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A review of the Nearctic species of *Fornax* Laporte
(Coleoptera: Eucnemidae: Macraulacinae: Macraulacini)
with descriptions of six new species

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A review of the Nearctic species of *Fornax* Laporte (Coleoptera: Eucnemidae: Macraulacinae: Macraulacini) with descriptions of six new species

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Abstract. The Nearctic species of *Fornax* Laporte are reviewed. Three species are redescribed, and six new species are described mainly from southeastern United States. The new species are *F. appalachiensis*, *F. convexicollis*, *F. floridana*, *F. lucidicollis*, *F. melsheimeri* and *F. parallelicollis*. A neotype is designated for *Hylochaeres bicolor* Melsheimer, with notes on its purpose. Each species is diagnosed and imaged. A new identification key is provided for all known species of *Fornax* present in the Nearctic region, replacing previous Nearctic species keys of Muona (2000) and Otto (2017).

Key words. False click beetles, taxonomy, systematics, southeastern US.

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Introduction

While studying *Fornax bicolor* (Melsheimer) specimens collected by Dan Young in Wisconsin, a great difficulty arose in comparing them against identified specimens in the GERP collection and species description provided by Muona (2000). Examination of all Nearctic *Fornax* and *Onichodon canadensis* (Brown) specimens in the GERP collection resulted in the discovery of a *F. bicolor* species complex with a number of undescribed species misidentified as *F. bicolor*. All previously studied specimens from various collections were recalled, along with examining newer material and a small number of specimens from Muona's Nearctic Eucnemidae revision, for further evaluations of their identities. A total of six undescribed species have been discovered since the start of this research project. A new identification key and illustrations of each species are provided.

Fornax is a very large genus with more than 300 species. Many species are distributed largely in the tropical and subtropical regions around the globe. The greatest diversity is concentrated in the African (47 species), Australian/Oceanic (32 species, including several undescribed species), Indo-Malaysian (129 species) and Neotropical (84 species, not including indeterminate number of undescribed species) regions. Six species are distributed in the Far East region of the Palearctic ecozone, including Japan. Nine species are now known to inhabit the Nearctic region.

The Latin word “Fornax” (feminine) literally means “an oven”. It is the Roman goddess of the bread and baking. The genera *Dorsifornax* Fleutiaux, *Neofornax* Cobos, *Pachyformax* Fleutiaux, *Plesioformax* Cocquerel, *Proformax* Fleutiaux, *Serriformax* Fleutiaux, *Spiniformax* Fleutiaux, *Similiformax* Fleutiaux and *Xyloformax* Otto that contain the root ‘fornax’ are also feminine. Many entomologists, myself included, have implied that *Fornax* and these other genera are masculine, which is reflected by the epithets chosen for their named species. Many specific epithets published by Bonvouloir, Chevrolat, Fleutiaux and many others, which are masculine, do not agree with the gender of *Fornax* and other genera bearing the root ‘fornax’. All masculine specific epithets must therefore be changed to feminine gender.

Materials and Methods

Specimens were examined under ACE® Modulamp® unit with gooseneck fiber-optic illumination, through a Wild M3C 6.4–40× zoom stereo binocular microscope with 20× oculars. Habitus and other structural images were taken with a JVC KY-F75U digital camera attached to a Leica® Z16 APO dissecting microscope with apochromatic zoom objective and motor focus drive using a Synchronoscopy Auto-Montage® Pro System and software version 5.01.0005, and resulting image stacks were processed using CombineZP®. All images were captured as TIFF files during the imaging process. Images were modified through a paint program and Photoshop Elements 10® software on a Toshiba Satellite® C55 series laptop computer and collated into plates through the computer's paint program. Size of each plate was modified to 300 ppi.

Adult measurements were taken using a ruler. Habitus length was measured from the apex of the head to the apex of the elytra. Habitus width was measured across the humeri, just below the base of the pronotum. Pronotal lengths were measured across the midsection from the apex to the base above the scutellar shield. Pronotal widths were measured across the base of the pronotum above the elytral humeri.

Aedeagi were dissected following immersion of sectioned abdomen in KOH for three hours at a concentration of one tablet in 40 ml of water, and then were suspended in Germ-X® hand-sanitizer for imaging. The abdomen was secured on cardstock and pinned beneath the corresponding specimen. The dissected aedeagus was stored in a microvial filled with glycerin and pinned beneath the abdomen and corresponding specimen.

The study was based on the examination of 159 dry-mounted and pinned specimens borrowed from the following collections:

- CMNH** Carnegie Museum of Natural History, Pittsburgh, PA
- EGRC** Edward G. Riley Collection, College Station, TX
- FMNH** Field Museum of Natural History, Chicago, IL
- FSCA** Florida State Collection of Arthropods, Gainesville, FL
- GERP** Global Eucnemid Research Project, UW Dept. of Entomology, Madison, WI
- KDKC** Ken D. Karns Collection, Lancaster, OH
- KESC** Kyle E. Schnepf Collection, Gainesville, FL
- LSUIC** Louisiana State University Insect Collection, Baton Rouge, LA
- MCZ** Museum of Comparative Zoology, Harvard University, Cambridge, MA
- SEMC** Snow Entomology Museum, University of Kansas, Lawrence, KS
- SNMC** Sam Noble Oklahoma Museum of Natural History, Norman, OK
- TAMU** Texas A & M University Insect Collection, College Station, TX
- USNM** Smithsonian Institution National Museum of Natural History, Washington, D.C.
- WIRC** Wisconsin Insect Research Collection, UW Department of Entomology, Madison, WI

Label data are presented verbatim, with text for each individual label placed inside quotation marks and separated from an underlying label by a slash (/). Observed metadata for some labels are placed inside parentheses and/or brackets. Each specimen deposited in the collection of the Global Eucnemid Research Project (GERP) bears a green-framed white label, "Collection of the Global, Eucnemid Research Project, (Robert L. Otto)".

Systematics

Subfamily Macraulacinae Fleutiaux, 1922

Tribe Macraulacini Fleutiaux, 1922

Genus *Fornax* Laporte, 1835

Diagnosis (*sensu stricto*). Apical margin of frontoclypeal region evenly rounded and twice as wide as the distance between antennal sockets; antennomere IV longer than II, shorter than III, as long as V; well-developed basally open lateral antennal grooves present; male protarsomere I simple, with basal sex combs; metacoxal plates medially more than 6.0 times wider than laterally; elytral epipleura evenly punctate; elytral apices dehiscent, spiniform; last visible ventrite either strongly produced, rounded or truncated; tarsal claws basally toothed; lateral surfaces of meso- and metatibiae with setae and transverse rows of spine combs (Otto, pers. obs.).

Note. A non-type French Guyanese specimen of *Fornax ruficollis* Laporte, the type species of *Fornax*, has been studied during the course of the study. During the examination, I observed the presence of evenly punctate elytral epipleuron and dehiscent, spiniform elytral apices. The presence of dehiscent, spiniform elytral apices are also evident in *Spinifornax* Fleutiaux. It appears that *Fornax* and *Spinifornax* may be congeneric. All species of *Fornax* in the Nearctic region possess grooved elytral epipleura and elytral apices meet, contrary to the observed character states present in *F. ruficollis*. It would indicate that all Nearctic species currently assigned to *Fornax* are misplaced. For the time being they are left in *Fornax* until a global revision of the genus is conducted, which includes evaluating nearly all misplaced species presently assigned, evaluation of the status of two synonymized groups within *Fornax*, as well as creating new group names for any misplaced species that cannot fit in any recognized groups within Macraulacini.

Key to the species of *Fornax* in the Nearctic region

1. Pronotum wider than long (Fig. 1); tarsal claws basally toothed 2
- Pronotum as long as wide (Fig. 2); tarsal claws basally swollen, simple *F. knulli* Muona
- 2(1). Base of frontoclypeal region with narrowly incomplete, delicate, horizontal interantennal carina 3
- Base of frontoclypeal region without indications of horizontal interantennal carina 4
- 3(2). Pronotal disc with delicate, short, shallow median groove *F. convexicollis* Otto, sp. nov.
- Pronotal disc without delicate, short, shallow median groove *F. parallelicollis* Otto, sp. nov.
- 4(2). Pronotum dull 5
- Pronotum shiny *F. lucidicollis* Otto, sp. nov.
- 5(4). Dorsum dark reddish brown 6
- Dorsum brownish black 8
- 6(5). Pronotum parallel-sided to weakly arcuate in basal half in males; parallel-sided in basal $\frac{2}{3}$ to $\frac{3}{4}$ in females 7
- Pronotum strongly arcuate in males; cranially narrowed in females *F. melsheimeri* Otto, sp. nov.
- 7(6). Pronotum parallel-sided in basal half in males; antennae elongate, reaching half of body length in females *F. appalachiensis* Otto, sp. nov.
- Pronotum laterally weakly arcuate in males; antennae slightly stouter, reaching nearly half of body length in females *F. floridana* Otto, sp. nov.



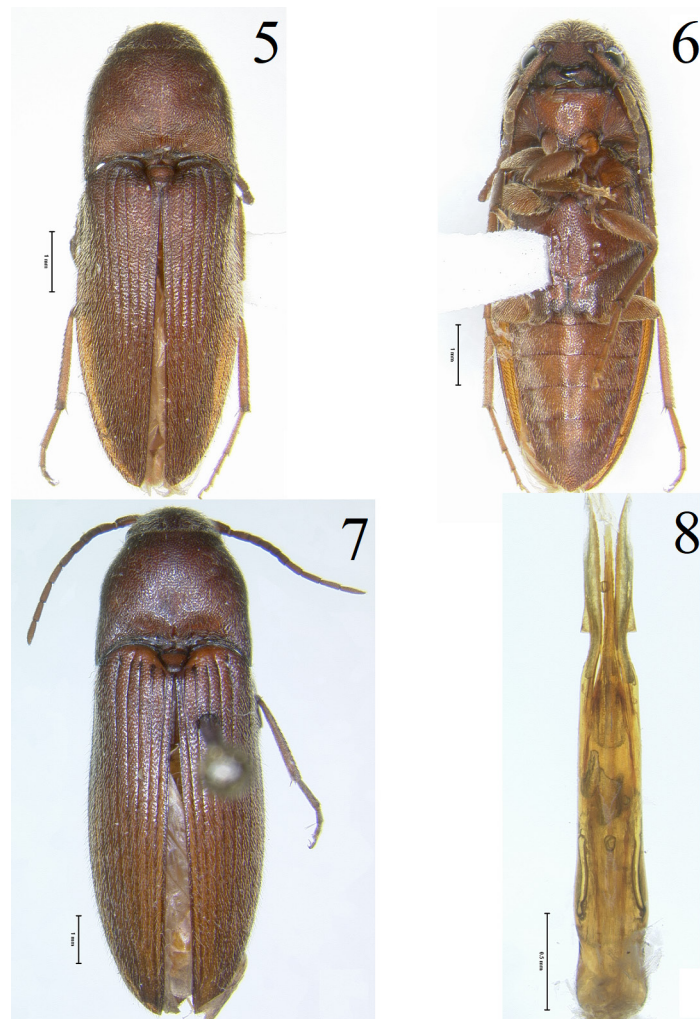
Figures 1–4. *Fornax* species. 1) *Fornax appalachiensis* Otto, sp. nov., male, pronotum. 2) *Fornax knulli* Muona, male, pronotum. 3) *Fornax dixiensis* Otto, female, last visible ventrite. 4) *Fornax bicolor* (Melsheimer), female, last visible ventrite. (Scale: 1–4 = 1.0 mm.)

- 8(5). Last abdominal ventrite produced (Fig. 3) in both sexes *F. dixiensis* Otto
 — Last abdominal ventrite either obtuse or very weakly produced (Fig. 4) in both sexes
 *F. bicolor* (Melsheimer)

***Fornax appalachiensis* Otto, new species**

Fig. 1, 5–8

Diagnosis. Dark reddish-brown dorsum distinguishes *F. appalachiensis* **new species** from most species of Nearctic *Fornax* except *F. knulli* Muona, *F. floridana* **new species** and *F. melsheimeri* **new species**. Overall larger size and wider than long pronotum further distinguishes *F. appalachiensis* **new species** from *F. knulli*. Parallel-sided pronotum distinguishes *F. appalachiensis* **new species** from *F. melsheimeri* **new species**. Male specimens of *F. appalachiensis* **new species** differ from *F. floridana* **new species** by having parallel-sided pronotum, weakly arcuate in the latter. Female specimens of *F. appalachiensis* **new species** differ from *F. floridana* **new species** by having elongate antennae reaching half of body length, being slightly stouter and reaching nearly half of body length in the latter.



