TWO NEW SPECIES AND A KEY TO THE ADULTS
OF ALEOCHARA OF FLORIDA
(COLEOPTERA: STAPHYLINIDAE)

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ABSTRACT

Two new species, Aleochara (Aleochara) pseudolustrica Klimaszewski, and
Aleochara (Calochara) beckeri Klimaszewski, from Florida, are described on the basis
of structures of adults. A key is given to adults of the eleven species of Aleochara now
known to occur in Florida. Additional distributional data are given for Aleochara (Cop-
rochara) notula Erichson and A. (A.) lustrica Say.

RESUMEN

Dos nuevas especies, Aleochara (Aleochara) pseudolustrica Klimaszewski y
Aleochara (Calochara) beckeri Klimaszewski, de Florida, son descritas en base a estructureas
de los adultos. Una clave para adultos de 11 especies de Aleochara conocidas de
Florida es proveida. Datos adicionales de distribución son reportados para Aleochara
(Calochara) notula Erichson y para A. (A.) lustrica Say.

Larvae of all Aleochara species are internal parasitoids of dipterous pupae, as far
as is known. Dipterous eggs and larvae are major dietary items of adult Aleochara.
Interest has accordingly been shown in Aleochara as natural regulatory agents and as
biological control agents of pest fly populations. Although some Aleochara species have
been introduced into North America as biological control agents of pest flies, knowledge
of classification and natural history of native North American species remained very
poor until Klimaszewski's (1984) revision began to provide a sound basis for identifica-
tion. This paper provides a basis for ecological studies of the Aleochara species occurring
in Florida. Most of the material comes from an extensive sampling program by S. B.

MATERIALS AND METHODS

Most specimens were collected in flight-intercept traps in hardwood hammocks, or
in carrion-baited pitfall traps, or by Tullgren funnel extraction of sifted organic mate-
riales. Flight-intercept traps were large-area intercept traps combined with Townes-
style Maise trap heads [Malaise-FIT traps]. Materials sifted included dog- and horse-
dung, hammock leaf litter, and sea beach litter. Most specimens were collected by S.
& J. Peck, and some by S. Peck & J. Klimaszewski. Some specimens were collected by E. C. Becker in the Gainesville area using malt-baited pitfall traps in pine-oak forest. Many specimens were dissected. Genitalic structures were dehydrated in alcohol, transferred to xylene, mounted in Canada balsam on plastic slides, and pinned with the specimens from which they came. Holotypes and allotypes from this study are deposited in the Canadian National Collection [CNC], Ottawa. Paratypes are deposited in the collections of the authors [JKC, JHFC, SPC] and in the Florida State Collection of Arthropods [FSCA] as indicated in the text. Authorship of the new species names is attributed to the senior author alone, as recommended by Blackwelder (1967) in the case of multi-authored taxonomic works.

