REVISION OF THE GENUS PARACHMA WALKER
(PYRALIDAE: CHRYSAUGINAE) OF NORTH AMERICA
NORTH OF MEXICO WITH DESCRIPTION OF A NEW GENUS

EVERETT D. CASHATT
Illinois State Museum, Springfield, Illinois 62706

ABSTRACT. The genus Parachma Walker is redescribed. A lectotype is selected for
P. borregalis Dyar, and P. borregalis is synonymized under P. ochracealis Walker. The
color variation of P. ochracealis is discussed. A new genus, Basacallis, is described and
P. tarachodes Dyar is designated the type species. Complete data and distribution maps
are presented for all specimens examined.

Twelve species have been placed in the genus Parachma Walker. Of these, two species, P. ochracealis Walker and P. borregalis Dyar
were known from the United States and listed by Barnes and McDunnough (1917). A third species, P. tarachodes Dyar, listed in Hodges
et al. (1983), was collected in the southeastern United States but remained unidentified in many collections. The present work, based on
the accumulation of more specimens and intensive studies of genitalia, venation, and head characters, has resulted in a redescription of
the genus Parachma. Parachma borregalis is treated as a synonym of P. ochracealis. Parachma tarachodes is removed from this genus and is
designated as the type species for a new genus, Basacallis.

Genus Parachma Walker, 1866
(Figs. 1–5, 8–11)

Parachma Walker, 1866:1263. Type species: Parachma ochracealis, by monotypy.
Zazaca Walker, 1866:1269. Type species: Zazaca auratalis (=Parachma ochracealis
Walker), by monotypy.
Perseis Ragonot, 1891:538. Type species: Asopia cuticulalis Hulst (=Parachma ochracealis
Walker), by monotypy.
Artopsis Dyar, 1908:95. Type species: Artopsis borregalis Dyar (=Parachma ochracealis
Walker), by original description.

Description

Head. Labial palpus sharply upturned, about one-third longer than eye diameter,
second segment about twice length of first and third segments; maxillary palpus vestigial,
two segmented, hidden beneath scaling; proboscis well-developed, scaled at base; frons
rounded, smoothly scaled; vertex smoothly scaled; antenna filiform, about seven-tenths
forewing length, two rows of scales to each segment, uniformly pilose beneath; ocellus
directly behind base of antenna; chaetosema formed by row of fine setae along ocular
suture laterad and posterad to the ocellus.

Thorax (Fig. 5). Forewing triangulate; Sc nearly straight, intercepting costa at about
one-half length; R₃ short and arising just before anterior angle of discal cell; R₂, R₃, R₄,
and R₅ stalked together; R₆ extremely short and weak, arising the same point as R₃ or
short-stalked with R₂; R₄ and R₅ stalked together, M₁ separate, arising from anterior angle
of discal cell; M₃ and M₄ stalked together with Cu₁; Cu₂ from below posterior of discal
cell; 1A absent; 2A and 3A separate at base, anastomosed briefly a short distance from
the base then divergent; retinaculum normal. Hindwing with frenulum normal; Sc and Rs anastomosed beyond the discal cell; M\textsubscript{1} from anterior angle of discal cell; M\textsubscript{2} and M\textsubscript{3} coincident and stalked with Cu\textsubscript{1}, arising proximad to the posterior angle of the discal cell. Legs moderate in length; foreleg smoothly scaled; midtibia, midtarsi, hindtibia, hindtarsi with heavy scale tufts.

**Abdomen.** Moderately long and slender.

**Male genitalia** (Figs. 8, 9). Uncus moderately broad and hood-shaped, apex broadly rounded, lateral arms for articulation of gnathos relatively long; tegumen narrow dorsad; pedunculus strongly modified for articulation of gnathos; vinculum narrow ventrad, without a well-developed saccus; gnathos moderately long, not extending past apex of uncus; transtilla weak and incomplete; valva moderately developed with apex rounded, inner surface clothed with long setae directed dorsad; juxta relatively small and U-shaped; aedeagus moderately developed, cylindrical with base slightly broadened and without a caecum; vesica with microspines and two plate-like cornuti armed with a row of several spurs.

