

REVISION OF THE SPIDER BEETLE GENUS *NIPTUS* IN NORTH AMERICA, INCLUDING NEW CAVE AND PHOLEOPHILE SPECIES (COLEOPTERA: PTINIDAE)

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Abstract.—The genus *Niptus* is revised for North America. Four species of *Niptus* Boeildieu (*N. giulianii* NEW SPECIES, *N. neotomae* NEW SPECIES, *N. sleeperi* NEW SPECIES, and *N. arcanus* NEW SPECIES) are described from the Great Basin area, southwestern Arizona, the cape mountain region of Baja California, Mexico, and a California cave, respectively. Notes on the biology of *Niptus* species, as well as *Ptinus clavipes*, are presented. A key is provided to the species of *Niptus* found in North America. Phylogenetic considerations among *Niptus*, *Pseudeurostus*, and *Eurostus* are discussed. Habitat conservation is stressed for species restricted to single cave localities.

Key Words.—Insecta, Coleoptera, Ptinidae, *Niptus*, southwest United States, Mexico, biology, caves

As a result of improved collecting techniques, such as overnight pitfall traps or longer duration ethylene glycol (antifreeze) traps, and greater accessibility to previously difficult to reach places, numerous specimens of small apterous beetles are now available in collections. Most larval and adult Ptinidae feed on dried plant and animal substances. Others have been recorded from dung. Many are associated with mammals or birds and are often found in caves. Their biology, including rearing methods of economically important species, is adequately covered by Howe (1959).

One species, *Niptus hololeucus* (Faldermann), a stored product pest, is widely distributed in the northern United States. *Niptus kelleri* (Brown) and *N. hilleri* Reitter have previously been placed in the genus *Pseudeurostus*. One of these, *N. hilleri*, is distributed widely, also in stored products (see Brown 1959: 629). *Niptus kelleri*, known only from the type locality, was not examined.

Because all genera of ptinids are flightless (except for certain *Ptinus*), the method found most effective in capturing pholeophilic Ptinidae is the use of numerous dry plastic "punch cup" containers as pit traps, especially near, or at, the entrance to rodent burrows. These traps are set in the late afternoon and collected early the next morning. This permits collection of live adult specimens for rearing and provides additional biological information (substrate type, etc.). Adults are also collected at night with the use of headlamps or lanterns to illuminate surface areas.

In 1978-1979, a year-long trapping survey of the Coleoptera of Mitchell Caverns was conducted using ethylene glycol pitfall traps (Aalbu 1990). Mitchell Caverns are located on the eastern slopes of the Providence Mountains (San Bernardino County), California. A new species of *Niptus* was found to be endemic to one cave.

Abbreviations.—The following abbreviations are used to denote the institutions that loaned material: CASC, California Academy of Sciences, San Francisco,

California; CISC, University of California, Berkeley, California; CNCI, Canadian National Collection, Ottawa, Ontario, Canada; CSLB, California State University, Long Beach; FMNH, Field Museum of Natural History, Chicago, Illinois; KWBC, Kirby W. Brown Collection, Stockton, California; MCZC, Harvard University Museum of Comparative Zoology, Cambridge, Massachusetts; OSUC, The Ohio State University, Columbus, Ohio; SDMC, San Diego Museum of Natural History, California; USNM, United States National Museum, Washington D.C.; UAIC, University of Arizona, Tucson.

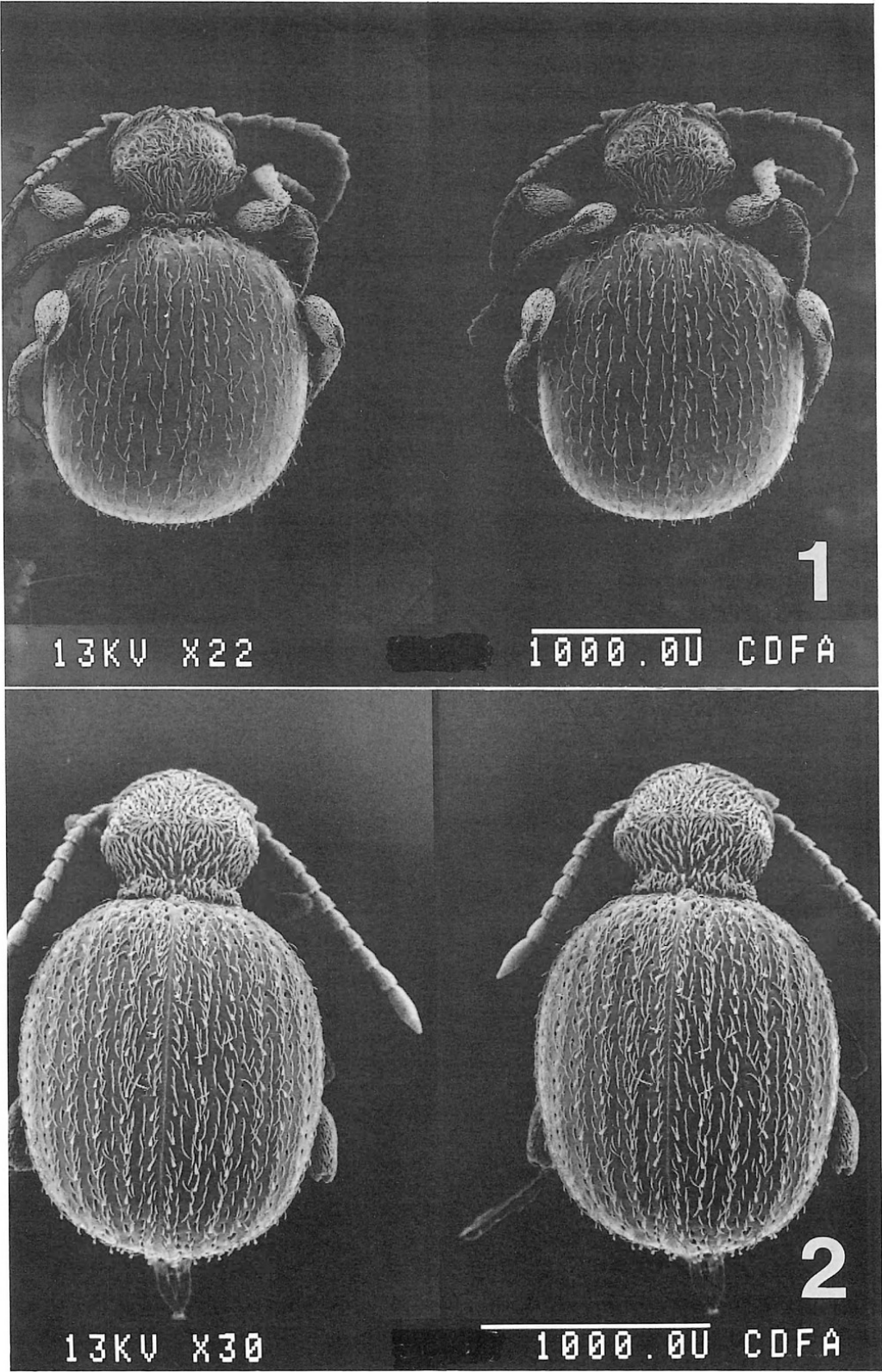
NIPTUS ARCANUS AALBU & ANDREWS, NEW SPECIES
(Figs. 1, 17, 19, 24 and 25)

Types.—HOLOTYPE (female) and ALLOTYPE (male): CALIFORNIA. *SAN BERNARDINO Co.*: Providence Mountains State Recreation Area, Mitchell Caverns, el. 1340 m, El Pakiva Cave, 26 Aug–31 Dec 1978, Ethylene glycol pitfall trap near *Neotoma* nest, #6. Type deposited in California Academy of Sciences Collection. PARATYPES: CALIFORNIA. *SAN BERNARDINO Co.*: Providence Mountains State Recreation Area, Mitchell Caverns, el. 1340 m, El Pakiva Cave, 26 Aug 1978 to 31 Dec 1978 trap #6; 17 Mar 1979 to 16 Jun 1979, trap #3 (4); 17 Mar 1979 to 16 Jun 1979, trap #4 (19); 17 Mar 1979 to 16 Jun 1979, trap #6 (34); 17 Mar 1979 to 16 Jun 1979 (1); 27 May 1978 to 26 Jul 1979, trap #5 (28); 31 Dec 1978 to 17 Mar 1979, trap #5 (1); 31 Dec 1978 to 17 Mar 1979, trap #6 (21); 8 May 1981 to 10 Aug 1981 (11), R. L. Aalbu, Ethylene glycol pitfall trap near *Neotoma* nest. Paratypes deposited in USNM, CDFA, CISC, CASC, RLAC, OSUC.

