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## Discovery of a New Species of *Smicronyx* Schoenherr (Coleoptera: Curculionidae)

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**DISCOVERY OF A NEW SPECIES OF *SMICRONYX* SCHOENHERR  
(COLEOPTERA: CURCULIONIDAE)**

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**Abstract**

*Smicronyx obrieni* Anderson, Korotyaev, and Lingafelter, a new species associated with ragweed [*Ambrosia grayi* (A. Nelson) Shinnars], was discovered in Krasnodar (Russia) and Texas (United States), and is described.

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The second author received eight specimens of weevils (Fig. 1) from O.V. Kovalev (Zoological Institute, St. Petersburg, Russia) that were collected in a rice field in Krasnodar Territory of the North Caucasus (Slavyansk District) in 1975. The weevils were identified as *Smicronyx*, however the species was unlike any known from the Palearctic Region. Since the territory where these weevils were collected is extensively agricultural with several experimental plots, the second author thought that this species could have been introduced from the United States where *Smicronyx* is represented by at least 70 species (Anderson 1962; O'Brien & Anderson 1996).

Since acquiring these specimens, we have seen no additional material collected in Krasnodar Territory or other areas of the Caucasus. In 1998, these beetles were sent to the senior author for identification. The material was determined as an undescribed species of *Smicronyx* from Texas developing on *Ambrosia*. In 1999, an expedition to Krasnodar Territory was made, however *Ambrosia* was nearly absent from the area where the series was collected, and no *Smicronyx* were collected since. This suggests that this species probably did not establish in Russia. We describe the adult of this new species of *Smicronyx*.

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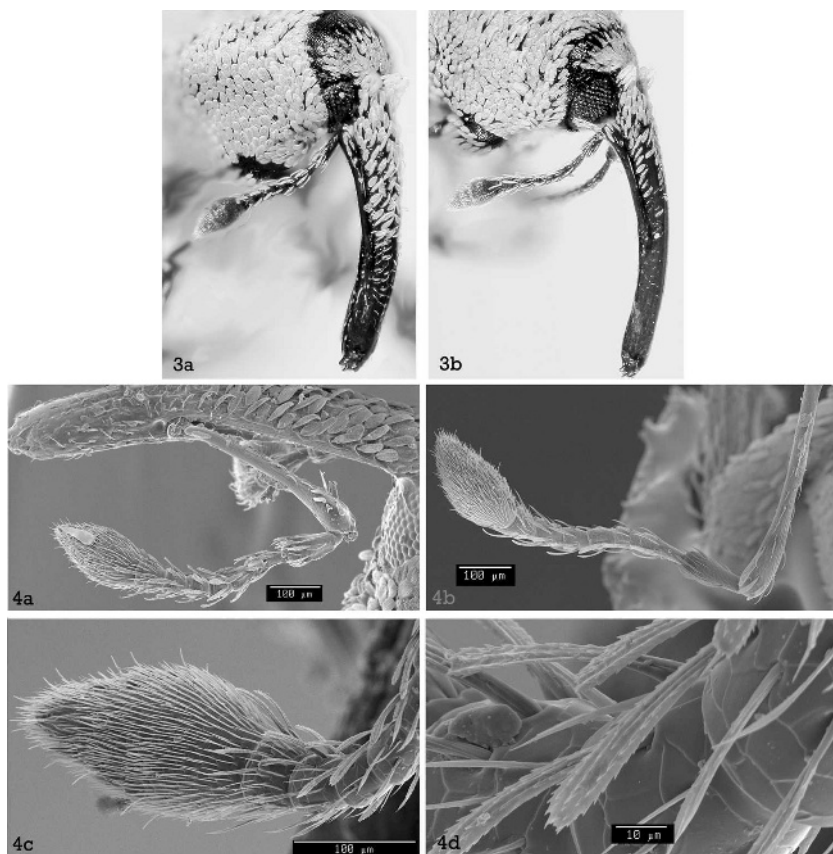
<sup>1</sup> Deceased 27 December 2005



**Figs. 1–2.** *Smicronyx (Pseudomicronyx) obrieni* Anderson, Korotyaev, and Lingafelter, new species, dorsal and lateral views, respectively.

