

SYNOPSIS OF THE GENUS *PARARGYRACTIS*
(LEPIDOPTERA: PYRALIDAE: NYMPHULINAE)
IN FLORIDA¹

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ABSTRACT

The species of *Parargyractis* known for Florida or of probable occurrence are diagnosed, adults and genitalia are illustrated, a key is provided, and 1 new species is described. Included species are *P. drumalis* (Dyar), *P. bifascialis* (Robinson), *P. fulcalis* (Clemens), and *P. santafealis* n. sp.

Aquatic pyralids of the subfamily Nymphulinae were given a basic generic classification by Lange (1956a). The genus *Parargyractis* Lange was described for Nearctic species formerly placed in *Cataclysta* Hübner or the since invalidated *Elophila* Hübner. *Cataclysta* has been considerably restricted in recent years and is not now represented by any known Nearctic species. Since Munroe (1972-73) revised the North American fauna of Nymphulinae, a new species has been collected in numbers by D. H. Habeck who is currently working on the biologies of Florida nymphulines. This synopsis was prepared to provide an available name for the new species. The bibliographic synonymies are updated from the last catalog (Klima 1937) and genitalic illustrations are provided due to their absence in Munroe (1972-73).

MATERIALS AND METHODS

The majority of specimens for this study have come from the Florida State Collection of Arthropods, while additional Florida records from the literature are those of Kimball (1965) and the distribution notes given by Munroe (1972-73). Genitalia illustrations were made from preparations in balsam on slides using a projecting microscope for the initial outlines and a stereomicroscope for details. All the male genitalia drawings and the female genitalia drawing (Fig. 11) of *Parargyractis drumalis* (Dyar) are the same scale, twice the size of the remaining female genitalia figures. Male genitalia have setae drawn in only for the right valvae (except in *P. drumalis*). Forewing lengths are measured from wing base to apex. Colors are described as seen under incandescent illumination. Under the references and synonymy only selected citations are included to the freshwater ecology literature.

BIOLOGY

With the exception of members of the largely tropical tribe Ambiini which are terrestrial fern feeders as larvae, nymphulines are aquatic. The

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unusual larval habits have stimulated a number of investigations on these moths in Europe and Japan. Wesenberg-Lund (1943) gave a full summary of what is known for the European species of Nymphulinae. Relatively less work has been done in North America on the biologies of nymphulines, but several authors have published on a few species. Munroe (1972-73) gives a useful bibliography to most published papers on North American nymphuline biologies. Lloyd (1914), Lange, (1956b), and Culley (1967) have given accounts of the biologies of some Nearctic species of *Parargyractis* mostly western, and Sattler (1961) described the larva of one Neotropical *Parargyractis* species. Lavery and Costa (1972; 1973) have studied the larval distributions of *Parargyractis* species near the eastern Great Lakes.

PARARGYRACTIS Lange

Parargyractis Lange, 1956a:120; Lange, 1956b:277; Munroe, 1972-73:117.

Type species: *Elophila truckeealis* Dyar, 1917, original designation (= *confusalis* Walker, 1865, senior synonym).

The genus is distinguished from other nymphuline genera by the absence of hindwing vein M_2 and by the closed cell of the hindwings that is more than half the length of the hindwings. Munroe (1972-73) distinguished 14 North American species of *Parargyractis*. The genus may be distinguished from *Eoparargyractis* by the stalked forewing veins R_3 and R_4 . Wing venation is slightly different for each species of *Parargyractis* but all conform to a similar pattern. North American species of the genus in general have similar patterns of wing maculation, but female genitalia are especially useful in distinguishing the species. Although very similar to one another, the male genitalia are distinct in details. In *Parargyractis* the males have thicker antennae than the females.

KEY TO FLORIDA *Parargyractis*

1. Hindwings with 3 subterminal black spots; male genitalia (Fig. 7) with rectangular juxta; female genitalia (Fig. 11) lacking bursal spines (but with spicules)..... *drumalis*
- 1'. Hindwings with 5 subterminal black spots; male genitalia rounded or with posterior median projection; female genitalia with bursal spines 2
2. Antemedial fascia of hindwing with white border distally; male genitalia (Fig. 9) with oval juxta, flattened on posterior edge; female genitalia (Fig. 13) with 7-10 long (4 times spine base width) bursal spines..... *fulicalis*
- 2'. Antemedial fascia of hindwing with border distally silvered; male genitalia with juxta heart-shaped or quadrate with posterior median projection; female genitalia with 8-14 short (2 times spine base width), thorn-like bursal spines or fewer than 4 long spines (3 times spine base width) 3
3. Subapical field of hindwing with conspicuous black spot; male genitalia (Fig. 8) with heart-shaped juxta; female genitalia (Fig. 12) with 2-4 long (3 times spine base width) bursal spines *bifascialis*

- 3'. Subapical field of hindwing lacking a prominent black spot but with fuscous dusting; male genitalia (Fig. 10) with quadrate juxta, produced to a median point on flattened posterior edge; female genitalia (Fig. 14) with 8-14 short (2 times spine base width), thorn-like bursal spines (some may be vestigial) *santafealis*

When using the key to species of *Parargyractis* in Munroe (1972-73), *P. santafealis* n. sp. will key out to couplet 13, with *Parargyractis fulicalis* (Clemens) and *Parargyractis jaliscalis* (Schaus). The arrangement of the species follows Munroe (1972-73). The brackets by *Parargyractis bifascialis* (Robinson) and *P. fulicalis* above indicate a lack of verified Florida records.

Parargyractis drumalis (Dyar)
(Fig. 1, 7, 11)

Elophila drumalis Dyar, 1906:92; Grossbeck, 1917:121.

Cataclysta drumalis, Barnes & McDunnough, 1917:136; Klima, 1937:100; McDunnough, 1939:18.

