



NOTE

The occurrence and life history of *Iolaus (Epamera) nasisii* (Riley, 1928) (Lepidoptera: Lycaenidae) in South Africa

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INTRODUCTION

The Nasisi or Zimbabwe Yellow-banded Sapphire, *Iolaus (Epamera) nasisii* (Riley, 1928), was described from a single female specimen captured by S.A. Neave in the Nasisi Hills, 20 miles (32 km) north of Mumias [Mumias], Kenya Colony, in June, 1911. Riley placed *nasisii* as a subspecies of *Epamera aphnaeoides* Trimen, 1873 but it was subsequently raised to *Iolaus (Epamera) nasisii* (Vári, 1976).

Iolaus nasisii is widespread in south-eastern Africa and has been recorded from Uganda, western Kenya, Tanzania, Malawi, northern Zambia, Zimbabwe, north-eastern Botswana, the Caprivi strip in Namibia and the Limpopo Province of South Africa (Williams, 2016). Its occurrence in South Africa was first noted in the second edition of *Pennington's Butterflies of Southern Africa* (Pringle *et al.*, 1994). It was stated to have been found near Messina [Musina] (-22.34 30.04) and on the Buffelsberg near Munnik (-23.616 29.961). Although no further details are given, it is common knowledge among South African lepidopterists that the Buffelsberg population was found by Izak Coetzer in the 1980's and that specimens were bred and photographed by the late John Joannou.

For the next 30 years or so no further South African records were made until a dead male was found in the Kudu River Valley by Bernadine Altenroxel in November 2015 (LepiMAP record 582581). This record was publicised by Steve Woodhall on social media. The first author contacted Bernadine and established that the specimen was found dead on the ground below a Marula tree (*Sclerocarya birrea*). A species of Loranthaceae with yellow-orange flowers was noted in this tree and was regarded to be the likely host-plant for the larva of *nasisii* (Fig. 1).

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Figure 1 – *Agelanthus transvaalensis* ex Mooketsi, Limpopo Province, South Africa. Images M.C. Williams

OBSERVATIONS

The authors surveyed the ridge on the north-western side of the Kudu River Valley (-23.6450 30.0137), near Mooketsi, on 15 November 2015 and found numerous Marula trees parasitized by the same species of Loranthaceae found by Altenroxel. Some of these plants were noted to be hyperparasites on a species of *Viscum* (Loranthaceae). Most clumps were very high up and only two clumps were low enough to be inspected for the presence of the early stages of the butterfly. A single, bright yellow third instar larva was found by the first author on a leaf on one of these clumps (Fig. 2). No adult butterflies were seen. Specimens of the loranthus were collected for identification.



Figure 2 – Third instar of *Iolaus nasisii*. Image: J.G. Bode.



Figure 3 – Final instar of *Iolais nasisii*. Image: M.C. Williams

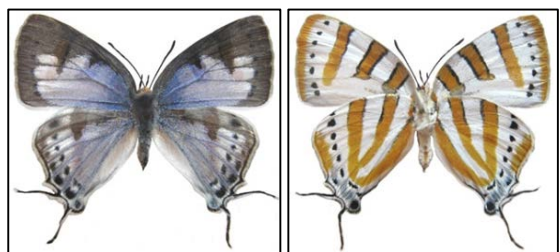
The third instar larva grew to 10mm in length and moulted to the final instar on 18 November (Fig. 3). The final instar larva grew to 16mm in length and pupated on 22 November (Figs 4 & 5). Before pupating the larva laid down a silk pad on the surface of a twig and attached the cremastral hooks to this pad. A female *I. nasisii* emerged from the pupa on 8 December 2015 (Figs 6 & 7).



Figure 4 – Pupa of *Iolais nasisii* (lateral view). Image: J.C.H. Dobson.



Figure 5 – Pupa of *Iolais nasisii* (dorsal view). Image: J.C.H. Dobson.



Figures 6 & 7 – *Iolais nasisii* ♀. Left – recto; right – verso. Mooketsi, Limpopo Province, South Africa. Eclosed 8 December 2015. Images M.C. Williams *ex* Dobson Collection.

Description of the third instar larva. Colour yellowish, with network of fine white lines; diffuse dorsal orange stripe. Shape: Onisciform; widest in first third, tapering gradually posteriorly; dorsum gently convex, sloping at 45 degrees in last three segments; two ventro-lateral protrusions on second last segment and two smaller posterior protrusions on the final segment; anteriorly almost vertical, with two knob-like dorso-lateral protrusions.

Description of the final (fourth) instar larva. Colour yellowish-green, with thin, wavy, green lateral stripes; pale orange dorsal stripe terminating in brownish macular marking on eighth segment. Shape similar to third instar.

Description of the pupa. Nine mm long. Resembles a knot of dead wood; surface of head, thorax and anterior abdominal segments studded with numerous pimple-like projections of varying diameter. Colour brown, shading to black in some areas. Shape: squat and somewhat spherical; deeply incised between thoracic and abdominal segments; two forward-facing short horn-like antero-lateral projections on head; the four posterior abdominal segments forming a hinged stalk; pupa, when disturbed, uses hinge to tap on the twig.

DISCUSSION

Iolais nasisii has been bred by the late Ivan Bampton (Vári, 1976), Colin Congdon (pers. comm.) and the late John Joannou (A. Coetzer, pers. comm.) but none of them have published their findings. A photograph of the final instar larva taken by Joannou, kindly sent to me by Andre Coetzer, is uniformly green.

The early stages of the closely related taxon *Iolais diametra natalica* Vári, 1976 were described by David Edge (Edge, 1985). His descriptions indicate that the larva and pupa of *diametra* are very similar to those of *nasisii*. The early stages of another closely related species, *Iolais aphnaeoides* Trimen, 1873, were described by Ernest Pringle (Pringle *et al.*, 1994). In the third and final instars the dorsum was described as rising steeply between segments nine and ten, then falling smoothly to the anal end. This aspect of the shape is rather different in *nasisii*, where there is no elevation between the ninth and tenth segments and the last three segments fall steeply to the anal end. Another difference is that in the third and final instars of *aphnaeoides* the dorsal stripe, present in *diametra* and *nasisii*, is apparently absent. The green lateral stripes and the macular marking on the dorsum of the eighth segment seen in the final instar larva of *nasisii* appear to be absent in the other two species.

The pupae of all three species appear to be rather similar but neither Edge nor Pringle make any mention of the peculiar stud-like pimples found by us on the surface of the pupa of *nasisii*. Yellow, green and red larval morphs were described by both Edge and Pringle. Yellow and green morphs are known for *nasisii* and it is probable that red morphs

will also be found in this species.

Fifteen species of Loranthaceae, from seven genera, have been recorded as larval host-plants (Williams, 2016) for *Iolaus nasisii*. Images of the specimens collected by us at Mooketsi were sent to Colin Congdon who kindly forwarded them to Roger Polhill, a recognized authority on the Loranthaceae. The plant was identified as *Agelanthus transvaalensis* (Sprague) Polhill & Wiens (Loranthaceae) and is a new host-plant record for *I. nasisii* and for the genus *Iolaus*.

Three species of Loranthaceae, from three genera, have been recorded as larval host-plants for *I. diametra* and two species from different genera for *I. aphnaeoides* (Williams, 2016).

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