**Female genitalia** (Fig. 10). Ovipositor moderately short; papillae anales moderately broad with apex unilobate; anterior apophysis broad at base, longer than posterior apophysis; eighth segment relatively short; ostium bursae membranous and without a well-developed lamella postvaginalis; antrum relatively long and lightly sclerotized, constricted at inception of ductus seminalis; ductus bursae broadened and sclerotized posteriad; anterior half narrowed and membranous; corpus bursae simple and without signa.

**Remarks**

*Parachma* is allied to *Caphys* Walker, 1863, *Acallis* Ragonot, 1891, and *Zaboba* Dyar, 1914c, as indicated by the venation and genitalia. All four genera have the forewing M\textsubscript{2} and M\textsubscript{3} long-stalked and Cu\textsubscript{1} separate, but in *Parachma* Cu\textsubscript{1} arises from the stem of M\textsubscript{2} and M\textsubscript{3}. In all four genera, forewing 2A and 3A anastomose briefly as described above. The hindwing shows a similar relationship with M\textsubscript{2} and M\textsubscript{3} coincident and stalked with Cu\textsubscript{1} except in *Acallis* where Cu\textsubscript{1} is separate or arises from the same point on the discal cell.

The male genitalia of *Parachma, Acallis, Caphys,* and *Zaboba* are similar in structure, having a simple well-developed valva, uncus, and gnathos. The uncus of *Parachma* is broad with a well-rounded apex, whereas in *Caphys* it is relatively narrow and tapered posteriad (Munroe, 1970, fig. 8). The uncus of *Zaboba* and *Acallis* is shorter than that of *Parachma* and more rounded than *Caphys*.

The female genitalia are more diverse. *Parachma* and *Acallis* have an ovipositor that is moderate in length and without a lamella postvaginalis. *Caphys* and *Zaboba* have an extended ovipositor with the lamella postvaginalis reduced to two small elongated plates.

*Parachma ochracealis* Walker, 1866

*Parachma ochracealis* Walker, 1866:1263.
*Zazaca auratalis* Walker, 1866:1269.
*Asopia culiculalis* Hulst, 1886:147.
*Artopsis borregalis* Dyar, 1908:95. NEW SYNONYMY.
*Artopsis nua* Dyar, 1914a:164.
*Parachma ochracealis a culiculalis*, Barnes and McDunnough, 1917:138.
DESCRIPTION

Alar expanse. 13 to 23 mm.

Head. Labial palpus ochreous with light to dark reddish brown laterad; frons and vertex ochreous, in darker specimens overscaled with dark reddish brown.

Thorax. Dorsum light reddish brown to dark reddish brown or ochreous-gray, ventrum dark reddish brown to grayish brown. Forewing (Figs. 1–4) ochreous to reddish brown or ochreous-gray; antemedial line ochreous, extending from one-third costa excurved to about one-third hind margin; postmedial line ochreous, extending from about two-thirds costa to two-thirds hind margin, nearly straight; terminal line reddish brown; fringe ochreous; undersurface orange-brown to reddish brown, costa darker. Hindwing light to medium orange-brown; fringe ochreous; undersurface ochreous, overscaled with reddish brown tofuscous and with an ochreous median line. Legs dark reddish brown tofuscous; midtarsi ochreous, hind tibial spurs ochreous with band of dark reddish brown.

Abdomen. Dorsum concolorous with wings, ventrum darker.

Genitalia (Figs. 8–10). As described for the genus (Figs. 8–10).

Type data. Parachma ochracealis Walker, holotype, male, no data, genitalia slide BM 10729, in the collection of the British Museum (Natural History); Zazaca auratalis Walker, holotype, female, no data, genitalia slide BM 10730, in the collection of the British Museum (Natural History); Aspoia culiculalis Hulst, holotype, male, Florida (no other data), in the collection of the American Museum of Natural History; Artopis borregalis
Figs. 5–7. Wing venation: 5, male, Parachma ochracealis: 6, male, Basacallis tarachodes; 7, female forewing.

Dyar, four male syntypes [with identical labels]. Los Borregos, Brownsville, Texas, June 5, 1905, H. S. Barber (I hereby designate one of these syntypes as the lectotype of Artopsis borregalis and have so labeled it), U.S. National Museum Type No. 11921; Artopsis nua Dyar, holotype, male, Lakeland, Florida, March 1913, C. N. Ainslie, U.S. National Museum Type No. 19081.

