

Dark larval colour morphs of *Danaus* species in Costa Rica — references to a local mimicry complex? (Lepidoptera: Nymphalidae, Danainae)

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Abstract: Dark larval colour morphs of *Danaus gilippus* (CRAMER, 1775) and *Danaus plexippus* (LINNAEUS, 1758) (Lepidoptera: Nymphalidae, Danainae) from Costa Rica are reported. A possible mimicry complex is discussed.

Key words: *Danaus plexippus*, *Danaus gilippus*, Danainae, Lepidoptera, colour morphs, larvae, melanism, mimicry, pigmentation, Costa Rica.

Dunkle Farbmorphe von Larven von *Danaus*-Arten in Costa Rica — Hinweise auf einen lokalen Mimikry-Komplex? (Lepidoptera: Nymphalidae, Danainae)

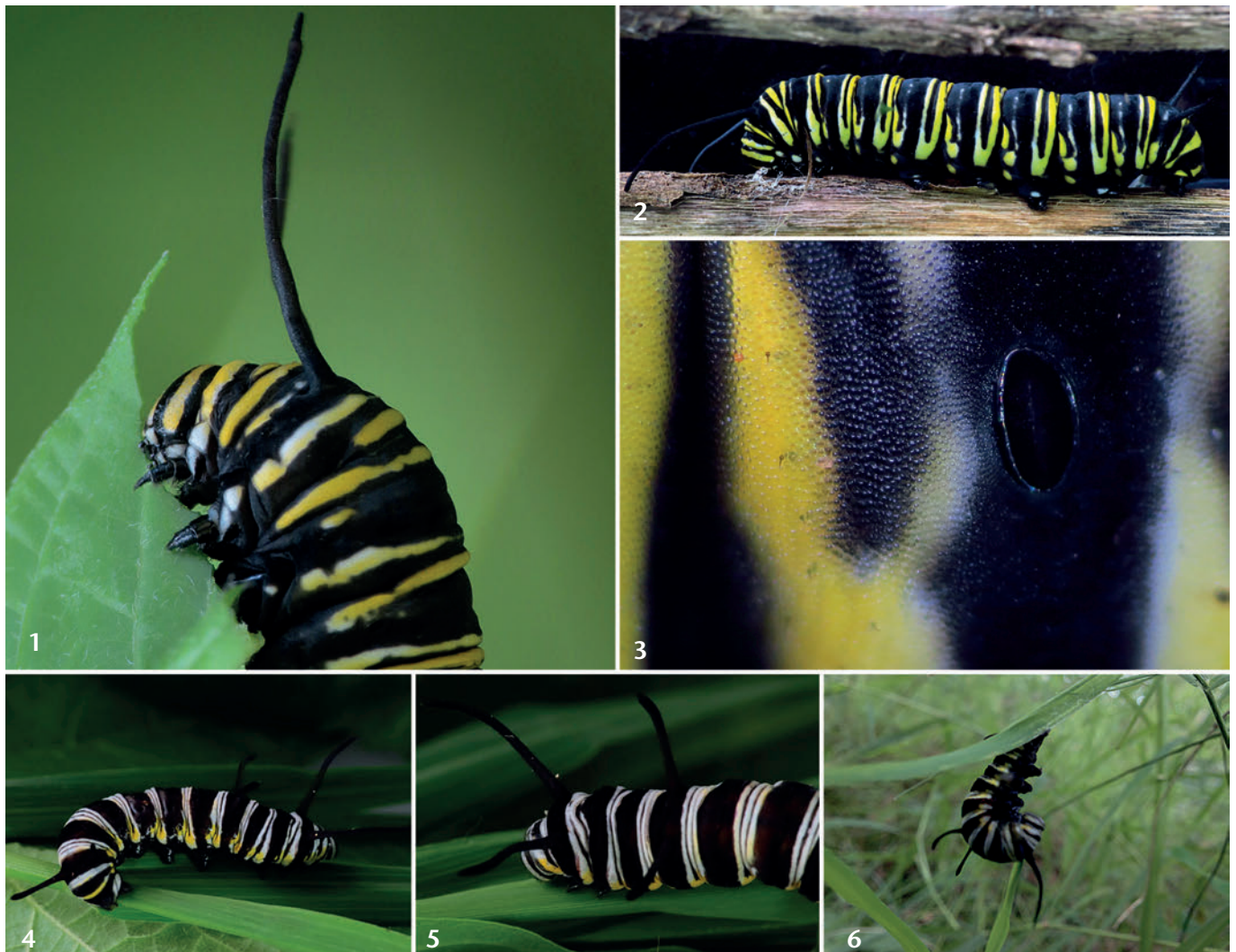
Zusammenfassung: Dunkle Farbmorphe von Larven von *Danaus gilippus* (CRAMER, 1775) und *Danaus plexippus* (LINNAEUS, 1758) (Lepidoptera: Nymphalidae, Danainae) aus Costa Rica werden gemeldet. Ein möglicher Mimikry-Komplex wird diskutiert.

