

FIRST RECORD OF THE GENUS *ACRAPEX* FROM THE
NEW WORLD, WITH DESCRIPTION OF A
NEW SPECIES FROM THE CAROLINAS AND VIRGINIA
(NOCTUIDAE: AMPHIPYRINAE)

DOUGLAS C. FERGUSON

Systematic Entomology Laboratory, Agricultural Research Service, USDA,
% U.S. National Museum of Natural History, Washington, D.C. 20560

ABSTRACT. A new species, *Acrapex relictata*, is described from three localities on the southeastern coastal plain of the United States. About 85 species of *Acrapex* are known from the Old World tropics, but *A. relictata* is the first to be reported from the Americas. Because of its restricted habitat, it is believed to be native, not introduced. The morphology, especially of the ovipositor, indicates that *A. relictata* is a grass feeder.

Additional key words: moths, taxonomy, geographical distribution, genitalia.

This paper reports the occurrence of a species of the Old World genus *Acrapex* (Noctuidae: Amphipyridae) in North America. The type species of *Acrapex* Hampson (1894) is *Leucania prisca* Walker (1866), by original designation. It was described from Ceylon (now Sri Lanka) but is present also in southern India. At least 85 species have been assigned to *Acrapex*, of which 71 are African; others occur on the Indian subcontinent, in Australia, New Guinea, New Caledonia, the Philippines, Taiwan, Japan, and Hawaii. Until now, however, they were thought to be absent from the Americas. For purposes of the present paper I considered it unnecessary to see and dissect the type species (illustrated by Hampson 1910: p. 319, fig. 139), although I examined many others placed in *Acrapex*. These included *A. hamulifera* (Hampson), another species described from Sri Lanka. It is uncertain whether all members of this widely distributed, diverse assemblage should be regarded as congeneric; but *Acrapex* is the only genus available to accommodate them.

Species of *Acrapex* are relatively small, predominantly light-brown (dead-grass colored) moths, with narrow wings and longitudinal markings, except for the characteristic pale discal spot that may have a dark center. They have moderately long, somewhat upturned palpi, of which the tips are about on a level with the middle of the front; a fairly well-developed proboscis; fully developed, hemispherical eyes; antennae that are simple or nearly so in both sexes; long, shaggy vestiture on the legs; and no special scale tufts on the thorax or abdomen. The new American species is typical of *Acrapex* in size, color, shape, and general habitus. The male genitalia are variable in the genus, and it is difficult to identify common features. Species that I examined show a tendency to have angulate points (variously situated) on the margins of the valves, and

the American species has these. The female genitalia of *A. relicta* are typical of the group, with rigid, sharp, acutely conical ovipositor lobes characteristic of grass-feeding noctuids that insert their eggs into tight crevices between the leaf sheath and the stem. However, these perceived similarities may show only that the many species included in *Acrapex* are members of a marsh-dwelling, grass-feeding guild, being the products of an evolution with multiple convergences, rather than that they are in the same genus.

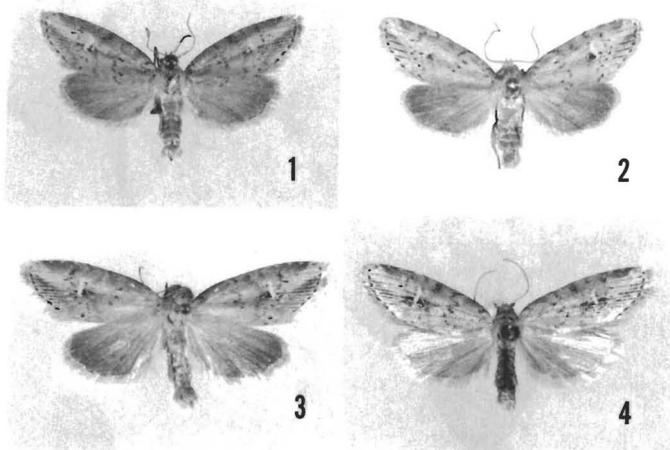
Moths of this genus are deceptively similar to certain other amphipyryne noctuids in the American fauna, such as species of *Chortodes* Tutt (= *Hypocoena* Hampson), especially *Chortodes defecta* (Grote), or *Spartiniphaga panatela* (Smith); but the genitalia show little to confirm such a relationship. The male genitalia of *A. relicta* show more similarity to those of *Chortodes defecta* than do those of other species of *Acrapex* that I have examined or seen figured in the literature (e.g., Holloway 1979, Janse 1937–39, Zimmerman 1958), but they still differ from those of *Chortodes* in the shape of the valve, vesica, and the presence of a long ampulla. Holloway (1989: 129) included *Acrapex* as one of several Old World tropical species groups or subgenera within *Sesamia* Guenée *sensu lato*. In treating the Japanese fauna, Sugi (*in* Inoue et al. 1982) listed *Acrapex* near *Archanara* Walker and various other genera that do not occur in the New World but which superficially resemble *Chortodes*, *Spartiniphaga*, *Mammifrontia* Barnes and Lindsey, and *Benjaminiola* Strand.

