
A NEW SPECIES OF *IDIOCERUS* FROM THE SOUTHWEST
AND A REVIEW OF THE RELATED SPECIES

(HOMOPTERA: CICADELLIDAE)

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While working on a revision of the North American species of the genus *Idiocerus* a new species was discovered which is closely related to *I. dolosus* Ball and *I. chisosus* DeLong and Caldwell. It was thought best to describe this species at this time as well as redescribe *I. dolosus* and *I. chisosus*. The species of this group can best be distinguished from each other, and from other species in the genus, by the distinct male genitalia.

The specimens used in this study were borrowed from the following collections: The U. S. National Museum (P. W. Oman), The Kansas State University (G. W. Byers), The Ohio State University (J. N. Knull), and the D. M. DeLong Collection. I am especially indebted to Dr. DeLong for the permission to examine his type material and for his supervision of this study.

Idiocerus dolosus Ball

Idiocerus dolosus Ball, 1902.

Generally yellowish brown with darker irregular markings of brownish fuscous. Length: Male 4.7 to 5.8 mm, female 4.8 to 5.8 mm. Width of head: Male 1.7 to 2.1 mm, female 1.8 to 2.2 mm.

Vertex slightly curved, nearly same length in middle as near eyes. Postclypeus rounded, longer than wide; anteclypeus short, constricted in middle, expanded at apex. Elytra flaring, giving robust appearance, venation obscure except for apical veins, appendix large.

Color: Vertex and face yellowish brown, two large black spots on vertex about their own width from eyes, another pair of spots on hind margin of vertex equally spaced between first two; remainder of face patterned with brownish fuscous spots (fig. 2); apical half of clypeus except for median V-shaped area, black; antennae yellow, male with black area slightly distal to middle. Pronotum yellowish brown irregularly patterned with brownish spots, except a median line expanded in front. Scutellum yellowish brown with a pair of small black triangles near lateral angles, a pair of black spots on disc forming part of two nearly parallel longitudinal lines near middle. Elytra yellowish brown, cells, except apical cells, with large fuscous areas, apical veins dark brown, apical cells and appendix smoky brown.

Genitalia: Male (fig. 3-8) with plate long, narrow, with blunt apex; pygofer broadly rounded at distal end with thickened ventral margin; style angled, somewhat twisted at apex, with a row of short spines; connective short, thickened; aedeagus with shaft narrowing to a spatulate apex, without processes, phallosome slitlike extending from middle to apex, apodeme wider and shorter than shaft and with small semicircular apex and large median dorsal expansion. Female (fig. 9) with a long nearly pointed ovipositor; pygofer straight sided; posterior margin of seventh sternite rounded with a median emargination.

Last nymphal instar: Similar to *I. fitchi* in body form. Length: 3 mm. Color generally yellowish brown with brown markings. Head with a wide band alongside each eye, pair of spots on vertex twice their width from each eye, parallel bands at center of vertex extending from near hind margin forward past margin then diverging to ocelli, another band extending from beneath one ocellus to point beneath other ocellus, and a central band full length of clypeus, brown. Thorax with irregular brown markings, wing pads with longitudinal brown stripes. Dorsal abdominal segments ringed basally and distally with brown.

Host plant: This species has been collected on *Rhus trilobata* Hutt. and *Quercus utahensis* Rydberg.

Specimens have been examined from the following localities:

