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REVISION OF THE GENUS *NELTUMIUS* BRIDWELL (COLEOPTERA: BRUCHIDAE)

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Abstract

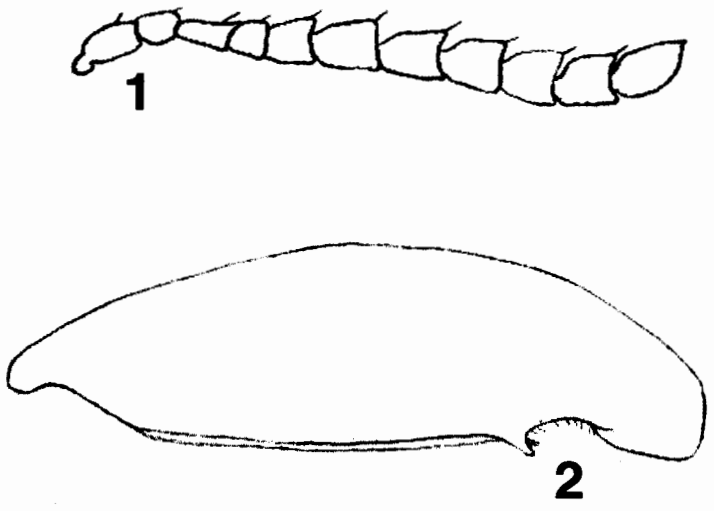
Bridwell (1946) used *Bruchus arizonensis* Schaeffer as type of the genus when he described *Neltumius* Bridwell in a key. Bradley (1947) transferred *Bruchus gibbithorax* Schaeffer and *B. texanus* Schaeffer into *Neltumius*. We describe *Neltumius dospatrias* Romero and Johnson, a **new species** from Mexico and the U.S.A. related to *N. texanus*. We update the distributions of the four species, list the known hosts of each species, figure the male genitalia, and key the species. *Neltumius* is an especially interesting genus of bruchids because its larvae feed in seeds of very different hosts, *Prosopis* L. (Fabaceae) and *Condalia* Cav. (Rhamnaceae).

Bridwell (1946) described *Neltumius* in a key in which he described several other new genera. The name is a modification of the plant genus *Neltuma* Raf., a synonym of *Prosopis* L., the host of the type of the genus, *Bruchus arizonensis* Schaeffer. Bradley (1947) transferred *B. gibbithorax* Schaeffer and *B. texanus* Schaeffer to *Neltumius*. Kingsolver (1964) revised the genus and included the three species in it. No significant taxonomic studies have been made on the genus since 1964 but new host records, ecology and attempts at biological control have been published (*e.g.*, Johnson 1978; Hetz and Johnson 1988; Kistler 1995; Coetzer and Hoffman 1997).

Johnson and Kingsolver (1981) indicated that the known distribution of the genus was the United States. *Neltumius arizonensis* was only in Arizona, and *N. gibbithorax* and *N. texanus* in Arizona, California and Texas. Kingsolver (1964) stated that *N. gibbithorax* was found in seeds of *Prosopis pubescens* from Mexico intercepted in Plant Quarantine Division, USDA, and no specific locality given.

The relationships of *Neltumius* with other groups in Bruchidae are not clear at this time. Bradley (1947), in his limited perspective, indicated that it "seems to be most closely related to *Gibbobruchus*." Kingsolver (1964) indicated that this relationship was remote because of the overall differences between the two genera. Kingsolver suggested that *Neltumius* might be an offshoot of the Old World *Bruchidius* complex.

The objectives of this paper are to review the genus, describe a new species, redescribe the species because of new taxonomic characters, summarize new host plant information, and to key species of *Neltumius*.



Figs. 1–2. *Neltumius* spp. **1)** Antenna; **2)** hind femur, medial view.

Materials and Methods

We use the term ocular index as the ratio of the width across the eyes over the narrowest distance between the eyes (Kingsolver 1990).

In the preparation of the genitalia for study we used the techniques and nomenclature described by Kingsolver (1970) and modified by Romero and Johnson (1999). The genitalia were stored in genitalia vials.

All specimens of *Neltumius* used here are property of the Clarence Dan Johnson and Jesus Romero Nápoles collections and the U.S. National Museum of Natural History (USNMNH).

Taxonomy

Neltumius Bridwell

Neltumius Bridwell 1946:54; Bradley 1947:35; Kingsolver 1964:105; Bottimer 1968:1025; Borowiec 1985:458, 1987:97, 1988:9.

Description. Ground color black; vestiture of black, white, gray, and pale yellow hair-like scales arranged in distinctive patterns. Head carinate, sparsely covered with hairs, finely punctate; eyes black or brown, deeply emarginate; antennae serrate, reaching base of elytron, similar in the two sexes (Fig. 1). Prothorax strongly convex, gibbous; depressed antescutellar area marked with white; apex rounded; pleura concave, without lateral carina or margin, base carinate, markedly lobed in middle third, laterad of lobe sinuate; posterior angles acute. Elytra together slightly longer than wide; apices separately rounded with apical margin finely serrate, lateral margins straight or slightly arcuate; with or without gibbosities; striae well-marked, deep strial punctures setose, spines absent at bases of striae; humeri prominent and with a fine, serrate, transverse carina connecting bases of striae 6 and 7. Front coxae nearly contiguous at apices, separated basally by narrow triangular prosternum; middle coxae separated by rounded mesosternal plate, hind coxae nearly contiguous, each hind coxa about 1.25 times as wide as hind femur; each hind femur with shallowly sulcate ventral margin and with a small single spine on inner margin of sulcus at apical 0.25 (Fig. 2); apex of each hind tibia with 5 to 7 short spines surrounding insertion of basitarsus, basitarsus, 1.5 times as long as remaining four segments; claws lobed at base. First abdominal sternum three times as long as second; second, third and fourth subequal; fifth slightly longer and

shallowly emarginate in male but unmodified in female; all abdominal segments, except the first, with a line of strong, black setae. Pygidium grayish with vague or bold darker markings, nearly vertical. Median lobe of male genitalia with dorsal valve slightly sclerotized, almost membranous, ventral valve sclerotized.