Acrapex relicta Ferguson, new species

(Figs. 1–7)

Diagnosis. A small, slender, narrow-winged, amphipyryne noctuid, about the color of dead grass, with a small white discal spot shaded proximally and sometimes also distally with blackish scales in a manner that may in part give the appearance of a dark central dot. Somewhat similar in color and pattern to *Archanara oblonga* (Grote) (e.g., Covell 1984: pl. 25, fig. 8) but no more than half the size, with a more oblique outer margin on the forewing, a more delicate form, and a slender body about like that of *Amolita fessa* Grote. Closest in appearance to *Chortodes defecta* (Grote) in the North American fauna but again smaller, only about $\frac{2}{3}$ the size, less inclined to be yellowish, with relatively prominent black and white discal spots, and a much more southern distribution. Seen from southern Virginia and the Carolinas only; rarely collected and local, probably confined to a specific host in wet, freshwater, grassy habitats. Very close in appearance to *Acrapex azumai* Sugi (1970:221, figs. 16 & 31; *in* Inoue et al. 1982: pl. 185, figs. 25–27), described from Okinawa in the Ryukyu Islands. This is the first record of a species of *Acrapex* from the Western Hemisphere.

Further description. Antenna of both sexes simple, that of male heavily ciliate, with length of setae almost equal to thickness of shaft. Palpi of both sexes slender, nearly cylindrical, exceeding front by $\frac{1}{3}$ their length, middle segment 2-1/2 times length of apical segment, pale brown, shaded with dark brown to black laterally and apically. Front convex, narrower than width of eye, with dark, glossy, smooth, closely appressed scales on lower half, and transverse crest of longer, dark-brown scales on upper half (worn off in most specimens). Tongue well developed. Legs normal, rough scaled, light brown; tibia

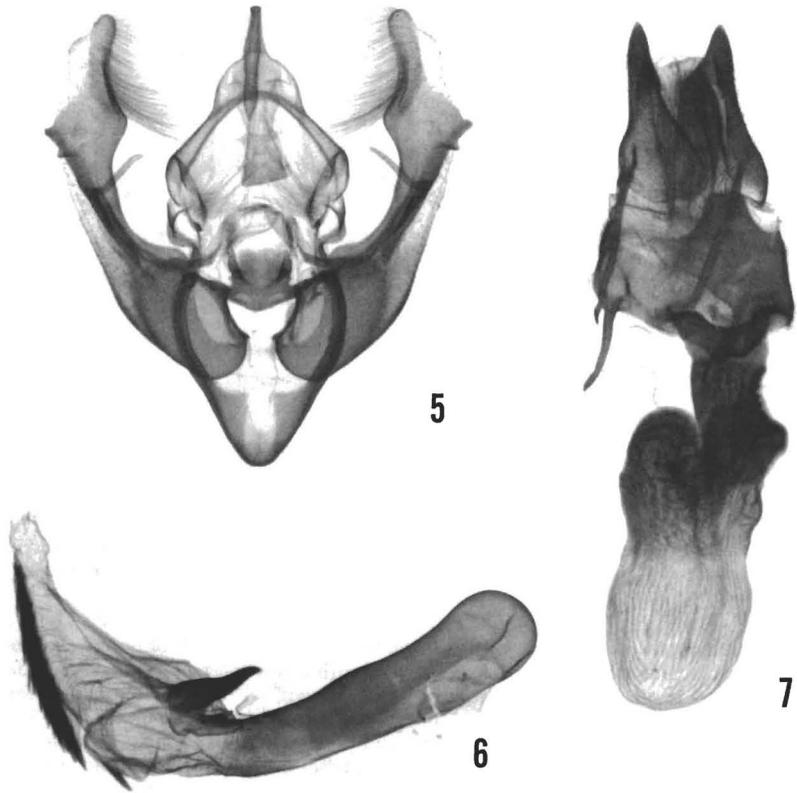


FIGS. 1-4. *Acrapex relictta*. Fig. 1, paratype ♀, Wedge Plantation, McClellanville, South Carolina, 3 June 1978, D. C. Ferguson; Fig. 2, holotype ♂; Fig. 3, paratype ♂ from type locality, 6 June 1971, R. B. Dominick & C. R. Edwards; Fig. 4, paratype ♀ from Dismal Swamp, Virginia, 8-9 June 1974, Don & Mignon Davis. About twice natural size.

