

THE LIFE HISTORY OF *TELICOTA BRACHYDESMA* LOWER (LEPIDOPTERA: HESPERIIDAE)

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Abstract

The immature stages of *Telicota brachydesma* Lower are described from northern Queensland (Iron Range National Park, Cape York Peninsula). The larval food plant is confirmed as *Leptaspis banksii* (Poaceae), which has a restricted distribution within rainforest. We comment on the apparent rarity of this species in collections and include characteristics to assist in its identification.

Introduction

Telicota brachydesma Lower is the smallest and least known of the Australian species of *Telicota* Moore. Common and Waterhouse (1981) considered the species rare and indicated a distribution from the Claudie River (Iron Range) to Mackay. They noted that the 'larvae feed on *Leptaspis banksii* (Poaceae) growing in rainforest' but did not give a source for this observation. There is no published description of immature stages. In our experience specimens of this species are uncommon in collections and identification of field collected individuals has been difficult. Despite careful searching for adults, known to occur in rainforest habitat, we had been unable to locate any populations. We therefore decided to attempt to find areas of the presumed larval food plant as a means of locating possible colonies of this skipper.

We failed to discover a published photograph or illustration of *L. banksii* and the James Cook University Herbarium had no specimen. However, Mr Peter Stanton, former field botanist and research ecologist with the Queensland Department of Environment and Heritage, provided us with a specimen of this quite distinctive small grass and indicated that it occurred only in very well developed rainforest. Jones (1986) describes the plant occurring in 'shady rainforests where it often grows in rocky situations'. With this information we deliberately searched the rainforests of Iron Range National Park and near Cooktown, previously known locations for *T. brachydesma*. In this paper we describe the immature stages discovered as a result of the searches and provide brief descriptive notes to enable identification of the adults.

Life History

Food plant (Fig. 1). *Leptaspis banksii* R. Br. (Poaceae).

Egg (Fig. 5). Hemispherical, white; surface covered in very fine reticulated pattern; 1.0 mm diameter, 0.6 mm high.

First instar larva. Head black, body pale cream, prothoracic plate black, anal plate bearing 2 pairs of long pale grey setae laterally; length 1.5-2.0 mm, diameter 0.5 mm.

Second instar larva. Head black, body greenish translucent and smooth except for anal plate; faint thin white lateral line joining spiracles; length 10 mm, diameter 1.5 mm.

Third and fourth instar larvae (Figs 2, 3). Head pale brown, crenulated, frons with central brown stripe, mandibles and ocelli dark brown, body translucent greenish, smooth except for final segment, anal plate and prolegs all with short white hairs; green gut provides greenish body colour; fine white lateral line joining yellow spiracles; anal plate with variable semicircular black area on perimeter; length 13 mm, diameter 2 mm.