### Materials and Methods

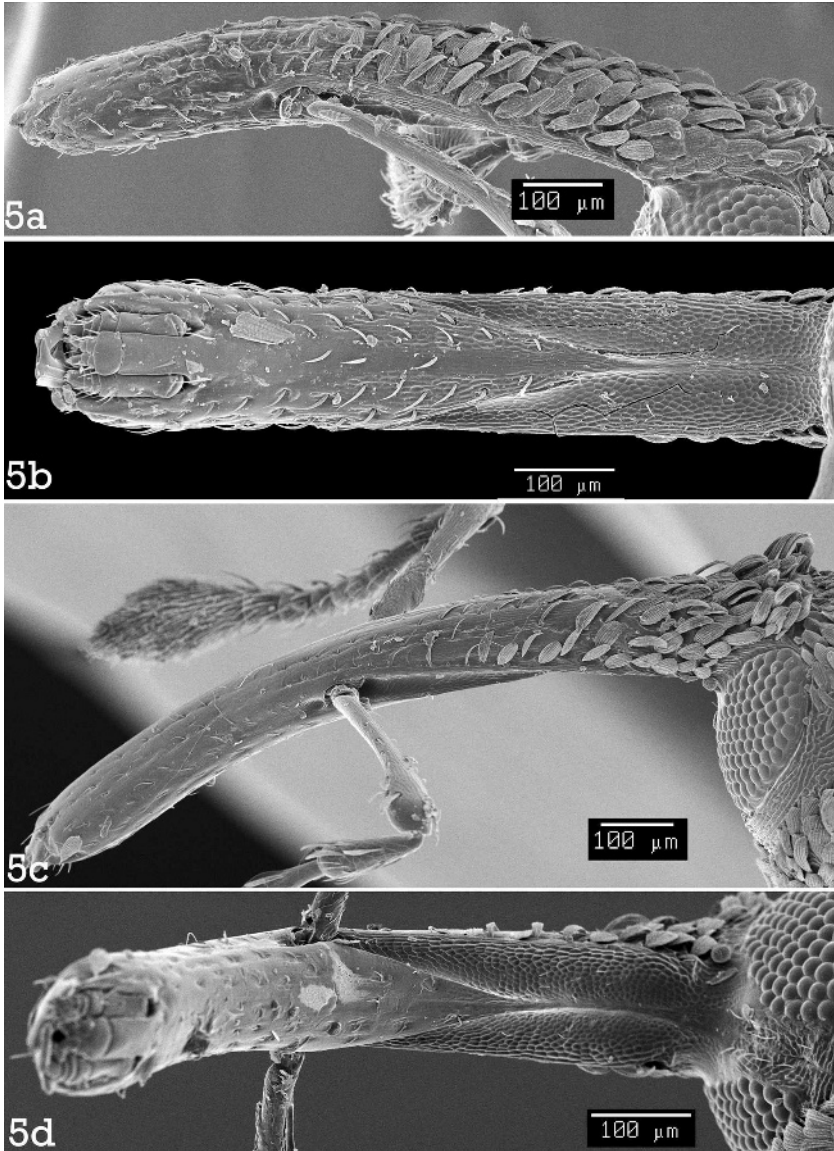
Specimens examined in this study are deposited in the National Museum of Natural History, Washington, D.C., U.S.A. (USNM), the Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (ZMAS), the C. W. O'Brien collection, Green Valley, Arizona (CWOC), California Academy of Sciences, San Francisco, California (CASC), Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNC), Texas A&M University, College Station, Texas (TAMU), Texas Tech University Collection, Lubbock, Texas (TTUC), and The Natural History Museum, London, England (BMNH). Measurements of the specimens were made using a stereoscopic microscope equipped with an ocular micrometer. Terminology follows Korotyaev *et al.* (2000) and Reidel and O'Brien (1995).