Figures 5–8. *Fornax appalachiensis* Otto, **sp. nov.** 5) Male holotype, dorsal habitus. 6) Male holotype, ventral habitus. 7) Female allotype, dorsal habitus. 8) Male paratype, aedeagus, dorsal habitus. (Scale: 5–7 = 1.0 mm; 8 = 0.5 mm.)

Type material. Male holotype: “GEORGIA: Oconee Co., 2.4 km W Bishop, 33.81969, -83.46461, 241m, 28 Jul–11 Aug 2014, LFT, R. Willits, BSF# 58925” / “**HOLOTYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [red printed label]. **Female allotype:** “Bear Wallow, Ind., July 11, 1967, Charles E. White, Blacklight trap” (‘11’ handwritten) / “*Fornax, bicolor*, (Melsheimer), Det. R.L. Otto, 2014” (folded) / “**ALLOTYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label]. Holotype is deposited in CMNH. Allotype is deposited in FSCA.

Paratypes. 6 ♂♂, 10 ♀♀: **DELAWARE:** 1 ♀, “DELAWARE: Sussex Co., 8.9 km ESE of Laurel, 38.53035, -75.47468, 10 m, 29 Jun–9 Jul 2019, S. Hauss, K. Bielicki, LFT, BFS#86144” / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (CMNH); **GEORGIA:** 1 ♂, “Atlanta Ga, 7-8-46, P.W. Fattig” (date handwritten) / “J. N. Knull, Collection” / “*Fornax, bicolor*, Mel., det. J. Knull” (‘bicolor’ and ‘Mel.’ are handwritten) / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (FMNH); 1 ♀, “DeKalb, Co. GA, VIII-10-70” / “*Fornax, bicolor*, (Mels.), Muona det. 1980” (‘80’ handwritten) / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “USA, Georgia, Clarke Co. 200m, 33°54’N 83°16’W, 26-02 Sept., 1992, J. Pickering 173” / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♀, “GEORGIA: Fulton Co., 3.6 km NNE Union City, 33.61696, -84.5288, 293m, 2–14 Jun 2016, LFT, E. Dendy, BSF#71181” / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (CMNH); 1 ♂, “GEORGIA: Cook County, 4.9 km E Ellenton, 76m, 31.17327, -83.536, 15 May–6 June 2018, LFT, N. Skaggs, BSF#85829” / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (CMNH); **INDIANA:** 1 ♀, “Grantsburg, Ind., June 5, 1965, Dianne Eckert, Blacklight trap” / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♀, “IND: Brown County, Blacklight trap, at Bear Wallow, vi.12.68 CEWhite” / “N.M. Downie Colln., 1992 Acc. Z-18343, FIELD MUSEUM” / *Fornax, bicolor*, (Mels.), Muona det. 1980” (‘80’ handwritten) / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (FMNH); **NEW YORK:** 1 ♀, “N.Y.” / “*Fornax, bicolor*, 9168 Mels.” (folded; handwritten; double red framed white label) / “*Fornax, bicolor* (Mels.), J. Muona det. 1980” (folded; “bicolor (Mels.)” handwritten on label) / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (SEMC); **PENNSYLVANIA:** 1 ♀, “PENNSYLVANIA: Mifflin, Co, 5.4 km W Lewistown, 40.59697, -77.63562, 213m, 19 Jun–18 Jul 2007” / “intercept trap, J. Theis, BSF# 10920” / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (CMNH); **SOUTH CAROLINA:** 1 ♂, “Florence, 16 July, V.M. Kirk” (date handwritten) / “S.C., 1942” (‘42’ handwritten) / “Tanglefoot, Screen” / “J.N. Knull, Collection” / “*Fornax, bicolor*, Mel., det. J. Knull” (‘bicolor’ and ‘Mel.’ are handwritten) / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (FMNH); **TENNESSEE:** 1 ♀, “TENNESSEE: Knox Co., John Sevier, 10–13 July 2005, J.H. Lowe, E. Clebsch” / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (CMNH); **VIRGINIA:** 1 ♀, “Agriotes, mancus, Nelson Co. Va., July 14, 1919, W. Robinson” (‘Agriotes mancus’ and ‘July 14 1919’ handwritten) / “*Fornax, bicolor*, (Mels.), J. Muona det.” (species and author names handwritten; folded) / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (USNM); 1 ♂ 1 ♀, “VA: Appomattox Co., Appomattox, 14–28 June 1999, Robert Vigneault” / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (either ♂ or ♀ handwritten behind species name on label) [yellow printed label] (GERP); **UNKNOWN LOCALE:** 1 ♂, [pink disc] / “F, bicolor, (Mels)” [handwritten] / “**PARATYPE:** *Fornax, appalachiensis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (MCZ). Paratypes are deposited in CMNH, FMNH, FSCA, GERP, MCZ, SEMC and USNM.

Description. Male holotype. Length 8.0 mm. Width 2.5 mm. Body subcylindrical, elongate; uniformly reddish-brown; antennae reddish-brown; legs including tarsi reddish-brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 5). **Head:** Subspherical; integument rugose, somewhat dull; frons convex, without median carina or fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about

2 times wider than base; horizontal interantennal carina absent; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres III–XI, attaining nearly $\frac{2}{3}$ of body length; antennomere III slightly longer than IV; antennomeres IV–X subequal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument dull, densely rugose; wider than long, with poorly developed, sharp hind angles; parallel-sided in basal half, narrowing anteriorly in apical half; disc convex, with short, delicate, shallow median groove at base; base sinuous, with pair of transverse circular depressions above scutellar shield. **Scutellar shield:** Elongate, subtriangular, shallowly punctate, setose and distally rounded. **Elytra:** Distinctly striate; interstices slightly elevated; integument shiny, with dense, crowded punctures, almost rugose. **Legs:** First tarsomere as long as combined lengths of remaining four on meso- and metatarsi; tibiae rounded in cross-section; metatarsomeres I–III simple; metatarsomere IV excavated, emarginated; metatarsomere V elongate, with basally toothed claws. **Venter** (Fig. 6): Closely punctate, with elongate, recumbent yellowish setae; hypomeron with basally open lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally; last abdominal ventrite apically produced, short and wide.

Female allotype (Fig. 7). 10.0 mm long; antennae filiform, reaching $\frac{1}{2}$ of body length; legs and antennae reddish-brown; similar to habitus; pronotum parallel-sided in basal $\frac{2}{3}$, narrowing anteriorly in apical $\frac{1}{3}$; last abdominal ventrite apically produced, shorter, narrower.

Aedeagus (paratype) (Fig. 8). Basal piece longer than wide, laterally parallel-sided, dorsally open, apically rounded; remaining parts elongate, constricted laterally at base of parameres, apically lobed; median lobe elongate and narrow, apically rounded, narrowly bifid, shorter than parameres; parameres curved, elongate, with a triangular lateral tooth near base.

Variation. Six male and 10 female paratypes were examined. The female paratypes were 8.0–11.0 mm long and 2.5–3.0 mm wide. The male paratypes were 6.5–10.5 mm long and 1.5–3.0 mm wide. Nearly all paratypes are darker than the holotype, with one male dark brown and two females darker reddish-brown. One of the male and one of the female paratypes are just as dark as the holotype. Five female paratypes are much lighter-colored than the other specimens in the series, possibly teneral at the time of collection. One of the female paratypes has a deeper median basal groove on the pronotum than both the male holotype and two male paratypes. The other nine female and four male paratypes have a much shallower median groove basally. There are no other exoskeletal differences between these paratypes and the holotype.

Distribution. This species is known from the Appalachian Mountains and surrounding areas from New York and Pennsylvania south to Georgia and west to Tennessee and Indiana. Several specimens have been taken outside of the Appalachian Mountain range.

Biology. Four specimens were taken from a Lindgren funnel traps placed in central Pennsylvania, southern Delaware, and northeastern and southern Georgia. Three specimens were taken from a blacklight trap placed in Indiana. One specimen was taken from a tanglefood screen in South Carolina. Developmental stages remain unknown.

Etymology. The specific name is derived from a combination of the words, ‘Appalachian’, an ancient mountain range in southeastern United States, and ‘-ensis’, a Latin adjective suffix meaning “pertaining to”.

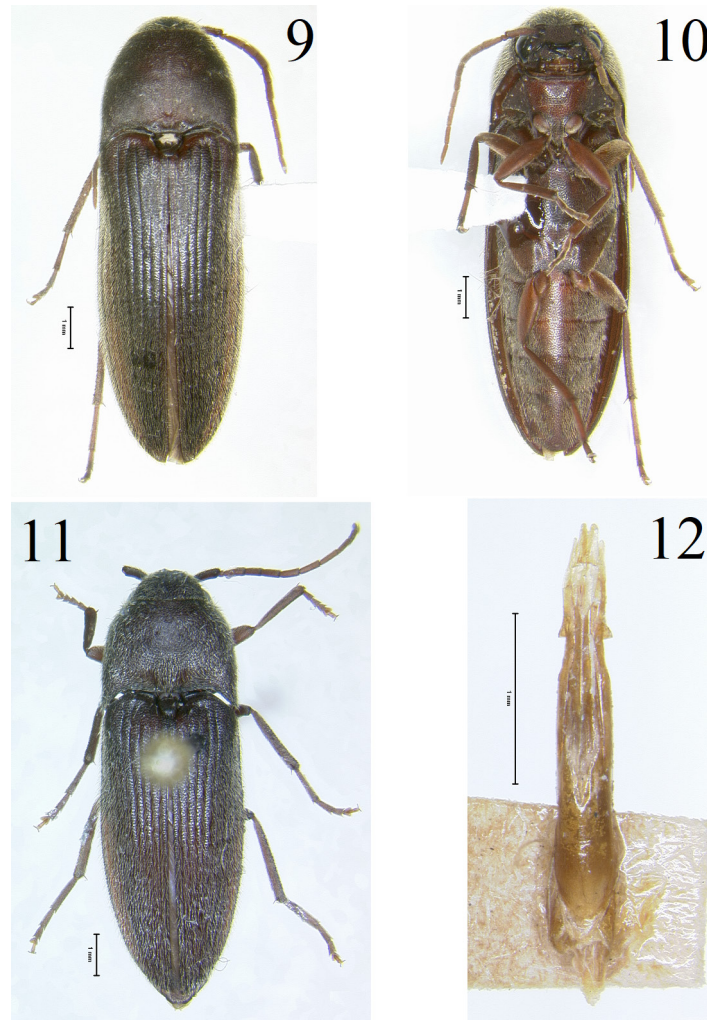
***Fornax bicolor* (Melsheimer, 1844)**

Fig. 4, 9–12

Hylochaeres? bicolor Melsheimer 1844: 149

Diagnosis. Obtuse to weakly produced last abdominal ventrite distinguishes *F. bicolor* from all other Nearctic *Fornax* species except *F. convexicollis* **new species**. Absence of the horizontal interantennal carina at the base of the frontoclypeal region further distinguishes the species from *F. convexicollis* **new species**.

Type material. A designated female neotype was examined. **Pennsylvania:** “Alleghen, Pa” / Carn. Mus., Acc. 349” (number handwritten) / “*F. bicolor* -, 4045 mels” (folded; red-framed handwritten label) / “**NEOTYPE:**, *Hylochaeres, bicolor*, Melsheimer, Det. R.L. Otto, 2019” (red printed label) (CMNH).



Figures 9–12. *Fornax bicolor* (Melsheimer). **9)** Female, non-type, dorsal habitus. **10)** Female, non-type, ventral habitus. **11)** Male, dorsal habitus. **12)** Male aedeagus, dorsal view. (Scale: 9–12 = 1.0 mm.)

