

# PYRALIDAE OF ALDABRA ATOLL

## 1. PEORIINAE

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**ABSTRACT.**— *Anerastia nigropunctata* Legrand (Lepidoptera: Pyralidae: Anerastiinae [auctorum]) is transferred to *Ematheudes* Zeller in the Peoriinae and redescribed. It is the only peoriine moth known from Aldabra Atoll, its type locality. Previously listed as endemic to the Aldabra Group of atolls, its range is extended to include Madagascar. Photographs of wing pattern (color figure), male and female genitalia, and male antenna [SEM] are included. This paper is the first of a planned series on the Aldabra Pyralidae (*sensu stricto*; see Minet, 1981).

**KEY WORDS:** *Ematheudes nigropunctata* (Legrand), Lepidoptera, Madagascar.

This paper is the first in a series now in preparation which eventually will cover the approximately 3 dozen species of Pyralidae (*sensu stricto*) known from Aldabra Atoll. These studies are based largely on Legrand's collections and paper (1965) and on my own Aldabra collections of January through early April of 1968 while a member of the Royal Society expedition.

Aldabra is a large atoll situated in the western Indian Ocean approximately 420km NW of Madagascar and 640 E of Africa and is renowned for its relatively undisturbed condition and many endemic species of plants and animals. Consequently it has been the focus of intensive scientific scrutiny. Brief descriptions of Aldabra and of my field studies there are given elsewhere (Shaffer, 1974; Shaffer and Munroe, in prep.) and comprehensive studies of the terrestrial ecology of Aldabra were published by the Royal Society (Westoll, et al, 1971).

The traditional family Pyralidae has been divided into the Series Crambiformes and Pyraliformes by Munroe (1972), and into Crambidae and Pyralidae by Minet (1981) essentially along the same lines. This series of papers follows Minet's more restricted definition of the Pyralidae.

**EMATHEUDES** Zeller, 1867: 195

Type species: *Chilo punctellus* Treitschke, 1833. By monotypy.

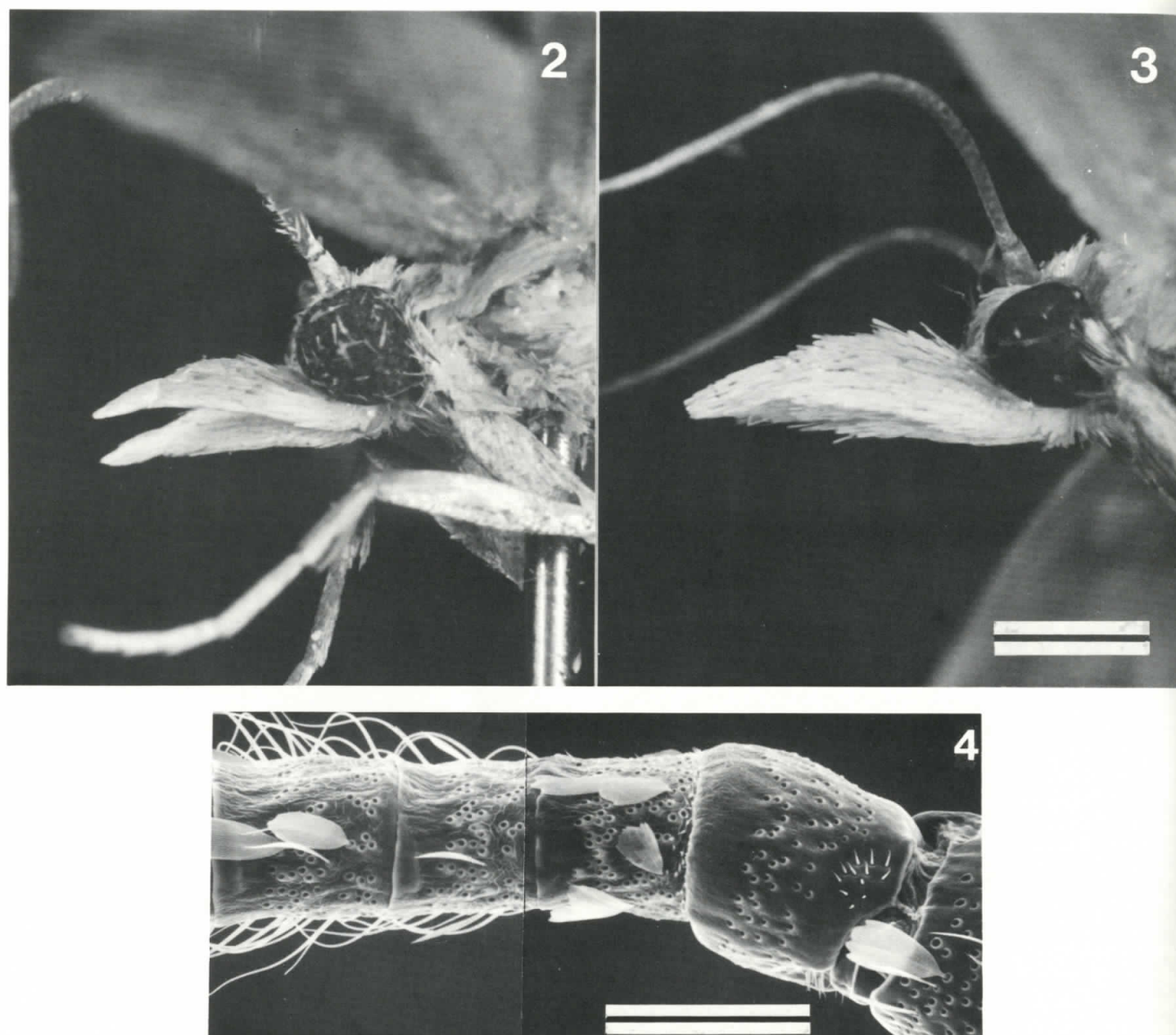
*Ematheudes* is primarily Ethiopian with over two dozen African species, many of them undescribed. The type species ranges over southern Europe and the Mediterranean region and the genus extends into Asia, where it has been less well studied. True *Ematheudes* is unknown from the Western Hemisphere. The following brief characterization of the genus is somewhat tentative pending completion of my studies of the African Peo-