**Figs. 3–4.** 3) Rostrum and antenna of *S. obrieni*, automontage photograph, dorso-lateral view. a, male; b, female. 4) Antenna of *S. obrieni*, scanning electron micrographs. a, male; b, female; c, club of female; d, modified setiform scales of antenna.

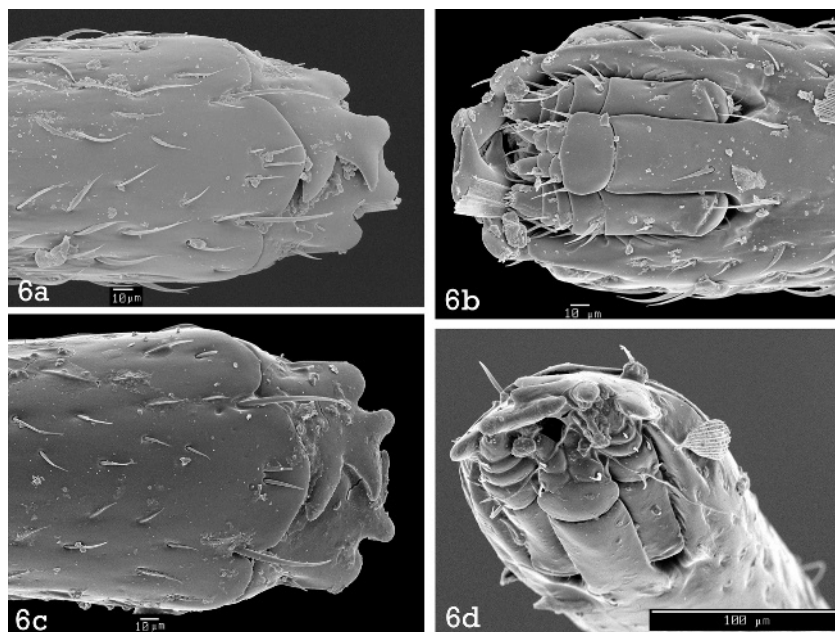
***Smicronyx (Pseudosmicronyx) obrieni* Anderson, Korotyayev, and Lingafelter,  
New Species  
Figs. 1–11**

**Description.** Body elliptical, moderately stout, dermal color black. Vestiture abundant, squamulose, pale greyish white, with pearly lustre, shadowy dorsal pattern of pale brown in some specimens (Figs. 1–2). Rostrum (Figs. 3, 5) moderately stout, moderately curved, slightly tapered from base to apex, coarsely punctate behind antennal insertions, with 2 pairs of thin dorsal carinae (obsolete in females) before antennal insertions; scales recumbent except for 2 basal tufts. Basal groove separating rostrum from head shallow, distinct. Mandibles (Fig. 6) distinctly exarate. Head convex, black, shining, reticulate, bearing broad patch of appressed scales behind rostrum. Antennae (Figs. 3–4) inserted near mid-length of rostrum (females, Fig. 3b), or before middle (males, Fig. 3a); first funicular segment stout, subequal to combined length of second and third segments, second distinctly longer than third, remaining 4 segments subequal; setiform scales