Specimens examined. Forty seven specimens were available: **U.S.A.: ALABAMA:** “Corona Mine, Plot 75 –” / “Nr. Oakman, Ala., VI-24-1977, B.A. Hawkins” (month in Roman numeral; month, date and year handwritten) / “*Fornax, bicolor*, (Mels.), J. Muona det.” (species and author names handwritten) (1, USNM); **FLORIDA:** “MIAMI, FLORIDA, 19-V-60, P.E. Briggs COLL., BLACKLIGHT TRAP” (date handwritten) / “J.N. Knull, Collection” / “*Fornax, bicolor*, Mel., det. J. Knull” (“*Fornax*’ and ‘Mel.’ handwritten) (1, FMNH); “FLORIDA: DADE COUNTY, CAMP MAHACHEE, NR., MATHESON HAMMOCK, 27-V-1983, MC THOMAS & L PARKER, BLACKLIGHT TRAP” / “*Fornax bicolor*, Melsheimer, Det. P. Johnson 2014” (1, FSCA); “FL: Key Largo, 21.V.85, R.W. Surdick” (date handwritten) / “ROBERT W. SURDICK, COLLECTION, donated 2012, Carnegie Museum, Accession 38.119” / “*Fornax, bicolor*, (Melsheimer), det. R.L. Otto, 2016” (“16” handwritten) (1, CMNH); “FLA: Alachua Co., Gainesville, VI-5-15-1989, Coll. R. Wharton” / “*Fornax, bicolor* (Melsh.), Muona det.” (1, TAMU); “FLORIDA: Alachua Co., SE Gainesville, Kincaide Rd., old field edge, xeric oak, hamm., 6m Malaise, 13-26-, VI-1999, B.D. Sutton” (1, FSCA); “Fla” / “Horn Coll, H4045” (“4045” handwritten) (2, MCZ); “Florida: Highlands Co., Archbold Biol. Station, July 5-29 2018, V-flight intercept trap, Kyle E. Schnepf” / “*Fornax, bicolor*, (Melsheimer), Det. R.L. Otto, 2020” (1, KESC); **GEORGIA:** “Oglethorpe Co., 5.5 km SSE Crawford, 33.83398N, 83.14277W, 239m, 4-17 June 2013” / “Lindgren funnel trap, Col: P. Walden, BSF Database, sample ID# 51205” (1, CMNH); **ILLINOIS:** “ILL” / “Bolter Coll., No. E7657c” (“7657c” handwritten) / “J.N. Knull, Collection” / “*Fornax,*

bicolor, Mel., det. J. Knull” (‘Fornax’ and ‘Mel.’ handwritten) (1, FMNH); “Illinois” (handwritten) / “Merton C. Lane, Collection, 1975” (white printed label with two wide orange bands) / “F., bicolor, Melsh.” (black framed discolored white label; genus, species and author names handwritten) (1, USNM); “N. III” / “H.C. FALL, COLLECTION” / “Fornax, bicolor, Melsh” (handwritten; red framed white label) (1, MCZ); “N. III” / “H.C. FALL, COLLECTION” (2, MCZ); “Galesburg, Ill” / “Liebeck, Coll.” / “H.C. FALL, COLLECTION” (1, MCZ); **MARYLAND**: “MARYLAND: Calvert County, Flag Ponds Nature Park, 6 July 1987, A. & B. Norden, D. Williams” (‘6 July’ handwritten) (1, USNM); “MARYLAND: Pr. Geo. Co., Cheverly, 38°56’N, 76°55’W, 17 July 1992” (‘17’ handwritten) / “W.E. Steiner & J.M. Swearingen, collectors” (1, USNM); **MASSACHUSETTS**: “Hampshire County, 4.6 km W Ware, 42.26586, -72.29454, 205 m, 6–21 Jul 2016, Lindgren FT, T. Kesting-Handly, BSF#67825” (1, CMNH); **MISSOURI**: “Mo.” (handwritten) / “Fornax, bicolor” (handwritten) (1, CMNH); **NEW JERSEY**: “NEW JERSEY, Burlington Co., 3 km NW Jenkins, Hawkin Bridge, 13 July 1984” / “W.E. Steiner, D.S. Bogar, J.E. Lowry, G.L. Williams, collectors” (2, USNM); “NEW JERSEY: Sussex Co, 3.5 km NNE of Hardwick, 41.08169, -74.91179, 306m, 10 Jul–7 Aug 2019, L. Ramos-, Garriga, LFT, BSF#86997” (1, CMNH); **NEW YORK**: “N.Y.” / “Henry Ulke, Beetle Coll., CMNH Acc., no. 1645” (typed, green label) / “Fornax, bicolor (Mels.), J. Muona det. 1985” (species, author and “5” handwritten) (1, CMNH); “N.Y.” / “Horn Coll, H4045” (“4045” handwritten) (2, MCZ); **NORTH CAROLINA**: “Columbus Co., N.C., June 16–19 1952, Light trap” / “J. N. Knull, Collection” / “Fornax, bicolor, Mel., Det. J. Knull” (‘bicolor’ and ‘Mel.’ handwritten) (1, FMNH); “N.C.” / “Horn Coll, H4045” (“4045” handwritten) (1, MCZ); **OHIO**: “OHIO: Gallia County, 28 km W Gallipolis, on Dry Ridge Road, 38.78889, -82.61750, 4–12 August 2003” / “Lindgren funnel trap, with EtOH, Trap #7, ice damaged hard-, woods, R. Turcotte” (2, CMNH); “OH: Athens Co., Waterloo State Forest, 31 August–14 September 2013, 16–23 August 2014, K.D. Karns” (2, KDKC); **OKLAHOMA**: “OKLAHOMA, LATIMER CO., VI-1984, K. STEPHAN” / “Fornax, bicolor (Melsh.), Det. E.G. Riley ‘00” (black framed white label; genus, species, author and “00” handwritten) (1, TAMU); **PENNSYLVANIA**: “Fulton Co., 2.9 km SE Wardfordsburg, 39.73594N, 78.16083W, 195m, 27 Jul–7 Aug 2009” / “Lindgren funnel trap, Col: F.E. Dinsmore, BSF Database, sample ID# 27461” (1, CMNH); **SOUTH CAROLINA**: “McCormick Co., 10.3 km SW McCormick, State W.M.A., nr. Hickory Knob State Park, 33.87771N, 82.39659W” / “3 June 2011, MV/UV light sheet, R.A. Androw, coll.” (1, CMNH); **TENNESSEE**: “Burrville, VIII-4-56, Tenn., B. Benesh” (handwritten) / “like bicolor, in Horn Coll.” (handwritten) / “J.N. Knull, Collection” / “Fornax, bicolor, Mel., det. J. Knull” (‘bicolor’ and ‘Mel.’ handwritten) (1, FMNH); “TENNESSEE: Sevier Co., GSMNP, Tween Creeks, ATBI Plot MT-0120000802, 18 July–2 August 2000, Parker, Stocks & Petersen” / “LSAM, 0106530” / “Fornax, bicolor Mels., A.K.Tishechkin det. 2006” (genus, species and author handwritten) (LSUIC); “TENNESSEE: Sevier Co., GSMNP, Twin Creeks ATBI, Plot, Malaise Trap MT-, 0220010716, 6–16 July, 2001, I.C. Stocks” / “LSAM, 0106861” / “Fornax, bicolor Mels., A.K.Tishechkin det. 2006” (genus, species and author handwritten) (LSUIC); **TEXAS**: “TEXAS: Sabine Co., 9 mi., E. Hemphill, “Beech, Bottom”, V-22–VI-4-1989, R. Anderson & E. Morris, Malaise trap, beech-magnolia forest” (2, TAMU); **VIRGINIA**: “Rockbridge County, 2.6 km NE Buena Vista, 37.752256, -79.33469, 350m, 14 Jul–9 Aug 2016, LFT, D. Heltzel, BSF#69256” (1, CMNH); **WISCONSIN**: “USA: WI: Adams County, Quincy Bluff Preserve, TNC, 43.86627°N, 89.88363°W, Geodetic datum: WGS84, 26 July–1 August 2011, collector: Daniel K. Young” / “ex. Malaise in *Populus, grandidentata* blow” (1, GERP; 2, WIRC), “USA: WI: Jackson County, NE of Black River Falls, near Levis Creek [WGS84], 44.31134°N, 90.82335°W, 26 July–02 August 2011, collector: Daniel K. Young” / “ex. Malaise trap in, *Quercus-Pinus* forest” (1, WIRC), “USA: WI: Jackson County, NE of Black River Falls, near Levis Creek [WGS84], 44.31134°N, 90.82335°W, 02–09 August 2011, collector: Daniel K. Young” / “ex. Malaise trap in, *Quercus-Pinus* forest” (1, WIRC); **UNKNOWN LOCALE**: [pink disc] / “bicolor 2” (handwritten) (1, MCZ).

Redescription. Female. Length 7.5–11.0 mm. Width 2.0–3.0 mm. Body subcylindrical, elongate; dorsum uniformly brownish-black, venter reddish-brown; antennae reddish-brown; legs including tarsi reddish-brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 9). **Head:** Subspherical; integument rugose, shiny; frons convex, with median circular fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about 2 times wider than base; horizontal interantennal carina absent; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres III–XI, attaining nearly ½ of body length; antennomere III longer than IV; antennomere IV slightly shorter than V; antennomeres V–X subequal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument dull, densely rugose to

granulate; wider than long, with moderate, sharp hind angles; parallel-sided in basal $\frac{2}{3}$, arcuate anteriorly in apical $\frac{1}{3}$; disc convex, with delicate, shallow median groove, without circular fovea; base sinuous, with pair of small circular depressions above scutellar shield. **Scutellar shield:** Elongate, subtriangular, shallowly punctate, setose and apically bifid. **Elytra:** Distinctly striate; interstices slightly elevated; integument shiny, with dense punctures appearing transversely rugose. **Legs:** First tarsomere as long as combined lengths of remaining four on metatarsi, shorter for mesotarsomere in relation to remaining four; tibiae rounded in cross-section; metatarsomeres I–III simple; metatarsomere IV excavated, emarginate; metatarsomere V elongate, with basally toothed claws. **Venter** (Fig. 10): Closely punctate, with elongate, recumbent yellowish setae; hypomeron with basally open lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally; last abdominal ventrite apically obtuse.

Sexual dimorphism. Males (Fig. 11) are similar to females, but can be distinguished by slightly longer antennae reaching $\frac{1}{2}$ of the body length; the shape of the pronotum and last abdominal ventrite; pronotum parallel-sided in basal $\frac{2}{3}$ to $\frac{3}{4}$, narrowing anteriorly in apical $\frac{1}{3}$ to $\frac{1}{4}$; last abdominal ventrite slightly narrower; and body slightly shorter and narrower, with length 7.0–10.0 mm and width 2.0–2.5 mm.

Aedeagus (Fig. 12). Basal piece slightly longer than wide, parallel-sided, dorsally open, basally rounded; remaining parts elongate, slightly constricted laterally at base of parameres, apically lobed; median lobe elongate and narrow, slightly longer than parameres, apically rounded, narrowly bifid; parameres elongate, with a triangular lateral tooth near base.

Distribution. In Canada, this rarely encountered species was found in Québec. In the United States, *F. bicolor* has been taken in Alabama, Florida, Georgia, Illinois, Maryland (**NEW STATE RECORD**), Massachusetts (**NEW STATE RECORD**), Missouri, New Jersey (**NEW STATE RECORD**), New York, North Carolina, Ohio, Oklahoma (**NEW STATE RECORD**), Pennsylvania, South Carolina, Tennessee (**NEW STATE RECORD**), Texas (**NEW STATE RECORD**), Virginia and Wisconsin (Muona 2000; Otto and Karns 2017; Otto and Young 2017).

Biology. Seven specimens were taken from a Lindgren funnel traps placed in Georgia, Massachusetts, New Jersey, Ohio, Pennsylvania and Virginia. One specimen each were taken at blacklight in southern Florida and North Carolina. One specimen was taken from a 6 m Malaise trap placed at the edge of an old field and dry oak hammock in central Florida. Otto and Karns (2017) reported two specimens taken from Lindgren funnel traps baited with a combination of EtOH and Alpha Pinene lure placed in a mixed upland hardwood and Eastern White Pine (*Pinus strobus* (Linnaeus); Pinaceae) forest. Two specimens were taken from Malaise traps placed in a national park in Tennessee. One specimen was taken from a combination mercury vapor/ UV lighted sheet in South Carolina. Two specimens were taken from a Malaise trap placed in a beech-magnolia forest in southern Texas. Otto and Young (2017) reported two specimens taken from a Malaise trap placed in an oak-pine forest, as well as several specimens taken from a Malaise trap placed in big-toothed aspen (*Populus grandidentata* Michaux; Salicaceae) blow area. Developmental stages remain unknown.

