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# NOTES ON THE OVIPOSITIONAL BEHAVIOR OF *LEPTOTES CASSIUS THEONUS* (LYCANIDAE: LYCAENINAE) IN THE LOWER FLORIDA KEYS

**Additional key words**: *Caesalpinia bonduc, Canavalia rosea, Dactyloctenium aegyptium,* polyphagous

*Leptotes cassius theonus* Lucas is a small, sexually dimorphic lycaenid found throughout Florida, the Bahamas, and the Greater Antilles (Smith et al. 1994). It is one of the most widely distributed butterflies in the Florida Keys, and frequents subtropical open to semi-open, sunlit habitats including beach dunes, coastal scrub, tropical pinelands, and tropical hardwood hammock margins, as well as urban gardens or parks (Minno and Emmel 1993). In many of these situations, the species seems to benefit from natural disturbance and anthropogenic activities that enhance the growth of pioneer vegetation or incorporate the introduction of ornamental plantings.

Within Florida, *L. cassius theonus* utilizes a variety of herbaceous and woody larval hosts in the Fabaceae and Plumbaginaceae; scattered representatives of the Malpighiaceae are also used by *L. cassius striatus* (Edwards) (Lycaenidae) in southern Texas. The developing larvae feed on the flowers and developing fruits of *Abrus precatorius* L., *Crotalaria incana* L. (Fabaceae), *Desmodium* Desv. (Fabaceae), *Lysiloma latisiliquum* (L.) Benth. (Fabaceae), *Galactia regularis* (L.) B.S.P. (Fabaceae), *Galactia striata* (Jacq.) Urban (Fabaceae), *Galactia volubilis* (L.) Britt. (Fabaceae), *Indigofera* L. (Fabaceae), *Macroptilium lathyroides* (L.) Urban (Fabaceae), *Phaseolus lunatus* L. (=*P. limensis*) (Fabaceae), *Piscidia piscipula* (L.) Sarg. (Fabaceae), *Pithecellobium keyense* Britt. ex Britt. & Rose (Fabaceae), *Pithecellobium unguis-cati* (L.) Benth. (Fabaceae), *Plumbago auriculata* Lam. (Plumbaginaceae), and *Plumbago scandens* L. (Plumbaginaceae ) (Howe 1975, Minno and Emmel 1993, Scott 1986).

Detailed observations of the oviposition behavior of *L. cassius theonus* were conducted within Bahia Honda State Park in the Lower Florida Keys between July 2002 and August 2003. During much of the year, it is the most abundant blue encountered on the 524-acre island and regularly flies alongside *Hemiargus* (*Cyclargus*) *thomasi bethunebakeri* (Comstock & Huntington) (Lycaenidae) and *Hemiargus ceraunus antibubastus* Hübner (Lycaenidae) in many locations. In all but three instances, females exclusively elected to lay eggs on *Galactia volubilis* and *Pithecellobium keyense*. Both plants are common on the island, with *Galactia volubilis* being particularly prolific in open, disturbed sites alongside trails, service drives and roadways. Isolated oviposition events were documented on *Canavalia rosea* (Sw.) DC. (Fabaceae), *Caesalpinia bonduc* (L.) Roxb. (Fabaceae), and *Dactyloctenium aegyptium* (L.) Willd.(Poaceae) and represent new records for *L. cassius theonus*. In each case, a female landed on the plant, walked slowly over the vegetation while repeatedly probing it with her abdomen, and deposited a single egg before flying off. It is not known if *L. cassius theonus* larvae are able to successfully complete development on *C. rosea* or *C. bonduc*, although the likelihood of survival appears plausible due to the number of other similar fabaceous hosts utilized. By contrast, the choice of *D. aegyptium* clearly appears to

represent an oviposition error. The observation is particularly surprising owing to the fact that the grass was isolated in weedy picnic area several meters away from the nearest known viable host. Additionally, the female spent considerable time (~10 seconds) walking over the vegetation before depositing an egg.

The incidence of the unusual ovipositional behavior observed by *L. cassius theonus* may be explained by the fact that it utilizes over 15 different plant species in some 12 genera as larval hosts. Compared to more specialized species, which have been shown to make more rapid and/or accurate decisions regarding potential host acceptability, polyphagous species must properly recognize as well as rank a variety of available plant possibilities. As a result, individual decisions on whether to accept a plant as a viable host may take longer and/or lead to less accurate results (Bernays, 1988; Janz and Nylin, 1997; Nylin, 1988; Nylin et al., 2000).

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# USE OF AN EXOTIC WEED AS AN OVIPOSITION SUBSTRATE OF THE HIGH-ANDEAN PIERID *PHULIA NYMPHULA*

**Additional key words**: Hirschfeldia, Brassicaceae, Argentina

The phenomenon of butterfly adaptation to exotic hosts is probably global. Shapiro (2002) and Graves and Shapiro (2003) documented the extensive use of exotic plants as oviposition substrates and larval hosts by native Californian butterflies. Most of the plants and thus most of the records are concentrated at low elevations. Shapiro (1991) gave numerous records of adaptation to exotic hosts for Pieridae in Argentina and suggested that use of weedy hosts may have facilitated the formation of hybrid zones in the genus *Tatochila* Butler. In a later paper (Shapiro 1997) he showed that such plants are being used by a significant proportion of the world's southernmost butterfly fauna, in extreme southern Patagonia and Tierra del Fuego. This paper reports the first case of this sort for the high-Andean fauna.

*Phulia nymphula* Blanchard (*sensu lato*; more than one genetic species is suspected to be involved) is the most widely-distributed of a lineage of mostly very small Pieridae endemic to the high Andes, the world's high-altitude Pierid record at about 5500m. *Phulia* and its close relatives are very small and display a variety of morphological and behavioral specializations, at least some of which reflect the pervasive importance of thermoregulation in their extreme environment. All the species of this lineage reared to date feed on Brassicaceae, such as the boreal genus *Draba*.

I first reported (Shapiro 1991) a new southern limit for *P. nymphula* in the Andes, in the vicinity of the Las Lenas ski resort in southwestern Mendoza province, Argentina, based on collections and observations made in the austral spring of 1989. At that time the butterfly was seen only at or above 3000m. No host plant was identified. I revisited the area in the austral summer of 2004. During the intervening 15 years the Mediterranean Brassicaceous weed *Hirschfeldia incana* (L.)Lagr.-Fossat (usually referred to in the literature as *Brassica geniculata* (Desf.)Ball) became established around the ski village complex at about 2250m. On 2 February 2004 *P. nymphula* was abundant throughout the complex. Adults visited flowers of *H. incana* and eggs were being laid on small rosettes (diameter under 6 cm). No other Brassicaceous plants were observed in the area. I did not look for larvae, being pressed for time. Strikingly, females showed no interest in ovipositing on the large plants. Numerous courtships and pairs in copula were noted.

*Hirschfeldia* is not a very common weed in western Argentina. In California it is a very frequent host of