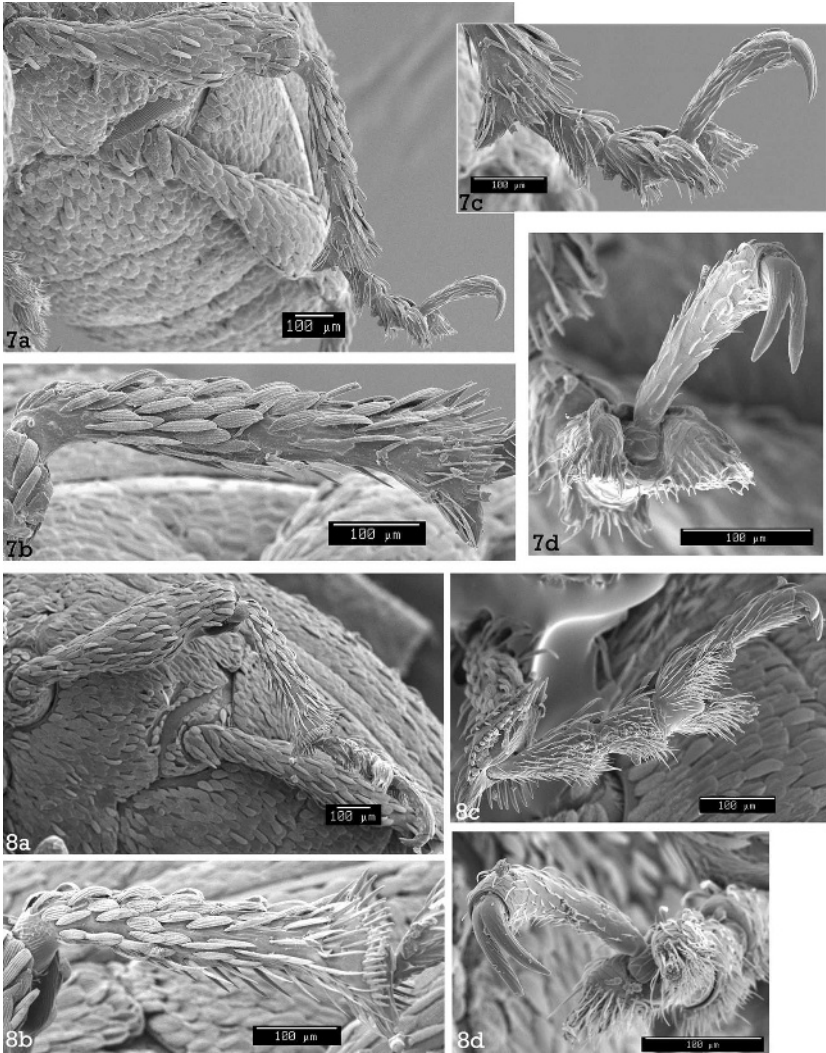
**Fig. 5.** Rostrum of *S. obrieni*, scanning electron micrographs. a, male, lateral view; b, male, ventral view; c, female, lateral view; d, female, ventral view.

(Fig. 4d) pale grey, longest on seventh segment; club spindle-shaped, shorter than combined length of segments 3–7 (Fig. 4c). Prothorax moderately convex, slightly broader than long, slightly constricted behind apex; pronotum closely, evenly punctate, shining, without sculpturing, covered with flat, oval scales mixed with arched, flattened, setiform scales (Fig. 1). Elytra moderately convex, sides



**Fig. 6.** Mouthparts of *S. obrieni*, scanning electron micrographs. a, male, dorsal view; b, male, ventral view; c, female, dorsal view; d, female, apico-ventral view.