Neotype designation. Horn (1886) was the last person to examine the type in Melsheimer's collection. Muona (2000) did not examine the type and surmised it was presumably lost. Hagen (1884) wrote that all the labels in the Melsheimer collection, including the types, were discarded by one of the assistants and replaced with a reference number correlated to a poorly written catalog. However, the type specimen may have either been misplaced or discarded altogether.

Philip Perkins (*in litt.*) was unsuccessful in locating the whereabouts of the original specimen in the MCZ. All *Fornax* specimens held by the MCZ were loaned to me and I have not found the type of that species amongst them. I have exhausted all probable venues to track down the whereabouts of the type. It is therefore likely the original type is lost, just as previously noted by Muona (2000). Melsheimer (1844) described *F. bicolor* based on a single specimen from an unknown locality in the Commonwealth of Pennsylvania.

With the original type lost, designation of a neotype for that species is warranted to stabilize the taxonomic status of the species, in accordance with the ICZN (1999) Article 75.3. The collecting and repository data on the neotype selected are listed above in the Type material.

Note. Three specimens identified as *F. bicolor* from Indiana have been misidentified, they are now identified as *F. appalachiensis* **new species**. One Arkansas specimen previously studied by J. Muona was made available for

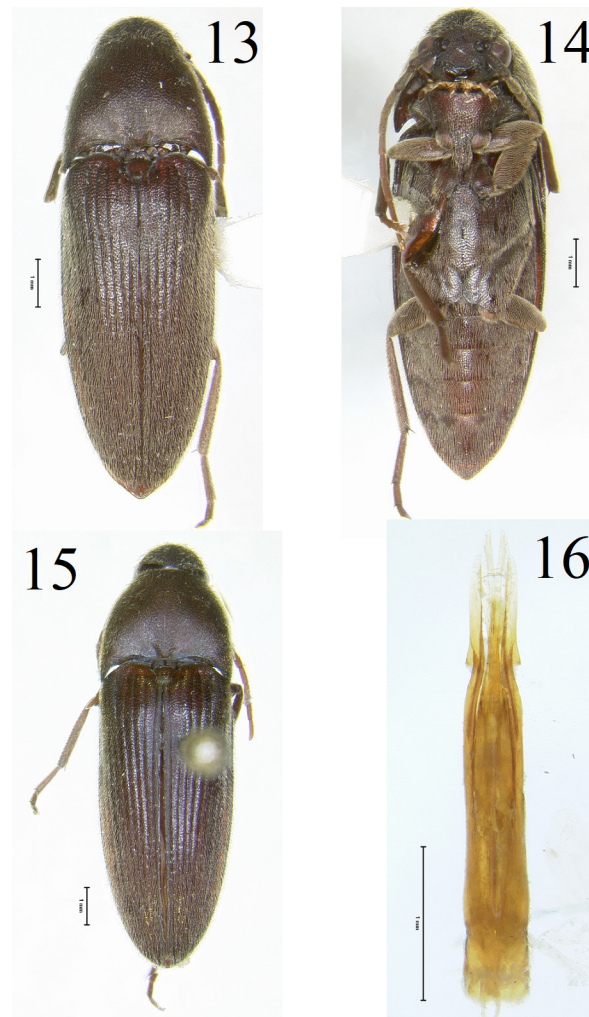
study by the Snow Entomology Museum (SEMC). That specimen was misidentified, it is now identified as *Fornax lucidicollis* **new species**. One specimen from Québec has not been verified because I could not locate it. Five CMNH specimens examined by Muona (2000) (listed as ICCM) were available for study. One specimen labeled “St. Vine, Penn.,” which has Muona’s *Fornax bicolor* identification label, was misidentified. That specimen is now identified as a small teneral male of *O. canadensis* (Brown). A second specimen taken in Louisiana by H. Ulke was also misidentified. That specimen belongs to *Fornax convexicollis* **new species** (see below).

***Fornax convexicollis* Otto, new species**

Fig. 13–16

Diagnosis. Presence of a delicate, narrowly incomplete interantennal carina at the base of the frontoclypeal region distinguishes the new species from nearly all *Fornax* species in the United States, except *F. parallelicollis* **new species**. Presence of delicate, short, shallow median groove on the pronotal disc further distinguishes *F. convexicollis* **new species** from *F. parallelicollis* **new species**.

Type material. Male holotype: “FL: Polk Co., Green Swamp WMA, 19 May–3 June 2001, Morris and Nigg, Malaise Trap” / “**HOLOTYPE:**, *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [red printed label]. **Female allotype:** “FLORIDA: Lee Co., Alva 5-V-2008, L. Rigby, Lindgren,



Figures 13–16. *Fornax convexicollis* Otto, sp. nov. 13) Male holotype, dorsal habitus. 14) Male holotype, ventral habitus. 15) Female allotype, dorsal habitus. 16) Male paratype, aedeagus, dorsal view. (Scale: 13–16 = 1.0 mm.)

funnel trap w/*Persea*” / “**ALLOTYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label]. Holotype was transferred from GERP to CMNH. Allotype is deposited in FSCA.

Paratypes. 12 ♂♂, 6 ♀♀: **FLORIDA:** 1 ♂, “FLORIDA: DADE COUNTY, CAMP MAHACHEE, NR., MATHESON HAMMOCK, 12-V-1983, MCTHOMAS & LPARKER, BLACKLIGHT TRAP” / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂ 1 ♀, “FLORIDA: DADE COUNTY, CAMP MAHACHEE, NR., MATHESON HAMMOCK, 27-V-1983, MCTHOMAS & LPARKER, BLACKLIGHT TRAP” / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (either ♂ or ♀ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FLORIDA: Dade Co., Fuchs Hammock, 4-10-V-1988, H.V., Weems & Dickle, Flight trap” / “*Fornax*, bicolor, Melsheimer, Det. M.C. Thomas 1995” (folded black framed white label; genus, species and author handwritten) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FLA.: DADE COUNTY, FUCHS HAMMOCK, NEAR HOMESTEAD, 11-12-IV-1990” / “TERHUNE S. DICKLE, & H. V. WEEMS, JR., INSECT FLIGHT TRAP” / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♀, “FLORIDA: Alachua Co., Gainesville, V-26-30-1991, Woolley & Zolnerowich” / “EUCNEMIDAE; Macraulacinae, *Fornax*, bicolor Mels., Det. R.L. Otto, 2005” (handwritten; folded) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (TAMU); 2 ♂♂, “FL: Polk Co., Green Swamp WMA, 19 May-3 June 2001, Morris and Nigg, Malaise Trap” / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (GERP); 1 ♂ 1 ♀, “FL: Sumter Co., Green Swamp WMA, 3-15 June 2001, Morris and Nigg, Malaise Trap” / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (either ♂ or ♀ handwritten behind species name on label) [yellow printed label] (GERP); 1 ♂, “Crescent, City Fla” / Coll Hubbard, & Schwarz” / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (USNM); 1 ♀, “Crescent, City Fla” / Coll Hubbard, & Schwarz” / “*Fornax*, bicolor, Mels” (black framed discolored white label; genus, species and author names handwritten; folded) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (USNM); 1 ♂, “Enterprise, 22 6 Fla” (“22” handwritten) / “1618” (handwritten) / “bicolor 3” (handwritten) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (MCZ); **LOUISIANA:** 1 ♂, “La.” / “Henry Ulke, Beetle Coll., CMNH Acc., No. 1645” (typed; green label) / “*Fornax*, bicolor, Mels.” (handwritten) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (CMNH); 1 ♂, “14083P, Hopk US” (‘14083P’ handwritten; ‘H’ cut off on label) / “TESnyder, Colr” / “Adam Key, Fla” (handwritten) / “May 15-16” (handwritten) / “Red Man-, grove” (handwritten) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (USNM); **MISSOURI:** 1 ♀, “1 mi. E. Moberly Mo., Randolph Co., 18 July ‘76, Coll. E.G. Riley” (date handwritten) / “*Fornax*, bicolor, (Mesh.), J. Muona det.” (species and author handwritten) / “EGRC” (blue printed label) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (EGRC); 1 ♀, “1 mi. E. Moberly Mo., Randolph Co., 21 July 76, Coll. E.G. Riley” / “EGRC” (blue printed label) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (EGRC); **TENNESSEE:** 1 ♂, “Cumberland Co. Tenn, Crab Orchard, 52 July 6 1922, T.H. Hubbell” (‘52’ handwritten) / “**PARATYPE:** *Fornax, convexicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (FSCA). Paratypes are deposited in CMNH, EGRC, FSCA, GERP, MCZ and USNM.

Description. Male holotype. Length 10.0 mm. Width 3.0 mm. Body subcylindrical, elongate; uniformly dark brown; scape dark brown, pedicel and antennomeres III–XI reddish-brown; legs including tarsi dark reddish-brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 13). **Head:** Subspherical; integument rugose, dull; frons convex, without median carina or fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about 2 times wider than base; delicate, horizontal interantennal carina present, but narrowly incomplete; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres

III–XI, attaining nearly $\frac{1}{2}$ of body length; antennomere III slightly longer than IV; antennomere IV slightly shorter than V; antennomeres V–X each subequal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument dull, densely rugose to granulate; wider than long, with moderate, sharp hind angles; sides arcuate toward anterior; disc convex, with delicate, short, shallow median groove, without circular foveae; base sinuous, with pair of circular depressions above scutellar shield. **Scutellar shield:** Elongate, subtriangular, setose, shallowly punctate and distally rounded. **Elytra:** Distinctly striate; interstices slightly elevated; integument shiny, with dense punctures. **Legs:** First tarsomere presumably as long as combined lengths of remaining four on meso- and metatarsi; tibiae rounded in cross-section; metatarsomeres I–III simple; metatarsomere IV excavated; metatarsomere V presumably elongate, with basally toothed claws. **Venter** (Fig. 14): Closely punctate, with elongate, recumbent yellowish setae; hypomeron with basally open, lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally; last abdominal ventrite slightly produced apically, short and wide.

Female allotype (Fig. 15). 11.0 mm long; antennae filiform, reaching nearly $\frac{1}{2}$ of body length; legs and antennae dark reddish-brown, similar to habitus; pronotum parallel-sided in basal half, narrowed anteriorly in apical $\frac{1}{2}$; last abdominal ventrite obtuse.

Aedeagus (paratype) (Fig. 16). Basal piece slightly longer than wide, parallel-sided, dorsally open, basally bifid; remaining parts elongate, slightly constricted laterally at base of parameres, apically lobed; median lobe short and stout, shorter than parameres, apically rounded, narrowly bifid; parameres elongate, apically less sclerotized, with a triangular lateral tooth near base.

Variation. Twelve male and six female paratypes were examined. The male paratypes are 8.0–10.0 mm long and 2.5–3.0 mm wide. The female paratypes are 10.0–11.0 mm long and 3.0 mm wide. Delicate interantennal carina is present in all paratypes, but is slightly indicated in six male and three female paratypes. Two male paratypes have a nearly complete, much strongly indicated interantennal carina above the base of frontoclypeal region. Female antennae are slightly longer than $\frac{1}{3}$ of body length. Three males are lighter in color than the rest of the series, possibly teneral at the time of collection. There are no other exoskeletal differences between the paratypes and the holotype.

Distribution. This species is known from Missouri and Texas to Tennessee and Florida in south-central and southeastern United States.

Biology. Five specimens were taken from a Malaise trap. Three specimens were taken from a blacklight trap. One specimen was taken from a Lindgren funnel trap baited with *Persea* Miller (Lauraceae). Two specimens were taken from a flight trap. One specimen was taken from a red mangrove (*Rhizophora mangle* Linnaeus; Rhizophoraceae) forest on Adam Key in Florida. Developmental stages remain unknown.