KEY TO ADULTS OF ALEOCHARA SPECIES OCCURRING IN FLORIDA

1. Pronotum with 2, longitudinal, subparallel rows of setigerous punctures near the middle line of the disc; elytra brown to black, each elytron with paler apical-medial spot colored yellowish-brown to bright yellow .................. 2
1'. Pronotum evenly pubescent, without 2 longitudinal rows of setigerous punctures near the middle line of the disc; elytra not colored as above (except in A. lacertina) ......................................................... 4
2. Pronotum and head highly glossy with sparse punctuation and fine pubescence; median line of pronotum outlined on each side with a broken row of about 12 punctures; each elytron with a bright-yellow apico-medial spot .......................................................... A. (C.) notula Erichson
2'. Pronotum and head glossy with moderately dense punctuation and coarse pubescence; median line of pronotum outlined on each side with an unbroken row of >20 punctures; each elytron with a dull yellowish-brown apico-medial spot ........................................................................... A. (C.) verna Say
3. Setigerous punctures of head and pronotum deeply impressed; smaller (2.0-4.0 mm long) ......................................................... A. (C.) bimaculata Gravenhorst
3'. Setigerous punctures of head and pronotum shallowly impressed; larger (4.0-8.0 mm long) ......................................................... A. (X.) lacertina (Måklin)
4. Basal terga of abdomen with prominent, scale-shaped microsculpture; elytra black; most specimens with a pale, yellowish-brown spot in apico-medial part of each elytron ......................................... A. (X.) lacertina (Måklin)
4'. Basal terga of abdomen without scale-shaped microsculpture; elytra not colored as above ........................................................................ 5
5. Body slender; head, pronotum, elytra and abdominal terga with distinct hexagonal microsculpture; pro- and mesotibiae each with double row of prominent spines; occurring on seashores .......... A. (E.) litoralis (Måklin)
5'. Body robust; head, pronotum, elytra and abdominal terga with surface smooth between punctures; pro- and mesotibiae with moderate spines, inconspicuous because interspersed among finer setae; generally in habitats other than seashores .................................................. 6
6. Elytra with pubescence directed approximately straight posteriorly; last maxillary palpmere as long as penultimate; antennomeres V-X strongly transverse, each at least twice as wide as long; some specimens large (3.0-9.0 mm long) .................................................. 7
6'. Elytra with pubescence directed obliquely posteriorly toward postero-lateral angles, in some specimens forming slightly sinuate lines near the angles; last maxillary palpmere slightly or distinctly shorter than penultimate; antennomeres V-X at most slightly transverse ...................................... 10
7. Elytra uniformly black; some specimens large (4.0–9.0 mm long) .......... .......................... A. (A.) lata Gravenhorst
7'. Elytra yellowish to rust-brown or bicolored; smaller (3.0–7.0 mm long) .......... 8
8. Elytra yellowish-brown to rust-brown; antennomeres IV longer than wide, V–X quadrate or longer than wide; tergite VIII of male without apical serration .................................................................................................................. A. (A.) gracilicornis Bernhauer
8'. Elytra dark brown to black with paler brownish to rust-brown oblique belt on each elytron, extending from basal outer angle to apico-medial angle; antennomeres IV–X transverse; tergite VIII of male with distinct apical serration ................................................................. 9
9. Head and pronotum moderately densely pubescent and moderately glossy, punctuation fine; abdominal apex of most specimens dark; tergite VIII of male unicolorous; apex of median lobe of aedeagus produced into a small hook laterally; spermatheca connected to membranous, inconspicuous vagina with one inconspicuous, U-shaped sclerite; widely distributed except on Florida Keys ............................................................ A. (A.) lustrica Say
9'. Head and pronotum sparsely pubescent and highly glossy, punctuation deeply impressed; abdominal apex paler, rust-brown; tergite VIII of male bicolored; apex of median lobe of aedeagus acute, pointed slightly ventrally, and with small subapical projection; spermatheca connected to well-rotated vagina with 2 distinct sclerites near its opening; known only from lower Florida Keys .................................................. A. (A.) pseudolustrica Klimaszewski
10. Body evenly, narrowly elongate; pronotum sparsely pubescent with deeply impressed coarse punctuation and with narrow, transverse basal impression; elytra unicolorous, black; last maxillary palpomere spindle-shaped, only 0.25X length of penultimate ......................... A. (C.) beckeri Klimaszewski
10'. Body robust with sides arcuate; pronotum densely pubescent with slightly impressed fine punctuation and with basal impression absent; elytra black with paler, rufous or yellowish-brown belt on each side, ranging from basal outer angle to apico-medial one; last maxillary palpomere as long as penultimate or almost so .......................................................... A. (X.) puberula Klug

SUBGENUS ALEOCHARA MULSANT & REY

For definition of the subgenus see Klimaszewski (1984).

Aleochara pseudolustrica Klimaszewski, new species 
(Fig 7-12)

ETYMOLOGY. The name adds the prefix pseudo- (false) to the epithet lustrica (as in Aleochara lustrica Say).