Discussion. Two hypotheses about the origin of *Neltumius* have been generated. Kingsolver (1964) suggested that *Neltumius* might be an offshoot of the Old World *Bruchidius* complex. Bradley (1947) thought that *Neltumius* probably was a close relative of *Gibbobruchus*. With the new species *N. dospatrias* now in *Neltumius* and the very closely related new genus and species *Meganeltumius juani* Romero and Johnson (in press), there are new possibilities to search for the origin of the genus. At this time, there are eight genera with some characters in common with *Neltumius*. In the Americas they are *Meganeltumius* Romero and Johnson, *Gibbobruchus* Pic, *Ctenocolum* Kingsolver and Whitehead, *Caryedes* Hummel and in the Old World *Horridobruchus* Borowiec, *Kingsolverius* Borowiec, *Decellebruchus* Borowiec and *Specularius* Bridwell. The genera in the New World share arcuate hind tibiae, an incrassate hind femur with 2–16 denticles, elytra without gibbosities and gibbous pronota. The Old World genera share different characters. For example, the hind tibiae may be arcuate or straight, the hind femora lightly to strong incrassate with 1–3 denticles, elytra with or without gibbosities, and pronota with strong to tenuous gibbosities. *Meganeltumius juani* appears to be more closely related to *Horridobruchus* because both genera have gibbosities on their elytra and pronota. The hind tibiae of *M. juani* are straight and those of *Horridobruchus* arcuate. In both genera the hind femora are lightly incrassate and with one spine, but *M. juani* has one larger spine and eight smaller spines. The four species in *Neltumius* are more close to *Meganeltumius*. They are also close to *Kingsolverius* because of the straight hind tibia, the hind femora are slightly incrassate and with one spine, the elytra without gibbosities and the pronotum with gibbosities. With this superficial analysis, *Neltumius* may be related to *Horridobruchus* and *Kingsolverius*, but these latter genera represent a specialized line within the gibbous group developing in the Old World. The *Gibbobruchus* group and *Neltumius* represent another related line developing in the New World. Borowiec (1987) stated also that *Horridobruchus* is near to the American group *Gibbobruchus*. However, we need to await more research in molecular and morphological character analysis to be made in order to have a firmer basis to build a phylogeny of these gibbous bruchids.

Key to Species of *Neltumius*

1 Hind tibia uniformly gray; dorsum of body mostly grayish-white with prominent patches of dark brown and pale yellow setae (Fig. 7); single median gibbosity near anterior margin of prothorax (Fig. 8); prominent elongated white spot at middle of the third interval of elytron; fine transverse carina on each humerus ..... *N. gibbithorax* (Schaeffer)

1′ Hind tibia with brown band at middle of posterior margin; dorsum with strongly contrasting dark brown and grayish elongated patches; third interval with two or more elongated white patches separated by dark brown; humerus carinate or granulate 2

2 Prothorax with prominent paired gibbosities separated by shallow median and transverse channels, posterior pair more prominent than anterior pair (Fig. 4); humerus with fine transverse carina ..... *N. arizonensis* (Schaeffer)

2′ Prothorax with gibbosities and channel only slightly indicated (Figs. 12, 16); humerus granulate 3

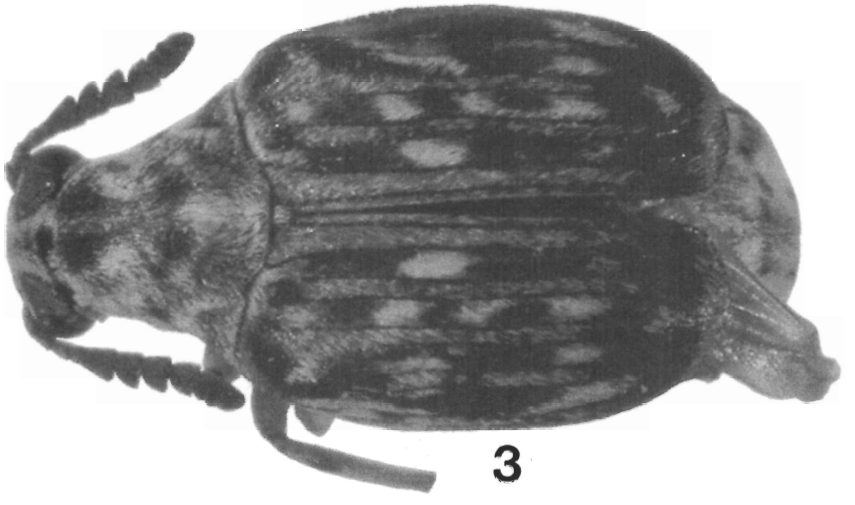


Fig. 3. *Neltumius arizonensis*, male adult, dorsal view.