Figs. 8–10. Genitalia of *Parachma ochracealis*: 8, male, ventral view, aedeagus removed, Benton Co., MO, slide EDC 1017; 9, aedeagus, lateral view of cornuti, Cochise Co., AZ, slide EDC 753; 10, female, ventral view, spermatophore in corpus bursae, Benton Co., MO, slide EDC 1018.
Fig. 11. Documented locality records for *Parachma ochracealis*. One dot represents more than one locality where collection sites are adjacent.


Life history. Dr. Dale H. Habeck, University of Florida, has reared larvae on a slightly modified Shorey and Hale (1965) pinto bean medium. The natural food habits and larval habits are unknown.

Remarks

The synonymy is a result of the wide range of color variation and size. The moths at hand indicate a clinal color relationship between the western and the southeastern specimens. Specimens from the warmer and more humid areas in Mississippi, Texas, and Florida are darker and more reddish. The lighter colored and larger moths were collected from Arizona, New Mexico, and western Texas (Fig. 4). Some
smaller specimens taken on the Gulf Coast are grayish brown (Fig. 3) and were described as *Artopsis borregalis*, a separate genus and species by Dyar (1908). The reddish form (Figs. 1, 2) was named *cuticulalis* by Hulst (1886) and *Artopsis nua* by Dyar (1914a). One specimen from southern Florida has an ochreous forewing with a dark reddish brown median band. A few specimens exhibit variation in the arching and distance between the antemedial and postmedial lines. On examining a large series of specimens, I discovered a gradation of all of these characters. As Kimball (1965) so aptly stated, “There is no question about the variation in color, as well as size, but it is difficult, if impossible, to fit specimens into the named forms.” I have examined all type specimens and have studied the genitalia. There are no apparent morphological differences between the ochreous, reddish brown, and grayish brown forms.

This species comes in readily to a blacklight at night. The resting posture is distinctive, as for most of the Chrysauginae. The wings are positioned somewhat parallel to the substrate, not held roof-like over the abdomen. The legs are held at right angles from the body, displaying the heavy scale tufts on the mid and hindtibia.

**Genus Basacallis** Cashatt, NEW GENUS

(Figs. 6, 7, 10-17)

Type species: *Parachma tarachodes* Dyar, 1914b.

**Description**

**Head.** Labial palpus curved upward, about one-fourth longer than eye diameter, first and third segments subequal in length, second about one-third longer; maxillary palpus vestigial, hidden beneath scaling; proboscis well-developed; frons rounded and smoothly scaled; vertex roughly scaled; antenna filiform, about seven-tenths length of forewing, each segment with two rows of scales, uniformly pilose beneath; ocellus posteriad to antenna base, chaetosema formed by a row of fine setae along ocular suture posteriad to ocellus.

**Thorax** (Figs. 6, 7). Forewing long, relatively narrow and triangular; Sc long; R₁ intercepts Sc in male, separate in female; R₂ and R₃ coincident and stalked with R₃; male discal cell about one-third wing length, female discal cell about one-half wing length; M₁ separate, arising from anterior angle of discal cell; M₁, M₂, Cu₁, and Cu₂ all separate and arising from posterior angle of discal cell in male, Cu₂ arising proximad to posterior angle in female; 2A and 3A separate at base, briefly anastomosed a short distance from base; retinaculum normal. Hind wing with frenulum normal; Sc and Rs anastomosed beyond discal cell; discal cell extremely short with posterior angle long; M₂ coincident with M₃ and arising from the posterior angle of the discal cell; Cu₁ and Cu₂ separate. Legs moderately long; midtibia with two scale tufts.

**Abdomen.** Moderately long with no lateral scale tufts.

**Male genitalia** (Figs. 14, 15). Uncus relatively short, tapered posteriorly, lateral arms strongly modified for articulation with gnathos; tegumen narrow dorsad; pedunculus strongly modified for articulation with gnathos; vinculum moderately broad; gnathos long, slender and aculeate with apex hooked dorsad; valva moderately long and wide with tip curved mediad, sacculus slightly expanded, transtilla weak; juxta narrower at base; aedeagus long and slender, distal one-third bent ventrad.
Female genitalia (Fig. 16). Ovipositor relatively short; apex of papillae anales unilobate; anterior and posterior apophysis slender and moderately long, approximately the same length; lamella postvaginalis triangulate with anterior margin cleft; ostium bursae relatively small and membranous; ductus bursae extremely slender.

