

AN INSULAR SUBSPECIES OF *HESPERILLA MALINDEVA* LOWER (LEPIDOPTERA: HESPERIIDAE) FROM NORTHERN QUEENSLAND

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Abstract

Hesperilla malindeva dagoomba ssp. n. is described from Magnetic Island, northern Queensland. It is distinguished from mainland populations by the reduced maculation in both sexes.

Introduction

Hesperilla malindeva is a small brown trapezitine skipper which occurs from Mareeba in northern Queensland to near Grafton in New South Wales (Common and Waterhouse 1981). The only specimen known outside this distribution is from Moa Island in Torres Strait (Atkins 1978) collected early this century. A single male taken from Magnetic Island in 1986 was initially thought to be a specimen of *H. sarnia* Atkins, but an examination of the sex brand and genitalia showed it to be *H. malindeva*. The collection and rearing of additional material has shown that this island population differs consistently from mainland populations.

The following abbreviations are used for collections: AM, Australian Museum, Sydney; PVC, P.S. Valentine, Townsville; QM, Queensland Museum, Brisbane; RWHC, R.W. Hay, Perth; SAM, South Australian Museum, Adelaide; SJJ, S.J. Johnson, Townsville. Collectors names are abbreviated as follows: PV, P.S. Valentine; SJJ, S.J. Johnson.

Hesperilla malindeva malindeva Lower

Hesperilla malindeva Lower 1911: 129; Waterhouse 1932: 246, pl. XXXII, figs 15, 15A; Evans 1949:217, Pl. 27, fig 1; Common 1964:20, figs 57, 58; McCubbin 1971:163, pl. 162-3, fig 9; Common and Waterhouse 1972: 109, pl. 7, figs 15, 15A.

Toxidia malindeva (Lower): Waterhouse and Lyell 1914: 190, figs 740, 741, 749.

Type. - Holotype ♂, "Herberton, north Queensland, i, 1910, F.P. Dodd" in Lower collection SAM, 1♂ paratype, 1♀ paratype ('Allotype') in AM.

Description. - Adult male and female described by Waterhouse (1932) and Common and Waterhouse (1972; 1981).

Hesperilla malindeva dagoomba ssp. n. (Figs 1-4)

Types. QUEENSLAND: holotype ♂, Magnetic Island, emerged 29.i.1988, S.J. Johnson, in QM Registered Type No. T.12683. Paratypes 15 ♂♂, 16 ♀♀, same locality as holotype (1♂ 3.iv.1986, 2♂♂ 8.iii.1987, 2♂♂ 6.xii.1987, 1♀ em 20.xii.1987, 1♀ em 27.i.1988, 1♀ em 28.i.1988, 1♀ em 2.ii.1988, 1♀ em 3.ii.1988, 1♀ em 5.ii.1988, 1♀ em 9.ii.1988, 1♀ em 15.iii.1988, 1♂ em 18.iii.1988, 1♀ em 21.i.1989, 1♀ em 22.i.1989, 1♂ em 23.i.1989, 1♂ em 30.i.1989, 1♀ em 5.ii.1989, 1♀ em 3.iii.1989) all SJJ (in SJJ), (1♀ 24.i.88, 1♀ em 26.i.88 1♂ em 27.ii.88, 1♀ em

12.iii.88, 1♂ em 13.iii.88, 3♂♂ em 20.ii.89, 23.ii.89, 25.ii.89, 1♀ em 5.iii.89) all PV (in PVC), (1♂ em 15.i.1989, 1♀ em 9.ii.1988) both SJJ (in RWHC).

Male (Figs 1, 2)

Similar to nominotypical male but on fore wing upperside subapicals, and hyaline spot in cell and between M1 and M2 much reduced and spot between M2 and M3 absent. Black spots between M1 and M3 on hind wing underside absent or occasionally vestigial. Fore wing length 14.5 mm (n = 16).

Female (Figs 3, 4)

Similar to nominotypical female but hyaline spots on fore wing upperside reduced and rectangular area between M1 and M3 on hind wing underside pale with black spots vestigial or absent. Fore wing length 16.0 mm (n = 16).

Variation. Four males lack the subapical spots, and three possess only a single spot in the cell. A single male has a vestigial spot between M2 and M3 and three males have vestigial black spots beneath the hind wings. In seven females a pair of vestigial black spots is present on the pale area between M1 and M3 on the hind wing underside.