3 Vestiture mostly white interrupted by lighter or darker coloration; head finely punctate; male genitalia as in Figures 13 and 14 *N. texanus* (Schaeffer)

3′ Vestiture mostly reddish brown interrupted by lighter or darker coloration; head with many deep punctations; male genitalia as in Figures 17 and 18 *N. dospatrias* Romero and Johnson, new species

Neltumius arizonensis (Schaeffer)

Bruchus arizonensis Schaeffer, 1904:229 (Pinal Mountains, Arizona); Fall 1910:162; Pic 1913:15; Zacher 1952:471.

Mylabris arizonensis: Leng 1920:305; Kunhikannan 1923:21.

Neltumius arizonensis. Bridwell 1946:54; Bradley 1947:36; Kingsolver 1964:105; Terán 1967:307; Johnson 1968:1270; Bottimer 1968:1025; Center and Johnson 1976:196; Pfaffenberger and Johnson 1976:37; de Luca 1977:12; Kingsolver *et al.* 1977:115; Johnson 1978:438, 1980*a*:28; Johnson and Kingsolver 1981:416; Johnson 1983*a*:8, 1983*b*:9, 1983*c*:8; Pfaffenberger 1985:4; Johnson and Kistler 1987:269; Kistler 1995:663; Pfaffenberger and Johnson 1976:31; Ward *et al.* 1977:6; Borowiec 1987:97; Udayagiri and Wadhi 1989:95; Pfaffenberger and Monge 1991:315; Delobel and Johnson 1998:25.

Description. Male. Integument Color. Antenna, head, thorax, abdomen, and tarsi black; femora and tibiae brown with apices black.

Vestiture. Antenna black with gray pubescence, median carina glossy, nearly covered by gray and pale yellow hairs on frons; pronotum with mixed gray, brown and black, with four spots, two anterior, two posterior; antescutellar area whitish-gray; scutellum covered with white pubescence; elytral pubescence composed of gray, pale yellow, and black hairs in contrasting pattern (Fig. 3); sides and venter with gray and pale yellow hairs in mottled patterns; short tuft of gray hairs in middle of first abdominal sternum. Legs gray with brown spot or band near apex of each femur and in middle of lateral face of each tibia. Pygidial vestiture gray-pale yellow with short, transverse dark bar in middle and paired longitudinal marks near margin of apex.

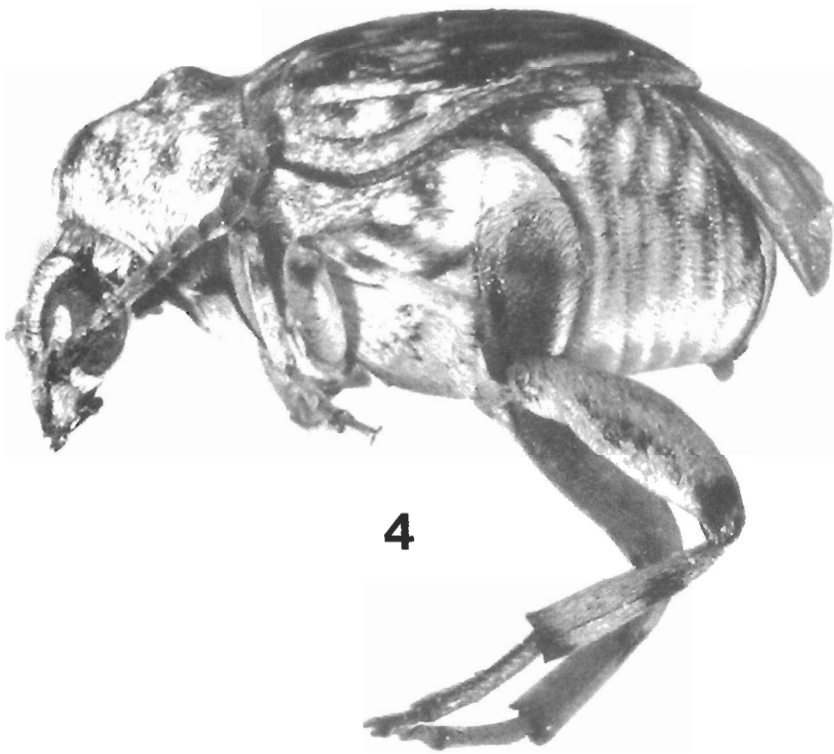


Fig. 4. *Neltumius arizonensis*, male adult, lateral view.

Head. Antenna with first four segments and the last filiform, segment 5–10 subserrate; frons with very fine median carina extending from interocular fovea nearly to the epistomal suture; vertex finely punctate; labrum slightly sulcate; eyes rounded, dark brown to black; ocular sinus 0.50 to 0.53 width of eye.