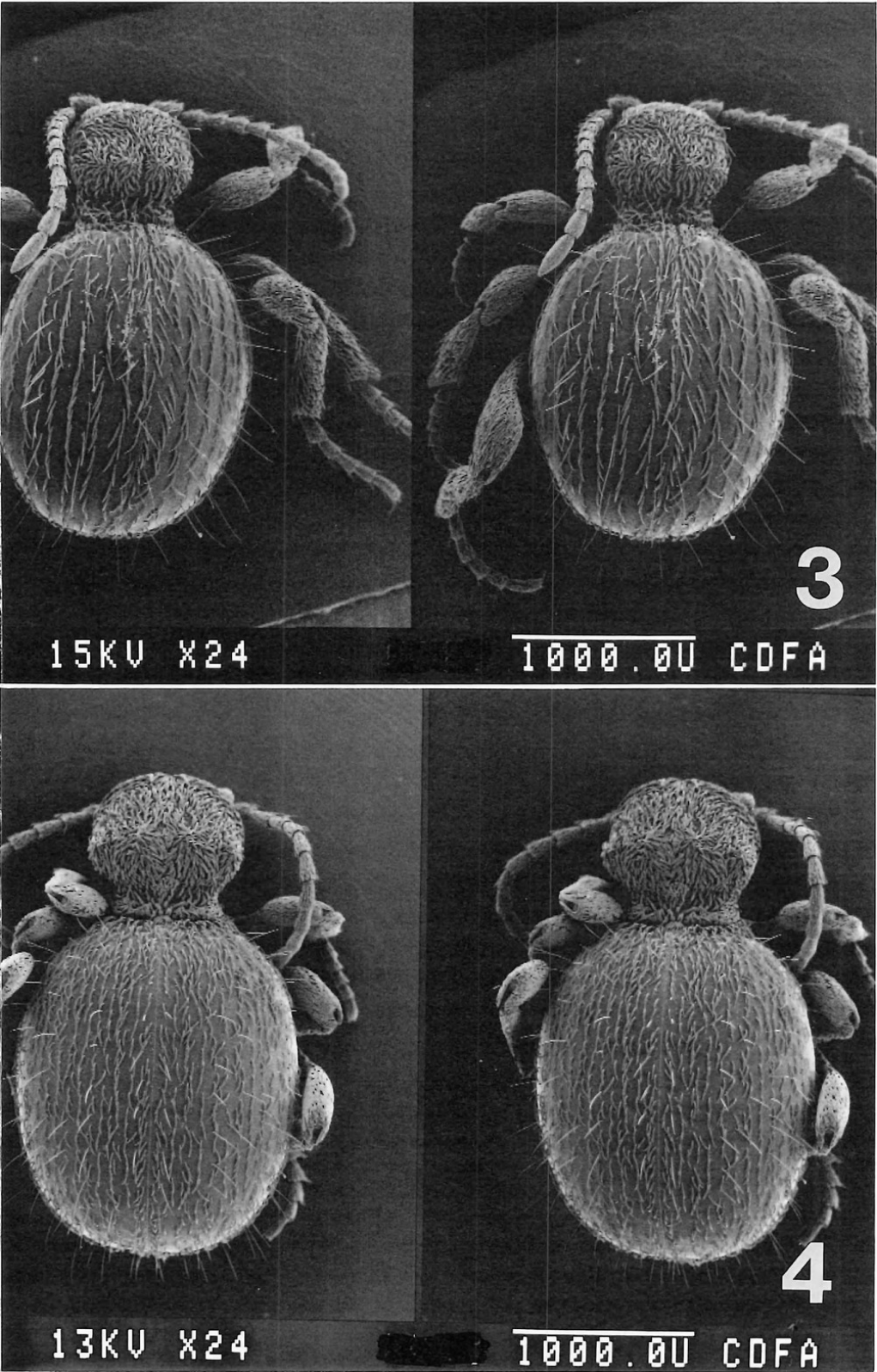
Description.—Female (holotype). Integument red-brown, elytra shiny; length 3.3 mm. HEAD with surface vestiture of closely appressed, spatulate, scale-like setae with few longer fine setae on apical margin of clypeus; antennal fossae with dorsal border not carinate, not laterally elevated; eyes minute, three facets at minimum width, narrowly oval; antenna relatively long, slender, ratio of segment lengths 14:11:10:10:9:9:9:10:10:18. PRONOTUM with surface sculpture of rugose, deep punctures posteriorly forming moderately dense, fine tubercles; surface vestiture of one type, stout, arched, recumbent setae; setae dense at anterior margin, at transverse row of four large tufts; tufts equal in size, positioned near midlength. ELYTRA with surface smooth, shiny, striae punctures fine, nearly obsolete; vestiture of two types, nearly equal in length; first consisting of short moderately slender, erect, spatulate setae positioned in rows at regular distances along first to seventh intervals; second arched, recumbent, moderately slender setae positioned in rows at elytral striae and elytral intervals; setae short, dense at elytral margins. VENTRAL SURFACE: Sterna: ratio of segment lengths 17:19:15:5:19; sternal surface vestiture short, golden, closely appressed, spatulate, scale-like setae intermixed with sparse, slightly longer, less spatulate setae; fifth visible abdominal sternite with medial apical area with closely packed postero-directed, semi-erect setae forming a rounded tubercle-like structure. LEGS slender, femora moderately long, capitate, metafemora bent near apex; tibia slender; femoral vestiture of dense, golden, short, appressed, scale-like setae only varying slightly in length; tibiae with similar vestiture except protibiae with dense, slightly longer, slender, golden setae on lower margins, mesotibiae with dense, slightly longer, slender golden setae on lower margins, on apical one-half of outer margins; metatibiae with few sparse, slightly longer, golden setae on lower margins. Ratios of segment lengths: prothoracic legs, 50:49; mesothoracic legs, 54:52; metathoracic legs, 60:65; protarsi, 10:6:6:6:9; mesotarsi, 12:7:6:6:9; metatarsi, 15:8:7:7:10.

Male (allotype).—Similar to holotype but smaller, approximate length 2.9 mm. Fifth visible abdominal sternite with medial apical area with setae only slightly less appressed, slightly longer than rest of sternal setae; without tubercle-like structure.

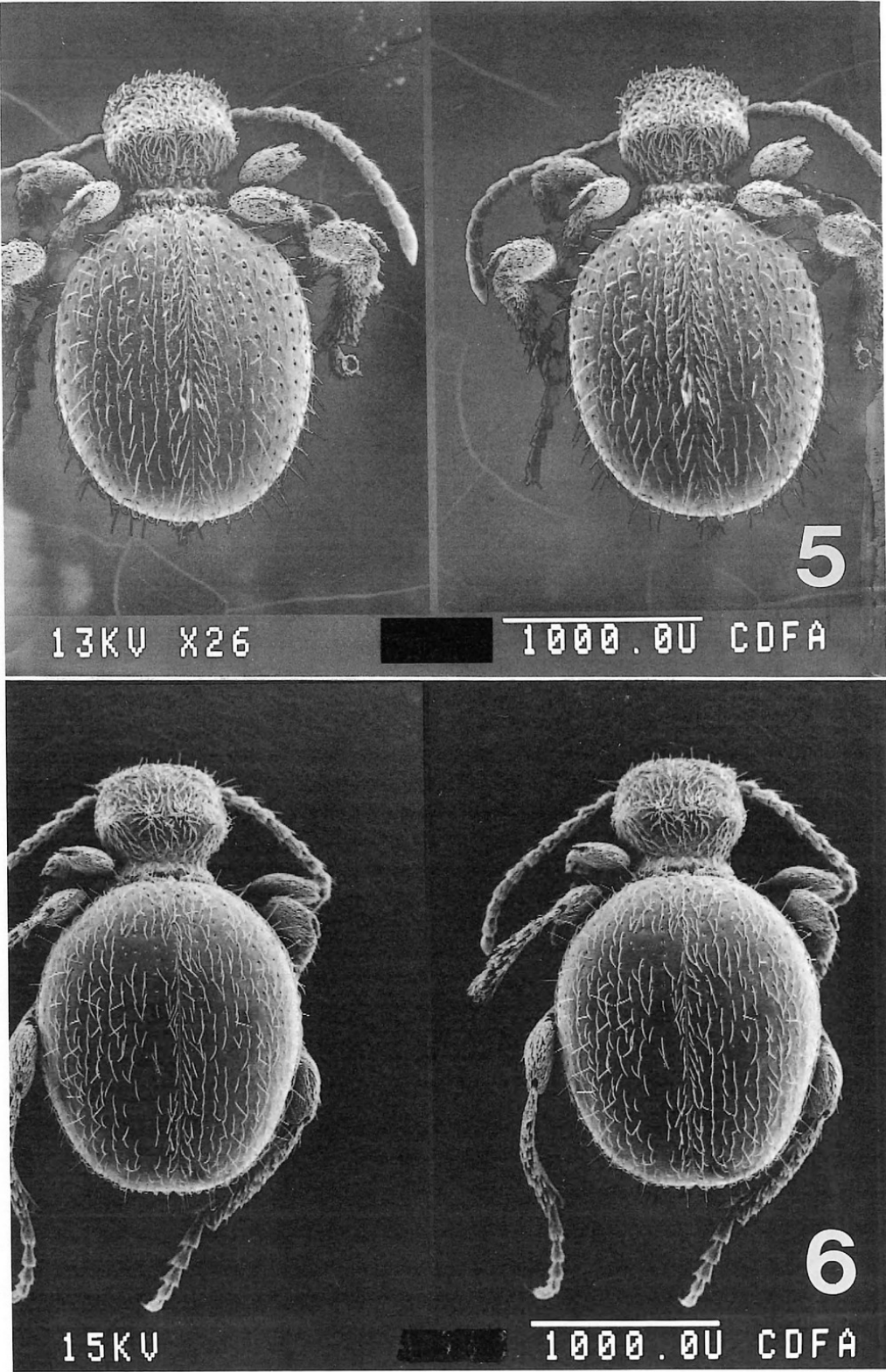
Diagnosis.—The following combination of characters will serve to separate *N. arcanus*: Head with eyes minute (Fig. 24) and antennal fossa with dorsal border



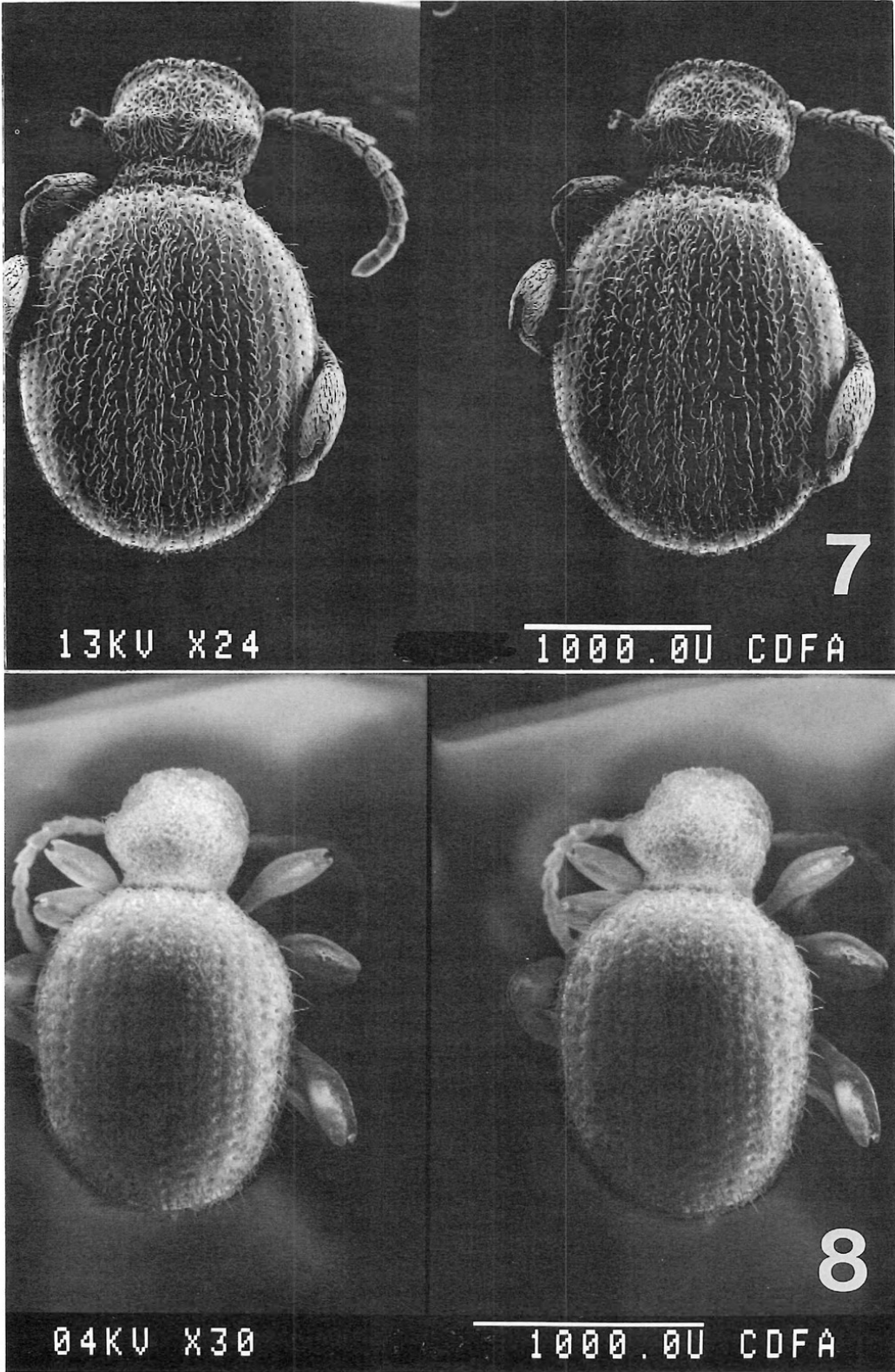
Figures 1–2. Figure 1. *Niptus arcanus*, habitus (stereo pair). Figure 2. *Niptus neotomae*, habitus (stereo pair).