Fig. 1. Adult ♂, 19 Jan. 1968 specimen. Forewing radius = 9mm.

riinae.

**Description.**— Labial palpus porrect in male; maxillary palpus minute; male antenna shaft varying subserrate, sublamine, or laminate with basal segments (see Fig. 4) unfused and unmodified; ocellus small to vestigial. Forewing nearly always with at least some veins white traced; discal spot nearly always present; postmedial transverse row of spots usually present; 2 spots usually present on 2nd anal. Male genitalia with uncus rounded, unmodified, with pair of variably developed lateral lobes. Gnathos with padlike medial process and long slender lateral arms. Valve slender, often extremely so, sometimes truncated; costa variously armed, nearly always with strong distally directed spine, rarely with cusp instead of spine. Aedeagus usually armed with either posterolateral brushes or hispid patch, sometimes unarmed.



Figs. 2-3. Heads, lateral view. 2, ♂ holotype; 3 ♀ allotype. (scale bar = 1.0mm). Fig. 4. Basal region of left ♂ antenna, posterior view; largely denuded (scale bar = 0.1mm).

***Ematheudes nigropunctata* (Legrand), new comb.**

(Figs. 1-9)

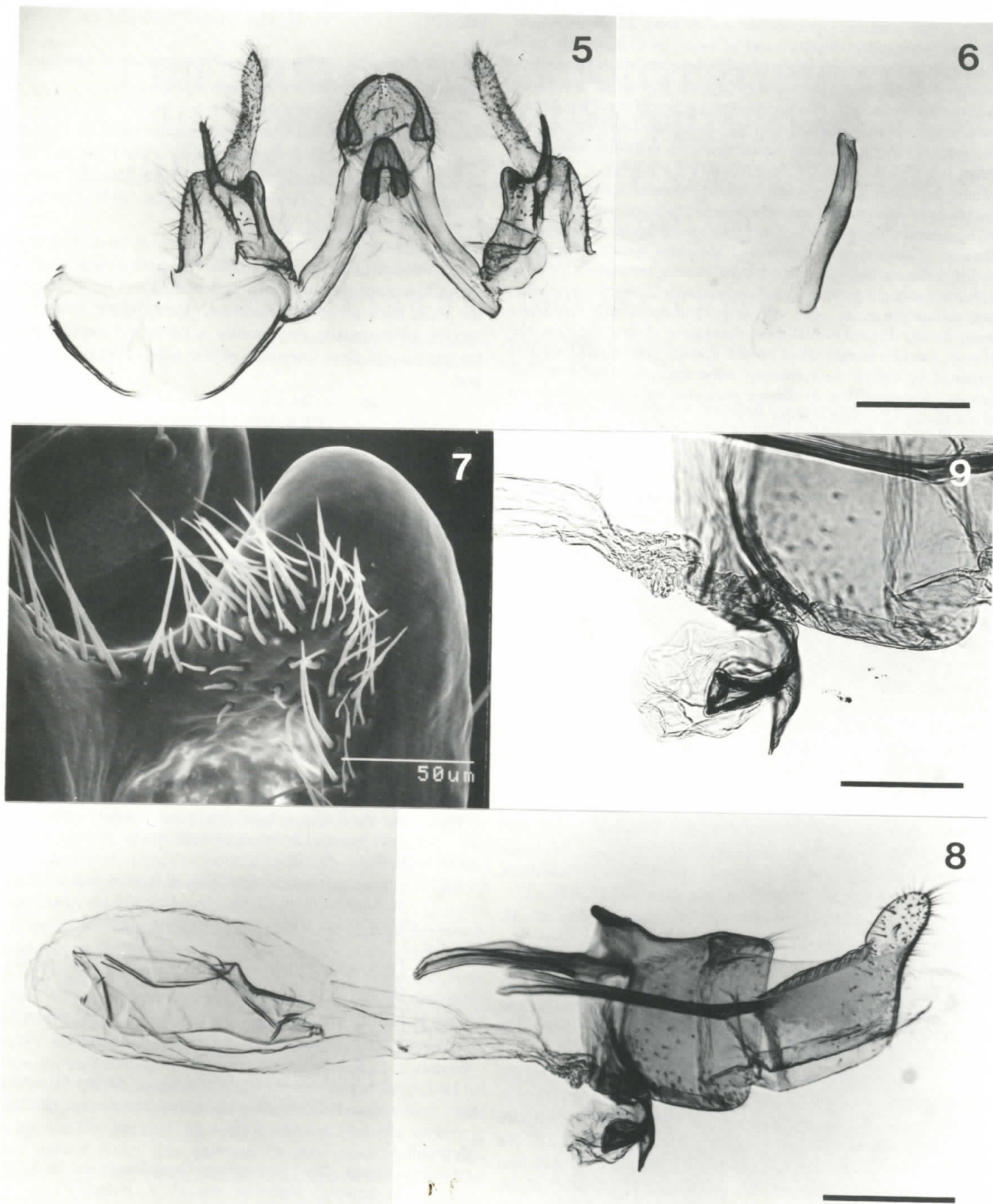
*Anerastia nigropunctata* Legrand, 1965: 124, Pl VII, no. 14.

**Diagnosis.**— The form of the valve costa of the male genitalia, subrectangular and armed with dorsodistal cusp and ventrodiscal spine, is unique among known species of the genus.

**Description.**— *Size:* Wing radius 7-10mm. *Head:* Frons conical, pale orange yellow to light reddish brown. Labial palpus (Figs. 2, 3) porrect, about 2.8 times as long as eye diameter in male; pale orange brown on outer side, white basally and on inner side. Maxillary palpus minute, usually hidden by