Parargyractis drumalis, Lange, 1956a:92; Kimball, 1965:223; Munroe, 1972-73:119.

Type locality: Fort Drum, Florida (Okeechobee County).

Description: Smallest member of the genus in North America. Noticeably white in coloration, with mostly yellow markings. Forewing length averages less than 5 mm. Ground color of wings and body white. Fuscous antemedial fascia of forewings narrow relative to other Florida species. Apical orange terminal band prominent. Hindwings have only 3 large black subterminal spots, preceded distally by 3 adjacent black lunules that are often broken to give appearance of 4 to 5 lunules. White border distal to antemedial fascia of hindwings slightly lustrous.

Male genitalia as in Fig. 7. Gnathos 0.75 times height of uncus and not much narrower than slender portion of uncus. Juxta rectangular, narrowing smoothly to posterior flattened edge. Valvae only slightly widened toward rounded apices. Aedeagus (Fig. 7b) elongate with 2 thin cornuti laterally and small spinules apically. Ductus ejaculatorius attached by small circular junction, whereupon it widens gradually. Width to length ratio of aedeagus about 1:7.

Female genitalia (Fig. 11) distinct among Florida species by elongate bursa with only small spicules beyond sclerotized collar of ductus bursae which is very short. Apophyses of equal length. Ostial chamber wide, funnel-shaped, and with ductus bursae junction symmetrical. (Fig. 11 should have posterior edge of ostium level with middle of anterior apophyses and not at their bases as shown, which is due to misarrangement of damaged parts on slide).

Distribution: Known only from Florida, Weeki Wachee Springs (north of Tampa) south to Fort Lauderdale on the east coast and Sarasota on the west coast.

Flight period: May to September; November (Sarasota).

Biology: Unknown.

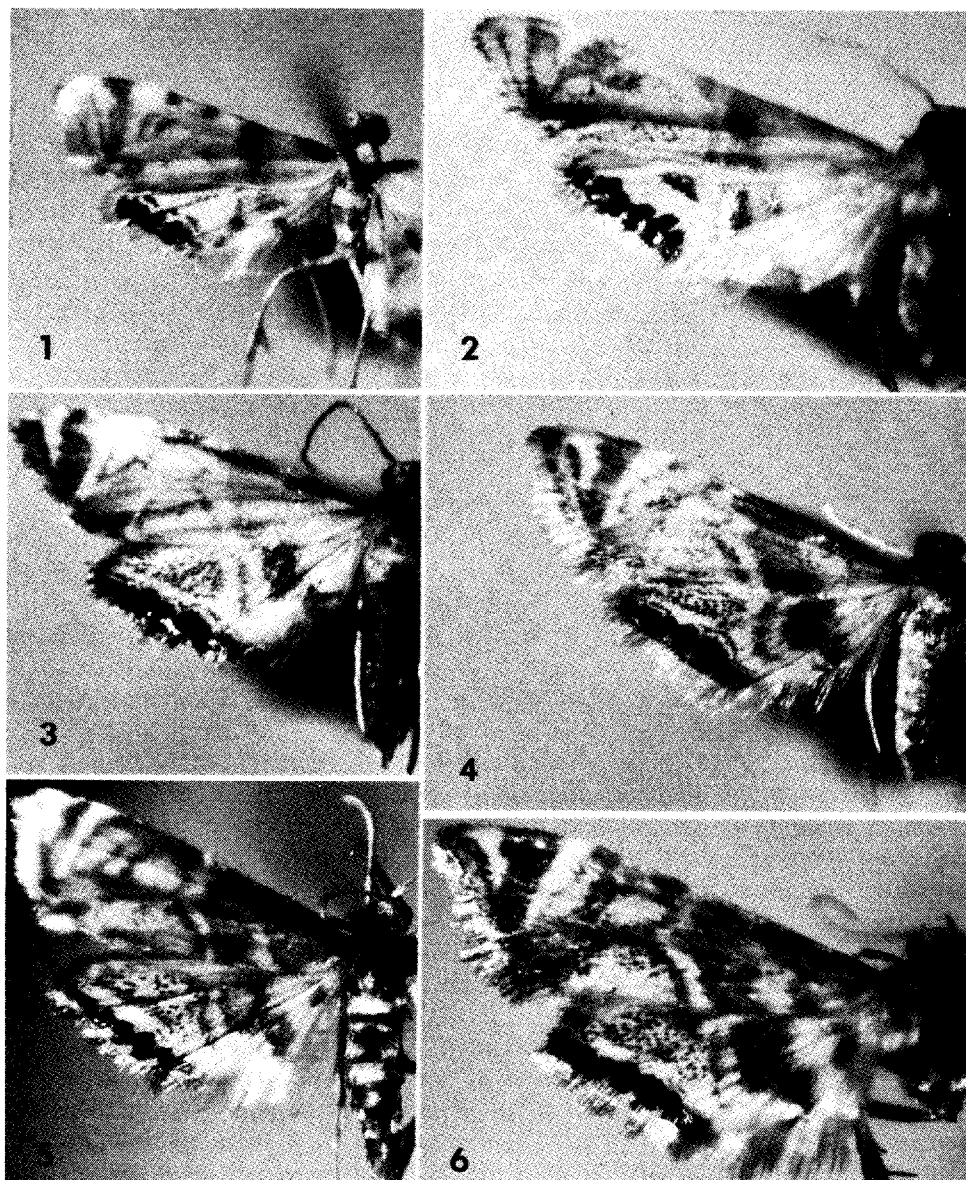


Fig. 1-6. Adults. 1) *Parargyractis drumalis* (male, Weeki Wachee Springs, FL, 13-V-60). 2) *P. bifascialis* (female, 13 mi. N. Franklin, WV, 2-IX-73). 3) *P. fulicalis* (male, 13 mi. N. Franklin, WV, 2-IX-73). 4) *P. fulicalis* (female, same data). 5) *P. santafealis* (holotype male, Santa Fe River, FL, 16-I-74). 6) *P. santafealis* (allotype female, same data).