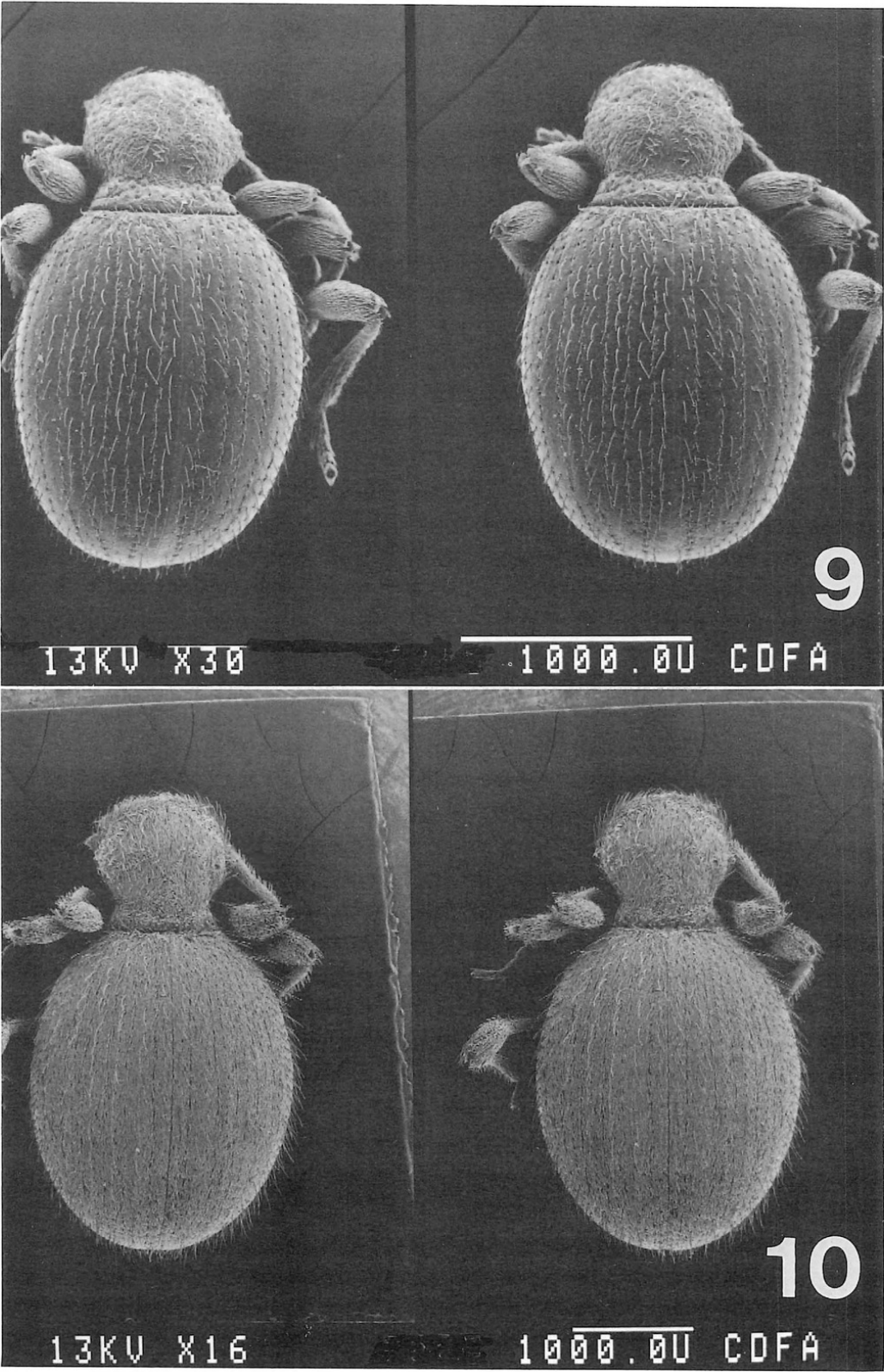
Figures 3–4. Figure 3. *Niptus giulianii*, habitus (stereo pair). Figure 4. *Niptus abditus*, habitus (stereo pair).



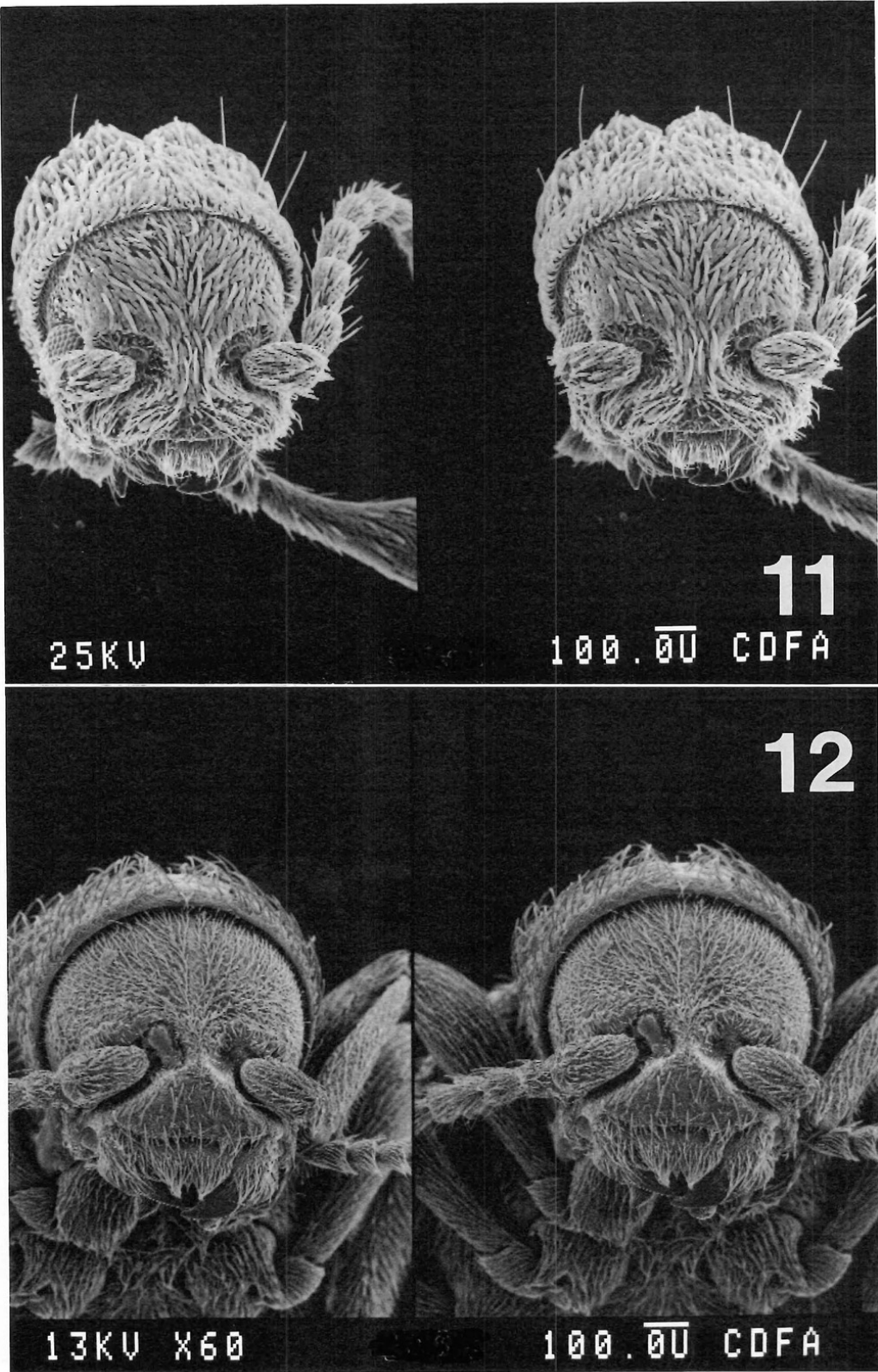
Figures 5–6. Figure 5. *Niptus ventriculus*, habitus (stereo pair). Figure 6. *Niptus abstrusus*, habitus (stereo pair).



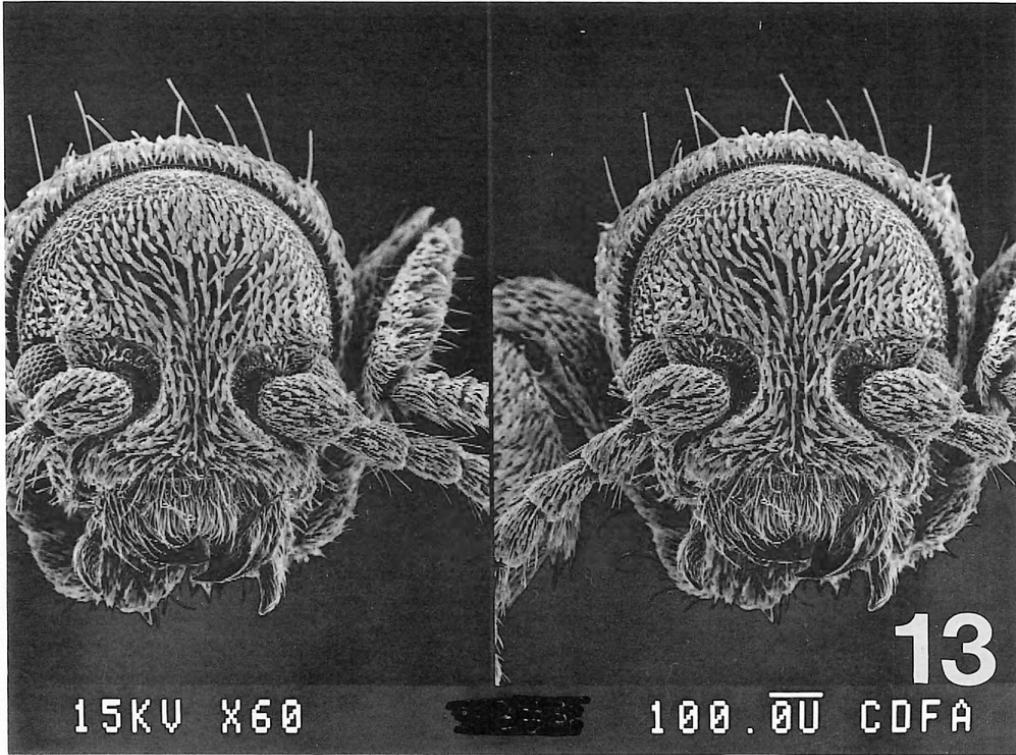
Figures 7–8. Figure 7. *Niptus absconditus*, habitus (stereo pair). Figure 8. *Niptus sleeperi*, habitus (stereo pair).