short, length about equal to that of first tarsal segment, with length of epiphysis about $\frac{2}{3}$ length of tibia. Vestiture of thorax pale brown, with a few interspersed darker scales on patagium and tegula; vestiture of abdomen pale brown, without dorsal tufts. Forewing elongated, outer margin evenly convex, tornal angle rounded, apex rounded; pale brown, with very weak basal, antemedial, medial, and postmedial lines consisting of irregular, incomplete rows of blackish scales; small, black, basal dot present, except in worn specimens; outer margin with distinct, black, terminal line, interrupted at vein endings; discal spot whitish, transversely elongated, preceded near its posterior end by a contrasting blackish spot or short dash that may reappear as a few dark scales on opposite (distal) side; a few light-reddish scales in median area; veins toward middle of subterminal area outlined with black, and their interspaces often with longitudinal reddish- or gray-brown streaks. Overall aspect usually shows a subtle, dark, longitudinal streak from base to outer margin near apex, interrupted just beyond middle by discal spot; fringes pale brown. Hindwing hardly darker than forewing, but gray brown rather than straw colored; fringes nearly concolorous. Underside of forewing suffused with gray brown, of hindwing paler with diffuse discal spot and a diffuse, partial, postmedial band in some specimens; both wings beneath with weak, dark, terminal band, that of forewing broken into spots. Length of forewing: holotype ♂, 8.5 mm; other males ($n = 5$), 7.5-10.0 mm; females ($n = 3$), 8.5-10.0 mm.

Male genitalia (Figs. 5, 6). General form distinctive, as illustrated. Juxta with two raised, pointed sclerites, one on each side; ampulla long, slender, produced for half its length beyond costa of valve; articulation between tegumen and vinculum expanded and complex, composed of two slender, somewhat helical, sclerotized loops; transtilla complete, semi-sclerotized. Aedeagus with one large toothlike cornutus on vesica, connected to end of aedeagal tube by a ridged bar of sclerotin bearing 3 or 4 small dentate processes; an unattached, medium-sized cornutus surmounting a small lobe on vesica; and, more distad, a conspicuous longitudinal strip of many closely set cornuti. Eighth segment delicate but with sclerites of characteristic shape in both sternum and tergum that stain red with eosin Y.

Female genitalia (Fig. 7). Eighth sternum consisting largely of a sclerotized postostial



FIGS. 5-7. Genitalia of *Acrapex relictus*. Fig. 5, ♂ genitalia of specimen shown in Fig. 3; Fig. 6, aedeagus of same specimen; Fig. 7, ♀ genitalia of paratype from type locality, collected 3 June 1973.

plate of characteristic shape, as illustrated; ostium, ductus bursae, and proximal part of bursa copulatrix also sclerotized, the latter strongly rugose; signum a slender, delicate, straight, longitudinal band on ventral surface of membranous part of corpus bursae; ductus seminalis slender, arising from a sclerotized posterior lobe of corpus bursae to left of ductus bursae; ovipositor lobes massive, sclerotized, acutely conical, with their pointed tips slightly compressed laterally and usually visible without dissection.

Types. Holotype ♂ (Fig. 1), Wedge Plantation, McClellanville, Charleston Co., South Carolina, 2 June 1978, at light, D. C. Ferguson. Paratypes: 1 ♀, same locality and collector, 3 June 1978; 1 ♂, same locality, 6 June 1971, at light, R. B. Dominick and Charles R. Edwards; 3 ♂♂, same locality, 17 June 1971, 31 May 1973, 3 June 1973, R. B. Dominick; 1 ♀, same locality and collector, 3 June 1973; 1 ♂, Cartaret Co., North Carolina, 10 June 1972, J. Bolling Sullivan; 1 ♀, Lake Drummond, Dismal Swamp, Nansemond Co., Virginia, 8-9 June 1974, Don and Mignon Davis. Two other males from the type locality, collected 15 June 1971 and 24 May 1976, and in The Wedge Plantation Collection, Richard B. Dominick Laboratory, University of South Carolina, at McClellanville, were seen by me and are paratypes by definition, although not labeled. The holotype and most paratypes

are in the collection of the U.S. National Museum of Natural History. The North Carolina paratype is in the collection of J. B. Sullivan, Beaufort, N.C.