Arizona.—SANTA RITA MTS.: July 17, 1932, R. H. Beamer, 9♂, 14♀; July 24, 1927, L. D. Anderson, 1♂; June 16, 1933, P. W. Oman, 9♂, 13♀, 2 nymphs; June 27, 1933, P. W. Oman, 14♂, 11♀; September 13, 1931, E. D. Ball, 1♂, 1♀; July 5, 1933, E. D. Ball, 1♂, 1♀; August 7, 1935, E. D. Ball, 3♂; August 13, 1935, F. H. Parker, 1♂, 2♀; July 13, 1937, D. J. & J. N. Knull, 2♂, 5♀; July 11, 1949, D. J. & J. N. Knull, 1♂; June 8, 1937, D. J. & J. N. Knull, 5♂, 9♀; August 30, 1938, D. J. & J. N. Knull, 1♂. YARNELL: July 25, 1932, R. H. Beamer, 1♂; July 1, 1929, R. H. Beamer, 3♂, 1♀; July 2, 1929, L. D. Anderson, 1♀. YARNELL HILL: July 2, 1929, L. D. Anderson, 2♂. YARNELL HGTS: June 29, 1933, P. W. Oman, 6♂, 8♀; August 20, 1933, P. W. Oman, 1♀. HUACHUCA MTS.: July 8, 1932, R. H. Beamer, 1♀; August 2, 1931, E. D. Ball, 2♂; July 10, H. G. Barber, 1♀; June 11, 1933, P. W. Oman, 1♀; Ram Can., October 30, 1937, P. W. Oman, 1♂; June 9, 1932, J. N. Knull, 1♀; July 20, 1936, J. N. Knull, 1♂, 2♀; June 9, 1935, J. N. Knull, 11♂, 10♀; July 20, 1937, D. J. & J. N. Knull, 2♂, 1♀; August 19, 1950, D. J. & J. N. Knull, 1♂, 1♀; September 9, 1938, D. J. & J. N. Knull, 5♂, 6♀; June 5, 1937, D. J. & J. N. Knull, 1♂, 1♀. CHIRICHAUA MTS.: June 9, 1933, P. W. Oman, 1♂; June 3, 1937, D. J. & J. N. Knull, 1♂, 1♀; June 2, 1935, J. N. Knull, 1♂, 1♀; July 5, 1949, D. J. & J. N. Knull, 1♂, 3♀; June 27, 1949, D. J. & J. N. Knull, 2♂, 1♀; September 5, 1947, D. J. & J. N. Knull, 1♀; July 22, 1957, D. J. & J. N. Knull, 1♂; July 26, 1952, D. J. & J. N. Knull, 1♂, 1♀. GRAND CANYON: August 1, 1930, E. D. Ball, 2♂, 1♀. PIMA COUNTY: July 27, 1927, P. A. Readio, 1♂, 1♀. SANTA CRUZ COUNTY: August 4, 1927, R. H. Beamer, 1♂. GRANIT DELL: July 17, 1929,

E. D. Ball, 2♂, 3♀. TUCSON: September 29, 1929, E. D. Ball, 5♂, 1♀; June 30, 1929, E. D. Ball, 1♂. GLENN OAKS: July 19, 1929, E. D. Ball, 3♂, 3♀. PRESCOTT NAT. FOREST: June 20, 1937, D. J. & J. N. Knull, 7♂; June 2, 1937, D. J. & J. N. Knull, 5♂, 4♀; July 14, 1940, D. J. & J. N. Knull, 1♂, 3♀. PRESCOTT: July 29, 1936, J. N. Knull, 1♂, 3♀; June 30, 1939, D. J. & J. N. Knull, 1♂, 2♀; August 18, 1938, D. J. & J. N. Knull, 1♂; July 25, 1950, D. J. & J. N. Knull, 2♂, 7♀. CARRIZO: July 18, 1950, D. J. & J. N. Knull, 1♂, 1♀. PATAGONIA MT.: August 20, 1940, D. J. & J. N. Knull, 2♂. HUALPAI MT.: July 4, 1937, D. J. & J. N. Knull, 1♂, 3♀.

California.—GUATAY: July 21, 1941, E. L. Todd, 1♂.

Colorado.—DOLORES: August 2, 1900, "type", 3♂, 1♀. DUTCH GEORGE: August 11, 1899, "type", 2♀. POUDDRE RIVER CANYON: August 23, 1931, J. Nottingham, 1♀. DURANGO: August 13, 1933, E. D. Ball, 2♀. MANITOU: August 1885, 2♂, 1♀.