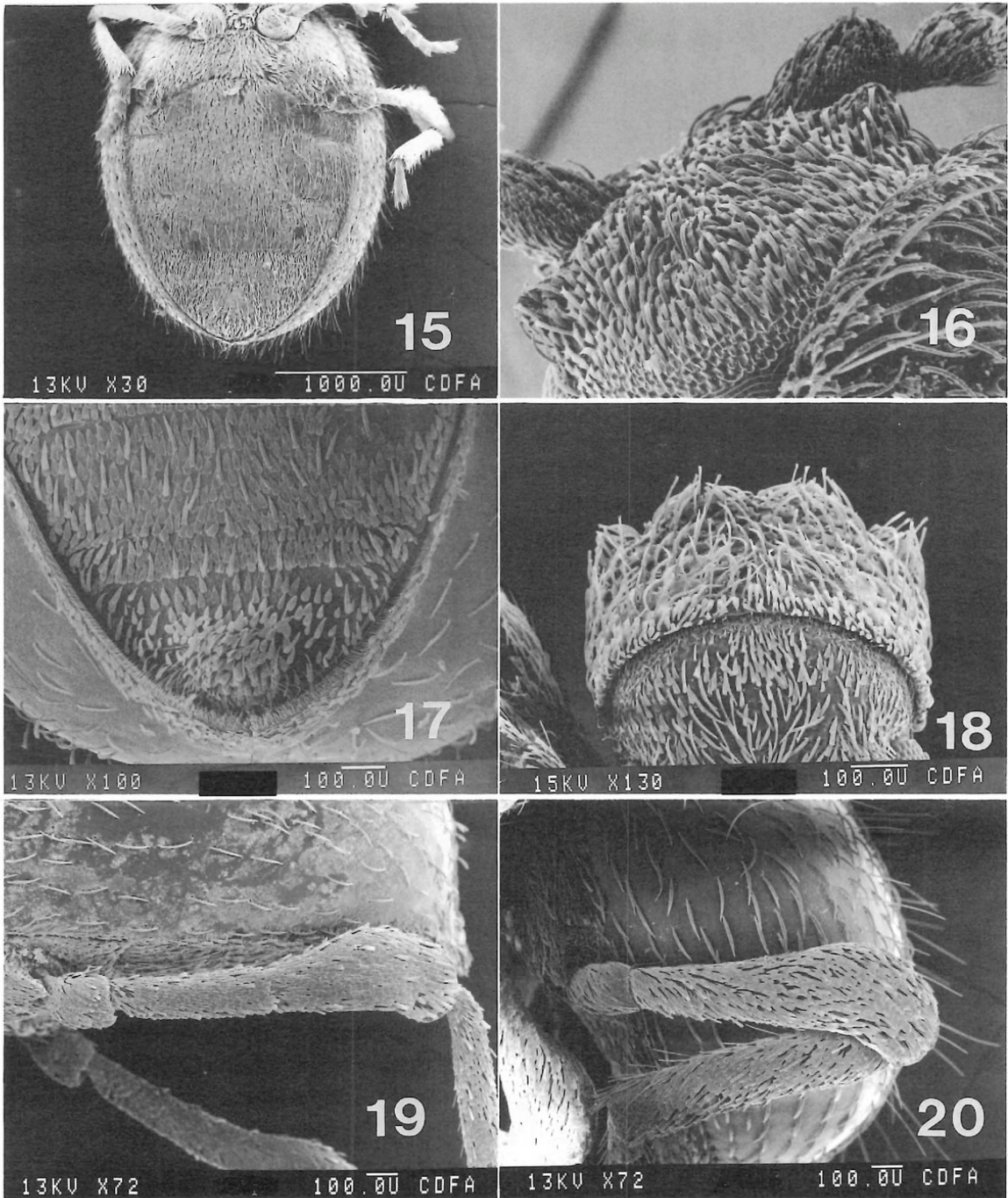
Figures 9–10. Figure 9. *Niptus hilleri*, habitus (stereo pair). Figure 10. *Niptus hololeucus*, habitus (stereo pair).



Figures 11–12. Figure 11. *Niptus giulianii*, anterior aspect of head (stereo pair). Figure 12. *Niptus hilleri*, anterior aspect of head (stereo pair).

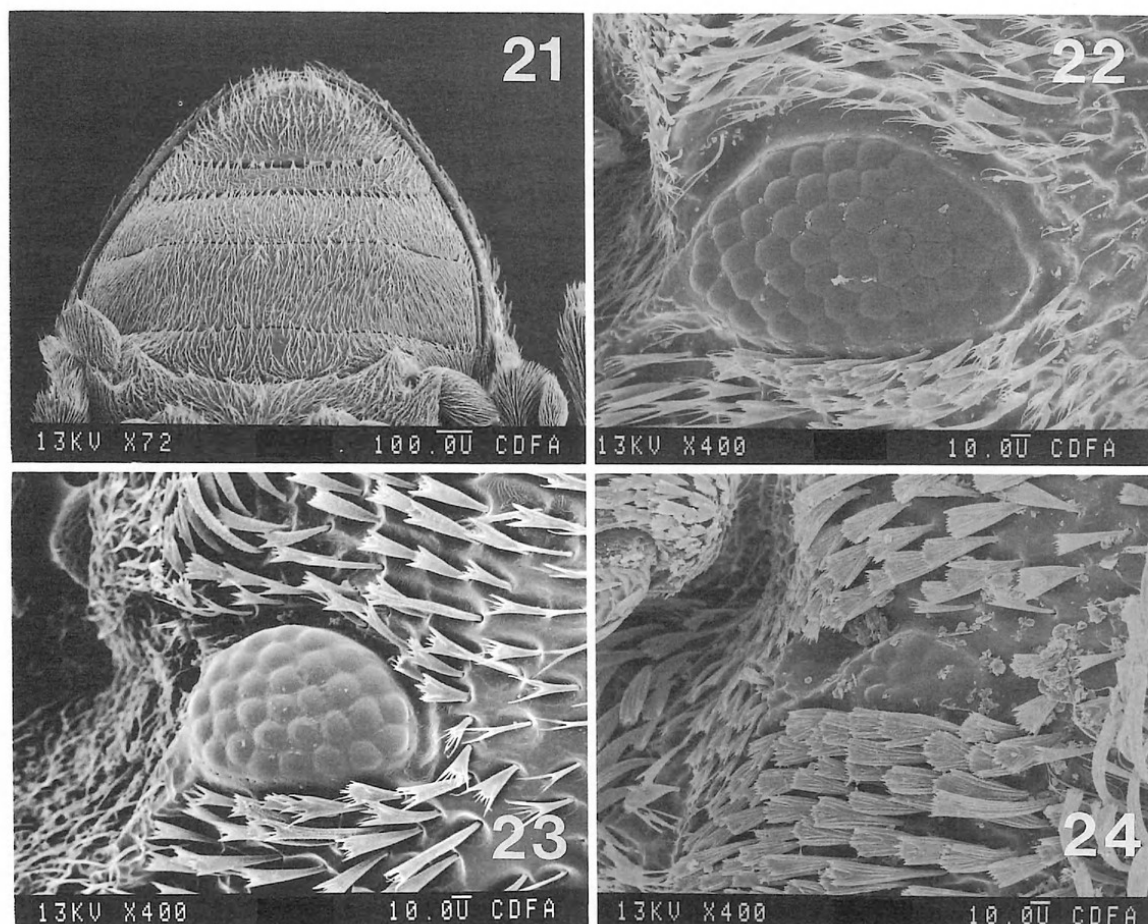


Figures 13–14. Figure 13. *Niptus ventriculus*, anterior aspect of head (stereo pair). Figure 14. Fecal pellets of *Neotoma lepida* Thomas showing feeding damage by *Niptus arcanus*.



Figures 15–20. Figure 15. *Niptus hololeucus*, sterna, ventral view. Figure 16. *Niptus ventriculus*, dorsal-apical aspect of head. Figure 17. *Niptus arcanus*, apical aspect of sterna, ventral view. Figure 18. *Niptus ventriculus*, dorsal-apical aspect of pronotum. Figure 19. *Niptus arcanus*, lateral aspect of metafemur. Figure 20. *Niptus giulianii*, lateral aspect of metafemur.

not carinate or laterally raised. Pronotum with medial and lateral transverse pronotal tufts equal in size; anterior margin of pronotum without long erect setae. Elytra with erect setae on intervals one to five short, spatulate. Legs long, with metafemur capitate, metatibia slender, slightly curved. Sexually dimorphic: female with fifth visible abdominal sternite with medial apical area bearing closely packed patch of postero-directed, semi-erect setae forming a rounded tubercle-like structure.



Figures 21–24. Figure 21. *Niptus hilleri*, sterna, ventral view. Figure 22. *Niptus ventriculus*, lateral aspect of eye. Figure 23. *Niptus absconditus*, lateral aspect of eye. Figure 24. *Niptus arcanus*, lateral aspect of eye.

Niptus arcanus is most closely related to *N. neotomae*, sharing short spatulate elytral setae. These species also lack long erect setae on pronotal margins as well as being sexually dimorphic, characters also shared by *N. absconditus* Spilman. *Niptus neotomae* differs from *N. arcanus* in having shorter setae both on the pronotum and elytra and in the configuration of the legs. In *N. neotomae*, the legs are short and stout, the metafemora clavate; in *N. arcanus*, the legs are long and slender, the metafemora capitate. *N. arcanus* and *N. absconditus* Spilman also share strongly reduced eyes.

Distribution.—(Fig. 25) This species is only known from the type locality, El Pakiva Cave, Mitchell Caverns, Providence Mountains, San Bernardino County, California.

Label Biological Notations.—Ethylene glycol pitfall trap near *Neotoma* nest, dry pit traps.

Biological Notes.—There are a number of caves in the Providence Mountains State Recreation Area. Mitchell Caverns, located at about 1340 m, actually refers to two separate limestone caves, believed to be Miocene in origin. Both caves are at about the same level, although one cave, El Pakiva, contains a large secondary, lower chamber at the far south end, which is approximately 18 meters lower. These caves were exploited as a tourist attraction in the 1930s. In 1970, to facilitate