Parargyractis bifascialis (Robinson)

(Fig. 2, 8, 12)

Cataclysta bifascialis Robinson, 1869:153; Grote, 1882:54; Fernald, 1891: in Smith; Hampson, 1897:149; Barnes & McDunnough, 1917:136; Klima, 1937:100; McDunnough, 1939:18.

Elophila bifascialis, Fernald, 1902[1903]:396, in Dyar; Dyar, 1906:92; Morse, 1910:526; Grossbeck, 1917:121; Forbes, 1923:580; Leonard, 1928: 577.

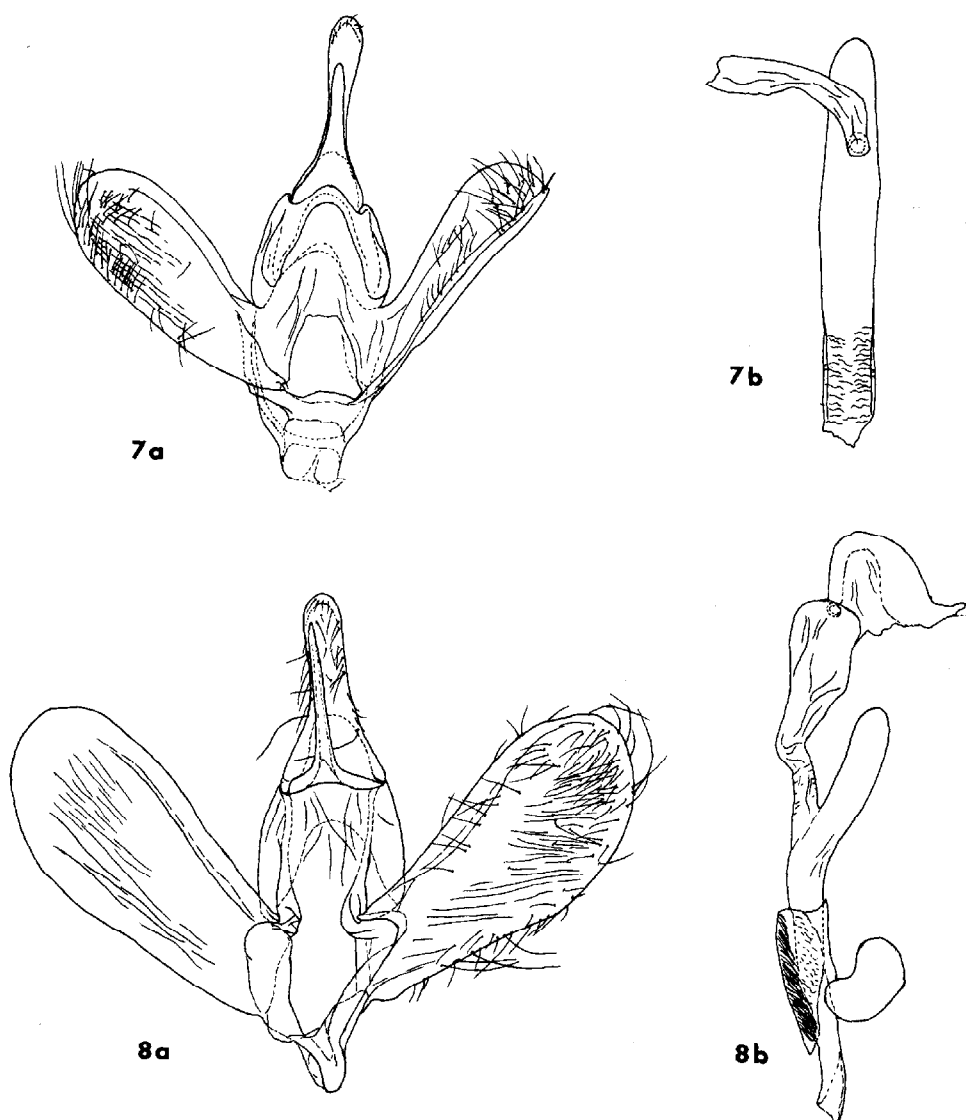


Fig. 7-8. Male genitalia. 7) *Parargyractis drumalis*, a) ventral view; b) aedeagus, dorsal view. 8) *P. bifascialis*, a) ventral view; b) aedeagus, lateral view (juxta attached to aedagus).

Argyractis bifascialis, Hampson, 1906:376.

Parargyractis bifascialis, Lange, 1956a:122; Lange, 1956b:284; Kimball, 1965:223; Munroe, 1972-73:122.

Type locality: Texas.

Description: *P. bifascialis* is about average in size for the genus, ranging in forewing length from 6-11 mm. Coloration yellow-brown on a dull white base on forewings, with antemedial fascia fuscous near costa but becoming yellow-ochreous below fuscous area. Terminal band orange-yellow. Hindwings cream-white with antemedial fascia orange, bordered with fuscous and with a more distal silvered border. On immaculate subapical field is a prominent black elliptical spot just below costa, sometimes approaching a loop as in the related *Parargyractis kearfottalis* (Barnes & Mc-

Dunnough) from Texas (Munroe 1972-73). Five subterminal black spots without a black line bordering spots basad. Anal angle of hindwing with diffuse fuscous spot.

Male genitalia (Fig. 8) distinguished by the heart-shaped juxta, somewhat flattened on anterior margin. Gnathos almost as long as uncus, very slender and with only a slightly angled base. Vinculum unusual for genus in its protruding basal projection. Valvae are somewhat widened toward apexes. Ductus ejaculatorius attached to aedeagus (Fig. 8b) by oval juncture, narrow thereafter, then widened before a second constriction. Cornuti as small spines in a long row laterally near apex. Aedeagus width to length ratio about 1:9.