New Mexico.—CLOUDCROFT: June 28, 1932, R. H. Beamer, 2♂. MAYHILL: June 7, 1933, P. W. Oman, 2♂, 2♀. SILVER CITY: "June 1913", J. B. Wallis, 1♂. PECOS: September 1, CKI, *Rhus*, 1♂, 1♀; August 27, CKII, *Rhus trilobata*, 1♂, 1♀. JEMEZ SPRINGS: June 15, 1919, 1♂. LAS VEGAS H. S.: September 13, H. S. Barber, 1♂; September 11, Barber & Schwarz, 1♀; September 3, Barber & Schwarz, 1♂, 1♀.

Utah.—ANTELOPE: July 1, 1931, R. H. Beamer, 1♂. PINTURA: August 11, 1929, R. H. Beamer, 1♀. CEDAR: September 28, 1930, E. D. Ball, 1♂. DIXIE: September 28, 1930, E. D. Ball, 1♂. MOAB: September 10, 1906, 2♀. ORDERVILLE: September 7, 1930, E. D. Ball, 2♂, 1♀. SALINA: July 24, 1930, E. W. Davis, *Quercus utahensis*, 2♂, 1♀. ST. GEORGE: July 23, 1928, E. W. Davis, 4♂, 3♀. RICHFIELD: September 7, 1904, 1♂; June 15, 1929, Light trap, 1♂; October 20, 1929, David E. Fox, *Rhus trilobata*, 1♂; September 2, 1930, willow patch, *Rhus trilobata*, 7♂, 8♀; September 12, 1930, E. S. Davis, 3♂, 2♀. FISH LAKE: September 2, 1930, 13♂, 4♀.

Idiocerus chisosus DeLong and Caldwell

Idiocerus chisosus DeLong and Caldwell, 1937.

Idiocerus caliginosus DeLong and Caldwell, 1937. (new synonymy).

Resembles *I. dolosus* in form and general appearance, but smaller and darker with distinct male genitalia. Length: Male 4.1 to 5.0 mm, female 3.9 to 5.2 mm. Width of head: Male 1.6 to 1.8 mm, female 1.5 to 1.8 mm.

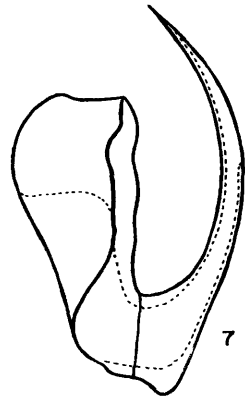
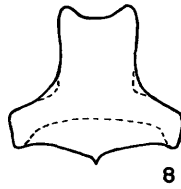
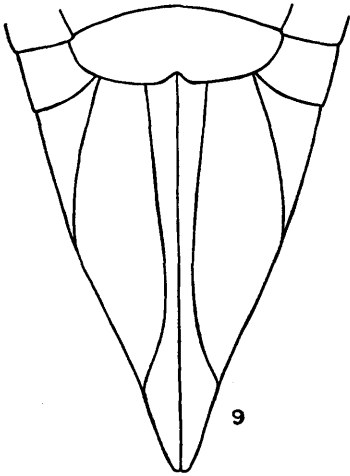
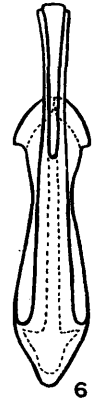
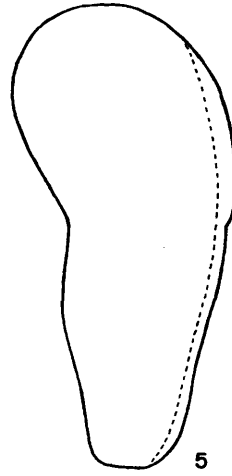
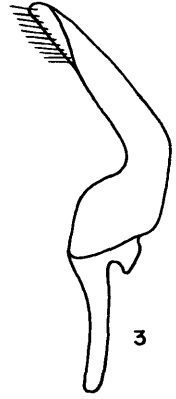
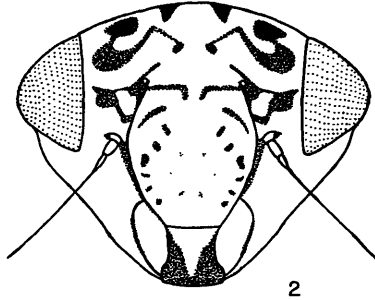
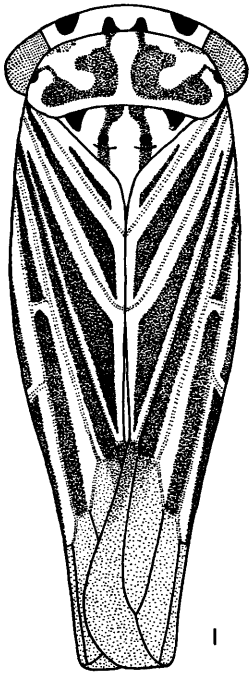
Vertex slightly curved, nearly same length in middle as near eyes. Postclypeus longer than wide; antclypeus nearly parallel sided. Elytra flaring, giving robust appearance, venation obscure except for apical veins, appendix large.