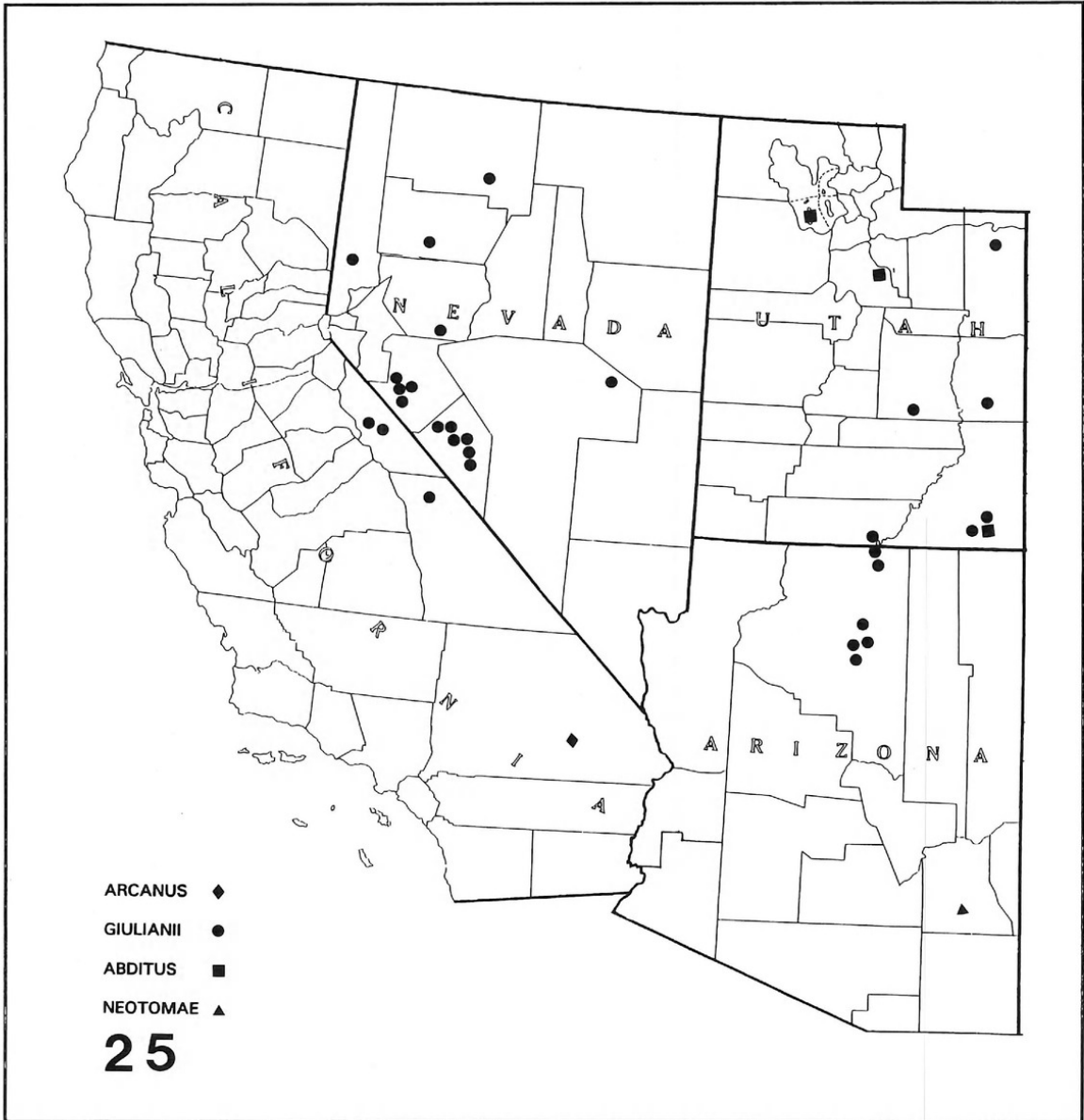


Figure 25. Distribution of *Niptus arcanus* (solid diamond), *Niptus giulianii* (solid circles), *Niptus abditus* (solid squares) and *Niptus neotomae* (solid triangle).

visitor tours, a tunnel was completed connecting the two caves. During the 1979 survey, trapping periods (intended to sample seasonal differences during an entire year) were segregated into four series, averaging approximately three months (see Aalbu 1990).

Although nine years had elapsed since the construction of the tunnel connecting the two caves during the faunal survey, some species of troglophilic Coleoptera were found to remain concentrated or even completely restricted to one cave. *Niptus arcanus* was the best example. Close to 100% (292) of the specimens were found in both the main section and the lower caverns of El Pakiva (one specimen found near an entrance) but was entirely absent from Tecopa, the other connected cave. This is also one of the few species to be found in numbers deep in the lower caverns of El Pakiva. Specimens of *Niptus* were trapped in greater numbers in the fall but were present in large numbers throughout the year. Since this survey,

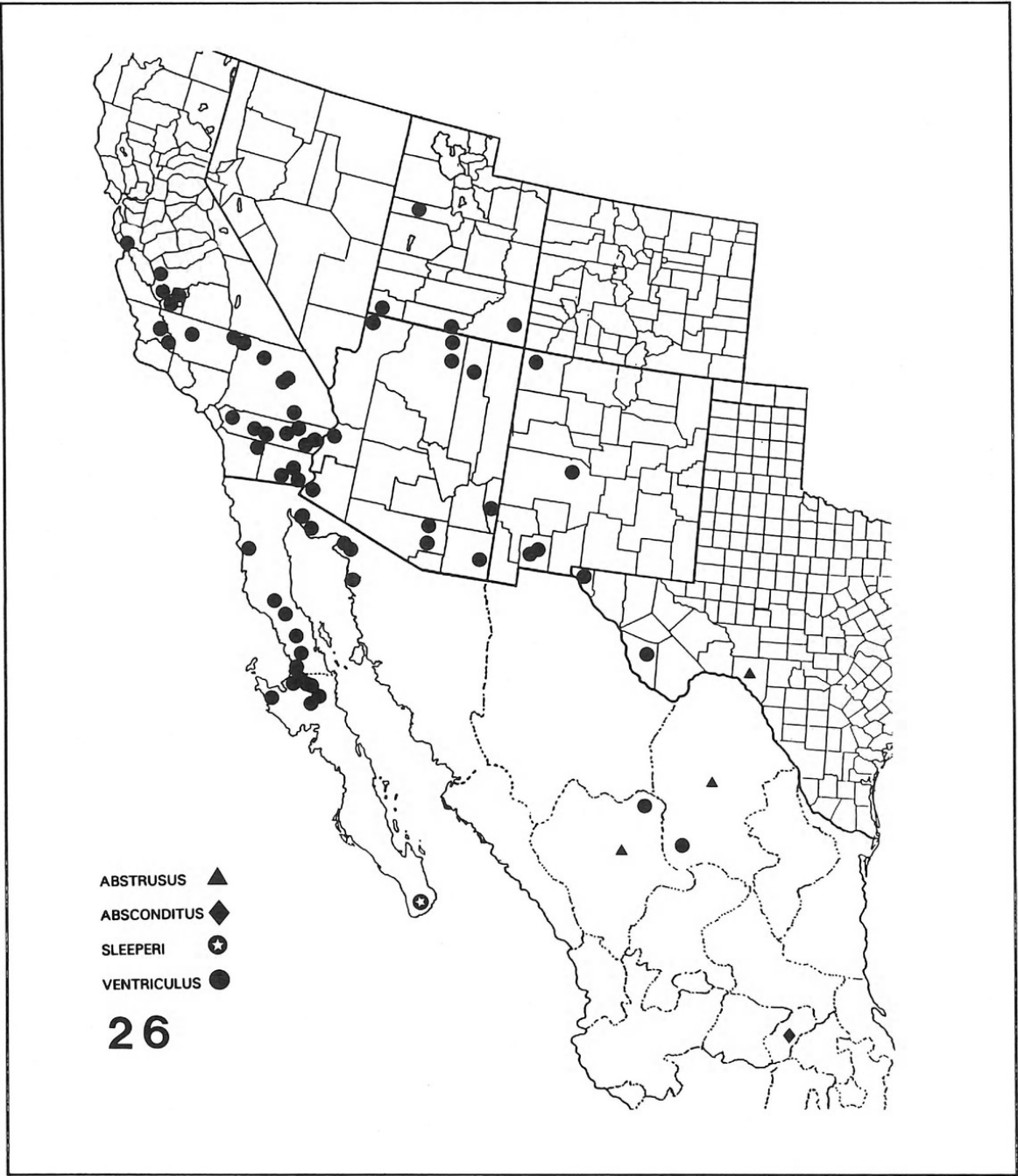


Figure 26. Known geographical distribution of *Niptus abstrusus* (solid triangles), *Niptus absconditus* (solid diamond), *Niptus sleeperi* (star in circle) and *Niptus ventriculus* (solid circles).

other caves (Medicine Cave, Cave of the Winding Stairs) and mines in the area have been surveyed or partially surveyed for insects. *N. arcanus* was not found in any of these.

Most of the food energy in Mitchell Caverns comes in with packrats (*Neotoma lepida* Thomas). The rats bring organic materials, such as twigs, cacti, grass, leaves, etc., collected outside into their nests. The packrats and other rodents, such as mice, also leave fecal pellets, which are found sometimes in great numbers in the caverns. Rodents nesting in the caverns are in most instances not found in the

deeper areas. From data gathered from an analysis of substrate composition near each trap (Aalbu 1990), *Niptus arcanus* was found most abundantly in substrate consisting of mostly fine cave dust, with few calcite and limestone pebbles and rocks, and a small amount of organic matter or in the lower caverns area of very fine, highly organic dust and conglomerate (dust-clay-rocks). *Niptus arcanus* was not abundant in packrat nesting areas. However, it appears there is an association with packrats.

A number of species of ptinids are known to breed in rat dung (Howe 1959), but no larvae were trapped or found in the cave substrate. Close examination of *Neotoma* droppings in the areas of *Niptus* abundance proved interesting. Most of these droppings, although relatively few in numbers compared with packrat nesting areas in other parts of the cave, contained numerous cavities with diameters approximately equal to *Niptus* specimens in size. No other insect in the area is known to create similar cavities. It appears that the larvae, and possibly also the adults, of this species feed on *Neotoma* pellets (Fig. 14). Unfortunately, attempts to rear live adults on the dung were unsuccessful as adults died within a short period of time.

An additional ptinid, *Ptinus feminalis* Fall, was also trapped in the caves. This species has a wide geographical range. It is known to feed on dried vegetable matter and animal substances. *P. feminalis* was found in both caves during the survey. Most were found near the entrances.

Material Examined.—313 specimens (see types), from the type locality distributed as follows: 292 trapped during cave survey (see Aalbu 1990: table 6); 12 from substrate samples and nine collected alive in pitfall traps 6 Jun–20 Jun 1988.

NIPTUS GIULIANII AALBU & ANDREWS, NEW SPECIES
(Figs. 3, 11, 20 and 25)

Types.—HOLOTYPE (female): ARIZONA. COCONINO Co.: 6.3 km SE of Moenkopi, sand dunes/ dry canyon, 31 Jul–1 Aug 1983, Rolf L. Aalbu coll., dry overnight “punch cup” pitfall trap. ALLOTYPE (male): UTAH. UINTAH Co.: 16.1 km SSW of Vernal, 28–29 Jul 1983, Rolf L. Aalbu coll., dry overnight “punch cup” pitfall trap. Holotype and allotype deposited in the collection of the California Academy of Sciences. PARATYPES: ARIZONA. COCONINO Co.: 3.2 km S of Moenkopi, 3 Jul 1972, F. Andrews & E. A. Kane [CDFA] (49); 1.6 km E of Moenkopi, 31 Jul 1983 to 1 Aug 1983, R. L. Aalbu pitfall near *Neotoma* nest, [RLAC] (9); 6.3 km SE of Moenkopi, sand dunes/dry canyon, 31 Jul 1983 to 1 Aug 1983, R. L. Aalbu, pit traps [RLAC] (161); 3.9 km S of Moenkopi, Moenkopi Dunes, 17 Jul 1975, F. Andrews & A. Hardy, cereal bowl trap [CDFA] (11); Moenkopi sand dunes, Mar 1983 to Sep 1983, D. Giuliani, antifreeze pit trap [CDFA] (21); Waheap, 4.8 km NW of Lake Powell, 1 to 2 Aug 1983, R. L. Aalbu [RLAC] (10); 19.3 km ENE of Tuba City, 31 Jul 1983 to 1 Aug 1983, R. L. Aalbu, sand dunes/dry canyon, [RLAC] (25). CALIFORNIA. INYO Co.: Deep Springs Valley Sand Dunes, 17 July 1975, [CDFA] (1); 17 Jun 1978 to 28 Sep 1978, [CDFA] (1); 28 Sep 1979 to 15 Dec 1979, [CDFA] (1); 13 May 1980 to 29 Sep 1980; Deep Springs Valley Sand Dunes, (5000 ft), D. Giuliani, antifreeze pit trap, [CDFA] (2). MONO Co.: Mono Lake, sand dunes, 17 Aug 1979 to 21 Nov 1979 [CDFA] (6); same locality, 21 Nov 1979 to 7 Jun 1980 [CDFA] (2); same locality,