labials. Proboscis minute. Antenna scales pale orange brown; male shaft simple at base, tending toward sublunate in middle, cilia nearly as long as segment width; female shaft simple, cilia about 1/3 as long as segment width. Eye diameter about 0.6-0.7mm. Ocellus

small, nearly hidden by scales, contiguous with chaetosema, base elliptical and transverse. Vertex pale orange yellow; patagium and tegula pale orange yellow medially, reddish brown laterally. *Forewing* with  $R_2$  short stalked with  $R_{3+5}$ ;  $M_{2+3}$  stalked about 1/2 (varying from about 1/3 to about 4/5) distance to outer wing margin. Ground (Fig. 1) pale orange yellow; costa dark brown near base; all veins and 1st anal fold marked with white, white marking best developed on Sc, radius (anterior margin of cell), veins from lower outer angle of cell, 1st anal fold except near wing base, 2nd anal, 3rd anal. White marking of veins usually bordered on both sides by darker brownish or pinkish (varies among specimens) scales, especially so along veins where white tracing best developed and most prominently so along anals. Brown apical dash between  $R_2$  and  $R_5$ . Cell with brown longitudinal line (often indistinct) from near base, extending distally and forking near center of cell; this line apparently representing the medial vein (not otherwise developed) within the cell, its anterior branch representing  $M_1$ , its posterior  $M_{2+3}$ .





Figs. 5-9. Genitalia. 5, ♂ genitalia (aedeagus omitted), USNM slide 58140; 6, aedeagus of same; 7, SEM detail of left valve showing cluster of setae, USNM slide 58139; 8, ♀ genitalia, lateral view, USNM slide 57911; 9, detail of ostium modification of same. Scale bar = 0.5mm (5,6,8), 50µm (7), 0.25mm (9).