Formas oscuras de larvas de especies de *Danaus* en Costa Rica — ¿Un complejo mimético local? (Lepidoptera: Nymphalidae, Danainae)

Resumen: Se reportan morfos de color oscuro de larvas de *Danaus gilippus* (CRAMER, 1775) y *Danaus plexippus* (LINNAEUS, 1758) (Lepidoptera: Nymphalidae, Danainae) de Costa Rica. Se discute un posible complejo mimético.

Introduction

Recently colour morphs, especially dark ones, of larvae of *Danaus plexippus* (LINNAEUS, 1758) have been reported from Costa Rica (VAN DER HEYDEN & JIMÉNEZ 2013). A few additional observations are reported here.



Figs. 1–3: Dark larval colour morph of *Danaus plexippus*, Cartago, Costa Rica. **Fig. 1:** Detailed view, Navarro, 14. iv. 2012. **Fig. 2:** Paraíso, 20. iv. 2013. **Fig. 3:** Detailed view, Paraíso, 20. iv. 2013. — **Figs. 4–6:** Dark larval colour morph of *Danaus gilippus*, Paraíso, Cartago, Costa Rica. **Fig. 4:** 8. ix. 2013. **Fig. 5:** Detailed view, 8. ix. 2013. **Fig. 6:** Previous to pupation, 23. ix. 2013. — Photos: Daniel JIMÉNEZ.

Danaus plexippus (LINNAEUS, 1758)

In 2012 and 2013, Daniel JIMÉNEZ found several dark larvae of *Danaus plexippus* (Figs. 1–3) feeding on *Asclepias curassavica* (Apocynaceae, Asclepiadoideae) at two different sites in the province of Cartago.

The first site, a premontane wet forest in Navarro about 1360 m above sea level, is a very sunny and humid habitat with an annual average temperature of 20.3°C and annual rainfall of 2500–3000 mm. At that site Daniel JIMÉNEZ found a dark larva of *D. plexippus* on 8. iv. 2012, another one on 14. iv. 2012 and, one year later, another one on 19. iv. 2013. The second site is located in Paraíso about 1315 m above sea level. This site is much drier than the one in Navarro, with an annual average temperature of 20.3°C and annual rainfall of 1500–2000 mm. At that site Daniel JIMÉNEZ found a dark larva on 20. iv. 2013 and another one, previous to pupation, on 7. v. 2013.

The distance between the two locations is approximately 10 km (VAN DER HEYDEN & JIMÉNEZ 2013). Most likely, these morphs are not the result of a thermally induced melanism, but of genetic causes.

Danaus gilippus (CRAMER, 1775)

Shortly after Daniel JIMÉNEZ had found dark larvae of *D. plexippus*, together with larvae with normal pigmentation, in his backyard in Paraíso, he also found a dark larval phenotype of *Danaus gilippus* (CRAMER, 1775) at the same site: A specimen (Figs. 4, 5) was found on 8. ix. 2013, again among plants of *Asclepias curassavica*. It was not feeding on the plants, but discovered on grass leaves.

An additional dark-coloured larva of *D. gilippus* (Fig. 6), which was about to pupate, was found on 23. ix. 2013.

Discussion and conclusions

For example, in the United States of America dark lar-

val colour morphs of *D. gilippus* are very rare (WILLMOTT et al. 2011). However, WILLMOTT et al. (2011) reported a possible larvae mimicry complex in neotropical danaine butterflies from the Dominican Republic (island of Hispaniola), which includes dark-coloured larvae of *D. gilippus* and *D. plexippus* as well as dark larvae of other sympatric danaine species, which are endemic to the Caribbean: *Danaus cleophile* (GODART, 1819), *Anetia briarea* (GODART, 1819) and *Anetia jaegeri* (MÉNÉTRIÉS, 1832).

It seems to be possible that a similar mimicry complex arises or exists in Costa Rica (or even in a greater area of the Central American mainland), including dark-coloured larvae of *D. gilippus*, *D. plexippus* and maybe other danaine species, for example *Danaus eresimus* (CRAMER, 1777), which are more or less “hidden” among larvae with normal pigmentation.

Further investigations might be helpful to answer this question.

Acknowledgement

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References

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