7 Jun 1980 to 1 Sep 1980 [CDFA] (17), D. Giuliani, antifreeze pit trap; Mono Lake, NE end, sand dunes, 15 Jun 1979 to 17 Aug 1979, D. Giuliani, antifreeze pit trap, [CDFA] (56); Mono Lake, 1 km E of Sulfur Pond, #17, no date, J. H. Harris, ethylene glycol pit trap [CDFA] (4). *SANTA CRUZ Co.*: Watsonville, May 1936, E. L. Kellogg [CDFA] (1). *NEVADA. CHURCHILL Co.*: Sand Mountain, 19 Jul 1977, D. Giuliani, UV light [CDFA] (1); Sand Mountain dunes, 16 Sep 1974, F. Andrews & A. Hardy [CDFA] (18). *ESMERALDA Co.*: Clayton Valley Sand Dunes, 17 Sep 1974, F. Andrews & A. Hardy [CDFA] (3); Clayton Valley Sand Dunes, 11.3 km S of Silver Peak, 1280 m, 2 May 1974, T. Eichlin & A. Hardy [CDFA] (3); 9.7 km N of Oasis, 3.2 km W of Fish Lake Valley, 1376 m, 24 Feb 1982 to 24 Jun 1982, D. Giuliani, antifreeze pit trap, [CDFA] (3); Fish Lake Valley Sand Dunes, 17 Aug 1976, D. Giuliani, cereal bowl pit trap [CDFA] (1); 11.3 km N of Dyer, sand dunes, 1494 m, 24 Jun 1982 to 30 Sep 1982, D. Giuliani, antifreeze pit trap [CDFA] (2); 16.1 km SE of Dyer, sand dunes, 1494 m, 24 June 1982 to 30 Sep 1982, D. Giuliani, antifreeze pit trap [CDFA] (4); 21 km N, 12.9 km E of Dyer, Fish Lake Valley, 1433 m, Sep 1986 to Sep 1987, D. Giuliani, antifreeze pit trap [CDFA] (11); 4.8 km N of Goldfield, sand dunes, 1676 m, 28 Mar 1982 to 1 Oct 1982, [CDFA] (6); same locality, Mar 1983 to Sep 1983, [CDFA] (4); same locality, Oct 1982 to Mar 1983, D. Giuliani, antifreeze pit trap [CDFA] (1). *HUMBOLDT CO.*: 19.3 km NW of Winnemucca, 18 Jul 1977, D. Giuliani, cereal bowl trap [CDFA] (23). *MINERAL Co.*: Teels Marsh, 17 Feb 1979 to 16 Jul 1979, D. Giuliani, antifreeze pit trap, sand dune association [CDFA] (6); Teels Marsh, sand dunes, 22 May 1976 [CDFA] (25); same locality, 16 Aug 1979 to 22 Nov 1979, [CDFA] (13); 22 Sep 1979 to 30 Jan 1980, [CDFA] (7); 7 Jun 1980 to 31 Aug 1980, D. Giuliani, antifreeze pit trap, [CDFA] (11); 8 km W of Marietta, sand dunes, 1920 m, 6 Jun 1980, D. Giuliani [CDFA] (1); 12.9 km S of Mina, sand dunes, 22 May 1976, D. Giuliani [CDFA] (14); 14.5 km S of Mina, 30 Jun 1965, M. E. Irwin, sand dune association [CDFA] (2); Huntoon Valley Sand Dunes, 16 Aug 1979 to 22 Sep 1979 [CDFA] (3); same locality, 7 Jun 1980 to 31 Aug 1980 [CDFA] (4); same locality, 31 Aug 1980 to 25 May 1981 [CDFA] (1); D. Giuliani, antifreeze pit trap. *NYE Co.*: Current, 14.5 km S, 3.2 km W of Railroad Valley, 1494 m, Sep 1986 to Sep 1987, D. Giuliani, antifreeze pit trap [CDFA] (3). *PERSHING Co.*: Woolsey, 27 Jun 1972, T. R. Haig [CDFA] (1); Woolsey RR Stn., 6 June 1973, T. R. Haig, blacklight [CDFA] (1). *WASHOE Co.*: Pyramid Lake Dunes, 7 Sep 1941, LaRivers [CASC] (3). *UTAH. EMERY Co.*: 27.4 km N of Hanksville, sand dunes nr. Glison Butte Well, 26 Jul 1978, F. Andrews & A. Hardy, cereal bowl trap [CDFA] (22); 20.8 km N, 11.2 km E of Hanksville, sand dunes, Sep 1983 to Mar 1984, D. Giuliani, antifreeze pit trap [CDFA] (9). *GRAND Co.*: Arches Nat. Mon., Devils Garden Campgr., 14 Sep 1983, R. L. Aalbu [RLAC] (19). *KANE Co.*: 8 km SE of Glen Canyon City, sand dunes, 15–17 Jun 1988, R. L. Aalbu, pit traps, sand dune/rodent burrows, [RLAC] (4); Lake Powell, Lone Rock Campgr., 15/17 Jun 1988, R. L. Aalbu, pit traps, sand dune/rodent burrows, [RLAC] (44); Kanab, 16.1 km N of Kanab cyn., 18–19 Jun 1988, R. L. Aalbu, pit trap sandstone overhang *Neotoma* nest, [RLAC] (3). *SAN JUAN Co.*: Bluff Sand Dunes, 8 km W of Bluff, 24 Jul 1978, F. Andrews & A. Hardy, cereal bowl trap [CDFA] (13). *UINTAH Co.*: 16.1 km SSW of Vernal, 13 Sep 1983, R. L. Aalbu [RLAC] (14). Paratypes deposited in USNM, CASC, CISC, CASC, RLAC, OSUC.

Description.—Female (holotype). Integument red-brown, elytra shiny; length approximately 2.9 mm. HEAD with surface vestiture consisting of closely appressed, spatulate, scale-like setae with few longer fine setae on apical margin of clypeus; antennal fossae with dorsal border not carinate, not laterally elevated; eyes large, at least seven facets wide at minimum width, oval; antenna of moderate length, stout, ratio of segment lengths 11:9:8:8:8:8:8:9:15. PRONOTUM with surface sculpture consisting of rugose, deep punctures posteriorly forming moderately dense, small tubercles; surface vestiture of two types, first of sparse, long setae in a row at anterior margin; second of short, stout, arched, recumbent setae, dense, often subspatulate, forming dense ring at anterior margin; midlength transverse row of four tufts unequal in size, medial tufts prominent, lateral tufts small to nearly obsolete. ELYTRA with surface smooth, shiny, stria punctures obsolete; vestiture of two types: first of long, fine, erect setae sparsely positioned at regular intervals on first, third, fifth, seventh intervals; second of moderately long, stout, arched, recumbent setae, positioned in rows on elytral intervals, more abundant and shorter, around suture, on lateral margins. VENTRAL SURFACE: Sterna: ratio of segment lengths 15:17:15:5:19; sternal surface vestiture of short, dense golden closely appressed, spatulate setae intermixed with less dense, slightly longer, fine setae; fifth visible abdominal sternite with medial apical area with closely packed patch of short appressed, scale-like setae. LEGS stout, with femora short, clavate; tibiae short; metatibia curved proximal-posteriorly; femoral vestiture consisting of dense, golden, short, appressed, scale-like setae only slightly varying in length; tibiae with similar vestiture except protibiae with dense, longer, slender, golden setae on lower margins; mesotibiae with dense, longer, slender, golden setae on lower margins, on apical one-half of outer margins; metatibiae with few sparse, longer, golden setae on lower margins. Ratios of segment lengths: prothoracic legs, 41:40; mesothoracic legs, 46:45; metathoracic legs, 60:59; protarsi, 8:4:4:4:7; mesotarsi, 10:4:4:4:9; metatarsi, 15:7:6:6:11.

Male (allotype).—Similar to holotype but smaller, approximate length 2.6 mm. Fifth visible abdominal sternite with medial apical area with setae similar to rest of sternal area.

Diagnosis.—The following combination of characters will serve to separate *N. giulianii*: Head with eyes large and antennal fossa with dorsal border not carinate or laterally raised. Pronotum with medial transverse pronotal tufts, larger than lateral tufts; anterior margin of pronotum with long erect setae. Elytra with erect setae on intervals three and five long and slender, short on one and absent on two and four. Legs short, with metafemur clavate, metatibia stout, curved proximal-posteriorly. Sexually dimorphic: female with fifth visible abdominal sternite with medial apical area bearing closely packed patch of minute, scale-like setae.

Label Biological Notations.—Dry overnight “punch cup” pitfall trap, ethylene glycol pitfall trap near *Neotoma* nest, pit traps sand dune/rodent burrows, pit traps sandstone overhang *Neotoma* nest.

Distribution.—(Fig. 25) The peculiar east-west distribution of this species probably reflects lack of adequate collections from this middle area instead of a real distributional gap. There is, however, a curious absence of this species from the Eureka Valley sand dunes region, an area that has undergone intensive trapping; whereas, the species is present in Deep Springs Valley sand dunes, only eight miles away.

Biological Notes.—This species is often associated with rodent burrows near or on sand dunes, although it is also found off of the dunes.

Material examined.—See types.

NIPTUS NEOTOMAE AALBU & ANDREWS, NEW SPECIES
(Figs. 2 and 25)

Types.—HOLOTYPE (female) and ALLOTYPE (male): ARIZONA. GRAHAM Co.: Pinaleno Mountains, Heliograph Peak, 3055 m elevation, 9 Sep 1987, G. E. Haas col. Holotype and allotype deposited in the collection of the California

Academy of Sciences. PARATYPES: 5, same data. Deposited in USNM, CDFA and RLAC.

Description.—Female (holotype). Integument red-brown, elytra shiny; length approximately 2.6 mm. HEAD with surface vestiture consisting of closely appressed, short, spatulate, scale-like setae; antennal fossae with dorsal border not carinate, not laterally elevated; eyes small, five facets at minimum width, oval in shape; antenna of moderate length, ratio of segment lengths 10:8:7:6:6:6:6:6:7:13. PRONOTUM with surface sculpture consisting of rugose punctures; surface vestiture of short, stout, recumbent setae; setae dense at anterior margin, at transverse row of four weakly developed tufts; tufts equal in size, positioned near midlength. ELYTRA with surface shiny, sculpture small deep regular punctures; vestiture of two types, nearly equal in length; first of short, moderately slender, erect, strongly spatulate setae positioned in rows at regular distances along first to seventh intervals; second arched, recumbent, moderately slender setae positioned in approximate rows on both elytral striae and elytral intervals; setae short, dense at elytral margins. VENTRAL SURFACE: Sterna: ratio of segment lengths 12:15:14:4:17; sternal surface vestiture consisting of short, closely appressed, spatulate, scale-like setae; fifth visible abdominal sternite with medial apical area with dense patch of apically directed, semi-erect setae. LEGS stout, femora short, clavate, metafemora slightly bent near apex; tibia stout; femoral vestiture consisting of dense, golden, short, appressed, scale-like setae only slightly varying in length; tibiae with similar vestiture except protibiae with dense, slightly longer, slender, golden setae on lower margins, mesotibiae with dense, slightly longer, slender, golden setae on lower margins, on apical one-half of outer margins; metatibiae with few sparse, slightly longer, golden setae on lower margins. Ratio of segment lengths: prothoracic legs, 32:31; mesothoracic legs, 35:33; metathoracic legs, 39:40; protarsi, 5:4:3:4:7; mesotarsi, 5:4:4:4:6; metatarsi, 8:5:4:4:7.