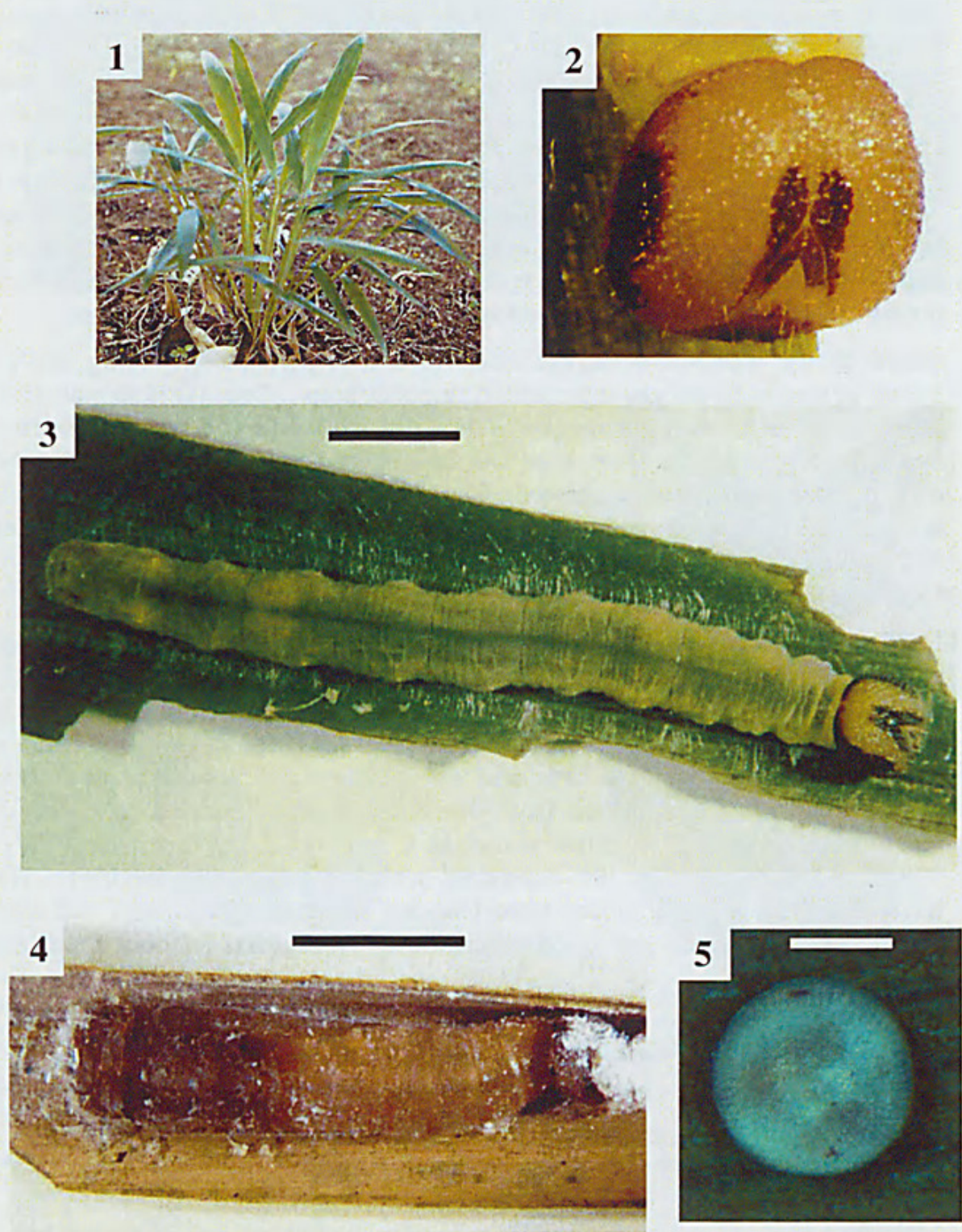
Final instar larva. The final instar becomes pinkish or pale purple with distinct ventral white patches developing prior to pupation; length 18 mm.

Pupa (Figs 4, 6). Brown, thorax and cremaster darker coloured; uniformly tapered posteriorly; eyes prominent with small lateral patches of hairs; setae simple, erect, sparse on thorax and 6 bands per abdominal segment; silver dusting adjacent to prothoracic spiracles; antennae project ventrally beyond wing cases to form a short unattached tip; cremaster dorsoventrally flattened with deep dorsal pit, lateral points posteriorly and armed with 20 hooks; length 16 mm.

Observations and Discussion

The larval food plant is a distinctive grass (Fig. 1) confined to the more dense stands of closed rainforest. Eggs are laid singly on the underside of a leaf blade and first instar larvae make shelters by silking the sides of the blade ventrally into a tube 8-10 mm long and 1.5 mm diameter. The larvae rest with head facing towards the stem of the blade and feed in irregular patches along the leaf blade edge. As the larvae grow the shelters are extended along the mid-rib and feeding reduces the leaf blade area. Eventually some leaf blades are completely consumed to the mid-rib. By third instar the shelters are considerably larger, being 40-50 mm in length and 4-5 mm diameter. At this stage larvae leave their shelters and feed on adjacent blades.