Female genitalia (Fig. 12) with from 2-4 long spines at base of bursa, each about 3 times as long as their bases are wide. Ostial chamber funnel-shaped but narrow, with numerous spinules, and forming a bulbous constriction basally before symmetrical junction with ductus bursae. Ductus bursae about 0.66 times length of oval bursa. Apophyses of equal length, but anterior pair thicker.

Distribution: Nova Scotia to southern Ontario, Canada; south to Virginia, west to Texas and New Mexico; Florida?

Flight period: April and July (Texas); to September (West Virginia).

Biology: Unknown.

Remarks: Kimball (1965) lists an old record of Grossbeck (1917) for *P. bifascialis* from Charlotte Harbor, Charlotte County, Florida. This record probably refers to *P. santafealis* n. sp., but I have not seen the specimen. Florida has not been well surveyed for microlepidoptera and further collecting in northwest Florida may produce this widespread species, especially in the area near the Apalachicola River where there are elements of a remnant Appalachian fauna and in the area nearer to Pensacola, which often has produced new southern distribution records in the past.

Parargyractis fulicalis (Clemens)

(Fig. 3, 4, 9, 13)

Cataclysta fulicalis Clemens, 1860:217; Lederer, 1863:453; Grote, 1882:54; Hampson, 1897:149; Barnes & McDunnough, 1917:136; Barnes & McDunnough, 1918:169; Klima, 1937:99; McDunnough, 1939:18; Wray, 1967:63.

?*Cataclysta angulatalis* Lederer, 1863:453.

Elophila fulicalis, Fernald, 1902[1903]:396, in Dyar; Dyar, 1906:94; Morse, 1910:526; Barnes & McDunnough, 1914:215; Lloyd, 1914:145; Grossbeck, 1917:121; Ward & Whipple, 1918:903; Lloyd, 1919:263; Forbes, 1923:580; Comstock, 1925:649; Leonard, 1928:577; Morgan, 1930:260; Pennak, 1953:585.

Argyractis fulicalis, Hampson, 1906:382.

Elophila confusalis (misdetermination) Dyar (not Walker, 1865), 1917:75; Barnes & McDunnough, 1918:169.

Elophila fumicalis, (error) Wesenberg-Lund, 1943:237.

Catoclysta fulicalis, (error) Peterson, 1948:202.

Parargyractis fulicalis, Lange, 1956a:129; Lange, 1956b:286; Kimball, 1965:223; Munroe, 1972-73:125; Lavery & Costa, 1972:1335; Lavery & Costa, 1973:42.

Type locality: Easton, Pennsylvania (*fulicalis*); North America (*angulatalis*).

Description: This species is of small size with a forewing length of 5-7 mm. Moths have a brown-gray appearance. Forewing maculation as in other species of genus but antemedial fascia diffuse and fuscous, half as wide as long. Apical fascia brown-fuscous with only slight ochreous spots evident on terminal band, mostly in tornal area. Hindwings with antemedial fascia fuscous and sharply angled posteriorly at base, with a white distal border which is not silvered or lustrous. Subapical field dusted with fuscous scales. Subterminal black spots with orange scales basad, bordered basally along costal and anal spots by a black line which is interrupted along the central spots. Metallic-blue spots present between 5 subterminal black spots and 6 terminal black lunules, which are separated by orange spots.

Male genitalia (Fig. 9) with juxta oval but straight along posterior margin. Gnathos sharply angled at distal ends of base where ends recurve to joint with tegumen; the median process is 0.75 times height of uncus. Valvae