Male (allotype).—Similar to holotype but slightly smaller, approximate length 2.3 mm; eyes slightly smaller than female, four facets in width; fifth visible abdominal sternite with setal pattern unmodified.

Diagnosis.—The following combination of characters will serve to separate *N. neotomae*: Head with eyes small and antennal fossa with dorsal border not carinate or laterally raised. Pronotum with medial, lateral transverse pronotal tufts equal in size, only slightly developed; anterior margin of pronotum without long erect setae. Elytra with erect setae on intervals one to five short, spatulate. Legs short, stout, with metafemur clavate. Sexually dimorphic: female with fifth visible abdominal sternite with medial apical area bearing closely packed apically directed, semi-erect setae forming a rounded patch.

Niptus neotomae is most closely related to *N. arcanus*, sharing short spatulate elytral setae. These species also lack long erect setae on pronotal margins and have sexual dimorphism, characters also shared by *N. absconditus* Spilman. *Niptus neotomae* differs from *N. arcanus* in having shorter setae both on the pronotum and elytra and in the configuration of the legs: short and stout, metafemora clavate in *N. neotomae*; long and slender, metafemora capitate in *N. arcanus*.

Distribution.—(Fig. 25) This species is only known from the type locality.

Label Biological Notations.—Nest of *Neotoma mexicana* in U.S.F.S. shed.

Biological Notes.—Haas (T. J. Spilman, personal communication) mentions finding the beetles while searching for fleas in a rather dry and dusty nest composed of shredded cloth, newspapers, wrappers, cardboard, and packing material surrounded by cones, bark, sticks and various dried green plant material on the floor of the shed between some storage boxes.

Material Examined.—See types.

NIPTUS ABSTRUSUS SPILMAN
(Figs. 6 and 26)

Niptus abstrusus Spilman, 1968: 195.

Diagnosis.—The following combination of characters will serve to separate *N. abstrusus*: Head with eyes small and antennal fossa with dorsal border carinate and laterally raised. Pronotum with medial and lateral transverse pronotal tufts equal in length; anterior margin of pronotum with long erect setae. Elytra with erect setae on intervals three and five only slightly longer than those on intervals one, two and four; legs with metafemur clavate, metatibia stout, curved. Not sexually dimorphic.

Distribution.—(Fig. 26) Southwestern Texas and north-central Mexico. Known from caves in Texas (Fern Cave [Val Verde Co.], Bat Cave [Brewster Co.]) and Mexico (Pedrigosa Circle Cave, Pedrigosa Pipe Cave, and Cueva de San Vincente [Coahuila]).

Label Biological Notations.—On pineapple, on dry beans, with *Ariocarpus lloydii*.

Biological Notes.—Ashworth (1973) reports finding fragments of individuals of this species in a 12,000 year old fossil *Neotoma* nest in western Texas. Individuals have been reported on raccoon droppings (Reddell 1966) and on bat guano (Reddell 1970).

Material Examined.—Twenty-one from the following seven localities: TEXAS. VAL VERDE Co.: Fern Cave, 27.4 km N of Comstock (7); bat room (3). MEXICO. (2) (state unknown) DURANGO: Tepehuanes (8). COAHUILA: (1).

NIPTUS ABSCONDITUS SPILMAN

(Figs. 7, 23 and 26)

Niptus absconditus Spilman, 1968: 197.

Diagnosis.—The following combination of characters will serve to separate *N. absconditus*: Head with eyes small and antennal fossa with dorsal border not carinate or laterally raised. Pronotum with medial and lateral transverse pronotal tufts equal in size; anterior margin of pronotum without long erect setae. Elytra with erect setae on intervals one to five short; legs long, with metafemur capitate, metatibia stout, almost straight. Sexually dimorphic: female with fifth visible abdominal sternite with medial apical area bearing closely packed patch of dense, short scale-like setae. *Niptus absconditus* is most closely related to *N. arcanus*. See discussion under *N. arcanus*.

Distribution.—This species is only known from the type locality.

Label Biological Notations.—None.

Material Examined.—Four specimens (PARATYPES) from: MEXICO. HIDALGO: Grutas de Xoxafi, VIII-19-65, J. Reddell, J. Fish & W. Bell cols.

NIPTUS ABDITUS BROWN

(Figs. 4 and 25)

Niptus abditus Brown, 1959: 631.

Diagnosis.—The following combination of characters will serve to separate *N. abditus*: Head with eyes minute and antennal fossa with dorsal border not carinate or laterally raised. Pronotum with lateral transverse pronotal tufts more developed than medial pronotal setal tufts; anterior margin of pronotum without long erect setae. Elytra with erect setae on intervals three and five longer than those on intervals one, two and four; legs with metafemur capitate, metatibia slender,

straight. Sexually dimorphic: female with fifth visible abdominal sternite with medial apical area bearing closely packed patch of postero-directed, semi-erect setae forming a rounded tuberclelike structure.

Distribution.—This species is only known from the three localities mentioned.

Label Biological Notations.—Ex. nest of *Neotoma* sp., ethylene glycol pit trap.

Material Examined.—UTAH. *SAN JUAN Co.*: 12.9 km E of Bluff, 1402 m, September 1984 to March 1985, ethylene glycol pit trap, D. Giuliani col. (2). *TOOELE Co.*: Great Salt Lake, Stansbury Island, floor of Spider Cave, 9.1 m from the entrance, 29 Nov 1952, J. R. Keller col., PARATYPE #6916, [CNCI]. *UTAH Co.*: Rock Canyon near Provo, 15 Jun 1964, V. J. Tipton col., (8).

NIPTUS SLEEPERI AALBU & ANDREWS, NEW SPECIES

(Figs. 8 and 16)

Type.—Holotype (male). MEXICO. *BAJA CALIFORNIA SUR*: 27.4 air km ENE of Todos Santos, Sierra Laguna, La Laguna, 4–7 Jun 1973, E. L. Sleeper col. Type deposited in California Academy of Sciences Collection.

Description.—Male (holotype). Integument dark red-brown, vestiture golden to yellow; length approximately 2.4 mm. HEAD with surface vestiture consisting of closely appressed, spatulate, scale-like setae with few longer fine setae on apical margin of clypeus; antennal fossae with dorsal border carinate, laterally elevated; eyes small, four facets at minimum width, narrowly oval in shape; antenna short, stout; ratio of segment lengths 10:9:7:6:6:6:6:6:7:13. PRONOTUM with surface sculpture consisting of rugose, deep punctures posteriorly forming moderately dense, small tubercles; surface vestiture of two types, first of few, sparse, moderately long, fine setae (with apical ends occasionally finely spatulate) positioned near anterior margin; second of short, stout, dense, arched, recumbent setae; setae denser, shorter, stouter at anterior margin; denser at midlength transverse row of four tufts; tufts equal in size. ELYTRA with surface sculpture of deeply impressed, large, contiguous striae punctures, equal in size, impression throughout; surface vestiture of two types: first of moderately long, fine, sparse, erect setae (equal in length to erect setae on pronotal margin) positioned at regular intervals along first to seventh elytral intervals; second of shorter, stout, arched, recumbent setae positioned throughout elytral surface, more abundant on intervals. VENTRAL SURFACE: Sterna: ratio of segment lengths 11:12:6:3:15; sternal surface vestiture of short, golden, closely appressed, fine setae; fifth visible abdominal sternite with medial apical area unmodified. LEGS short, stout, with femora clavate; tibiae short; metatibia curved proximoposteriorly; femoral vestiture consisting of dense, golden, short, appressed, scale-like setae slightly varying in length; tibiae with similar vestiture except: protibiae with dense, longer, slender, golden setae on lower margins, mesotibiae with dense, longer, slender golden setae on lower margins, on apical one-half of outer margins; metatibiae with few sparse, longer, golden setae on lower margins. Ratio of segment lengths: prothoracic legs, 28:31; mesothoracic legs, 40:33; metathoracic legs, 37:42; protarsi, 5:3:3:3:6; mesotarsi, 7:3:3:3:7; metatarsi, 9:4:4:4:7.

Female.—Unknown.

Diagnosis.—The following combination of characters will separate *N. sleeperi*: Head with eyes small and antennal fossa with dorsal border carinate, laterally raised. Pronotum with medial and lateral transverse pronotal tufts equally developed; anterior margin of pronotum with long erect setae. Elytra with deeply impressed, large, contiguous striae punctures, equal in size and impression throughout; erect setae on intervals one to five short. Legs with metafemur clavate, stout, metatibia stout, curved. Sexual dimorphism unknown.

Distribution.—(Fig. 26) This species is only known from the type locality.

Label Biological Notations.—Berlesed from oak duff.

Material Examined.—Holotype; only it is known.

NIPTUS VENTRICULUS LeCONTE
(Figs. 5, 13, 16, 18, 22, and 26)

Niptus ventriculus LeConte, 1859: 13.

Diagnosis.—The following combination of characters will separate *N. ventriculus*: Head with eyes large and antennal fossa with dorsal border carinate, laterally raised. Pronotum with medial and lateral transverse pronotal tufts equally developed; anterior margin of pronotum with long erect setae. Elytra with erect setae on intervals three and five long; short on intervals one, two and four. Legs with metafemur clavate, metatibia broad, curved. Not sexually dimorphic.

Elytral stria setal length and punctures vary greatly in populations from subequal setal length and completely smooth punctures, except for the ninth interval in specimens from Coahuila, to slight variation in stria setal length and few rows of punctures in specimens from Glamis, California, to strongly punctate with long setae in specimens from near Bakersfield, California.

Label Biological Notations.—UV light; rodent nest; ex mouse nest *Peromyscus eremicus*; kangaroo rats: in burrows of, excavating and sifting burrow of; sifting beach dunes under ambrosia; base of Palo Verde; at night: walking dunes, pitfall; pitfalls: cereal bowl trap, under *Larrea* and *Petelonyx thurberi*, ethylene glycol trap, antifreeze trap on sand dune with creosote and sand verbenas, rye bread trap, dry overnight "punch cup" trap, interdune traps. Spilman (1968) mentions records from nests of *Neotoma*, and the kangaroo rats *Dipdomys deserti* Stephens and *Dipdomys spectabilis* Merriam, pitfall traps in sand dunes, under seaweed and rocks at high tide line, sifting sand on dunes, pit traps sand dune/rodent burrows, antifreeze pit trap on sand dune.

Distribution.—(Fig. 26) Widespread throughout southwest U.S. and Mexico.