Final instar larvae leave the plant and construct shelters for pupation in older dead leaves which droop around the stems of the plant, or occasionally in leaf litter at the base of the plant. These are silked to form a vertical shelter. Pupation occurs in a head up position in the shelter which is sealed and contains white waxy powder within it (Fig. 4). It is presumed that the white ventrolateral patches noted in final instar larvae and prepupae produce the water repellent powder which is found within the pupal shelter, a feature shared by many other hesperiids. Larvae of all instars were taken to Townsville for rearing where larval and pupal durations between June and September were 20-25 days and 12-15 days respectively.



Figs 1-5. *Telicota brachydesma*: (1) larval food plant *Leptaspis banksii*; (2) fourth instar larval head; (3) fourth instar larva; (4) pupa within final shelter; (5) egg. Scale bars: (3) = 2 mm, (4) = 5 mm, (5) = 0.5 mm.

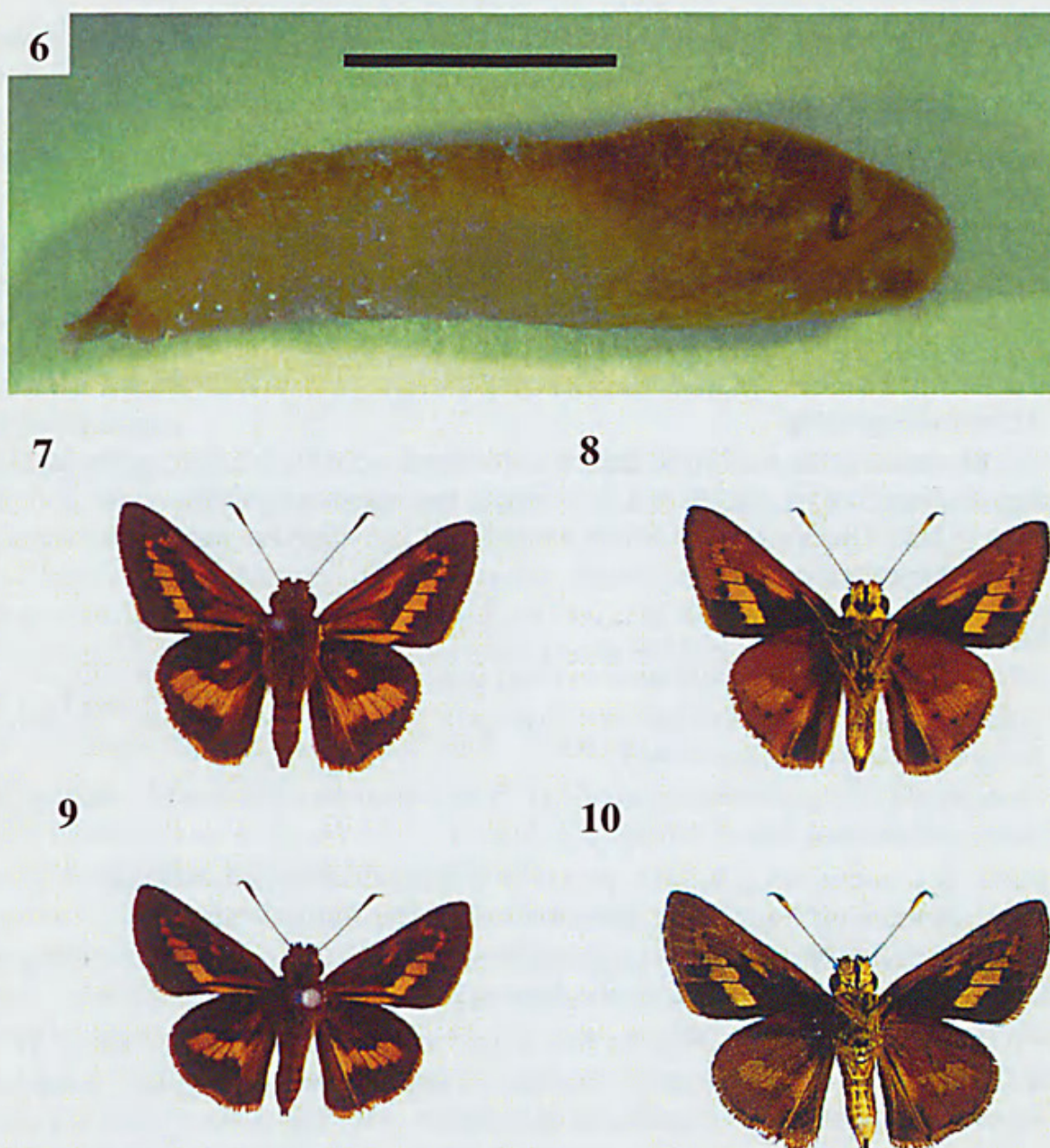
At Iron Range, Rocky River and Cooktown we found substantial stands of *L. banksii* in areas of dense, closed canopy rainforest. Signs of larval feeding were present at all sites and larvae were common at Iron Range in May, December and August and at Cooktown in May. At Iron Range we located >50 larvae of all instars in a patch of *L. banksii* covering an area of around 60 m x 40 m (0.24 ha). Wherever we found the grass we found larvae or signs of larval feeding. Each clump would usually have only a single larva but occasionally two or more were found. Many clumps were devoid of larvae. Despite spending several hours in the areas observing we did not record any adult *T. brachydesma*. Visibility in such conditions is restricted and it is possible that females were ovipositing in the area but were not observed.