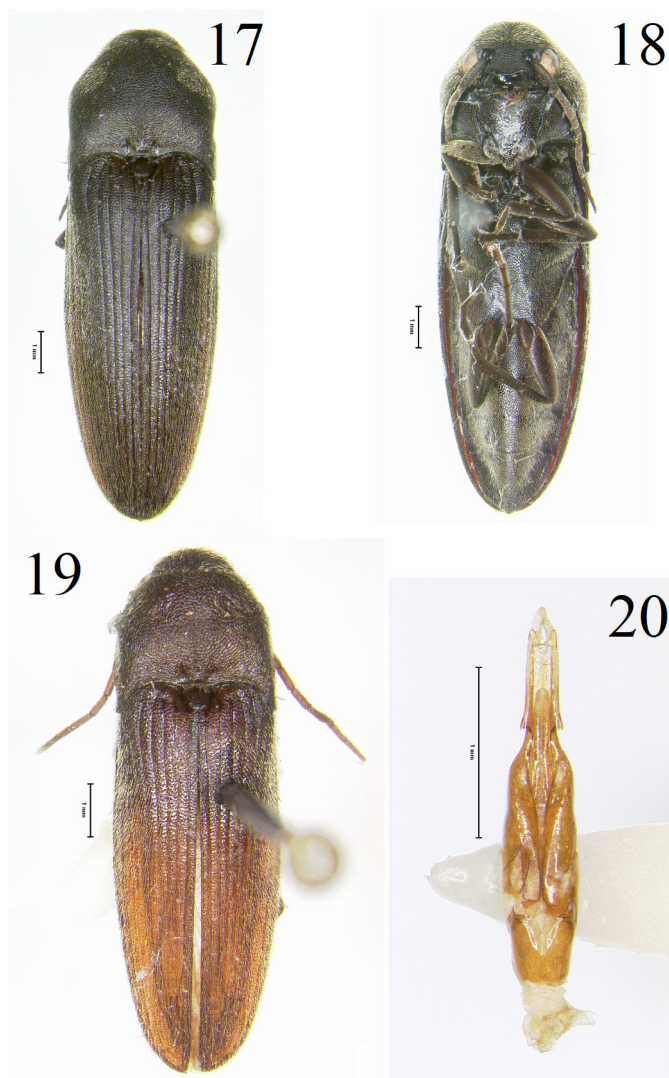
Etymology. The specific name is derived from the curved shape of the pronotum, particularly its arcuate sides and convex pronotal surface.

Fornax dixiensis Otto, 2017

Fig. 3, 17–20

Diagnosis. Overall shape of the pronotum distinguishes female *F. dixiensis* from all *Fornax* species in the Nearctic region. Absence of horizontal interantennal carina distinguishes male *F. dixiensis* from both *F. convexicollis* **new species** and *F. parallelcollis* **new species**. Darker dorsum further distinguishes male *F. dixiensis* from *F. appalachiensis* **new species**, *F. knulli*, *F. floridana* **new species** and *F. melsheimeri* **new species**. Dull luster of the pronotum distinguishes the male of *F. dixiensis* from *Fornax lucidicollis* **new species**. Produced last abdominal ventrite further distinguishes the male of *F. dixiensis* from *F. bicolor*.

Type material. “Florida: Highlands Co., Highlands Hammock, State Park, 16-V-2011, Collector: M.L. Payne, Purple Prism trap, w/ Manuka/phoebe oil” / “*Fornax*, sp., Det. R.L. Otto, 2014” / “**HOLOTYPE:**, *Fornax, dixiensis*, Otto, Det. R.L. Otto, 2016” (♀ handwritten behind species name on label) [red printed label] (FSCA); “FLORIDA: Highlands Co., Highlands Hammock St. pk., 8-V-2009, D. Harris, lindgren funnel trap” / “**PARATYPE:**, *Fornax, dixiensis*, Otto, Det. R.L. Otto, 2016” (♀ handwritten behind species name on label) [yellow printed label] (FSCA); “Florida: Highlands Co., Highlands Hammock, State Park, 16-V-2011, Collector: M.L.



Figures 17–20. *Fornax dixiensis* Otto. **17)** Female, dorsal habitus. **18)** Female, ventral habitus. **19)** Male, dorsal habitus. **20)** Male, aedeagus, dorsal view. (Scale: 17–20 = 1.0 mm.)

Payne, Purple Prism trap, w/ Manuka/phoebe oil” / “**PARATYPE:**, *Fornax, dixiensis*, Otto, Det. R.L. Otto, 2016” (♀ handwritten behind species name on label) [yellow printed label] (1, FSCA; 1, GERP).

Specimens Examined. Seven specimens were available for study: **FLORIDA:** “VERO BEACH, FL” / “W.L. BUDLINGMAYER, COLL. 12-V-64” (date handwritten) (1, FSCA); “VERO BEACH, FL” / “W.L. BUDLINGMAYER, COLL. 12-V-64 (date handwritten) / “*Fornax, bicolor*, (Melsh.), Det. Knull ‘67” (genus, species, author and year handwritten; folded) (1, FSCA); “FLA., Indian River Co., SH 512 .5 mi. W. I-95, (4–8)-IV-1976, Fla. Med. Ent. Lab.” (dates, month and year handwritten) / “sorted from dusk-dawn, suction trap sample in, and near bay head, M.C. Thomas Collection” (1, FSCA); “FLA., Indian River Co., SR 512 .5 mi. W. I-95, 9–12-V-1976, Fla. Med. Ent. Lab.” (1, FSCA); “FLORIDA: DADE COUNTY, CAMP MAHACHEE, NR., MATHESON HAMMOCK, 27-V-1983, MC THOMAS & L PARKER, BLACKLIGHT TRAP” (1, FSCA); “FLORIDA: Alachua Co., Gainesville, Airport, 1-VI-1989, P. Skelley” (1, FSCA); “FLORIDA: Alachua Co., Gainesville, SE Kincaid, Rd., ~1 mi. N. Paynes Prairie, old field/dry oak hammock, 7–27-VII-1998, B. Sutton, 6m Malaise trap” (1, FSCA).

Redescription. Female. Length 9.0–12.0 mm. Width 2.5–3.0 mm. Body subcylindrical, elongate; uniformly brownish-black; scape dark brownish-black, pedicel and antennomeres III–XI dark brown; legs including tarsi

dark brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 17). **Head:** Sub-spherical; integument rugose, shiny; frons convex, without median carina or fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about 2 times wider than base; horizontal interantennal carina absent; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres III–XI, attaining nearly $\frac{1}{2}$ of body length; antennomere III slightly longer than IV; antennomeres IV–X subequal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument shiny, densely rugose to granulate; wider than long, with moderate, sharp hind angles; sides widest above midlength, strongly narrowing towards head; disc convex, with shallow median groove, without circular fovea; base sinuous, with pair of circular depressions above scutellar shield. **Scutellar shield:** Elongate, subtriangular, shallowly punctate and distally rounded. **Elytra:** Distinctly striate, deepest in humeral region; interstices slightly elevated; integument shiny, with dense punctures. **Legs:** First tarsomere as long as combined lengths of remaining four on meso- and metatarsi; tibiae rounded in cross-section; metatarsomeres I–III simple; metatarsomere IV excavated; metatarsomere V elongate, with basally toothed claws. **Venter** (Fig. 18): Closely punctate, with elongate, recumbent whitish setae; hypomeron with basally open lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally; last abdominal ventrite apically produced, short, wide.

Sexual dimorphism. Male (Fig. 19) is similar to female, but can be distinguished by having the pronotum parallel-sided in basal $\frac{2}{3}$, narrowing anteriorly in apical $\frac{1}{3}$. Female pronotum is cranially wider above the midlength. The male is 10.0 mm long and 3.0 mm wide.

Aedeagus (Fig. 20). Basal piece slightly longer than wide, laterally constricted midway down, narrower posteriorly, dorsally open, basally rounded; remaining parts elongate, strongly constricted laterally at base of parameres, apically lobed; median lobe short and stout, shorter than parameres, apically rounded, narrowly bifid; parameres curved, elongate, with a triangular lateral tooth near base.

Distribution. This precintive Florida species is known from four counties.

Biology. Three specimens were taken from a purple prism trap (Synergy Semiochemicals, British Columbia) baited with Manuka oil and Phoebe oil. One specimen was taken from a Lindgren funnel trap. One specimen was taken from a suction trap in Indian River County, FL. One specimen was taken from a blacklight trap in Dade County. One specimen was taken from a 6 m Malaise trap placed in an old field/dry oak hammock. Developmental stages remain unknown.

Fornax floridana Otto, new species

Fig. 21–24

Diagnosis. Absence of the horizontal interantennal carina at the base of the frontoclypeal region distinguishes the new species from both *F. convexicollis* new species and *F. parallelicollis* new species. Dull luster of the pronotum distinguishes *F. floridana* new species from *F. lucidicollis* new species. Overall larger size and wider than long pronotum distinguish the new species from *F. knulli*. Lighter-colored dorsum distinguishes *F. floridana* new species from *F. dixiensis*. Produced last abdominal ventrite further distinguishes the new species from *F. bicolor*. Male specimens of *F. floridana* new species differ from *F. appalachiensis* new species by their laterally weakly arcuate pronotum, parallel-sided in the latter. Female specimens of *F. floridana* new species differ from *F. appalachiensis* new species by their slightly stouter antennae reaching nearly half the body length, elongate and reaching half the length in the latter.

Type material. Male holotype. “MIAMI, FLORIDA, 2.VIII.60, P.E. BRIGGS COLL., BLACKLIGHT TRAP” (date handwritten) / “HOLOTYPE:, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [red printed label]. **Female allotype:** “FLA., Monroe County, Upper Key Largo, 23-VII-1976, Coll. M.C. Thomas” (date handwritten) / “blacklight, trap, M.C. Thomas, Collection” / “ALLOTYPE:, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label]. Holotype and allotype are deposited in FSCA.

Paratypes. 8 ♂♂, 2 ♀♀: U.S.A.: FLORIDA: 1 ♂, “FLA., ALACHUA CO., GAINESVILLE, SAN, FELASCO HAMMOCK, 26-V-1977” (date handwritten) / “G.B. Fairchild & H.V. Weems, Jr., Insect Flight Trap” / “PARATYPE:,



Figures 21–24. *Fornax floridana* Otto, **sp. nov.** **21)** Male holotype, dorsal habitus. **22)** Male holotype, ventral habitus. **23)** Female allotype, dorsal habitus. **24)** Male paratype, aedeagus, dorsal view. (Scale: 21–24 = 1.0 mm.)

Fornax, floridana, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (FSCA); 2 ♂♂, “FLA., DADE COUNTY, FUCH’S HAMMOCK, NEAR HOMESTEAD, 12–13-V-1979” / “TERHUNE S. DICKEL, & H.V. WEEMS, JR., INSECT FLIGHT TRAP” / “*Fornax bicolor*, Melsheimer, Det. P.Johnson 2014” (folded) / “**PARATYPE:**, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FL: Leon Co., Tall Timbers Research, Station, Malaise Trap #2, 8–15-VI-1993” (date handwritten) / “**PARATYPE:**, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♀, “FLORIDA: Alachua Co., 3.7 mi. N. La Crosse, Santa Fe River floodplain, fall-1996; G. Steck, & B. Sutton, Malaise trap” / “Collection of the Global, Eucnemid Research Project, (Robert L. Otto)” (green framed white label) / “**PARATYPE:**, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (GERP); 1 ♀, “FLORIDA: Alachua Co., Gainesville, SE Kincaid, Rd., ~1 mi. N Paynes Prairie, old field/dry oak hammock, 24–31-V-1998, B. Sutton, 6m Malaise trap” / “**PARATYPE:**, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (FSCA); **WEST INDIES: BAHAMAS:** 1 ♂, “BAHAMAS: Andros Island, Forfar Field Sta., Stafford, Creek, 2-VI-2001, coll. M.C. Thomas, black-, light trap in coastal coppice” / “Collection of the Global, Eucnemid Research Project, (Robert L. Otto)” (green framed white

label) / “**PARATYPE:**, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (GERP); 1 ♂, “BAHAMAS: Andros Is., Forfar Field Sta., nr., Stafford Creek, 22–28-VII-, 2006 MC Thomas, TR Smith, UV trap in coastal coppice” / “*Fornax, bicolor*, Melsheimer, Det. R.L. Otto 07” (black framed white label; folded) / “**PARATYPE:**, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 2 ♂♂, “BAHAMAS: Andros Is., Forfar Field Sta., nr., Stafford Creek, 22–28-VII-, 2006 MC Thomas, TR Smith, UV trap in coastal coppice” / “**PARATYPE:**, *Fornax, floridana*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA). Paratypes are deposited in FSCA and GERP.