DIAGNOSIS. Adults of this species are distinguished by the following combination of characters: body robust, of medium size (average 4.5 mm long), glossy (slightly less so on elytra), dark brown to black with oblique, paler, rust-brown belt on each elytron, abdomen with apical part also paler, usually rust-brown; punctuation deep, especially on head and pronotum; male tergum VIII serrated apically and bicolored (Fig. 12); median lobe of aedeagus with a complex arrangement of sclerites (Fig. 8), and with apex acute, slightly pointed ventrally and with a subapical small projection (Fig. 7); spermatheca L-shaped with a short duct and seminal canal connected to a broad, long, and usually well-sclerotized or pigmented vagina whose opening has a semicircular sclerite bearing a small tooth on side (Fig. 9); in vicinity of vaginal opening there is an additional
Figs. 1-9. Aleochara spp.: 1-5 A. beckeri sp. n.: 1, spermatheca; 2, aedeagus in ventral view (one paramere removed); 3, median lobe of aedeagus in lateral view; 4, sternite VIII of male; 5, apex of tergite VIII of male with peg-shaped setae; 6: A.
U-shaped sclerite (Fig. 10, 11). Specimens resemble those of A. (A.) *lustrica* Say, but differ in coarser punctuation and in genitalic structures described above. *Aleochara pseudolustrica* is known only from the lower Florida Keys (Cudjoe Key, Sugarloaf Key), where *A. lustrica* has not been found. Adults also are similar to those of two Neotropical species (*A. chrysorrhoo* Erichson and *A. lateralis* Erichson), but differ in the same ways as they do from *A. lustrica* (see also description of *A. lustrica* by Klimaszewski 1984 and of *A. chrysorrhoo* and *A. lateralis* by Klimaszewski et al. 1987).

**DESCRIPTION.** Dark brown to black, with tarsi and in some specimens tibiae, maxillary and labial palpi, antennomeres I-II, and apical part of abdomen paler, usually rust-brown. Each elytron with a more-or-less well-defined rust-brown belt extending from basal outer angle to apico-medial angle. Pubescence brownish, paler on elytral belte, and dense on elytra than elsewhere. Punctuation moderately deep. Length 2.5-6.0 mm.

Head capsule slightly transverse, sparsely pubescent, and with punctures deeply impressed, surface between punctures without microsculpture and glossy, pubescence directed anteriorly and inward, antennomeres I-III elongate and glossy, IV transverse and glossy, IV-X transverse and matt, each at least twice wider than long; last maxillary palpomere as long as penultimate or almost so. Pronotum slightly transverse, broadly rounded basally and insignificantly sinuate basally near the sides, sparsely pubescent with punctures deeply impressed and surface between them without microsculpture and glossy, pubescence directed posteriorly along midline of the disc and postero-laterally elsewhere. Elytra transverse, densely pubescent, with pubescence directed more-or-less straight posteriorly, punctures less pronounced than those on head and pronotum, and surface less glossy than the latter. Abdomen robust, broadly arcuate laterally and gradually narrowed posteriorly, glossy and sparsely pubescent, punctures deeply impressed and slightly, longitudinally elongate; first five abdominal tergites narrowly, transversely impressed at base.

**MALE.** Tergite VIII bicolored, brown with paler, usually yellowish, apical third; sparsely pubescent and with a few prominent setae in apical third; apex serrate (Fig. 12). Sternite VIII of most specimens bicolored, with apex truncate, pubescence sparse, slightly elongate toward apex. Apex of median lobe of aedeagus acute and slightly dorsally oriented and with small subapical projection in lateral view (Fig. 7); internal sac with complex sclerites (Fig. 9) similar to those of *A. lustrica* and *A. lateralis*.