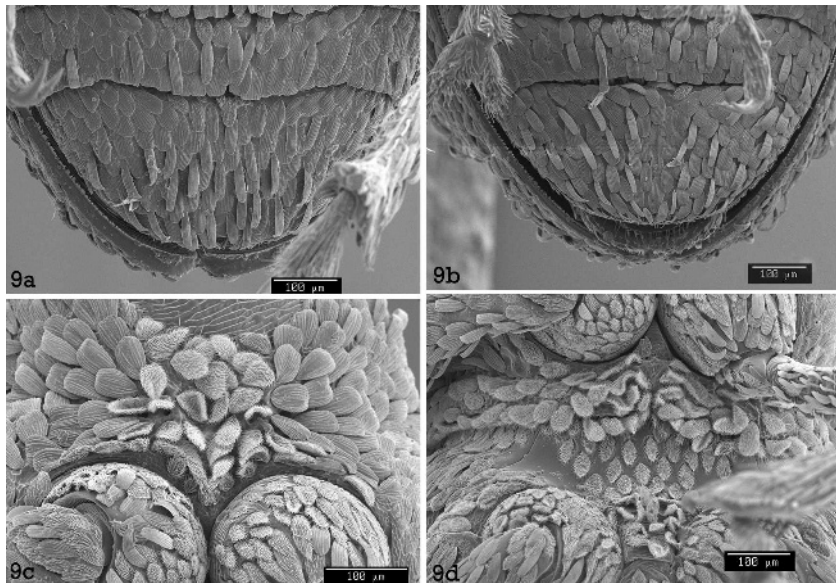
subparallel for about two-thirds length, converging to obtusely rounded apex, length slightly less than twice width across humeri; intervals flat, finely punctate, covered with 3–4 rows of flat, elliptical, overlapping scales and single row of arched, flattened, setiform scales (Fig. 1). Declivital callosities distinct, not prominent. Scutellum small, subtriangular, squamose. Underside closely covered with ovate, greyish-white scales, with modified striate and/or plumose scales on prosternum (Fig. 9c) and mesosternum (Fig. 9d). First and second ventrites together slightly longer than ventrites 3–5. Femora moderately clavate, unarmed, reddish brown, clothed with elliptical and elongate appressed scales. Tibiae (Figs. 7b, 8b) straight, reddish brown, thinly covered with mixture of elliptical and elongate appressed scales; row of 4–5 dark, stiff setae on inner margin, reduced to 3 on metatibiae; spurs slightly curved. Tarsi dark, reddish brown, squamose; third tarsomere distinctly broadest, bilobed; fifth tarsomere elongate, slightly longer than second and third tarsomeres combined (Fig. 7c, 8c); claws long, moderately divergent, fused near bases (Figs. 7d, 8d). Male genitalia as illustrated in Fig. 10, internal sac microscopulose, orificial plates fused dorsally; in lateral view, tegmenal strut sinuate with apex weakly, dorsally oriented (Fig. 10c); tegminal arms convergent, but indistinct dorsally. Female genitalia as illustrated in Fig. 11, arms of spiculum ventrale (apodeme of sternite 8) approximately V-shaped and anterior end of stem weakly expanded (Fig. 11a); hemisternites (coxites) weakly convergent apically with weakly divergent styli (Fig. 11a); spermatheca C-shaped but distinctly bulbous at proximal end near spermathecal duct and constricted at opposite end (Fig. 11b), with distinct striations around proximal third and slight indentation at inner margin of spermathecal body.



**Figs. 7-8.** 7) Middle leg of *S. obrieni*, male. a, entire, lateral view; b, mesotibia; c, mesotarsus; d, mesotarsal claws. 8) Middle leg of *S. obrieni*, female. a, entire, lateral view; b, mesotibia; c, mesotarsus; d, mesotarsal claws.

Sexual dimorphism: Males distinguished from females externally by rostrum (Fig. 3) which is longer, smoother, and more polished before antennal insertions in females, and by fifth ventrite of the abdomen which is slightly depressed medially and barely sinuate at anterior margin in males (Fig. 9a), but nearly flat and transverse in females (Fig. 9b).

Measurements (in mm): Taken from specimens collected at one locality 12 mi. NE of Floydada, Texas; n = 25 males, 25 females. Mean values are in parentheses. Males: Body L. 2.12-2.72 (2.41); Elytra L. 1.48-1.92 (1.69); Elytra



**Fig. 9.** Venter of *S. obrieni*: a, apical ventrite of male; b, apical ventrite of female; c, prosternum of female showing modified scales; d, mesosternum of female.