Description. Male holotype. Length 9.0 mm. Width 3.0 mm. Body subcylindrical, elongate; uniformly dark reddish-brownish; scape dark reddish-brown, pedicel and antennomeres III–XI reddish-brown; legs including tarsi reddish-brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 21). **Head:** Sub-spherical; integument rugose, dull; frons convex, without median carina or fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about 2 times wider than base; horizontal interantennal carina absent; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres III–XI, attaining nearly ½ of body length; antennomere III longer than IV; antennomere IV slightly shorter than V; antennomeres V–X sub-equal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument dull, densely rugose; wider than long, with well-developed, sharp hind angles; lateral sides weakly arcuate towards anterior; disc convex, without shallow median groove or circular fovea; base sinuous, with pair of circular depressions above scutellar shield. **Scutellar shield:** Short, subtriangular, shallowly punctate and distally rounded. **Elytra:** Distinctly striate, deepest in humeral region; interstices slightly elevated; integument shiny, with dense punctures. **Legs:** First tarsomere as long as combined lengths of remaining four on mesotarsi; tibiae rounded in cross-section; metatarsomeres I–III simple; metatarsomere IV excavated; metatarsomere V missing. **Venter** (Fig. 22): Closely punctate, with elongate, recumbent yellowish setae; hypomeron with basally open lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally; last abdominal ventrite apically produced slightly, short and wide.

Female allotype (Fig. 23). 10.0 mm long; antennae filiform, reaching nearly ½ of body length; legs and antennae reddish-brown, slightly lighter than habitus; pronotum parallel-sided in basal ¾, narrowing anteriorly in apical ¼; last abdominal ventrite apically produced, somewhat elongate.

Aedeagus (paratype) (Fig. 24). Basal piece slightly longer than wide, parallel-sided, dorsally open, basally bifid; remaining parts elongate, apically wide, strongly constricted at base of parameres, apically lobed; median lobe short and stout, apically rounded, narrowly bifid; parameres elongate, apically less sclerotized, sinuous, with a small hook-like lateral tooth near base.

Variation. Eight male and two female paratypes were examined. Male paratypes are 7.0–10.0 mm long and 2.0–3.0 mm wide. Female paratypes are 8.0–10.0 mm long and 2.0–2.5 mm wide. Three of the 10 paratypes are slightly longer than the holotype. Two paratypes are as long as the holotype. Five paratypes are shorter than the holotype. Three paratypes are as wide as the holotype, with the remaining seven being narrower than the holotype. One specimen is slightly darker than the remaining nine paratypes, allotype and holotype. There are no other exoskeletal differences among the paratypes, allotype and holotype.

Distribution. This species is known from Florida and a single locale on Andros Island in the Bahamas.

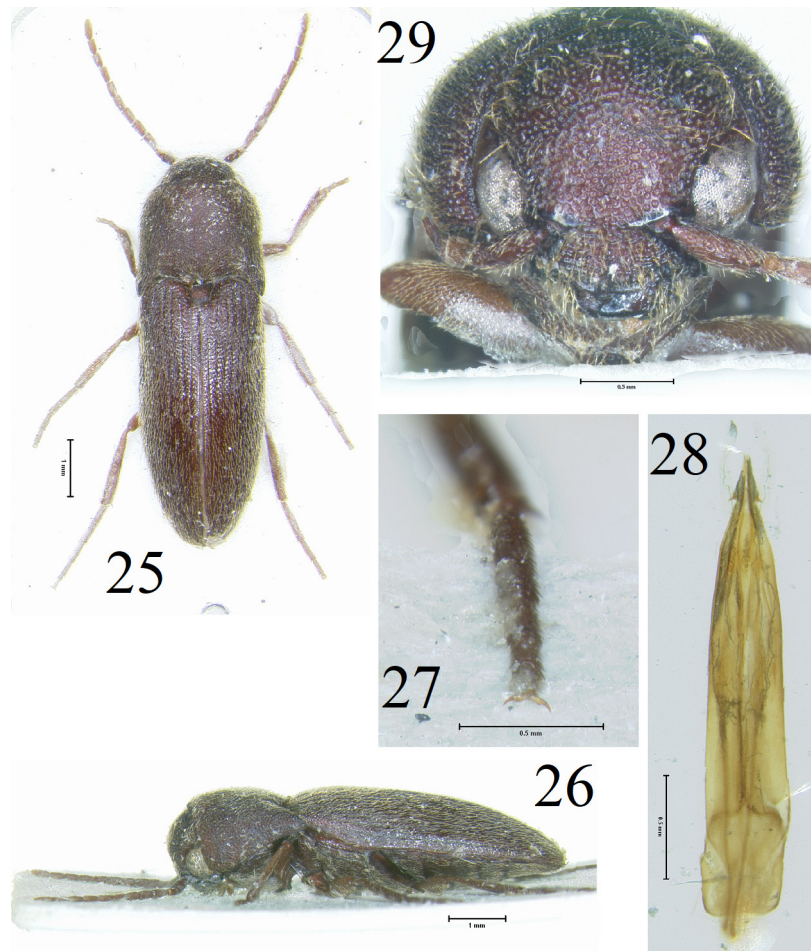
Biology. Four specimens were taken from a blacklight trap placed in a coastal coppice in the Bahamas. One specimen was taken from a blacklight trap in southern Florida. Several specimens were taken from an unknown type of insect flight trap placed in two locales in Florida. Several specimens were taken from Malaise traps placed in several locales in two counties in Florida. Developmental stages remain unknown.

Etymology. Specific epithet indicates the state in which the species was originally found.

Fornax knulli Muona, 2000

Fig. 2, 25–29

Diagnosis. Quadrate pronotum, overall smaller size and basally swollen simple tarsal claws distinguish *F. knulli* from all other species of *Fornax* in the Nearctic region.



Figures 25–29. *Fornax knulli* Muona. **25)** Male holotype, dorsal habitus. **26)** Male holotype, lateral habitus. **27)** Male holotype, tarsal claw, lateral view. **28)** Male paratype, aedeagus, dorsal view. **29)** Male paratype, frontoclypeal region, frontal view. (Scale: 25–26 = 1.0 mm; 27–29 = 0.5 mm.)

Type material. “New Smyrna, VII-1-43 Fla., M. Wright” (date handwritten on label) / “J.N. Knull, Collection” / “*Fornax*, sp. “E”, det. J. Knull” (“sp. “E”” handwritten on label) / “**HOLATYPE**, *Fornax*, knulli, Muona des.” [red printed label] (FMNH); “New Smyrna, VII-1-43 Fla., M. Wright” (date handwritten on label) / “J.N. Knull, Collection” / “*Fornax*, sp. “E”, det. J. Knull” (“sp. “E”” handwritten on label) / “**PARATYPE**, *Fornax*, knulli, Muona des.” [red printed label] (FMNH).

Redescription. Male holotype. Length 6.0 mm. Width 2.0 mm. Body subcylindrical, elongate; uniformly reddish-brown; scape reddish-brown, pedicel and antennomeres III–XI yellowish-brown; legs including tarsi reddish-brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 25–26). **Head:** Sub-spherical; integument closely punctate, shiny; frons convex, without median carina or fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about 2 times wider than base; horizontal interantennal carina incomplete; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres III–XI, stout, attaining nearly $\frac{1}{2}$ of body length; antennomere III slightly longer than IV; antennomeres IV–X subequal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument dull, rugose; as long as wide, with moderate, sharp hind angles; sides widest basally at hind angles, parallel-sided in basal $\frac{3}{4}$, arcuate anteriorly; disc convex, without median groove or circular fovea; base sinuous, without pair of circular depressions above scutellar shield. **Scutellar shield:** Elongate, dull, subtriangular, rugose, distally rounded. **Elytra:** Distinctly striate, deepest in humeral region; interstices slightly elevated; integument shiny and transversely rugose. **Legs:** First

tarsomere shorter than combined lengths of remaining four on left mesotarsi; tibiae rounded in cross-section; metatarsomeres I–III simple; metatarsomere IV excavated; left mesotarsomere V elongate, with basally swollen simple claws (Fig. 27). **Venter:** Closely punctate to rugose, with short, recumbent yellowish setae; hypomeron with basally open lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally.

Aedeagus (paratype) (Fig. 28). Basal piece slightly longer than wide, parallel-sided, dorsally open; remaining parts elongate, narrowing anteriorly beginning at base of parameres, apically lobed; median lobe elongate and strongly narrow, apically rounded, narrowly bifid; parameres elongate, strongly narrowed anteriorly, with a minute hook-like tooth near base; secondary lateral lobes elongate, C-shaped.

Variation. One male paratype was examined. It is 6.5 mm long and 2.0 mm wide, slightly longer than and just as wide as the holotype. A median carina is present in the frontoclypeal region of the paratype (Fig. 29). In the holotype the frontoclypeal region is obscured by adhesive and presence/absence of the median carina cannot be determined. There are no exoskeletal differences between the paratype and the holotype.

Distribution. This species is known from two specimens taken at a single type locale in New Smyrna, Florida.

Biology. Developmental stages remain unknown.

Note. Muona (2000) listed the acronym MCZ under the Type Material section for this species, but subsequently (Muona, *in litt.*) acknowledged that the indicated acronym was listed in error. Both types for the species actually belong to FMNH.

***Fornax lucidicollis* Otto, new species**

Fig. 30–34

Diagnosis. Shiny pronotal surface with shallowly indicated sculpture distinguishes *F. lucidicollis* new species from all *Fornax* species present in the United States.

Type material. Male holotype. “USA ARLittleRock, May 30th, 2001, Blacklight Trap, Brian Baldwin” / “**HOLOTYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [red printed label]. **Female allotype.** “Florida: Suwanee Co., ~7 miles W White Springs, May 16–June 20, 2017, Kyle E. Schnepf” / “**ALLOTYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label]. Holotype is transferred from GERP to CMNH. Allotype is deposited in KESC.

Paratypes. 14 ♂♂, 8 ♀♀: **ARKANSAS:** 1 ♂, “Prairie Co., 7 1 1926 Ark., T.E. White” / “*Fornax, bicolor* (Mels.), J. Muona det. 1980” (folded; “bicolor (Mels.)” handwritten on label) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (SEMC); 1 ♂, “USA ARLittleRock, May 30th, 2001, Blacklight Trap, Brian Baldwin” / “**EUCNEMIDAE, Macraulacinae, *Fornax, bicolor* (Mels), Det. R.L. Otto” (folded) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♀, “USA ARLittleRock, June 9th, 2001, Blacklight Trap, Brian Baldwin” / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♀, “ARKANSAS Garland, FS Camp-Clearfork, 19 June 2009, U.V. Light Traps, Brian Baldwin” / “**Onichodon, downiei, A. Tishechkin det. 2013” (species name and year handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♂, “AR Garland Co, FS CampClearfork, VI/12/05UVLights, Brian Baldwin” / “**Onichodon, downiei, Muona, A. Tishechkin det. 2005” (species and author name handwritten) / “1 kept.” (handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♂, “ARKANSAS Polk Co, Mena 13June 2008, U.V. Light Traps, Brian Baldwin” / “**Onichodon, downiei, Muona, A. Tishechkin det. 2013” (species, author and year handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♀, “ARKANSAS Polk Co, Mena May 30 2010, U.V. Light Traps, Brian Baldwin” / “*Fornax, bicolor*, A.K.Tishechkin det. 2015” (“*Fornax*”, “bicolor” and “5” handwritten) / “kept 1” (handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♂, “ARKANSAS Polk Co, Mena May 30 2010, U.V. Light Traps, Brian Baldwin” / “*Fornax, bicolor*, A.K.Tishechkin det. 2015” (“*Fornax*”, “bicolor”********



Figures 30–34. *Fornax lucidicollis* Otto, **sp. nov.** 30) Male holotype, dorsal habitus. 31) Male holotype, ventral habitus. 32) Female allotype, dorsal habitus. 33) Male paratype, aedeagus, dorsal view. 34) Male paratype, aedeagus, lateral view. (Scale: 30–34 = 1.0 mm.)