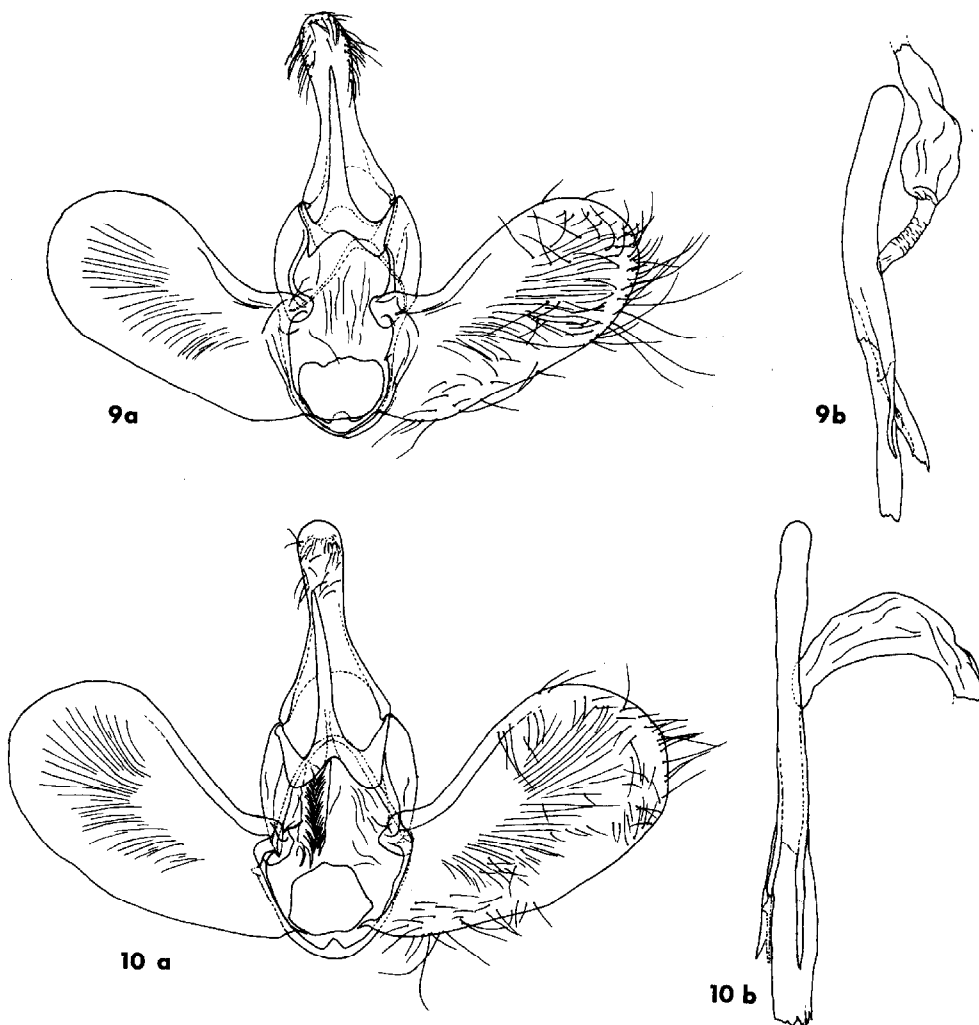


Fig. 9-10. Male genitalia. 9) *Parargyractis fulicalis*, a) ventral view; b) aedeagus, lateral view. 10) *P. santafealis*, a) ventral view; b) aedeagus, lateral view.

are decidedly angled upwards from a little beyond their basal articulations and then widened towards apices. Aedeagus (Fig. 9b) elongated and narrow (width to length ratio of about 1:9), with ductus ejaculatorius junction circular and small, followed by a short narrow portion of duct before it widens. Cornuti paired and elongated, with additional spines near apex of aedeagus.

Female genitalia (Fig. 13) distinctive in having an asymmetrical position for junction of ductus bursae with left side of ostial chamber. Ductus bursae with a short sclerotized collar at its base, with remainder membranous and as long as elongate-oval bursa. Bursa with a basal spiral of 7-10 very long flattened spines, most near 4 times as long as their large bases are wide. Anterior apophyses slightly shorter than posterior pair.

Distribution: New York to North Carolina; Florida?

Flight period: June to July (New York); September (West Virginia); March to May (Florida?).

Biology: Lloyd (1914) described the life history and the larva of a *Parargyractis* thought to be *P. fulicalis*, but Munroe (1972-73) mentions that Lloyd may have misdetermined his specimens. Forbes (1911) described the larva of an "*Elophila*" sp. that may be *P. fulicalis*, but Lloyd (1914) did not mention Forbes' report. Lavery & Costa (1972; 1973) have reported on ecological sampling of *P. fulicalis*.

Remarks: *P. fulicalis* can be locally common, especially when collections are made at UV light near a stream. Wray (1967) gives a western North Carolina record for the species, which indicates that it probably is found throughout the Appalachian Mountains. Kimball (1965) lists Florida records for specimens purported to be *P. fulicalis* in the University of Michigan collection. I have not seen any of these specimens but they may prove to be *P. santafealis* n. sp. *P. fulicalis* may eventually be found in northern Florida in such areas as discussed for *P. bifascialis*.

P. fulicalis belongs to a group of species related by the asymmetrical juncture of ostium and ductus bursae; the other three members being *Parargyractis canadensis* Munroe, the following new species, and another undescribed species from Texas.

Parargyractis santafealis Heppner, NEW SPECIES
(Fig. 5, 6, 10, 14)

Parargyractis opulentalis (misdetermination) Kimball (not Lederer, 1863), 1965:223.

Diagnosis: This species, most closely related to *P. canadensis*, may be distinguished by the dark fuscous of the wings, by the silvered distal border of the hindwing antemedial fascia, and by the usual absence of any distinguishable bordering line basad of the subterminal black spots on the hindwings.

Description: Male.—Forewing length 5.2-7.0 mm. *Head:* Vertex and frons white-buff to brown-buff, frons sometimes darker. Maxillary palpi distally brown-buff to dark fuscous, mesally white to brown-buff. Labial palpi 1/3 longer than maxillary palpi; first segment white; 2nd and apical segments brown-buff to dark fuscous. Proboscis scaling white, becoming brown-buff toward base. Eyes and ocelli dark fuscous. Antennal scape with white scales; flagellum brown-buff with distinct pattern of grouped scales,

yellow-buff to dark fuscous, at dorsal anterior margin of each segment, overlapping succeeding segment to $0.25\times$ its length. *Thorax*: dorsally dull white to buff; petagia white-buff to brown mixed with buff; tegulae buff with some brown scales; thorax ventrally white to yellow-white. *Legs* buff to white with fuscous scaling on foreleg femora, distal ends of tibiae and dorsal margins of tarsal segments; midlegs similar but less fuscous; hindlegs unmarked or with some buff scaling, mostly on outer sides. *Abdomen*: dorsally with each segment anteriorly buff, posteriorly white, repeated laterally; venter white except segments 6 and 7 where dorsal pattern is repeated; terminalia with white scales over valvae dorsally. *Forewing*: nearly $3\times$ as long as greatest width; apex pointed, termen somewhat