Remarks

The type species of Basacallis, tarachodes Dyar, is not congeneric with P. ochracealis, but belongs in a separate genus allied to Humiphila Becker (1974), a genus described for a saprophagus species (H. paleolivacea Becker) in Costa Rica. The male and female genitalia show relatively close relationships between H. paleolivacea and B. tarachodes in the gross morphology. In particular, the aedeagus (Fig. 15) is acutely bent in these two species.

Of the North American fauna Basacallis shows the closest natural relationships with Caphys and Acallis. Hindwing M2 and M3 are coincident and the discal cell is reduced. Vein M2 + M3, and Cu1 are short-stalked or arise separately from the posterior angle of the discal cell as in Caphys and Acallis. Basacallis is distinguished from the related genera by forewing M1 and M2 arising separately and not stalked as in Caphys and Acallis. The male genitalia more closely resemble Acallis except for the acutely bent aedeagus. The bursa copulatrix is relatively slender and delicate in Acallis and Basacallis except for the sclerotization of the ductus bursae just below the inception of the ductus seminalis. I have found the structure of the bursa copulatrix to be extremely delicate and difficult to dissect and interpret.

The name Basacallis is feminine in gender and formed by combining the Greek word for foundation and the genus name Acallis (Bas + acallis).
FIGS. 14–16. Genitalia of *Basacallis tarachodes*: 14, male, ventral view, aedeagus removed; 15, aedeagus, slide EDC 872; 16, female, ventral view, slide EDC 873; all from Pensacola, FL.
**Basacallis tarachodes** (Dyar), NEW COMBINATION

*Parachma tarachodes* Dyar, 1914b:306.

**Description**

**Alar expanse.** 16 to 23 mm.

**Head.** Labial palpus gray, brownish laterad; frons, vertex, and antenna gray.

**Thorax.** Dorsum gray, ventrum reddish-brown. Forewing (Figs. 12, 13) light gray, with darker gray median band across middle one-third, antemedial and postmedial nearly straight and distinct in male, more diffuse and slightly excurved in female; terminal line fuscous; fringe reddish to purplish brown, sometimes invading distal portions and fading proximal; underside purplish red with short fuscous antemedial and postmedial lines from the costa. Hindwing grayish white with outer margin purplish, fading proximal, terminal line fuscous; fringe ochreous with base reddish brown; females darker, underside reddish to purplish brown with an ochreous median band. Legs reddish brown to fuscous, scale tufts fuscous, midtarsi ochreous; hindtibia and tarsi ochreous overscaled with fuscous.

**Abdomen.** Dorsum ochreous-gray, ventrum light reddish brown.

**Genitalia** (Figs. 14–16). As described for the genus.

**Type data.** Holotype, female, Portobelo, Panama, April 1912, genitalia slide EDC878, Type No. 16297, in the U.S. National Museum.

VOLUME 38, NUMBER 4 279


Life history. Unknown.

Remarks

Unrecognized in many collections, this species was referred to in Kimball (1965) as, "5801.3 [X.] SP. — either Xantippe, Parachma, or a closely related genus." Of the few specimens examined, the size and maculation varies considerably between males and females. The alar expanse ranges from 16 to 18 mm in males and 19 to 23 mm in females. The forewing median band is sharply defined by distinct antemedial and postmedial lines in the male. In females the antemedial and postmedial lines are less distinct and the median band is darker than that of the male.

ACKNOWLEDGMENTS

I am grateful to the following persons and/or institutions for their patience, assistance and the loan of their specimens, without which this study would not have been possible: American Museum of Natural History (AMNH); British Museum (Natural History), Bryant Mather (BM); Canadian National Collection (CNC); Cornell University (CU); Charles V. Covell, Jr., Dale H. Habeck, Florida State Collection of Arthropods (FSCA); Illinois Natural History Survey (INHS); Illinois State Museum (ISM); John B. Heppner (J BH); J. R. Heitzman (J RH); Museum of Comparative Zoology (MCZ); Richard B. Dominick (RBD); Ronald H. Leushner (RHL); University of Louisville (UL); United States National Museum (USNM). Genitalia photographs were taken by Scott Kilborne, Southern Illinois University Medical School. Thanks go to James R. Purdue, my associate, for his assistance with the word processor and to George L. Godfrey, Illinois Natural History Survey, for his review of the manuscript.

LITERATURE CITED