and “5” handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (LSUIC); 1 ♀, “ARKANSAS Polk Co, Mena 7 June 2010, U.V. Light Traps, Brian Baldwin” / “*Onichodon, downiei*, A. Tishechkin det. 2013” (species name and year handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018 (♀ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♂, “ARKANSAS Garland, Jessieville, June 10th, 2011, U.V. Light Trap, Brian Baldwin” / “*Fornax, bicolor*, A.K.Tishechkin det. 2015” (“*Fornax*”, “*bicolor*” and “5” handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (LSUIC); 1 ♀, “ARKANSAS GARLAND, LakeOuachitaStPk, June 23, 2011, U.V. Light Trap, Caitlin Conn” / *Fornax, bicolor*, A.K.Tishechkin det. 2015” (“*Fornax*” “*bicolor*” and “5” handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♂, “ARKANSAS GARLAND, FS CampClearfork, June 9th, 2012, U.V. Light Trap, Brian Baldwin” / “*Fornax, bicolor*, A.K.Tishechkin det. 2015” (“*Fornax*”, “*bicolor*” and “5” handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (LSUIC); 1 ♂, “ARKANSAS Garland, FS CampClearfork, June 20th, 2013, U.V. Light traps, Brian Baldwin” / “*Fornax, bicolor*, A.K.Tishechkin det. 2015” (binomial name and year handwritten) / “kept 1” (handwritten)

/ “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (SNMC); 1 ♂, “ARKANSAS Garland, Jessieville, June 26th, 2013, U.V. Light trap, Brian Baldwin” / “*Fornax, bicolor*, A.K.Tishechkin det. 2015” (binomial name and year handwritten) / “kept 1” (handwritten) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (SNMC); **FLORIDA:** 1 ♂, “FLORIDA: Alachua Co., Gainesville, Hogtown, Creek & I-75, 18-V-1988, P. Skelley, Blacklight trap” / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “USA FLORIDA Alachua Co., Paynes Prairie St. Pres., 28-IV-96, Coll.: Robert Vigneault” / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (GERP); **NEW JERSEY:** 1 ♀, “NEW JERSEY: Atlantic, Co, 5.5km N Corbin City, 39.35293, -74.74737, 9m, 17 Jun–2 Jul 2019, LFT, T. James, BSF#85360” / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (CMNH); **TEXAS:** 1 ♂, “TEXAS: Brazos Co., College Station, Lick, Creek Pk., V-5-2002, E.G. Riley, UV” / “EGRC” (blue printed label) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (EGRC); 1 ♂, “USA: TEXAS: Brazos Co., College Sta., Riley Estate, 30°35'18"N, 96°15'12"W, VIII-2003, E.G. Riley” / “EGRC” (blue printed label) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (EGRC); 1 ♀, “USA: TEXAS: Brazos Co., College Sta., Riley Estate, 30°35'18"N, 96°15'12"W, V-17-2005, E. Riley, UV” / “EGRC” (blue printed label) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (EGRC); 1 ♀, “USA: TEXAS: Brazos Co., College Sta., Riley Estate, 30°58'49"N, 96°25'36"W, V-2-8-2009, E. Riley, UV” / “*Fornax, bicolor*, (Melsheimer), Det. R.G. Riley, 2011” / “EGRC” (blue printed label) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (EGRC); 1 ♂, “USA: TEXAS: Brazos Co., College Sta., Riley Estate, 30.58849°N, 96.25366°W, V-24-31-2010, E. Riley, UV” / “EGRC” (blue printed label) / “**PARATYPE:**, *Fornax, lucidicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (EGRC). Paratypes are deposited in CMNH, EGRC, FSCA, GERP, LSUIC, SEMC and SNMC.

Description. Male holotype. Length 7.5 mm. Width 2.0 mm. Body subcylindrical, elongate; uniformly dark brown; scape slightly darker brown, pedicel and antennomeres III–XI reddish-brown; legs including tarsi reddish-brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 30). **Head:** Sub-spherical; integument rugose, shiny; frons convex, without median carina or fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about 2 times wider than base; horizontal interantennal carina absent; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres III–XI, attaining nearly ½ of body length; antennomeres III–X subequal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument shiny, densely and shallowly rugose to granulate; wider than long, with moderate, sharp hind angles; sides parallel-sided in basal ⅓, strongly narrowing anteriorly; disc convex, without shallow median groove or circular fovea; base sinuous, with pair of transverse, circular depressions above scutellar shield. **Scutellar shield:** Somewhat short, subtriangular, setose, shallowly punctate and distally rounded. **Elytra:** Distinctly striate, deepest at humeral region; interstices slightly elevated; integument shiny, transversely rugose near humeri; punctures shallower and crowded elsewhere. **Legs:** First tarsomere as long as combined lengths of remaining four on meso- and metatarsi; tibiae rounded in cross-section; metatarsomeres I–III simple; metatarsomere IV excavated, truncated; metatarsomere V elongate, with basally toothed claws. **Venter** (Fig. 31): Closely punctate, with elongate, recumbent yellowish setae; hypomeron with basally open lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally; last abdominal ventrite apically produced, short, wide.

Female allotype (Fig. 32). 10.0 mm long; antennae filiform, reaching presumably nearly ½ of body length; legs and antennae dark reddish-brown, slightly lighter than habitus; pronotum parallel-sided in basal ⅓, narrowing anteriorly in apical ⅓; last abdominal ventrite apically produced, short, narrow.

Aedeagus (paratype) (Fig. 33–34). Basal piece slightly longer than wide, parallel-sided, dorsally open, basally truncate; remaining parts elongate, apically wide, angularly constricted at base of parameres, apically lobed;

median lobe short and stout, apically rounded, narrowly bifid; parameres elongate, laterally unsclerotized, with a minute hook-like lateral tooth near base.

Variation. Fourteen male and eight female paratypes were examined. The male paratypes are 7.0–10.0 mm long and 2.0–3.0 mm wide. The female paratypes are 9.0–13.0 mm long and 2.0–3.5 mm wide, all longer than the holotype. Two examined male and one female paratypes are reddish brown, possibly teneral at the time of collection. Delicate, shallow median groove is present on the pronotal disc of four female and nine male specimens. The median groove is absent in the other four female and five male specimens.

Distribution. This species is known from Arkansas, Florida and Texas in southeastern United States. A single specimen comes from New Jersey in northeastern United States.

Biology. Nine specimens were taken from blacklight traps placed in Arkansas, Florida and Texas. One specimen was taken from a Lindgren funnel trap placed in southern New Jersey. Developmental stages remain unknown.

Etymology. The specific name is derived from a combination of two Latin words, ‘lucidum’ for shiny and the root ‘-collis’ for the shiny surface of the pronotum.

Note. Muona (2000) wrote that a specimen collected in Alabama differs from other examined *F. bicolor* specimens in its structure of the integument. It may be possible the specimen in question could be that of *F. lucidicollis* **new species**. I have not studied the Alabama specimen.

Fornax melsheimeri Otto, new species

Fig. 35–38

Diagnosis. Absence of delicate interantennal carina on the base of the frontoclypeal region distinguishes *F. melsheimeri* **new species** from both *F. convexicollis* **new species** and *F. parallelicollis* **new species**. Overall shape of the pronotum further distinguishes *F. melsheimeri* **new species** from all remaining species of *Fornax* present in the Nearctic region.

Type material. Male holotype. “FLORIDA: Alachua Co., 3.7 mi. N. La Crosse, Santa Fe River floodplain, fall-1996; G. Steck, & B. Sutton, Malaise trap” / “*Fornax, luridus*, Chevrolat, Det. R.L. Otto, 2017” (“17” handwritten on label) / “**HOLOTYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [red printed label]. **Female allotype:** “FLORIDA: Alachua County, SE Gainesville, Kincaid Rd., @1 mi. N. Paynes Prairie, 7–21-, VIII-1999, 6m Malaise trap, edge old field/dry oak hamm., B.D. Sutton” / “**ALLOTYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label]. Holotype and allotype are deposited in FSCA.

Paratypes. 16 ♂♂, 5 ♀♀: **FLORIDA:** 1 ♂, “FLORIDA: DADE CO., CAMP MAHACHEE, NR., MATHESON HAMMOCK, MCTHOMAS & LPARKER, BLACKLIGHT TRAP” (date missing on label) / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “Avon Park, Fla., May 1943, R.H. Arnett, Jr.” (“May” handwritten) / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♀, “DEVIL’S MILLHOPPER, ALACHUA CO., FLA” / DALE H. HABECK, 22-IV-1972” (month handwritten in Roman numeral; day and year handwritten) / “REARED FROM, tree stump” (tree stump handwritten) / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♀, “FLA., Marion County, Ocala, 20-VII-1977, Coll. M.C. Thomas” (month handwritten in Roman numeral; day and year handwritten) / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FLORIDA: DADE CO., CAMP MAHACHEE, NR., MATHESON HAMMOCK, 27-V-1983, MCTHOMAS & LPARKER, BLACKLIGHT TRAP” / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FLORIDA: Alachua Co., Gainesville: Doyle, Conner Building, 5–8-VI-1987, Paul Skelley, malaise trap” / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 2 ♂♂, “FLORIDA: Alachua Co., Gainesville: Doyle, Conner Building, 8–12-VI-1987, Paul Skelley, malaise trap” / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FLORIDA: Alachua Co., 4 mi. N. of LaCrosse, J. & E. Ranch, 23–25 July 1989, Lloyd R. Davis, Jr.”



Figures 35–38. *Fornax melsheimeri* Otto, **sp. nov.** 35) Male holotype, dorsal habitus. 36) Male holotype, ventral habitus. 37) Female allotype, dorsal habitus. 38) Male paratype, aedeagus, dorsal view. (Scale: 35–38 = 1.0 mm.)

/ “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 2 ♂♂, “FLORIDA: Alachua Co., SE Gainesville, Kincaid Rd., old field edge, xeric oak, hamm., 6m Malaise, 8–15-V-, 1999, B.D. Sutton” / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 2 ♂♂, “FLORIDA: Alachua Co., SE Gainesville, Kincaid Rd., old field edge, xeric oak, hamm., 6m Malaise, 13–26-, VI-1999, B.D. Sutton” / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FLORIDA: Alachua Co. SE, Gainesville, Kincaid Rd., @1 mi. N. Paynes Prairie, 10–17-VII-1999, 6m, Malaise trap, B.D. Sutton, edge, old field/dry oak hammock” / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♀, “FLORIDA: Alachua Co., Gainesville, SE Kincaid Rd., @1 mi. N. Paynes Prairie, edge, old field/dry oak hamm., 6m Malaise, 4–11-VIII-1999, B.D. Sutton” / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♀ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FLORIDA: Alachua County, SE Gainesville, Kincaid Rd., @1 mi. N. Paynes Prairie, 21–, 28-VIII-1999, 6m Malaise trap, edge old field/dry oak hamm., B.D. Sutton” / “**PARATYPE**:, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020” (♂ handwritten behind species name on label) [yellow printed label] (FSCA); 1 ♂, “FLORIDA: Alachua County, SE Gainesville,

Kincaid Rd., @1 mi. N. Paynes Prairie, 28-VIII-2-IX-1999, edge old field/dry oak hamm., B.D. Sutton 6m Malaise trap" / "Collection of the Global, Eucnemid Research Project, (Robert L. Otto)" (green framed white label) / "**PARATYPE:**, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020" (♂ handwritten behind species name on label) [yellow printed label] (GERP); 1 ♀, "FL: Polk Co., Green Swamp WMA, 19 May-3 June 2001, Morris and Nigg, Malaise Trap" / "Collection of the Global, Eucnemid Research Project, (Robert L. Otto)" (green framed white label) / "**PARATYPE:**, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020" (♀ handwritten behind species name on label) [yellow printed label] (GERP); 1 ♂, "FL: Sumter Co., Green Swamp WMA, 3-15 June 2001, Morris and Nigg, Malaise Trap" / "Collection of the Global, Eucnemid Research Project, (Robert L. Otto)" (green framed white label) / "*Fornax, luridus*, Chevrolat, Det. R.L. Otto, 2017" ("17" handwritten on label) / "**PARATYPE:**, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020" (♂ handwritten behind species name on label) [yellow printed label] (GERP); 1 ♀, "FL: Sumter Co., Green Swamp WMA, 3-15 June 2001, Morris and Nigg, Malaise Trap" / "Collection of the Global, Eucnemid Research Project, (Robert L. Otto)" (green framed white label) / "**PARATYPE:**, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020" (♀ handwritten behind species name on label) [yellow printed label] (GERP); 1 ♂, "FLORIDA: Monroe Co., Upper Key Largo, May 14-27, 2016, Lindgren funnel trap, Kyle E. Schnepf" / "*Fornax, luridus*, Chevrolat, Det. R.L. Otto, 2017" ("17" handwritten on label) / "**PARATYPE:**, *Fornax, melsheimeri*, Otto, Det. R.L. Otto, 2020" (♂ handwritten behind species name on label) [yellow printed label] (KESC).