**FEMALE.** Tergite and sternite VIII similar to those of male, but tergite lacking serrate apex. Spermotaxa L-shaped with short duct and seminal canal connected to broad, long and in most specimens well-sclerotized vagina which bears near the opening a semicircular sclerite (Fig. 9). In vicinity of the vaginal opening there is an additional U-shaped sclerite (Fig. 11).

**HABITAT.** All specimens examined were collected in hardwood hammocks.

**GEOGRAPHIC DISTRIBUTION.** The species is known only from Cudjoe and Sugarloaf Keys, in the lower Florida Keys, USA, though it may occur also in the West Indies. Although identical traps were operated on the southern mainland of Florida, in the upper Keys and lower Keys, specimens were collected only in the lower Keys.

**MATERIAL EXAMINED.** In total, 218 specimens, including 37 males, 39 females, and 143 specimens of undetermined sex. Specimens are deposited in CNC, JKC, JHFC, and SPC.

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*lustrica* Say: median lobe of *aedeagus* with everted *internal sac*; 7-9 *A. pseudolustrica* sp. n.: 7, apical portion of median lobe of *aedeagus* in lateral view; 8, median lobe of *aedeagus* in ventral view; 9, spermatoxica with seminal canal and vagina. [Note: the dorsal side of the *aedeagus* is considered to be the side with the vas deferens].
HOLOTYPE. The holotype is a female and is deposited in the Canadian National Collection, and labelled: Florida, Monroe Co., Sugarloaf Key, Kitchings Hammock, Section 25, 29.viii-14.xi.86, S. & J. Peck (86-80), hammock forest Malaise-FIT.

ALLOTYPE. The allotype is a male, bears the same collection labels, and is deposited in CNC.


Aleochara (Aleochara) lastrica Say
(Fig. 6)


SUBGENUS CALOCHARA CASEY

For definition of the subgenus see Klimaszewski (1984).

Aleochara beckeri Klimaszewski, new species
(Fig. 1-5)

ETYMOLOGY. The species is named for our colleague E.C. Becker, Ottawa, Canada, collector of the type series.

DIAGNOSIS. Adults of this species are distinguished by the following combination of characters: body dark brown to black; evenly, narrowly elongate; of medium size (3.0-5.0 mm long); punctures on head, pronotum and elytra coarse; pubescence sparse and yellowish; median lobe of aedeagus slender in ventral view (Fig. 2), its apex in lateral view projecting dorsally and pointed (Fig. 3), the internal sac with two pairs of sclerites (Fig. 2, 3), the flagellum about 0.3X length of median lobe (Fig. 2); sternite VIII of male with triangular, median, apical projection (Fig. 4), tergite VIII of both sexes with peg-shaped apical setae (Fig. 5); spermaticca with spherical capsule and slightly sinuate and narrowly elongate chamber (Fig. 1). Known only from Florida.
Figs. 10-12. A. *pseudolustrica* sp. n.: 10, posterior portion of vagina with sclerites; 11, apical abdominal segments of female with internal sclerites; 12, tergite VIII of male (shaded area indicates colors brown to dark brown, and unshaded area indicates colors yellowish brown to yellow).

**Description.** Dark brown to black, with tarsi (or entire legs, maxillary and labial palpi, antennae, labrum, apex of abdomen, and posterior portion of elytra) brown with
ruddy tinge. Pubescence sparse, uniformly yellowish; punctures on head, pronotum and elytra coarse. Length 3.0–5.0 mm.

Head capsule approximately as wide as long, sparsely pubescent, with pubescence directed toward vertex, punctures round and deeply impressed, surface between punctures without evident microsculpture and glossy; antennomeres I–III elongate and glossy, IV as wide as long and glossy basally, V–X each slightly transverse and matt; last maxillary palpomere spindle-shaped and 0.25X length of penultimate. Pronotum slightly elongate, broadest in apical third, emarginate and with narrow basal impression, base broadly rounded, anterior and posterior angles acute, lateral margins broadly curved; pubescence moderately dense, directed obliquely outward from the midline of the disc; punctures deeply impressed, and either rounded or somewhat irregular in shape, surface between punctures glossy and without evident microsculpture. Elytra approximately as long as wide, as densely pubescent as pronotum pubescence directed obliquely or in slightly sinuate pattern outward from the suture and toward posterior angles; punctures deep, rounded or slightly irregular in shape, surface between them glossy. Abdomen evenly, narrowly elongate, sparsely pubescent and glossy; punctures not as coarse as on forebody; first four abdominal terga broadly and deeply impressed at base.