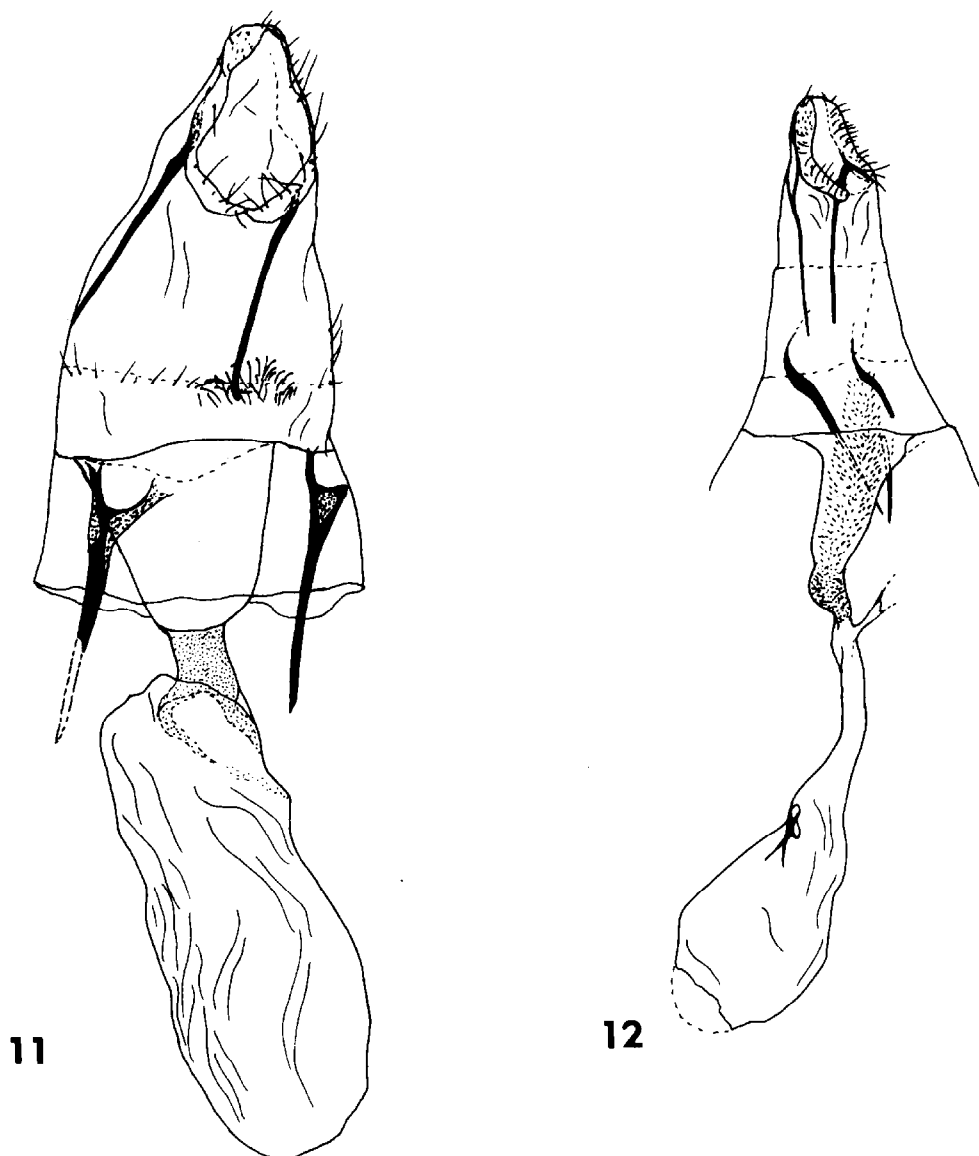


Fig. 11-12. Female genitalia. 11) *Parargyractis drumalis*; 12) *P. bifascialis*. (both ventral views).

concave, tornus broadly rounded; venation as in rest of genus but veins thickened toward base. Ground color white; basal 0.33 covered with fuscous scales over costal half, less so over anal half. Antemedial fascia fuscous, diffuse basad and merging along costa and radius with basal fuscous scaling; separated from basal area by a white wedge from cell to anal margin; bordered distally by a narrow white band followed by a dark fuscous line. Apical area of cell with an elliptical fuscous loop centered with ochreous and surrounded by white, with some fuscous dusting merging with fuscous scaling of costa-radial area and also basad over a white field to anal margin. Costa fuscous postmedially, mixed with buff scaling to first oblique white band which is bordered by a fuscous line basad of subapical wedge, which has a central triangular wedge of costal fuscous merging to orange-