Color: Vertex and face yellow, two black spots on vertex about their own width from eyes, remainder patterned with brownish spots (fig. 11); antclypeus dark brown except for basal V-shaped area yellowish brown; antennae yellow, male disc black. Pronotum yellowish brown irregularly patterned with brown, except a median line expanded in front. Scutellum yellowish brown with a pair of triangles near lateral angles, a pair of spots on disc and a pair of

EXPLANATION OF PLATE I

Idiocerus dolosus Ball.

- FIGURE 1. Dorsal view of female (from Arizona).
- FIGURE 2. Face of female (same specimen).
- FIGURE 3. Ventral view of style.
- FIGURE 4. Lateral view of plate.
- FIGURE 5. Lateral view of pygofer.
- FIGURE 6. Ventral view of aedeagus.
- FIGURE 7. Lateral view of aedeagus.
- FIGURE 8. Ventral view of connective.
- FIGURE 9. Ventral view of female genitalia.



DOLOSUS

triangles at base black. Elytra with veins, except apical veins, yellowish white interrupted with black, apical veins dark brown, apical cells and appendix smoky brown.

Genitalia: Male (fig. 12-17) with plate long, narrow, nearly same width throughout; pygofer broadly rounded distally, slight median ventral emargination, thickening of ventral margin produced into a short terminal spine; style curved and narrowing to a fingerlike apex, with a row of short spines; connective thickened with a pointed ventral projection; aedeagus with shaft narrowing to a pointed apex, phallosome apical to middle on ventral surface, apodeme expanded beyond middle with rounded apex, moderate dorsal expansion. Female (fig. 18) with ovipositor short; pygofers rounded, extending nearly to end of ovipositor; posterior margin of seventh sternite rounded with median emargination.

Last nymphal instar: Unknown.

Host plant: Unknown.

An examination of many specimens collected after *I. chisosus* and *I. caliginosus* were described seems to indicate that *I. chisosus* represented the teneral form of this species, while *I. caliginosus* represented the fully mature adult. Therefore, since the description of *I. chisosus* precedes *I. caliginosus*, the name *I. chisosus* is the name retained for this species. This species is only known from Texas, as the one female paratype from Chiricahua Mts., Arizona, is not *I. chisosus* but probably a female of *I. pyramidatus*.