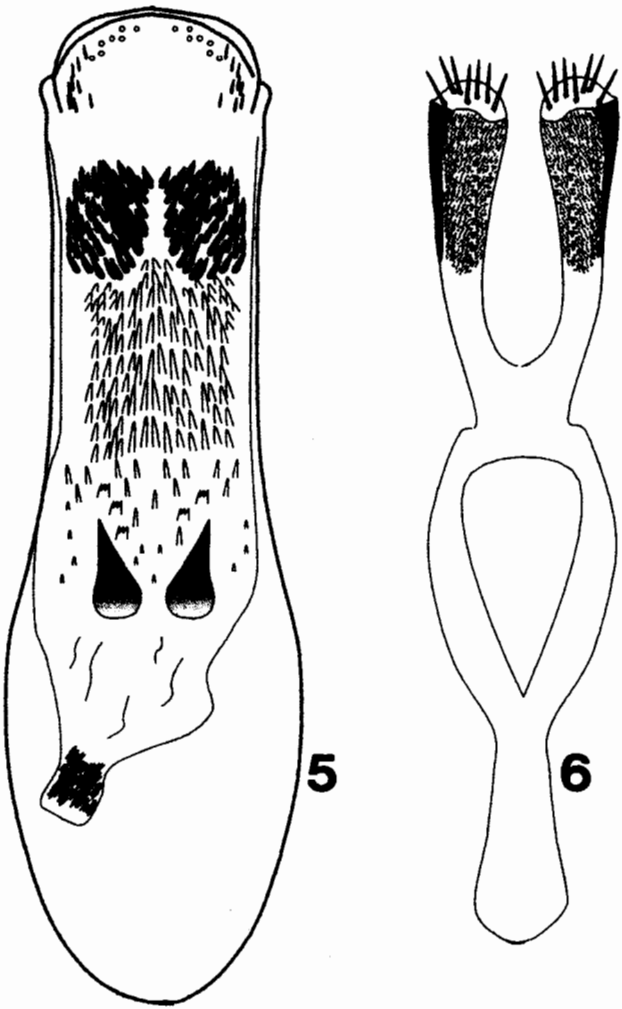
Prothorax. Subconical, pleura slightly concave; disk with a gray cruciform indentation separating four dark brown or black gibbosities Figs. 3, 4); gibbosity with vaguely defined paired brown blotches; base lobed at middle; apex rounded.

Mesothorax and Metathorax. Scutellum small, triangular. Elytron evenly convex, slightly depressed in scutellar region; humerus prominent, with a fine, serrate, transverse carina connecting bases of striae 6 and 7, striae deep, narrow, strial punctures distinct, unisetose. Metepisternum microfoveolate with some scattered foveolae, unisetose. Hind coxa microfoveolate and setose, short area near trochanteral insertion with setose foveolae, small elongate lustrous area on anterior portion. Hind femur constricted basally and apically, expanded medially to about width of coxa, with a very shallowly sulcate ventral margin, with one sharp, small, spine on inner margin of sulcus one-fourth from apex of femur (Fig. 2); tibia with lateral and ventral carinae, inner face convex; apex with five spines, the outer lateral and inner ventral subequal, the others smaller; claws lobed at base.

Abdomen. First abdominal sternum three times as long as second; second, third and fourth subequal; fifth slightly longer, deeply and broadly emarginate mesally; all segments, except the first, with a line of strong, black setae. Pygidium ovate, convex.

Size. Length (pronotum-elytra) 2.04 to 3.45 mm. Width 1.11 to 2.16 mm. Maximum thoracic depth 1.14 to 2.25 mm.

Genitalia. Median lobe with ventral valve U-shaped, with setae flanking anterior portion, dorsal valve less sclerotized and U-shaped; armature of internal sac with two anterior masses of



Figs. 5–6. *Neltumius arizonensis*, male genitalia. **5)** Median lobe, ventral view; **6)** lateral lobes, ventral view.

spines, a median mass of fine spines and two basal subtriangular sclerites (Fig. 5). Lateral lobes cleft to 0.33 their length (Fig. 6).

Female. Similar to male except the inner face of hind tibia flat, with lateral, dorsal and ventral carinae well developed, first sternum without tuft of hairs; fifth sternum not emarginate, pygidium somewhat gibbous at apex, gray-pale yellow with dark T-shaped mark in apical half connected with vague spots near apex, narrow median line gray-pale yellow.

Size. Length (pronotum-elytra) 3.15 to 3.36 mm. Width 2.04 to 2.13 mm. Maximum thoracic depth 2.07 to 2.10 mm.

Host Plants. Old records. *Prosopis chilensis* (Molina) Stuntz (Kingsolver 1964: 106; Ward *et al.* 1977:5; Udayagiri and Wadhi 1989:95). *P. glandulosa* Torr. (Kunhikannan 1923:20; Zacher 1952:471). *P. juliflora* (Sw.) DC. (Kingsolver 1964:106;

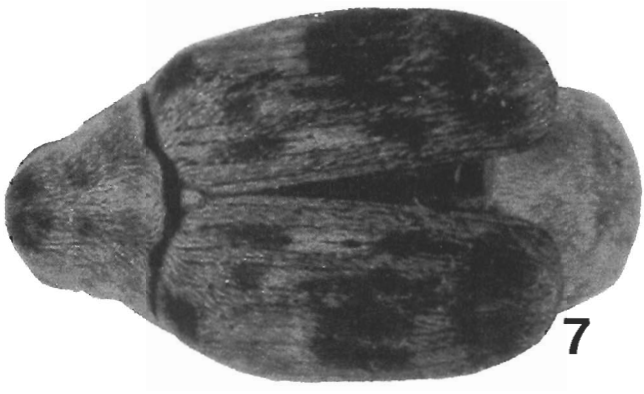


Fig. 7. *Neltumius gibbithorax*, male adult, dorsal view.