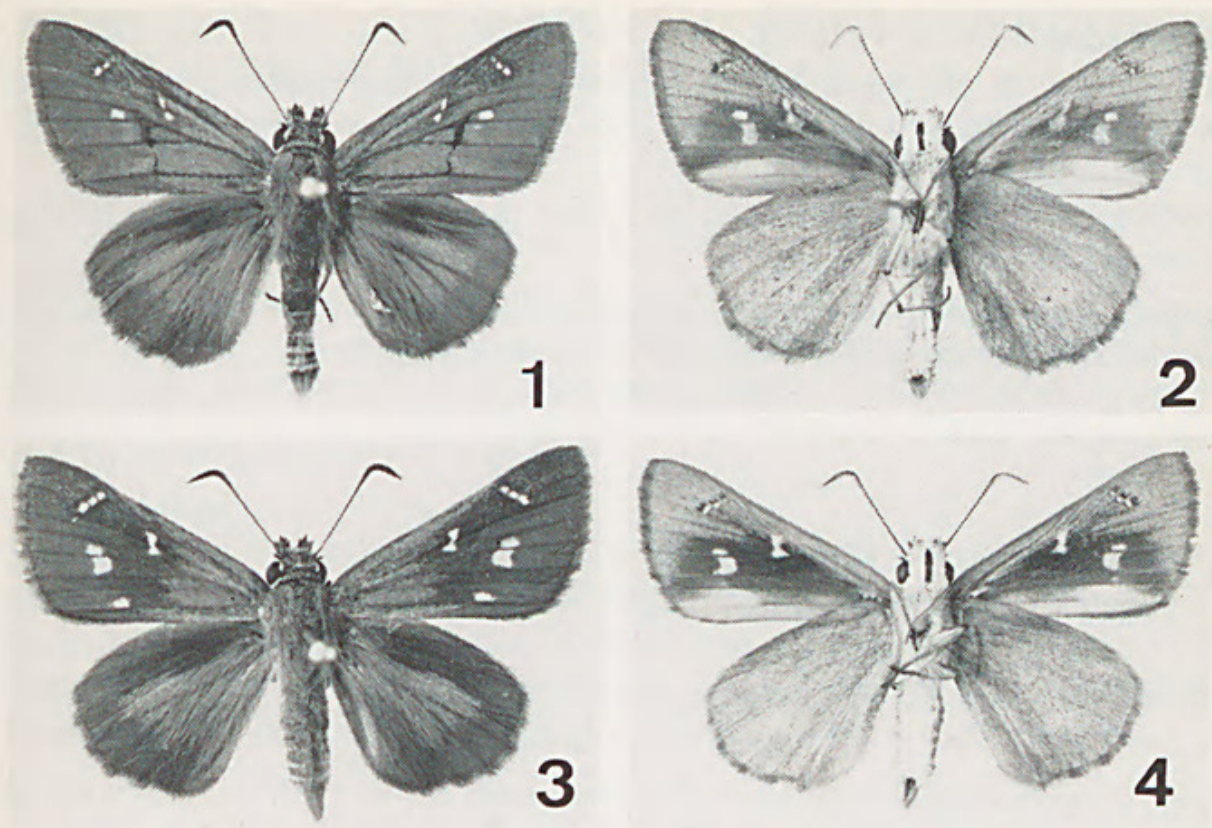
Etymology. Dagoomba is an aboriginal word for Magnetic Island.

Discussion

Although males of *H. m. dagoomba* are variable they are readily separated from mainland populations by the reduced spot in the cell, absence of the spot between M2 and M3 and the absence of, or very much reduced black spots on the hind wing underside. Those males lacking fore wing maculation superficially resemble males of *H. sarnia*; however, they can be separated from that species by the shape of the sex brand and ground colour of the wings. Genitalia of male *H. m. dagoomba* are identical to those of *H. m. malindeva*. Females of *H. m. dagoomba* can be separated from those of *H. m. malindeva* by the reduced upperside maculation and the pale rectangular area either lacking or bearing only vestigial black spots on the hindwing underside.

Larvae and pupae of *H. m. dagoomba* occur commonly in characteristic shelters on *Gahnia aspera* (R.Br.) Sprengel and do not differ from those of *H. m. malindeva*.

Males of *H. m. dagoomba* congregate in sheltered sites adjacent to the summits of hilltops where they select resting sites on dead twigs and fallen branches within 1-2 m of the ground. In habits they are closer to *H. sarnia* than to *H. m. malindeva* which usually rest on exposed twigs or foliage above 2 m from the ground on summits.



Figs 1-4. *Hesperilla malindeva dagoomba* ssp. n. holotype male (1) upperside; (2) underside; paratype female (3) upperside; (4) underside.

The population of *H. m. dagoomba* is only 22 km from the nearest known population of *H. m. malindeva* on Mt. Stuart near Townsville. The sea barrier between the mainland and Magnetic Island is only 4.5 km at the narrowest point. The isolation of Magnetic Island from the adjacent mainland is relatively recent. Hopley (1983) provides evidence which indicates a separation due to post glacial rise in sea level occurring around 6000 years BP. Prior to that time the extensive continental shelf offshore from Townsville formed a significant coastal plain extending well beyond Magnetic Island. This terrestrial connection remained in place for most of the recent glacial period and the rise in sea level which formed the barrier was completed not more than 7000 years but probably closer to 6000 years ago. If *H. malindeva* existed on Magnetic Island before the rise in sea level then an accurate time is available for the evolution of the distinctive characteristics of *H. m. dagoomba*.

The prevailing winds blow from the east and southeast and constitute an impediment to a crossing of the sea barrier from the adjacent mainland. The differing habits of the island population suggest that interbreeding with migrant specimens from the mainland may be unlikely to occur thereby further maintaining the genetic isolation of the island population.

References

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