W. 0.92–1.28 (1.07); Prothorax L. 0.56–0.76 (0.70); Prothorax W. 0.64–0.88 (0.76); Rostrum L. 0.88–1.12 (0.98). Females: Body L. 1.92–2.84 (2.46); Elytra L. 1.36–2.00 (1.75); Elytra W. 0.84–1.24 (1.09); Prothorax L. 0.48–0.72 (0.65); Prothorax W. 0.60–0.84 (0.75); Rostrum L. 0.88–1.24 (1.08).

**Distribution.** U.S.A.: Texas, New Mexico, possibly other southwestern states. RUSSIA (?): possibly established in Krasnodar Territory.

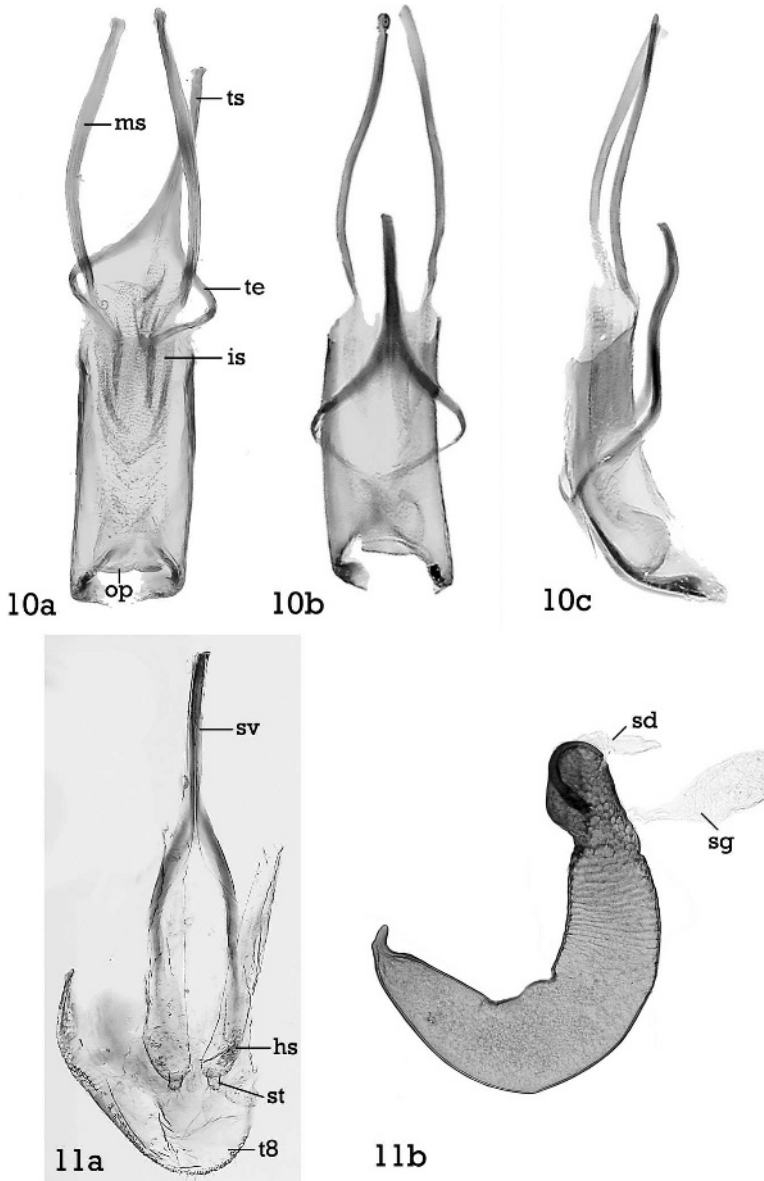
**Biology.** Given the many specimens collected from *Ambrosia grayi* (A. Nelson) Shinners (Asteraceae) in Texas, this plant is a probable host. This species is active in the late summer on ragweed.