Description. Male holotype. Length 7.0 mm. Width 2.0 mm. Body subcylindrical, elongate; uniformly reddish-brown; antennae reddish-brown; legs including tarsi reddish-brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 35). **Head:** Subspherical; integument rugose, somewhat dull; frons convex, without median carina or fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about 2 times wider than base; horizontal interantennal carina absent; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres III-XI, almost $\frac{2}{3}$ of body length; antennomere III slightly longer than IV; antennomeres IV-X subequal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument dull, densely rugose to granulate; wider than long, with moderate, sharp hind angles; sides gradually arcuate anteriorly; disc convex, with shallow, delicate median groove, without circular fovea; base sinuous, with pair of very small, circular depressions above scutellar shield. **Scutellar shield:** Elongate, subtriangular, setose, shallowly punctate and distally rounded. **Elytra:** Distinctly striate; interstices slightly elevated; integument shiny, with shallow, dense punctures. **Legs:** First tarsomere as long as combined lengths of remaining four on meso- and metatarsi; tibiae rounded in cross-section; metatarsomeres I-III simple; metatarsomere IV excavated, emarginated; metatarsomere V elongate with, basally toothed claws. **Venter** (Fig. 36): Closely punctate, with elongate, recumbent whitish setae; hypomeron with basally open lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally; last abdominal ventrite apically produced, short, wide.

Female allotype (Fig. 37). 8.0 mm long; antennae filiform, attaining nearly $\frac{1}{2}$ of body length; legs and antennae reddish-brown, slightly lighter than habitus; sides of pronotum narrowing anteriorly from above hind angles; last abdominal ventrite slightly narrower and more pointed.

Aedeagus (paratype) (Fig. 38). Basal piece slightly longer than wide, parallel-sided, dorsally open, basally rounded; remaining parts elongate, strongly constricted laterally at base of parameres, apically lobed; median lobe short and spatulate, apically rounded, narrowly bifid; parameres elongate, apically unsclerotized, with a triangular lateral tooth near base.

Variation. Sixteen male and five female paratypes were examined. The male paratypes are 6.0-9.0 mm long and 2.0-3.0 mm wide. The female paratypes are 6.0-11.0 mm long and 2.0-3.0 mm wide. Five males and one female are shorter than and just as wide as the holotype. Two males and two females are just as long and wide as the holotype. Nine remaining males and two other females are longer and wider than the holotype. Three males are darker than the holotype. One male and two females are lighter than the holotype. Twelve remaining males and several females are just as dark as the holotype. Delicate, shallow median groove is present on the pronotal disc of two females and six males. The median groove is absent in the other three females and 10 males.

Distribution. This new species is known from a number of localities throughout the state of Florida, USA.

Biology. Seven specimens were taken from Malaise traps placed in several counties in Florida. Nine specimens were taken from a 6 m Malaise trap placed at the edge of an old field adjacent to a dry oak hammock. One specimen was taken from a Lindgren funnel trap placed in southern Florida. One specimen was reared from a tree stump. Two specimens were taken from a blacklight trap placed in southern Florida near Matheson Hammock. Developmental stages remain unknown.

Etymology. The new species is dedicated to Frederick Ernst Melsheimer, who contributed to American Entomology through his works on Coleoptera by describing many species during the 1800s, including four species of Eucnemidae.

Fornax parallelicollis Otto, new species

Fig. 39–42

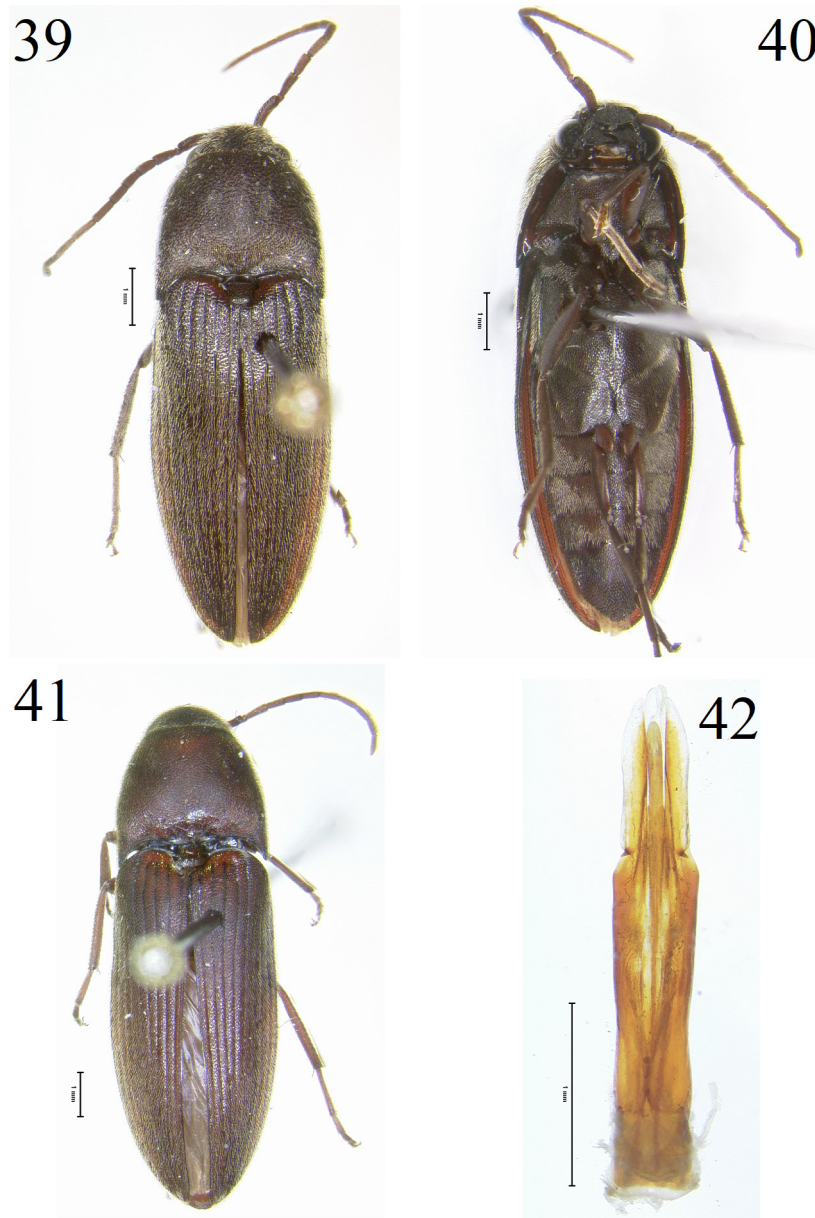
Diagnosis. Presence of a delicate, narrowly incomplete interantennal carina at the base of the frontoclypeal region distinguishes the new species from nearly all *Fornax* species in the United States, except *F. convexicollis* new species. Absence of shallow median groove on the pronotal disc further distinguishes *F. parallelicollis* new species from *F. convexicollis* new species.

Type material. Male holotype. “FLORIDA: Alachua County, Gainesville, SE, Kincaid Rd., appr. 1mi. N. Paynes Prairie, edge old field/dry oak hamm., 7–14-VI-1998, 6m Malaise, trap, B.D. Sutton” / “**HOLOTYPE**:, *Fornax, parallelicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [red printed label]. **Female allotype.** “USA, Georgia, Clarke Co., 200m, 33°54′N 83°16′W, 29-05 July, 1992, J. Pickering 157” / “**ALLOTYPE**:, *Fornax, parallelicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label]. Holotype and allotype are deposited in FSCA.

Paratypes. 1 ♂, 1 ♀: **FLORIDA:** 1 ♀, “FL: Polk Co., Green Swamp WMA, 19 May–3 June 2001, Morris and Nigg, Malaise Trap” / “Collection of the Global, Eucnemid Research Project, (Robert L. Otto)” (green framed white label) / “**PARATYPE**:, *Fornax, parallelicollis*, Otto, Det. R.L. Otto, 2018” (♀ handwritten behind species name on label) [yellow printed label] (GERP); **TEXAS:** 1 ♂, “USA: TEXAS: Brazos Co., College Sta., Riley Estate, 30°58849′N, 96°25366′W, V-2–8-2009, E. Riley, UV” / “EGRC” (blue printed label) / “**PARATYPE**:, *Fornax, parallelicollis*, Otto, Det. R.L. Otto, 2018” (♂ handwritten behind species name on label) [yellow printed label] (EGRC). Paratypes are deposited in EGRC and GERP.

Description. Male holotype. Length 9.5 mm. Width 3.0 mm. Body subcylindrical, elongate; uniformly brownish-black; scape dark brownish-black, pedicel and antennomeres III–XI brown; legs including tarsi dark brown; head, pronotum and elytra clothed with short, recumbent yellowish setae (Fig. 39). **Head:** Subspherical; integument rugose, dull; frons convex, without median carina or fovea above frontoclypeal region; apical margin of frontoclypeal region rounded, about 2 times wider than base; delicate, horizontal interantennal carina present, but narrowly incomplete; mandibles stout, bidentate, densely punctate. **Antenna:** Filiform from antennomeres III–XI, attaining nearly ½ of body length; antennomere III longer than IV; antennomeres IV–X subequal, longer than wide; antennomere XI slightly longer than X. **Pronotum:** Integument dull, densely rugose; wider than long, with well-developed, sharp hind angles; sides parallel-sided in basal ⅔, arcuate cranially in apical ⅓; disc convex, without shallow median groove or circular fovea; base sinuous, with pair of circular depressions above scutellar shield. **Scutellar shield:** Short, subtriangular, shallowly punctate and distally rounded. **Elytra:** Distinctly striate, deepest in humeral region; interstices slightly elevated; integument shiny, with dense punctures. **Legs:** First tarsomere as long as combined lengths of remaining four on mesotarsi; tibiae rounded in cross-section; metatarsomeres I–III simple; metatarsomere IV excavated; metatarsomere V missing. **Venter** (Fig. 40): Closely punctate, with elongate, recumbent yellowish setae; hypomeron with basally open lateral antennal grooves; metepisterna parallel-sided; elytral epipleura shiny, grooved throughout, without punctures; metacoxal plates medially more than 6.0 times wider than laterally; last abdominal ventrite apically produced, short and wide.

Female allotype (Fig. 41). 11.0 mm long; antennae filiform, reaching nearly ½ of body length; legs and antennae reddish-brown, similar to habitus; pronotum parallel-sided in basal half, narrowing anteriorly in apical ½; last abdominal ventrite narrowly obtuse apically.



Figures 39–42. *Fornax parallelicollis* Otto, **sp. nov.** **39)** Male holotype, dorsal habitus. **40)** Male holotype, ventral habitus. **41)** Female allotype, dorsal habitus. **42)** Male paratype, aedeagus, dorsal view. (Scale: 39–42 = 1.0 mm.)

Aedeagus (paratype) (Fig. 42). Basal piece slightly longer than wide, parallel-sided, dorsally open, basally truncate; remaining parts elongate, apically wide, angularly constricted at base of parameres, apically lobed; median lobe short and stout, apically rounded, narrowly bifid; parameres elongate, laterally unsclerotized, with a minute, posteriorly directed hook-like lateral tooth near base.

Variation. One male and one female paratypes were examined. The male paratype is 9.0 mm long and 2.5 mm wide. The female paratype is 12.0 mm long and 3.5 mm wide. The female paratype is longer and much wider than the holotype. The male paratype is smaller and narrower than both the holotype and allotype. There are no exoskeletal differences among the paratype, allotype and holotype.

Distribution. This species is known from southeastern United States from Texas to Florida.

Biology. Two specimens were taken from Malaise traps placed in two areas in Florida. One specimen was taken from a UV light trap in Texas. Developmental stages remain unknown.

Etymology. The specific name is derived from a combination of two Latin words, ‘parallelos’ for parallel and the root ‘-collis’ for the parallel-sided pronotum.

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