Based on the numbers of larvae discovered it is perhaps surprising that *T. brachydesma* is so poorly represented in collections. One likely explanation is that adult males may congregate in the rainforest canopy and, if females are confined primarily to areas with the larval food plant, they will also be difficult to see and rarely collected. The distribution of the larval food plant, according to Queensland Herbarium records (Henderson 1997), coincides with the Mackay to Claudie River distribution of *T. brachydesma* given by Common and Waterhouse (1981).

Until now, very few specimens of *T. brachydesma* have been available for comparative studies and this has led to occasional confusion and conjecture (Dunn and Dunn 1991). The descriptions published in major texts (Waterhouse and Lyell 1914, Waterhouse 1932, Common and Waterhouse 1972, 1981) have changed little and are accurate and sufficient to enable separation of *T. brachydesma* from other *Telicota* spp. known to occur in Australia. However, the illustrations in Common and Waterhouse (1972, 1981) are inaccurate and not consistent with the textual descriptions. We have examined a larger series from Claudie River and Cooktown and they agree closely with the published descriptions. Wingspans of both sexes are listed in Table 1.

Table 1. Wingspans of *Telicota brachydesma* (mm).

	Males n = 20	Females n = 18
Mean	25.0	24.24
Median	24.9	23.9
Smallest	22.4	23.2
Largest	26.9	27.2
Std Deviation	1.26	1.13
Std Error	0.28	0.27



Figs 6-10. *Telicota brachydesma*: (6) pupa lateral view (scale bar = 5 mm); (7) male upperside; (8) male underside; (9) female upperside; (10) female underside.

Males of *T. brachydesma* (Figs 7-8) are distinguished by their small size, dark ground colour above, narrow dark sex brand, orange markings that do not extend along the veins towards the margins of the forewings and deep red-brown colour and indistinct post-median band on the hindwing beneath.

In general facies, males of *T. brachydesma* are closest to males of *T. ohara* (Plötz) and *T. anisodesma* Lower but these latter species are much larger, have paler and broader sex brands and on the forewings the orange suffusion extends along the veins towards the margins. In size, male *T. brachydesma* approach males of *T. mesoptis* Lower and *T. augias* (L.). *T. mesoptis* males

have yellow bands, a paler sex brand and the hindwing beneath is yellow with a faint greenish tinge and prominent post-median band. *T. augias* males have a broader sex brand, more extensive orange markings above which extend along the veins to the margins of the forewings and the ground colour beneath lacks the deep reddish hue.

Females of *T. brachydesma* (Figs 9-10) can be distinguished by their small size, dark ground colour above, cell spot reduced in the forewing and vestigial or absent in the hindwing and the deep red brown suffusion and indistinct post median band on the hindwing beneath.

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