Material Examined.—(945 from the following 103 localities). ARIZONA (76 specimens/12 localities). no locality (3). COCHISE Co.: 6.4 km E of Portal (1); A.M.S.W.R.S. (7). COCONINO Co.: Moenkopi, Moenkopi sand dunes (12); 6.3 km SE of Moenkopi, sand dunes/dry canyon (11); 3.2 km S of Moenkopi (3); 16.1 km S and 8 km W of Page (29). GREENLEE Co.: Guthrie (3). LA PAZ Co.: 4.8 km SE of Parker (1). MOHAVE Co.: Littlefield, 580 m (7). NAVAJO Co.: (1). PIMA Co.: Santa Rita Mts. (5). YUMA Co.: Yuma (4); CALIFORNIA (302 specimens/50 localities). FRESNO Co.: Monocline Ridge Sand Dunes (1); 12.9 km NNW of Coalinga, Los Gatos Cyn. (2); 29 km SW of Mendota, Cievo Hills (5). IMPERIAL Co.: Holtville (1); 12.9 km ESE of Holtville, East Mesa Geothermal Site (11); Seely (17); Glamis (31); 1.6 km S of Glamis (6); 4.8 km NW of Glamis (1); 22.5 km NW of Glamis (5); 1.6 km N of Glamis (25); 3.2 km N of Glamis (1); 3.2 km NW of Glamis (13); 5.6 km WNW of Glamis (2); 5.6 km NW of Glamis (9); 11.3 km SE of Glamis, Algodones Dunes, 32°55'20" N, 114°59'14" W, Site 4 (12); 6.5 km W of Ogilby, 32°48'48" N, 104°53'51" W (1); 6.4 km SSW of Ogilby, 32°45'33" N, 104°51'32" W, Site 7 (3); Algodones Dunes, 4 km NE of Coachella Bridge No. 1, 32°51'41" N, 115°4'6" W, Site 24, (1); Algodones Dunes, 20 km ESE of Holtville, 32°44'34" N, 115°11'53" W, Site 30, (1). INYO Co.: Chicago Valley Sand Dunes (2). KERN Co.: 12.9 km N and 4.8 km W of Ridgecrest (1); 1.6 km E of Bakersfield Hart Peak (1). KINGS Co.: no locality (2); 7.7 km W of Kettleman City, 7.7 km W (8) of, and 3.2 km S of Leemoore. RIVERSIDE Co.: Hopkins Well (2); Palm Springs (1); Rice Dunes (13); Palen Dunes (16); 11.3 km SE of Freda (2); 4.8 km W of Blythe (7); 1.6 km W of Blythe (10); Indio (1); 8 km E of Indio (2); La Quinta (1); Mule Mts. (3); 3.2 km NW of Gilman Hot Springs, Lamb Canyon (9). SAN BERNARDINO Co.: Cadiz Dunes (33); Kelso Dunes (4); 28.2 km SE of Baker; Cronese Valley (2); 14.5 air km S of sand dunes S of Zzyzx (3); 14.5 km N and 16.1 km E of Ridgecrest (3); 16.1 km N and 16.1 km E of Ridgecrest (1); 9.7 km N and 3.2 km W of Ridgecrest (1); 30.6 km N of Ridgecrest, Baby Mt. (7); Amargosa River at st. hwy. 127 (1). SAN DIEGO Co.: Borrego (1). SAN LUIS OBISPO Co.: 12.1 km W of Simmler (18); 24.9 km NW of Reyes Station (1). SANTA CRUZ Co.: (1); Watsonville (1). NEW

MEXICO. (32 specimens/5 localities). Hot Springs (4). *LUNA Co.*: Deming (2); E of Deming at base of Red Mt. on Humocky Rd. (14). *SAN JUAN Co.*: Ship Rock (11). *SOCORRO Co.*: Sevilletta Sand Dunes (1). TEXAS. (4 specimens/2 localities). *EL PASO Co.*: El Paso (3). *PRESIDIO Co.*: Marfa (1). UTAH (55 specimens/5 localities). *JUAB Co.*: Fish Springs Range, 40.2 km SE of Callao, Sand Pass (4). *KANE Co.*: 8 km SE of Glen Canyon City, sand dunes (3); Lake Powell, Lone Rock Campgr. (27). *SAN JUAN Co.*: 3.2 km S and 32.2 km W of Bluff (10). *WASHINGTON Co.*: 17.9 km N of St. George, red sand dunes (1). MEXICO. *BAJA CALIFORNIA* (327 specimens/13 localities): Miller's Landing (84); 16.1 km S of Punta Prieta (2); 12.4 km NW of Catavina (2); El Crusero (22); 41.4 km SE of Laguna Chapala (15); 19.3 km NW of San Bartolo (1); 9.7 km N of Guerrero Negro (154); 5 km N of Guerrero Negro (8); 11.3 km N of Guerrero Negro (6); 25.7 km E of Rosarito, Rancho San Ignacito (22); 10 km NE of Rosarito (9); 5.0 km SW of Colonet (1); Bahia San Quintin, Santa Maria Beach (1). *BAJA CALIFORNIA SUR* (96 specimens/8 localities): 22.5 km E of Guerrero Negro (1); 55.4 km SE of Guerrero Negro (4); 13.7 km ESE and 8.6 km S of Guerrero Negro (2); 11.3 km SE of Guerrero Negro (27); 20.9 km SW of Guillermo Prieto (43); 19.3 km S of Guillermo Prieto (10); 20.9 km S of Rancho Tablon (8); Tortugas (1). *COAHUILA* (42 specimens/1 locality): 12.9 km N of Viesca, sand dunes at Bilbao (42). *DURANGO* (26 specimens/1 locality): 43.5 km S of Ceballos (26). *SONORA* (12 specimens/7 localities): Puerto Penasco, 0.5 km from coast (1); Desemboque (1); El Golfo (4); 80.5 km SW of Sonoyta (1); 16.1 km N of C. Sotelo nr. Bahia Adair (1); San Carlos Bay (1); 9.7 km W of San Carlos Bay, Los Algodones (3).

PHYLOGENETIC CONSIDERATIONS

Pseudorostus and *Eurostus* have historically either been separated from *Niptus* (Brown 1940: 119, 1944: 19, 1959: 627; Hinton 1941: 343; Spilman 1968: 193) or included as synonyms of *Niptus* (Papp 1959: 258, 1962: 385; Spilman [North American Beetle Fauna Project] 1975: R62-1). Of these, *Eurostus* has generally been accepted as being congeneric with *Pseudeurostus*. *Pseudeurostus* has been separated from *Niptus* based on the carinate frons between the antennal fossae in *Pseudeurostus* (Fig. 12), which is not narrowly flat as in *Niptus* (Fig. 11). Clearly, this character is unique and synapomorphic in species of *Pseudeurostus*. However, *P. hilleri* and *P. kelleri* and all species of *Niptus* except *N. hololeucus* (Fig. 15) share a strongly reduced fourth visible abdominal sternite (Figs. 17, 21), another clearly synapomorphic character. Thus, if *Pseudeurostus* is to be generically separated from *Niptus*, then *N. hololeucus*, the type species of *Niptus*, needs also to be separated from both groups, making it necessary for a new generic name for the eight "wild" species of *Niptus*. It is clearly preferable to lump all these under the genus *Niptus* as indicated by Spilman (1975: R62-1).

KEY TO NORTH AMERICAN SPECIES OF *NIPTUS*

1. Body large (usually above 3.8 mm in length), golden throughout, color result of scale-like setae that completely conceal integument of entire insect; fourth visible abdominal sternite only slightly shorter than third (Fig. 15); pronotum lacking distinct tufts of setae (Fig. 10) *hololeucus*
- 1'. Body smaller (usually under 3.4 mm in length), red-brown above, elytra not completely covered with scale-like setae; fourth visible abdominal sternite less than one-half length of third 2
- 2(1'). Frons carinate between antennal fossae (Fig. 12); pronotum lacking distinct transverse row of four tufts of setae (*Pseudeurostus* group) 3
- 2'. Frons narrow but flat between antennal fossae (Figs. 11, 13); pronotum with distinct transverse row of four tufts of setae (Fig. 18) 4

- 3(2). Elytral intervals with closely placed, recumbent setae as well as single row of semi-erect setae *kelleri*
- 3'. Elytral intervals with single row of semi-erect setae, lacking closely placed, recumbent setae (Fig. 12) *hilleri*
- 4(2'). Antennal fossa with dorsal border distinctly carinate and laterally strongly elevated (Figs. 13, 16) 5
- 4'. Antennal fossa with dorsal border not distinctly carinate and laterally not strongly elevated (Fig. 11). 7
- 5(4). Elytra with strial punctures deeply impressed, large, contiguous, equal in size and impression throughout; erect setae on intervals one to five short; legs with metafemur clavate, very stout; eyes small (Fig. 8) *sleeperi*
- 5'. Elytra with strial punctures unevenly impressed, always fine to minute at apex and lateral margins; erect setae on intervals three and five long to moderately long; legs with metafemur clavate; eyes variable 6
- 6(5'). Elytra with erect setae on intervals three and five long; short on intervals one, two and four; strial punctures often large and deeply impressed on disc; eyes large (Figs. 5, 22) *ventriculus*
- 6'. Elytra with erect setae on intervals three and five only slightly longer than those on intervals one, two and four, strial fine to minute; eyes smaller (Fig. 6) *abstrusus*
- 7(4'). Elytra with length of erect setae on intervals three and five greater than width of one interval; pronotal tufts not equal in size; eyes variable 8
- 7'. Elytra with length of erect setae on intervals three and five less than width of one interval; pronotal tufts equal in size; eyes very small 9
- 8(7). Pronotum with medial transverse pronotal setal tufts more developed than lateral pronotal setal tufts; anterior margin of pronotum with long erect setae; elytra with erect setae absent on intervals on two and four; legs with metafemur clavate, metatibia stout, strongly curved; eyes large; sternites sexually dimorphic (Fig. 3) *giulianii*
- 8'. Pronotum with lateral transverse tufts more developed than medial pronotal setal tufts; anterior margin of pronotum lacking long erect setae; elytra with erect setae short but present on two and four; legs with metafemur capitate, metatibia slender, straight; eyes small; sternites not sexually dimorphic (Fig. 4) *abditus*
- 9(7'). Erect setae on elytra spatulate at tip (Figs. 1, 2); width of metatibiae variable 10
- 9'. Erect setae on elytra unmodified, pointed at tip; width of metatibiae at apex equal to widths of eighth and ninth intervals combined (Fig. 7) *absconditus*
- 10(9). Erect spatulate setae on elytra very short; legs short, stout, metafemora clavate (as in Fig. 20), width of metatibia at apex equal to widths of eighth and ninth intervals combined (Fig. 2) *neotomae*
- 10'. Erect spatulate setae on elytra short (Fig. 1); legs long, slender, metafemora capitate (Fig. 19), width of metatibia at apex subequal to widths of eighth and ninth intervals combined *arcanus*

BIOLOGY

North American species of *Niptus* not associated with stored products seem to be distributed in two seemingly different habitats: caves and sand dune areas. These two habitats do share one important aspect of the microhabitat in which *Niptus* species are found. This is a fine to very fine substrate (in the form of fine sand or cave dust) with a varying amount of organic debris due to rodent activity. All species seem to be associated with various desert rodents especially species of packrats (*Neotoma*), but also mice (*Peromyscus*), and kangaroo rats (*Dipodomys*).

Niptus arcanus, *N. abstrusus*, *N. absconditus*, and *N. kelleri* are found in caves. These reveal to varying degrees, morphological characteristics typically associated with cave coleoptera (see Aalbu 1990). Of these *N. arcanus*, *N. kelleri* and *N. absconditus* are restricted to single cave habitats. *Niptus arcanus* is considered to be a true troglobite (Aalbu 1990) a relative rarity in Northwestern American beetles. It is possible that upon further study, other species will also be classified as troglobites rather than troglaphiles. We can only stress the importance of conserving these unique cave habitats, especially in caves where considerable environmental impact is present due to high visitor traffic (such as in Mitchell Caverns). This would entail assuring species survival by providing for long term microhabitat protection in terms of the least amount of habitat disturbance possible.

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