Center and Johnson 1976:200; Pfaffenberger and Johnson 1976:31; Ward *et al.* 1977:5; Johnson 1978:438; Udayagiri and Wadhi 1989:95). *P. velutina* Wooton (Kingsolver *et al.* 1977:115; Johnson 1980:28; Udayagiri and Wadhi 1989:95; Kistler 1995:663)

Distribution. Old Records: USA (Arizona, California, Nevada, Texas) (Kingsolver 1964).

New records. Mexico (Durango)

Discussion. The first author reared a large quantity of *N. arizonensis* and *Algarobius johnsoni* Kingsolver from seeds of *Prosopis juliflora* collected in Durango, Mexico in 1995.

The host record of the screwbean mesquite *P. glandulosa* reported by Kunhikannan (1923) and Zacher (1952) is probably in error.

Neltumius gibbithorax (Schaeffer)

Bruchus gibbithorax Schaeffer, 1904:230 (Pinal Mountains, Arizona); Fall 1910:162; Pic, 1913:27.

Mylabris gibbithorax: Leng 1920:305.

Neltumius gibbithorax: Johnson 1968:1270; Bottimer 1968:1025; Center and Johnson 1976:196; Kingsolver *et al.* 1977:115; Johnson 1978:438, 1980:28; Ward *et al.* 1977:6; Johnson and Kingsolver 1981:416; Johnson 1983*a*:28; Johnson 1983*b*:35; Johnson 1983*c*:32; Udayagiri and Wadhi 1989:95.

N. gibbothorax (sic): Bradley 1947:36; Kingsolver 1964:105.

N. gibbothorae (sic): Blackwelder and Blackwelder 1948:45.

Description. Male. Integument Color. Head, thorax, abdomen, and tarsi black; femora and tibiae brown; antenna dark brown.

Vestiture. Frons densely clothed with gray and pale yellow hairs; antenna black with gray pubescence; disk densely covered with pale yellow and gray hairs; antescutellar area lighter gray; scutellum covered with white pubescence; elytra clothed with brown, pale yellow, and gray hairs in distinctive pattern (Fig. 7); sides and venter with intermixed gray and pale yellow hairs, short tuft of gray hairs in middle of first abdominal sternum; legs evenly clothed with gray hairs; pygidium uniformly clothed with gray and pale yellow intermixed hairs, sometimes with indistinct darker spot in middle.

Head. Antenna with first four segments and the last filiform, segments 5–10 subserrate; frons with very fine median carina extending from interocular fovea nearly to the epistomal suture;

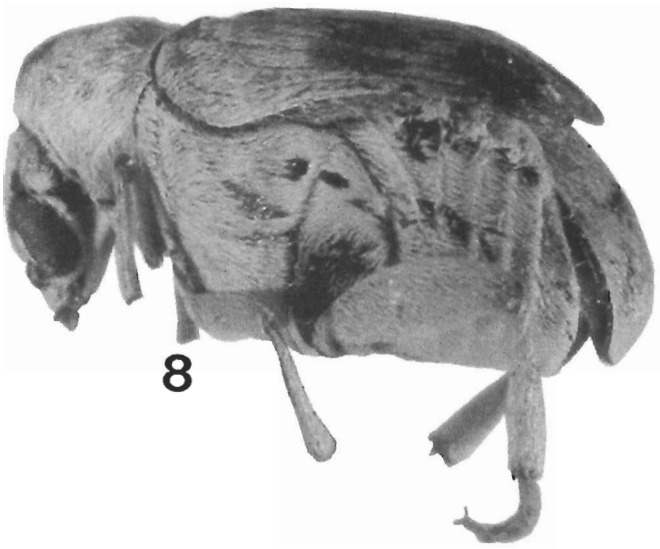


Fig. 8. *Neltumius gibbithorax*, male adult, lateral view.

vertex finely punctate; labrum finely granulate; eyes rounded, dark brown; ocular sinus 0.55 width of eye.

Prothorax. Subconical, pleura slightly concave; gibbosity with vaguely defined paired brown blotches; base lobed at middle; apex rounded.

Mesothorax and Metathorax. Scutellum small, triangular. Elytron evenly convex, slightly depressed in scutellar region; humerus prominent, with a fine, serrate, transverse carina connecting bases of striae 6 and 7, striae deep, narrow, strial punctures unisetose. Metepisternum finely microfoveolate. Hind coxa microfoveolate, setose, short area near trochanteral insertion with setose foveolae, small elongate lustrous area on anterior portion. Hind femur constricted basally and apically, expanded medially to about width of coxa; with very shallowly sulcate ventral margin and one small, sharp spine on medial margin of sulcus 0.25 from apex of femur (Fig. 2); tibia sometimes with but usually without lateral, medial and ventral carinae; apex with five spinules, outer lateral spinule longer than others; claws lobed at base.

Abdomen. First abdominal sternum three times as long as second, with a carina 0.5 of the length of the sternum width near anterior margin; second, third and fourth sterna subequal; fifth slightly longer, deeply, broadly emarginate mesally; sterna 2–5 with a line of strong, black setae. Pygidium ovate and convex.