Other brown markings: spot on 2nd anal at about 2/5 distance from base; on 1st anal fold slightly basad of discal spot; moderately large discal spot at lower outer angle of cell; postmedial line, incomplete, developed as small spots on medial and cubital veins distal to cell, and as large spot on 2nd anal near tornus; terminal line of small but distinct spots between veins. *Hindwing* with  $M_{2+3}$  completely fused, stalked with  $Cu_1$  about 2/5 length of latter. Nearly uniformly yellowish white, light brown at apex.

*Male genitalia* (Fig. 5) with uncus broadly rounded, sclerotized lobes distomedially approximate, narrowly separated by membrane; anteroventral extensions short; uncus finely and rather sparsely setose dorsally and laterally. Gnathos arms slender and somewhat weakly sclerotized; medial process strongly developed, sides forming inverted "V". Valve with costa strongly sclerotized, subrectangular with central excavation, base obliquely truncate, apex with large blunt dorsal cusp and longer strong distally directed ventral spine, dense patch of setae (fig. 7) at base of cusp; sacculus margin rolled inward, sparsely setose; valve abruptly narrowed in middle with strongly projecting membranous digitate valvula. Aedeagus (Fig. 6) slender, somewhat curved, its surface and vesica devoid of armature of any sort.

*Female genitalia* (Fig. 8) with ovipositor laterally broad, somewhat rhomboidal with dorsocaudal angle developed as membranous papillate setose lobe; posterior apophysis angled at base, otherwise straight, joining ovipositor at anterodorsal angle, vertical element perpendicular, rather weakly sclerotized; anterior apophysis about 4/5 length of posterior, thickened basally, gradually tapered anteriorly, decurved near distal end. Eighth segment well sclerotized, laterally with a few scattered setae, open cluster of about a dozen setae near posteroventral angle, tighter cluster of about a half dozen setae near dorsocaudal angle; anteroventral angle broadly rounded; dorsal surface somewhat saddle shaped; posteromedial emargination about 1/3 its length, anterodorsally heavily sclerotized, margin recurved. Ostium from transverse plate which also bears heavily sclerotized accessory sac (fig. 9) ventrad of ostium; ostium bursae membranous, rugose, short, unarmed. Ductus bursae membranous, gradually expanded anteriorly; entirely smooth, lacking even the finest armature. Ostium bursae broadly joined to expanded anterior of ductus bursae, no distinct boundary; entirely smooth and membranous, lacking even the finest armature.

**Types.**— Type material examined: *Holotype*, labelled: "TYPE" [red label]; "♂"; "Aldabra 20. XI. 1959 H. Legrand"; "Anerastia nigropunctata n.sp. type H. Legrand" [handwritten]; "Anerastia nigropunctata Legrand Mém. Mus. nat. Hist. nat 1966 (n.s.) A37 (1965) p. 124" [handwritten]; "Museum Paris Coll. H. Legrand"; "♂ genitalia on slide 2103 J.C. Shaffer".

*Allotype*, labelled: "ALLOTYPE" [handwritten red label]; "Aldabra 13. XI. 1959 H. Legrand"; "Anerastia nigropunctata n.sp. allotype ♀ H. Legrand" [handwritten]; "Museum Paris Coll. H. Legrand"; "♀ genitalia on slide 2104 J.C. Shaffer". (Types in MNHN).

**Distribution.**— Aldabra, Cosmoledo (Île Menai), and Madagascar (new record). All specimens collected by the author (1968) are from the Settlement (9♂, 45♀): (15 Jan) ♂; (17 Jan) ♂, 3♀; (18 Jan) 3♂, 3♀; (19 Jan) 2♂, 6♀; (21 Jan) 6♀; (23 Jan) 2♀; (24 Jan) ♀; (25 Jan) 6♀; (27 Jan) ♂, 2♀; (29 Mar) 2♀; (31 Mar) ♂. A single male was taken at Settlement by David Adamski, dated 12-22 March, 1986.

The Madagascar record is based on 2 males (J. Shaffer genitalia slides 2041, 2052), both labelled: "Madagascar Centre, Tananarive, 1200m, parc de Tsimbazaza, 12/16-X-1963, P. Viette"

[MNHN].

**Hosts.**— Unknown. The relatively few species of peoriines for which hosts are known are all grass feeders.

**Remarks.**— My Aldabra specimens were all taken by blacklight at or very near to the Settlement on Île Picard (West Island). None were found elsewhere on Aldabra despite intensive collecting at 3 other localities there (Shaffer, 1974; Shaffer and Munroe, in prep.).

Recognition of this species, for the present at least, must rely on the characters of the male genitalia. Female genital characters within the genus have not been well studied and for most species the sexes have yet to be associated. Furthermore, many of the species are externally very similar in color and maculation and the variation of these features is also in need of further investigation.

## ACKNOWLEDGMENTS

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