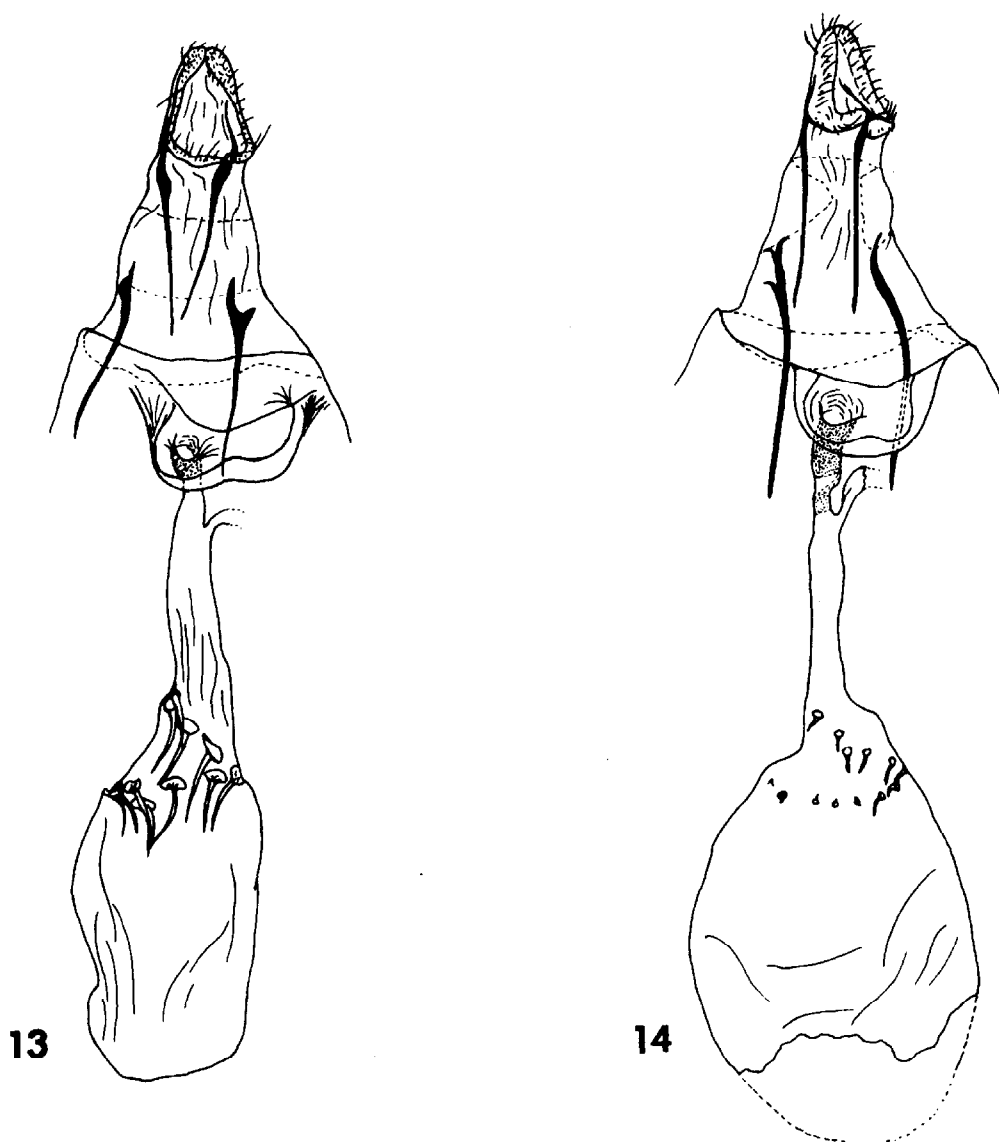


Fig. 13-14. Female genitalia. 13) *Parargyractis fulicalis*; 14) *P. santafealis* (both ventral views).

ochreous at the lower point. Fuscous wedge bordered apically by white, with a silvered line distal of orange point of wedge. Terminal band of orange-ochreous, with fuscous scales at apex, bending at right angles basally at tornus and then toward the loop beyond the cell. Ternal angle with a circular silver patch below angle of the terminal band. Fringe fuscous, lighter distally. Venter similar, more diffuse, subdued, silvered areas indistinct. *Hindwing*: subtriangular, apex rounded, anal margin broadly rounded; wing $1.5\times$ as long as wide. Ground color white; basally white to antemedial fascia, with a fuscous diffuse spot at anal angle which forms an indistinct line of fuscous scaling to costa. Costa dull white, lustrous, to apex. Antemedial fascia fuscous, centered over the cubitus with an orange-ochreous to yellow spot; sharply angled at A_1 toward base of wing, then angled to anal margin; bordered distally by a silvered band, which is followed by a part yellow, part fuscous line of scales. Subapical half of wing white with black and fuscous dusting to Cu_2 , basad to near anal margin. Apex yellow to ochreous, with some silvering. Subterminal row of 5 black spots, preceded by a zone of clear white, with some yellow scales bordering black spots basad, and by apical and ternal scales as a vestigial fuscous borderline; black spots separated by and touching spots of metallic purple; ternal spot followed by a trapezoidal spot of silver at wing margin by A_1 . Terminal row of 5 black and 4 yellow bars, with 3 yellow bars aligned opposite the lower subterminal black spots and one yellow bar opposite the apical black subterminal spot, none by the second. Diffuse yellow spot on anal margin at A_2 . Fringe fuscous at apex, lighter distally, then becoming near white at tornus and white along anal margin. Ventral pattern similar but dull, diffuse, and with only metallic purple subterminal central spots showing from among the metallic spots of the dorsal surface. *Genitalia*: Uncus spatulate, subtriangular, narrowed midway to bulbous rounded tip; short setae projecting down from tip ventrally. Gnathos with basal arms recurved and rounded ventrally, then angled to slender median process, distally pointed; rounded spines present at tip dorsally; median process reaching to $0.66\times$ uncus length. Tegumen $2/3$ length of uncus, expanded and membranous laterally. Valvae smoothly rounded along sacculus, more sharply bent along costa upwards to expanded and rounded distal ends; costa more sclerotized and thickened; distal and sacculus areas ventrally with numerous setae. Vinculum short, basally rounded, with a median basal projection toward juxta. Juxta quadrate, narrowed to posterior margin, which is flattened, then elevated to a median point; anterior margin angled to flattened edge. Aedeagus (Fig. 10b) long, straight, and very narrow (width to length ratio of about 1:18); cornuti a pair of elongate stylets, one having a wide hook medially, and numerous curved spines along 2 facing, linear rows at distal end; phallobase straight; ductus ejaculatorius wide and membranous, arising from basal $1/3$ of aedeagus at a wide oval juncture. *Genitalia* drawn from holotype (JBH prep. No. 113); four preparations examined.

Female.—Forewing length: 6.5-9.0 mm. As described for male, with antennae half thickness as in male and without prominent scaling pattern per segment; silvered band bordering antemedial fascia of hindwings more prominent than in male; fuscous borderline basad of subterminal row of black spots of hindwings more developed and with more yellow scales than in male. *Genitalia*: Ovipositor lobes unsclerotized and weakly devel-

oped; setation sparse; anterior apophyses longer than or slightly longer than posterior apophyses, somewhat stouter. Ostium wide, basally rounded; sclerotized with the opening to ductus bursae asymmetrically arising from left side of ostial chamber. Ductus bursae, membranous, narrow, nearly as long as bursa, with sclerotized collar $2\times$ as long as wide and with an extension looped around area preceeding junction with sperm duct on occasion. Bursa copulatrix oval and membranous, large, with a short basal spiral of 8-14 short spines, occasionally with some vestigial spines. Genitalia drawn from allotype (JBH prep. No. 84); 11 preparations examined.

Types: Holotype male and allotype female: FLORIDA, Columbia County, Santa Fe River, 8 mi. S. Fort White, 16-I-1974 (D. H. Habeck). Holotype and allotype deposited in the Florida State Collection of Arthropods.