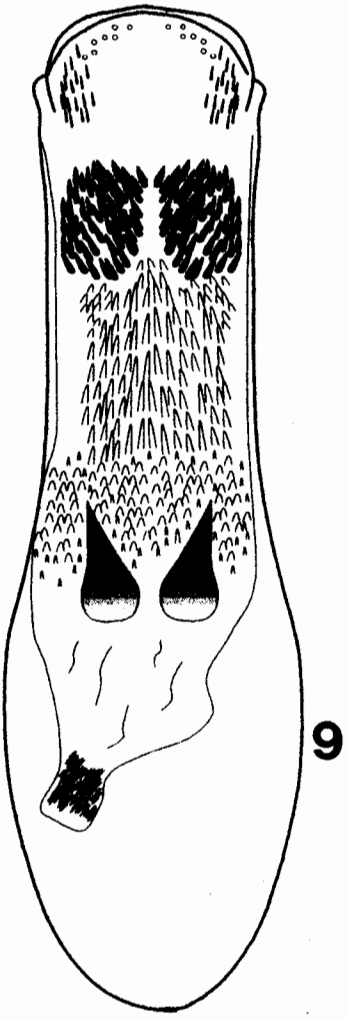
Size. Length (pronotum-elytra) 2.67 mm. Width 1.14 mm. Maximum thoracic depth 1.5 mm.

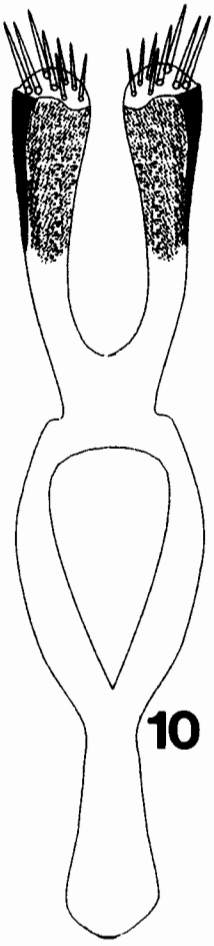
Genitalia. Median lobe with ventral valve U-shaped, with a group of setae flanking anterior portion, dorsal valve less sclerotized and U-shaped; armature of internal sac with two anterior masses of spines, a median mass of fine spines mixed with fine scale-shaped spines and two basal subtriangular sclerites (Fig. 9). Lateral lobes cleft to 0.33 their length (Fig. 10).

Female. Similar to male except first sternum without tuft of hairs; fifth sternum not emarginate, pygidium gibbous at apex.

Size. Length (pronotum-elytra) 2.37 mm. Width 1.47 mm. Maximum thoracic depth 1.5 mm.

Host Plants. Old records: *Prosopis odorata* Torr. and Frém. (Kingsolver 1964:106; Kingsolver *et al.* 1977:115; Ward *et al.* 1977:6; Udayagiri and Wadhi 1989:95). *P. pubescens* Bentham (Kingsolver 1964:106; Center and Johnson 1976:200; Ward *et al.* 1977:5; Johnson 1978:438; Johnson 1980:28; Udayagiri and Wadhi 1989:95)





Figs. 9–10. *Neltumius gibbithorax*, male genitalia. **9)** Median lobe, ventral view; **10)** lateral lobes, ventral view.

Distribution. Old Records: USA (Arizona, California, Nevada, Utah) and Mexico (Kingsolver 1964).

Discussion. This species is closely related to *N. arizonensis*, from which it can easily be distinguished by the uniformly gray tibiae, anteriorly placed prothoracic gibbosity (Fig. 8), predominantly gray vestiture, the gibbosities are more markedly defined (Fig. 8), and vaguely marked pygidium. The male genitalia of both are almost indistinguishable, except that *N. gibbithorax* has a group of setae flanking the anterior portion that are more numerous, the median mass of fine spinules is mixed with fine scale-shaped spines, and the two basal subtriangular sclerites are slightly more elongated.

Fig. 11. *Neltumius texanus*, male adult, dorsal view.

There is considerable flux at present in the taxonomy of the genus *Prosopis*, but *Prosopis pubescens* is considered to be the valid name of this host, the screwbean mesquite. Some specialists in the genus advocate that there are only two species of mesquite (screwbeans and the others) and the rest of the 68 names are subspecies (Hultine 2001). According to the available evidence, there is no interbreeding between the screwbean group and the others. Thus, *N. gibbithorax* and *N. arizonensis* follow taxonomic lines in their host preferences.

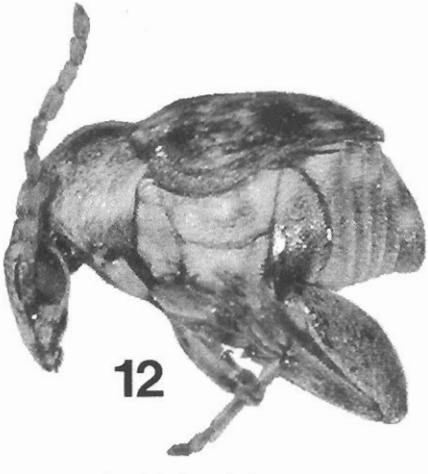


Fig. 12. *Neltumius texanus*, male adult, lateral view.

Neltumius texanus (Schaeffer)

Bruchus texanus Schaeffer, 1904:231 (Esperanza Ranch, near Brownsville, Texas); Fall 1910:162; Pic 1913:52.

Mylabris texanus: Leng 1920:305.

Neltumius texanus: Bradley 1947:36; Blackwelder and Blackwelder 1948:45; Kingsolver 1964:110; Johnson 1968:1270; Bottimer 1968:1025; Center and Johnson 1976:196; Johnson 1978:432; Johnson and Kingsolver 1981:416; Johnson and Kistler 1987:263; Hetz and Johnson 1988:135; Johnson 1989:761; Udayagiri and Wadhi 1989:95; Johnson 1995:42.

