africa 2025) but much remains unknown. Understanding species distributions and ecological requirements at a fine scale is key for informing conservations efforts, land management practices, and the expansion of protected areas. Here, we report two previously unrecognised larval host-plants of the moth *Lophonotidia melanoleuca*, adding to our growing picture of the ecology of these taxa and underscoring the extent of our knowledge gaps.

Observation and discussion

From 28-31 November 2024, LDW observed around 30 caterpillars of an unknown species feeding on the foliage of a single Red bush willow tree *Combretum apiculatum* in a domestic garden in Hoedspruit (Mopani District, Limpopo, RSA). Photographs of the distinctive larvae were sent to JW for identification, and confirmed as *Lophonotidia melanoleuca* (Figure 1). No morphologically similar species or other members of the genus are found in southern Africa. Adults are active October-February, and caterpillars seem to occur from November onwards (iNaturalist 2024a). Although records for this species are concentrated in the north-eastern provinces of South Africa, scattered observations are also known from across Zimbabwe (iNaturalist 2024a; Figure 2).

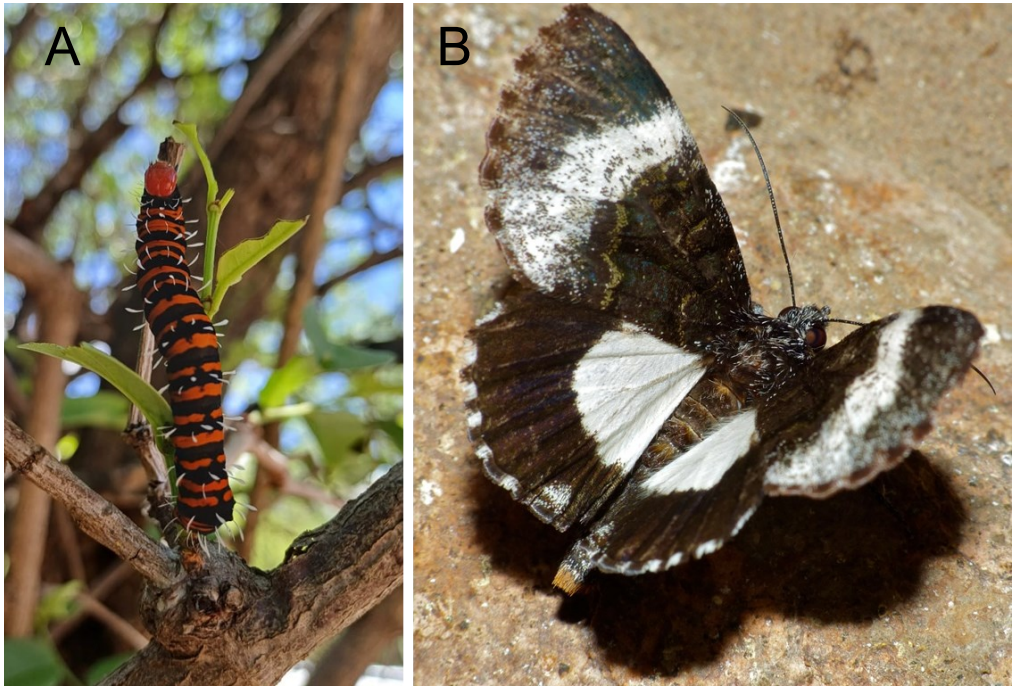

Figure 1: (A) Caterpillar of *Lophonotidia melanoleuca*, observed feeding in numbers on Red bush willow *Combretum apiculatum* in Hoedspruit, Limpopo. (B) Representative adult moth of a *Lophonotidia* species. Photo credits: (a) LDW, (b) B. Dupont, reproduced under CC BY-SA 2.0.

Figure 2. Recorded distribution of *Lophonotidia melanoleuca*, combining observations reported in Staude et al. (2023) and iNaturalist (2024a).

Among the Agaristinae found in the region, the caterpillars of most species feed on grape foliage, particularly *Cissus* and *Rhoicissus* spp. (Table 1). For *L. melanoleuca*, Staude *et al*. (2023) give only one known host-plant, Ivy-grape *Cissus cornifolia*. This observation therefore represents the first record of this species feeding on an alternative host-plant taxon, and make it one of the few South African Agaristinae which can feed outside the Vitaceae. Prompted by this sighting, JW re-examined the available photographic records of *L. melanoleuca* caterpillars on the iNaturalist.org website. In several photos, individuals also appear to be feeding on Bushveld grape *Rhoicissus revoilii* (iNaturalist 2024b 2024c). This would represent another novel host taxon for these caterpillars, though one more in line with the species fed on by other members of the subfamily in the region.

There is clearly the possibility that *L. melanoleuca* and other closely related species may utilise a far wider range of host-plants than has previously been documented, and the conspicuous and distinctive appearance of the caterpillars of *L. melanoleuca* could aid the discovery of further unknown associations. Indeed, this characteristic appearance make it particularly striking that these two host associations have gone hitherto unrecognised, and emphasises the relatively

Table 1: Known host-plant associations of the South African Agaristinae, from Staude et al. (2023). New hosts highlighted by *.

Species	Host-plant
Aegocera fervida	Wild grape *Rhoicissus* spp.
Agoma trimenii	*Grape Vitaceae*
Brephos festiva	Tremble tops *Kohautia amatymbica* Wild verbena *Pentanisia angustifolia*
Brephos decora	Unknown
Paida pulchra	Unknown
Heraclia superba	Wild grape *Cissus* spp. Cultivated grape *Vitis* spp.
Heraclia africana	Wild grape *Cissus* spp.
Heraclia butleri	Wild grape *Cissus* spp.
Lophonotidia melanoleuca	Ivy-grape *Cissus cornifolia* *Red bush willow tree *Combretum apiculatum* *Bushveld grape *Rhoicissus revoilii*
Ovios capensis	Sugarbushes *Protea* spp.
Syfanoidea schencki	Wild grape *Rhoicissus tridentata*

under-developed state of our biological knowledge relating to these taxa. Shedding light on these key ecological interactions is an essential first step in both better understanding evolution and in facilitating effective conservation efforts.

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