One hundred and seventy-seven paratypes (37 males, 140 females) from Florida: Columbia County: Santa Fe River, 8 mi. S. Fort White, 19 males, 101 females, 16-I-1974 (D. H. Habeck); 13 males, 21 females, 22-I-1974 (D. H. Habeck); larvae and pupae 4-II-74 (1 female emerged 15-II-1974); 1 male, 2 female, 6-IV-1974 (J. B. Heppner); 3 pupae, 8-V-1974 (3 females emerged 11, 13, and 16-V-1974); 2 males, 1 female, 27-XI-1973 (D. H. Habeck); 2 males, 1 female, 28-XI-1972 (D. H. Habeck). Marion County: Alexander Springs Cpgd., 1 female, 21-IV-1975 (J. B. Heppner); Juniper Springs, 2 females, 18-III-1975 (D. H. Habeck); 1 female, 3-IX-1938 (Hubbell-Friauf, Univ. of Michigan Coll.); Ocala, 1 female, 8-XI-1960 (T. R. Adkins-ex Kimball Coll.); Silver Springs, 4 females, 12-IX-1960 and 1 female, 8-XII-1960 (T. R. Adkins-ex Kimball Coll.). Paratypes deposited in the British Museum (Natural History), California Insect Survey (University of California, Berkeley), Canadian National Collection, Florida State Collection of Arthropods, Landessammlungen für Naturkunde Karlsruhe (W. Germany), U.S. National Museum of Natural History, University of Michigan Collection, and the collections of C. P. Kimball and the author. Nearly half the paratypes are in poor condition, but since they were examined and retain usable parts, they are included as paratypes.

Distribution: Known only from north central Florida.

Flight period: November to May; September.

Biology: Larvae have been reared by D. H. Habeck on algae growing on rocks from the Santa Fe River, Florida. Biological notes and the larval description may be found in Habeck and Ogunwolu (in press).

Remarks: Some specimens of *P. santafealis* have little orange on the antemedial fascia of the hindwings, it being sometimes almost smoky black. Other specimens are very dark overall, with extensive fuscous scaling and with the silvered and orange areas very prominent. Worn specimens may have few scales remaining on the silvered areas of the wings. Female genitalia show variations in bursal spination: 1 specimen was found to have only 3 developed spines, but with 6 vestigial spines, while another had 5 developed and 3 vestigial spines, but the total number of spines has always totaled 8 or more in genitalia examined.

Specimens listed by Kimball (1965) as *P. opulentalis* (Lederer) have been examined and they belong to *P. santafealis*. These specimens are included in the paratype series. As Munroe (1972-73) noted, *P. opulentalis* is a distinct South American species attributed to the Nearctic fauna by Lederer's incorrectly designated type locality.

P. santafealis may be distinguished from *P. canadensis* by having more

than the 6 short spines at the base of the bursa of the latter species and in having the hindwing antemedial fascia bordered distally by a silvered band. *P. fulicalis* lacks a prominent silvered border of the hindwing antemedial fascia. *P. fulicalis* also lacks any orange suffusion on this antemedial fascia. Female genitalia are diagnostic: *P. fulicalis* has 7-10 very long spines in a spiral at the base of the bursa while *P. santafealis* has 8-14 short spines (some occasionally vestigial). *Parargyractis hodgesi* Munroe from Arkansas has a symmetrical position for the ostium-ductus bursae junction, which is asymmetrical in *P. santafealis*, and has 4 bursal spines. The western *Parargyractis confusalis* (Walker) lacks any spines on the bursa and has the ostium-ductus bursae junction almost centered in the ostial chamber.

My collections from Kerrville, Texas in July 1974 yielded 3 females of a *Parargyractis* species very similar to *P. santafealis* except for its small size (half most *P. santafealis* females). Forewings of the Kerrville specimens have extensive white and yellow markings, much as in *Parargyractis daemonalis* (Dyar), rather than the fuscous areas of *P. santafealis*. The female genitalia are distinct, however, with the ductus bursae asymmetrically joined to the ostium as in *P. santafealis*, but with the bursa lacking spines. The species appears to be undescribed.

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A NEW U. S. RECORD FOR *PARAPOYNX DIMINUTALIS* (LEPIDOPTERA: PYRALIDAE), A POSSIBLE BIOLOGICAL CONTROL AGENT FOR *HYDRILLA VERTICILLATA*¹—(Note): While preparing plastic pools (3.05 m diam, 0.8 m deep) for herbicide-testing experiments on *Hydrilla verticillata* Royle, USDA technicians at Fort Lauderdale Agricultural Research Center reported (to Del Fosse) that "worms" were eating the plants. Upon examination of the plants, several small pyralid caterpillars plus a few adult pyralids were noted. Considerable damage to *Hydrilla* was caused by the larvae. A pool was immediately covered with plastic screening; and during the next 2 days, 66 adult pyralids were collected from the covered pool. Mr. John Heppner, Dep. of Entomology, University of Florida, Gainesville, identified a few of the specimens as the common pyralid *Parapoynx allionealis allionealis* Walker, but most were *Parapoynx diminutalis* Snellen (Fig. 1), heretofore known only from Pakistan to southeast Asia. We do not know how or when this species was introduced. Additional specimens were sent to Dr. D. C. Ferguson, Research Entomologist, Systematic Entomology Laboratory, II & BII I, Agr. Res. Serv., USDA, U. S. National Museum, Wash., D.C. 20560, who confirmed the *Parapoynx* identification. This pyralid has potential for biological control of *Hydrilla* (Baloch, G. M., and S. Ullah. 1975. Proc. Intern. Symp. Biol. Contr. of Weeds, Montpellier, 1973. 3:17-26.) and has been studied in Pakistan, supported by the USDA under Public

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