Description. Male. Integument Color. Antennae, head, thorax, abdomen, and tarsi black; femora and tibiae brown with apices black.

Vestiture. Antennae black with white pubescence; frons sparsely covered with white and pale yellow hairs; prothorax white with vaguely defined paired brown spots at apex; scutellum covered with white pubescence; elytral pubescence white and black hairs in contrasting pattern; sides and venter with white hairs in mottled patterns (Fig. 11); legs clothed with white and pale yellow hairs with median brown band on posterolateral face of each tibia; without tuft of hair on first abdominal sternum. Pygidium evenly convex, whitish-gray in basal third, mixed white and pale yellow with narrow median gray line in apical third.

Head. Antenna with first four segments and the last filiform, segments 5–10 subserrate, frons with median carina glossy black, head finely punctate; labrum bare, somewhat sulcate, yellowish brown at apex; eyes rounded, dark brown; ocular sinus 0.6 to 0.62 width of eye.

Prothorax. Subconical, pleura slightly concave; disk convex with paired brown, obsolete tuberosities near base flanking triangular white antescutellar patch; base strongly lobed at middle, sinuate laterally, posterior corners acute; apex rounded.

Mesothorax and Metathorax. Scutellum small, subquadrate; elytron evenly convex; humerus prominent, granulate, lacking serrate carina connecting bases of striae 6 and 7; striae narrow, deep with setiferous punctures hardly discernible. Metepisternum microfoveolate with some scattered foveolae unisetose. Hind coxa microfoveolate, setose, short area near trochanteral insertion with setose foveolae, small elongate lustrous area on anterior portion. Hind femur constricted basally and apically, expanded medially to about width of coxa, with very shallowly sulcate ventral margin, with one small, sharp spine on inner margin of sulcus one-fourth from apex of femur (Fig. 2); tibia with lateral and ventral carinae, inner face convex; apex with five spinules, outer lateral and inner ventral spinules subequal, others smaller; claws lobed at base.

Abdomen. First abdominal sternum three times as long as second; second, third and fourth subequal; fifth slightly longer and slightly emarginate mesally; all segments, except the first, with a line of strong, black setae. Pygidium ovate and convex.

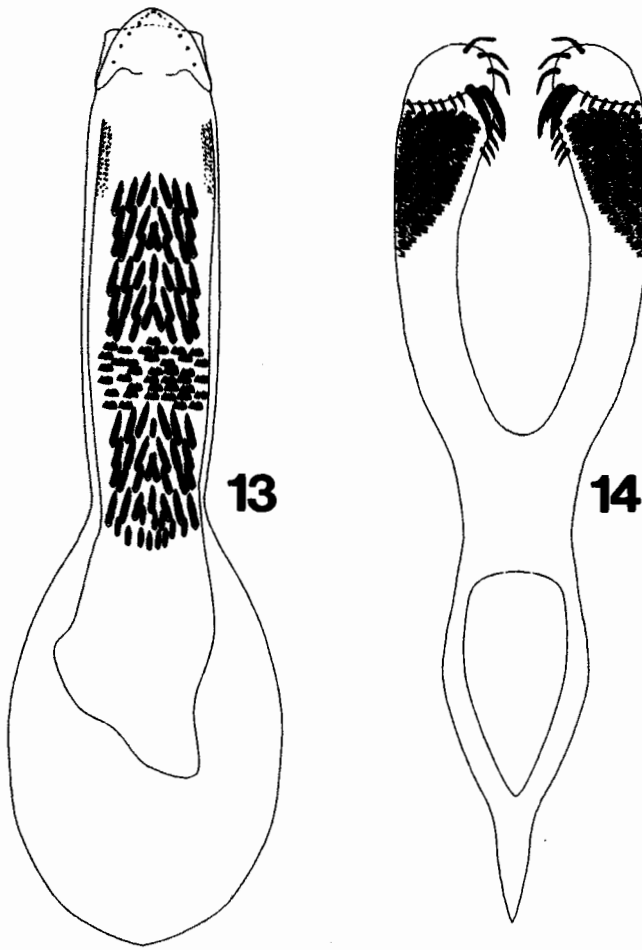
Size. Length (pronotum-elytra) 1.5 to 2.25 mm. Width 0.87 to 1.5 mm. Maximum thoracic depth 1.11 to 1.29 mm.

Genitalia. Median lobe with ventral valve deltoid, dorsal valve membranous; internal sac clothed anteriorly with minute spines, armature formed by large cluster of strong spines interrupted mesally by group of finely dentate scales (Fig. 13). Lateral lobes armed at apices with stout spines, lobes cleft to 0.45 their length (Fig. 14).

Female. Similar to male except inner face of hind tibia flat, with lateral, dorsal and ventral carinae well developed, fifth sternum not emarginate; pygidium with triangular gray spot in middle of base flanked by pale yellow spot, faint brown, transverse median band interrupted by median line of gray; paired vague brown spots near apical margin.

Size. Length (pronotum-elytra) 2.04 to 2.10 mm. Width 1.2 mm. Maximum thoracic depth 1.05 to 1.2 mm.