**Material Examined.** Holotype (male) U.S.A., 12 mi. N[orth] E[ast] Floydada, Floyd Co., Texas, VIII-29-1970, on *Ambrosia grayi* [at] playa lake, C. R. Ward & C. W. O'Brien (USNM). Paratypes, U.S.A.: Texas, 12 mi NE Floydada, Floyd Co., playa lake, VIII-29-1970, on *Ambrosia grayi*, 227 Ex.; same except no host data, col. at night, 8 Ex. (USNM, CWOC). New Mexico, Ute Lake, 8-19-1970, D. Foster, 2 Ex., (CWOC). RUSSIA: Krasnodar Territory, Slavyansk District, "Kuban" collective farm, on rice, VIII-1-1975, 6 Ex. (ZMAS); 2 Ex. (USNM).

**Etymology.** This species has been named in honor of Dr. Charles W. O'Brien, of Green Valley, Arizona, who took part in collecting the type series, and who kindly loaned those specimens.

**Discussion.** Some noteworthy features of this species are the long fifth tarsomere (Figs. 7d, 8d), which extends farther beyond the third tarsomere than in most other species of the subgenus *Pseudosmicronyx*, the slight, but distinct, pearly lustre of the vestiture (Fig. 1), the distinctive sinuate tegminal shape (from lateral view) (Fig. 10c), and the distinctive shape of the spermatheca (Fig. 11b). *Smicronyx obrieni* clearly belongs to the subgenus *Pseudosmicronyx*, and shares a number of basic features with the *S. corniculatus* group of species (see





**Figs. 10–11.** 10) Aedeagus of *S. obrieni*. a, dorsal view (is = internal sac, ms = median strut, op = orificial plate, te = tegmen, ts = tegmina); b, ventral view; c, lateral view. 11) Female genitalia. a, vaginal region (hs = hemisternite [coxite], st = stylus, sv = spiculum ventrale [apodeme of sternite 8], t8 = tergite 8); b, spermatheca (sd = spermathecal duct, sg = spermathecal gland).

Anderson, 1962), of which several species are also associated with species of *Ambrosia* or the related genus *Iva*. However, the rostrum of female *S. obrieni* (Figs. 3b, 5c, d) is not as polished and terete before the antennal insertions as in the *corniculatus* group. Also, the surface of the pronotum is not sculptured with wavy ridges between the punctures, as in many species of the *corniculatus* group. Thus, the relationship of *S. obrieni* to the latter group remains unclear.

Two other undescribed species of *Smicronyx* resembling *S. obrieni* from Texas (CWOC) have a similar body shape and pale vestiture. Those species differ from *S. obrieni* in having shorter fifth tarsomeres, different punctuation of the pronotum, and different shape and sculpturing of the rostrum. It should also be noted that *S. obrieni* may also be confused with other described species in the western USA having a similar habitus, particularly *Smicronyx pallidus* Anderson and *S. albidosquamosus* Klima, however the aforementioned characters will distinguish them. The latter two species have not yet been recorded from Texas or New Mexico. The status of the undescribed species mentioned here is based upon Anderson's revision of the *Smicronyx* species of America north of Mexico (1962), and on his examination of the type specimens of the described Mexican *Smicronyx* species. The collection of the series of *S. obrieni* in Russia "on rice" is presumed incidental and we do not believe this is a host plant since the host of the long series from Texas was apparently *A. grayi*.

#### Acknowledgments

We thank O. V. Kovalev, C. W. O'Brien, E. G. Riley (TAMU), R. Davidson (Carnegie Museum), and P. Perkins (MCZ) for providing important material to this study. Thanks to the Ernst Mayr Committee for providing a grant to BAK to travel to the MCZ. Lisa Roberts (SEL, USDA) prepared the scanning electron micrographs and automontage genitalic photos. Charyn Micheli (SEL, USDA, University of Maryland) prepared the automontage photographs of the dorsal and lateral weevil views. BAK was supported by funds from USDA and by grants of the Russian Foundation for Basic Research No. 04-04-49109 and 04-04-81026-Bel2004a. Allen Norrbom (SEL, USDA), Charles O'Brien, and an anonymous coleopterist reviewed this manuscript.

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