Specimens, other than the types, have been examined from the following localities:

Texas.—DAVIS MTS.: June 2, 1937, D. J. & J. N. Knull, 7♂, 5♀; August 2, 1937, D. J. & J. N. Knull, 11♂, 6♀; September 20, 1938, D. J. & J. N. Knull, 5♂, 3♀; June 8, 1939, D. J. & J. N. Knull, 11♂, 6♀; July 2, 1940, D. J. & J. N. Knull, 3♀; May 15, 1946, D. J. & J. N. Knull, 2♂, 2♀; July 28, 1946, D. J. & J. N. Knull, 1♂, 1♀; July 3, 1955, D. J. & J. N. Knull, 4♂, 4♀; June 25, 1957, D. J. & J. N. Knull, 10♂, 11♀; July 4, 1957, D. J. & J. N. Knull, 2♀; June 19, 1958, D. J. & J. N. Knull, 2♂, 4♀. CHISOS MTS.: September 19, 1938, D. J. & J. N. Knull, 3♂, 3♀; July 17, 1946, D. J. & J. N. Knull, 21♂, 34♀; June 28, 1957, D. J. & J. N. Knull, 3♂, 6♀; June 16, 1958, D. J. & J. N. Knull, 4♂, 6♀; June 23, 1961, D. J. & J. N. Knull, 10♂, 13♀. GILLESPIE COUNTY: May 7, 1946, D. J. & J. N. Knull, 1♂; June 5, 1954, D. J. & J. N. Knull, 4♂, 2♀; June 20, 1956, D. J. & J. N. Knull, 1♀. UVALDE COUNTY: June 26, 1940, D. J. & J. N. Knull, 1♀; May 11, 1946, D. J. & J. N. Knull, 20♂, 28♀; August 25, 1947, D. J. & J. N. Knull, 1♂, 1♀.

Idiocerus spinosus sp. n.

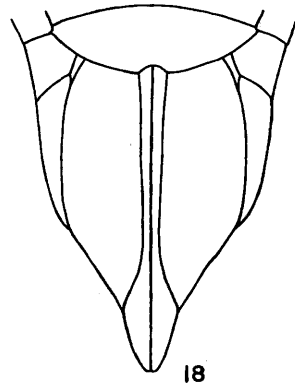
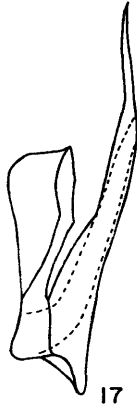
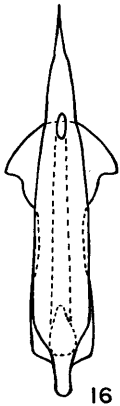
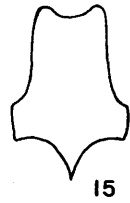
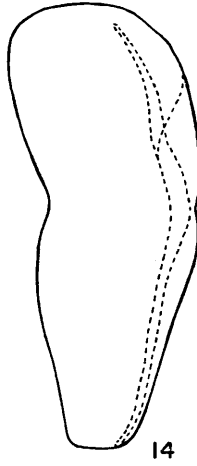
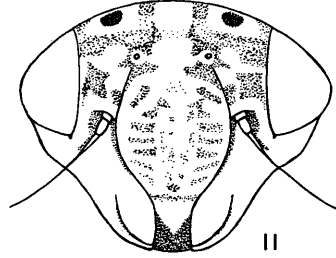
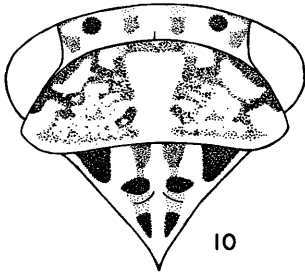
Resembles *I. chisosus* in form and general appearance, but larger, darker, and with distinct male genitalia. Length: Male 4.7 to 5.1 mm, female 4.6 to 5.2 mm. Width of head: Male 1.7 to 1.9 mm, female 1.8 to 2.0 mm.

Vertex slightly curved, nearly same length in middle as near eyes. Postclypeus rounded and raised, nearly same width as length; anteclypeus parallel sided and slightly wider at apex. Male antennae with flattened disc just beyond middle. Elytra flaring, giving a robust appearance, venation obscure except for apical veins, appendix large.