Distribution. Known only from three sites: The Wedge Plantation, on the south bank of the South Santee River, Charleston Co., South Carolina; near Beaufort, Cartaret Co., just south of Cape Hatteras, North Carolina; and the Great Dismal Swamp, near the North Carolina border in southeastern Virginia.

Early stages. Unknown. The larva of the doubtfully congeneric *Acrapex exanimis* (Meyrick) in Hawaii is a stem borer in species of *Panicum*, and the adults deposit egg clusters behind the grass leafsheaths (Zimmerman 1958:325). This would explain the bladelike modification of the ovipositor. It is likely that all species of the genus have similar feeding habits, as indeed is suggested for *A. relictata* by its crambiform appearance and apparent association with grassy, freshwater marshes.

DISCUSSION

Acrapex exanimis, described from Hawaii, was thought by Zimmerman (1958:324) to have been introduced, but it is not known to have been collected elsewhere. Zimmerman considered it closely related to *A. exsanguis* Lower, an Australian species. It is not closely related to the American species, which more nearly resembles *A. azumai* Sugi, from Okinawa. Specimens of *A. azumai* and of other closely related but unidentified species from Taiwan and the Philippines in the U.S. National Museum of Natural History closely resemble *A. relictata* superficially, but their genitalia are different. The females are all much alike in having the same type of rigid, pointed, conical or flattened ovipositor lobes.

I considered the possibility that *Acrapex relictata* might be an African or western Pacific species introduced to America by man, but its seemingly specialized occurrence only in remote, isolated, southeastern habitats inhabited by many other endemics suggests that it is native. It appears to be of Asian affinity and, therefore, is most likely another of the many Miocene relicts showing the East Asian-eastern North American pattern of disjunction typical of the temperate-zone biota of the two regions.

ACKNOWLEDGMENTS

I thank the following for reviewing this paper: G. L. Godfrey, Illinois Natural History Survey, Champaign, Illinois; E. H. Metzler, Columbus, Ohio; A. S. Menke, Systematic Entomology Laboratory, USDA; and especially J. E. Rawlins, Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, who checked my conclusions in great detail by examining all of the Old World species of *Acrapex* and many of their relatives in the collections of The Natural History Museum, London, and the Carnegie Museum. A colleague, R. W. Poole, was also the source of helpful information. I am similarly indebted to those who collected and made available additional specimens; namely, J. B. Sullivan, Beaufort, North Carolina; D. R. Davis, National Museum of Natural History, Washington, D. C.; and the late R. B. Dominick of The Wedge Plantation (type locality). I prepared the illustrations.

LITERATURE CITED

- COVELL, C. V. 1984. A field guide to the moths of eastern North America. Houghton Mifflin, Boston. 496 pp., 64 pls.
- HAMPSON, G. F. 1894. In Blandford, W. T. (ed.), The fauna of British India, including Ceylon and Burma. Taylor and Francis, London. Moths, vol. 2:i-xxii, 1-609, figures 1-325.
- 1910. Catalogue of the Lepidoptera Phalaenae in the British Museum. Trustees of the British Museum, London. Vol. 9:xv + 552 pp., pls. 137-147.
- HOLLOWAY, J. D. 1979. A survey of the Lepidoptera, biogeography, and ecology of New Caledonia. W. Junk Publishers, The Hague. xii + 588 pp., 153 figs., 87 pls.
- 1989. The moths of Borneo, pt. 12, Noctuidae (in part). The Malayan nature Society and Southdene Sdn. Bhd., Kuala Lumpur. 226 pp., 404 figs., 8 col. pls.
- INOUE, H., S. SUGI, H. HUOKO, S. MORIUTI & A. KAWABE. 1982. Moths of Japan. Kodansha Company Ltd., Tokyo. Vol. 1: 966 pp.; vol. 2: 552 pp., 392 pls.
- JANSE, A. J. T. 1937-39. The moths of South Africa. Vol. 3, Cymatophoridae, Callidulidae, and Noctuidae (partim). Published by the author, Pretoria. 435 pp., illus.
- SUGI, S. 1970. The Noctuidae of the Ryukyu Islands. Part 1, Trifidae (Lepidoptera). *Tinea* 8:213-229, 5 pls.
- WALKER, F. 1866. List of the specimens of lepidopterous insects in the collection of the British Museum. Printed by order of the Trustees of the British Museum by Edward Newman, London. 35:1535-2040.
- ZIMMERMAN, E. C. 1958. Insects of Hawaii. Vol. 7, Macrolepidoptera. Univ. of Hawaii Press, Honolulu. 542 pp., illus.

Received for publication 18 March 1991; revised and accepted 14 June 1991.