MALE. Tergite VIII unicolorous, with sparse pubescence and with peg-shaped apical setae (Fig. 5), apex truncate or with insignificant, shallow, median emargination. Sternite VIII unicolorous, sparsely pubescent with a few prominent setae in apical third and with triangularly shaped apical projection (Fig. 4). Median lobe of aedeagus slender in ventral view (Fig. 2), in lateral view with apex acute and projecting ventrally (Fig. 3); internal sac with two pairs of sclerites and flagellum about 0.3X length of median lobe (Fig. 2).

FEMALE. Tergite VII similar to that of male, with shallow apical emargination. Sternite VIII as pubescent as that of male, but with shorter apical, median projection. Spermatheca as in Fig. 1.

HABITAT. Specimens were collected in January in pine/oak forest, using malt-baited pitfall traps. Species of this subgenus are associated with animal burrows (Klimaszewski 1984).

GEOGRAPHIC DISTRIBUTION. Known only from Gainesville, Florida.

MATERIAL EXAMINED. Two males, 5 females, 1 sex undetermined.

TYPES. HOLOTYPE. Florida, Gainesville, 1–5.ii.1979, E. C. Becker, malt traps, pine/oak forest, (CNC) 1 male. ALLOTYPE: labelled as holotype, (CNC) 1 female. PARATYPES: with same label data, (CNC) 4 females, (FSAC) 1 sex undetermined, (JKC) 1 male, 1 female.

REMARKS. Distinct from the other 9 Nearctic species of the subgenus (Klimaszewski 1984, Klimaszewski & Genier 1987) in the following combination of characters: coarse (and on pronotum irregularly shaped) punctures of forebody, lack of microsculpture, uniformly yellowish pubescence, deep basal pronotal impression, mesosternum with carina slightly shorter than half length of mesosternum and with deep and narrow basal impression, peg-shaped setae on apical part of tergite VIII, and distinctively shaped spermatheca and median lobe of aedeagus. The number of these differentiating characters places the species at some phylogenetic distance from the other species of the subgenus. The only other species of this subgenus occurring in the eastern Nearctic is A. (C.) rubripennis (Casey), whose range includes the western Nearctic, and whose aedeagal and spermathecal structures are similar (for illustrations see Klimaszewski 1984).
**Klimaszewski et al.: Florida Aleochara**

**SUBGENUS** *Coprochara* Mulsant & Rey

For definition of the subgenus see Klimaszewski (1984).

*Aleochara notula* Erichson

This is a widely distributed species known from the southern USA, with several records from the West Indies, Venezuela, and Chile (Klimaszewski 1984). It is widely distributed in Florida, but in the Keys it was known only from a single record from Key West. We provide here the first records from Big Pine Key and Sugarloaf Key. They were collected from dog dung, and from horse dung in association with *Leptagria perexilis* Casey and *Timonius* sp.

**NEW RECORDS:** Florida, Monroe Co., Big Pine Key, 15.xii.1986, J. Klimaszewski & S. B. Peck, by sifting horse dung, (JKC) male, 5 sex undetermined; same locality data and collectors, 18.xii.1986, sifting dog dung, (JKC) 4 males, 1 female, 23 sex undetermined; Sugarloaf Key, Pirates Cove, 15.xii.1986, J. Klimaszewski & S. B. Peck, (JKC) 1 male, 3 females, 5 sex undetermined.

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