EXPLANATION OF PLATE II

Idiocerus chisosus DeLong and Caldwell.

- FIGURE 10. Dorsal view of head, pronotum, and scutellum of female (from Texas).
 FIGURE 11. Face of female (same specimen).
 FIGURE 12. Lateral view of plate.
 FIGURE 13. Ventral view of style.
 FIGURE 14. Lateral view of pygofer.
 FIGURE 15. Ventral view of connective.
 FIGURE 16. Ventral view of aedeagus.
 FIGURE 17. Lateral view of aedeagus.
 FIGURE 18. Ventral view of female genitalia.



CHISOSUS

Color: Vertex and face yellowish brown, two black spots on vertex about their own width from eyes, remainder patterned with brownish fuscous spots (fig. 20); anteclypeus dark brown except for basal U-shaped area yellowish brown; antennae yellow, male disc black. Pronotum yellowish brown irregularly patterned with brownish spots. Scutellum yellowish brown with a pair of dark brown triangles near the lateral angles, a pair of dark brown spots on disc usually separate from the two longitudinal brown lines near middle. Elytra with veins, except apical veins, yellowish white interrupted by dark brown areas, apical veins dark brown, apical cells and appendix smoky brown.

Genitalia: Male (fig. 21-26) with plate long, narrow, slightly pointed at apex; pygofer broadly rounded distally, median emargination on ventral margin, ventral margin thickened and developed into a spine distally from emargination; style curved, narrowing to a nearly pointed apex, a row of small spines near apex; connective thickened, squared, with a pointed ventral projection; aedeagus with shaft angled, narrowing to a pointed apex, without processes, phallosome near middle on ventral surface, apodeme expanded beyond middle with pointed lateral projections and apical margin rounded, large broadly rounded dorsal expansion. Female (fig. 27) with ovipositor long, narrow; pygofers rounded, narrowed at distal end; posterior margin of seventh sternite rounded with wide median emargination.

Last nymphal instar: Similar to *I. fitchi* in body shape. Length: 2.7 mm. Color generally yellow brown with brownish markings. Head with a pair of brown spots on vertex at their width from eyes; area between spots and antennae generally brown excluding sutures, ocelli, and spots adjacent to ocelli; clypeus with a row of spots down each side and all of apical area, brown; pronotum with anterior half marked with brown; dorsal abdominal segments brown except for a small median spot, yellow, on all segments but last which is ringed medially with yellow.

Host plant: Unknown.

Holotype male: Jacumba, California, July 26, 1940, D. J. & J. N. Knull, (genitalia in vial attached to pin). Allotype female: Same data as holotype. Paratypes: Jacumba, California, July 26, 1940, D. J. & J. N. Knull, 1 ♂, 5 ♀; July 20, 1949, D. J. & J. N. Knull, 2 ♀; June 12, 1951, D. J. & J. N. Knull, 1 ♂; June 27, 1952, D. J. & J. N. Knull, 1 ♂, 2 ♀; June 16, 1954, D. J. & J. N. Knull, 3 ♀. Holotype, allotype, and paratypes in The Ohio State University Collection. Also paratypes in the U. S. National Museum and the D. M. DeLong Collections.

Other specimens which were examined and not included in the type series are as follows:

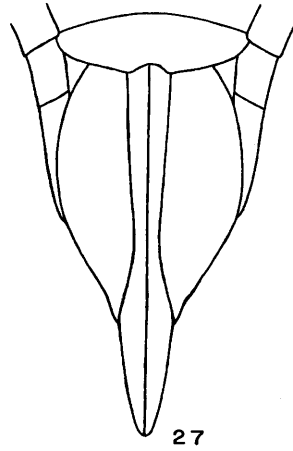
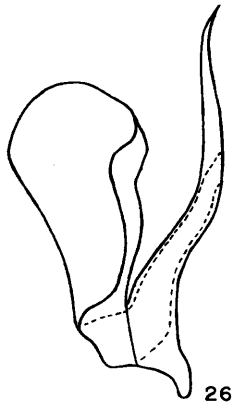
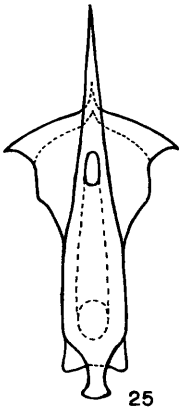
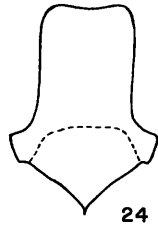
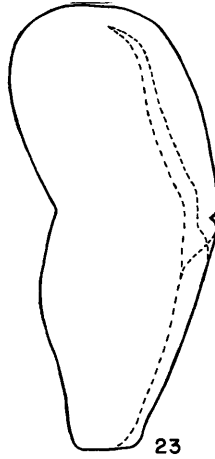
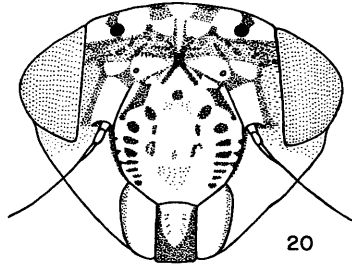
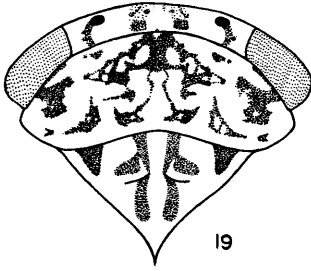
Arizona.—TOMBSTONE: July 16, 1936, E. D. Ball, 3 ♂.

California.—DEL MAR: June 2, 1935, Oman, 3 ♂, 4 ♀, 6 nymphs. SAN DIEGO COUNTY: June 30, 1913, E. P. Van Duzee, 1 ♂, 1 ♀. BEAUMONT: August 1, 1912, E. D. Ball, 2 ♀; June 12, 1931, E. D. Ball, 3 ♂, 4 ♀, 1 nymph. ONTARIO: June 14, 1931, E. D. Ball, 5 ♂, 4 ♀, 2 nymphs. NEWTON: June 17, 1954, D. J. & J. N. Knull, 1 ♀; June 29, 1954, D. J. & J. N. Knull, 1 ♂; July 5, 1956, D. J. & J. N. Knull, 1 ♂, 1 ♀; July 11, 1956, D. J. & J. N. Knull, 1 ♀. SANTA ROSA MTS.: May 27, 1946, D. J. & J. N. Knull, 2 ♂; June 5, 1946, D. J. & J. N. Knull, 1 ♂; June 15, 1946, D. J. & J. N. Knull, 1 ♂, 1 ♀. ENSENADA L.: July 18, 1949, D. J. & J. N. Knull, 1 ♀.

EXPLANATION OF PLATE III

Idiocerus spinosus sp. n.

- FIGURE 19. Dorsal view of head, pronotum, and scutellum of female (from California).
 FIGURE 20. Face of female (same specimen).
 FIGURE 21. Ventral view of style.
 FIGURE 22. Lateral view of plate.
 FIGURE 23. Lateral view of pygofer.
 FIGURE 24. Ventral view of connective.
 FIGURE 25. Ventral view of aedeagus.
 FIGURE 26. Lateral view of aedeagus.
 FIGURE 27. Ventral view of female genitalia.



SPINOSUS

REFERENCES

- Ball, E. D.** 1902. Some new Bythoscopidae from British Columbia and the Southwest. *Canadian Ent.* 34(12): 303-313.
- DeLong, D. M., and J. S. Caldwell.** 1937. Some new species of *Idiocerus* (Homoptera-Cicadellidae). *Ohio J. Sci.* 37: 161-164.
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