Host Plants. Old records: *Condalia correllii* M. C. Johnston (Johnson 1978:436; Udayagiri and Wadhi 1989:96). *C. globosa* I. M. Johnston (Hetz and Johnson 1988:137). *C. globosa* var. *pubescens* I. M. Johnston (Center and Johnson 1976:200; Johnson 1978:436; Udayagiri and Wadhi 1989:96). *C. hookeri* M. C. Johnston (Johnson 1995:42). *C. hookeri* var. *hookeri* M. C. Johnston (Johnson 1978:436; Udayagiri and Wadhi 1989:96). *C. spathulata* A. Gray (Johnson 1978:435; Hetz and



Figs. 13–14. *Neltumius texanus*, male genitalia. **13)** Median lobe, ventral view; **14)** lateral lobes, ventral view.

Johnson 1988:135; Udayagiri and Wadhi 1989:96). *C. warnockii* var. *kearneyana* M. C. Johnston (Johnson 1978:434; Udayagiri and Wadhi 1989:96).

Condalia hookeri M. C. Johnston is the valid name for *C. obovata* Hook. (Kingsolver 1964:111; Udayagiri and Wadhi 1989:96).

New Records: None

Distribution. Old Records: USA (Arizona, California, and Texas) (Johnson 1978; Kingsolver 1964).

New Records: Mexico (Nuevo Leon, Queretaro, San Luis Potosi, and Veracruz).

Discussion. *Neltumius texanus* is more similar to *N. dospatrias* than to *N. arizonensis* and *N. gibbithorax*. See discussion of *N. dospatrias* for differences between the two species.

The great difference in the Rhamnaceous host plants preferred by this species and *N. arizonensis* and *N. gibbithorax* that prefer seeds of *Prosopis* is remarkable. Johnson

Fig. 15. *Neltumius dospatrias*, male adult, dorsal view.

(1978, 1989, 1995) discussed the probable origins of these closely related species feeding in plants in different families, and the ecology of *N. texanus* in more detail.

Neltumius dospatrias Romero and Johnson, **new species**

Description. Male. Integument Color. Antennae, head, thorax, abdomen, and tarsi black; femora and tibiae brown with apices black.

Vestiture. Antennae black with white pubescence; frons covered with sparse to moderately dense intermixed white and brown hairs, vertex with sparse reddish brown hairs; prothorax with recumbent reddish-brown hairs interrupted by 4–6 patches of white hairs, antescutellar area covered with dense white hairs forming a small triangle; scutellum covered with sparse white pubescence; elytral pubescence white, reddish brown, and black hairs in contrasting pattern (Fig. 15); sides and venter with dense white and reddish brown hairs in mottled pattern; legs clothed with sparse white hairs with median brown band on posterolateral face of each tibia; without tuft of hair on first abdominal sternum; pygidium evenly convex, small, medial, triangular patch of white hairs at base, sometimes apex with thin line of white hairs extending to 0.5 length of pygidium, remainder of pygidium with reddish-brown hairs, sometimes with small, intermixed patches of white hairs.

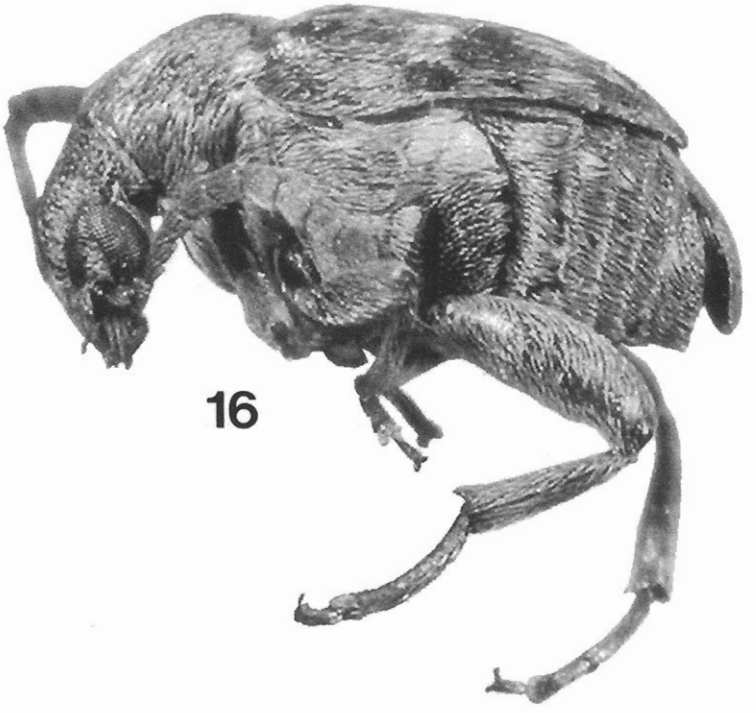


Fig. 16. *Neltumius dospatrias*, male adult, lateral view.

Head. Antenna with segments 1–4 and 11 filiform, segments 5–10 subserrate, 11 acute at apex; frons with strong median glabrous carina extending from frontoclypeal suture to vertex, head with many deep punctations; labrum finely punctate, not sulcate, yellowish brown at apex; eyes rounded, dark brown; ocular sinus 0.6 to 0.62 width of eye.

Prothorax. Subconical, pleura slightly concave; disk convex with paired brown, obsolete tuberosities near base flanking triangular white antescutellar patch; base strongly lobed at middle, sinuate laterally, posterior corners acute; apex rounded.

Mesothorax and Metathorax. Scutellum very small, subquadrate; elytron evenly convex; humerus prominent, granulate, dark brown to black, lacking serrate carina connecting bases of striae 6 and 7; striae narrow, deep with setiferous punctures hardly discernible. Metepisternum microfoveolate with some scattered foveolae unisetose. Hind coxa microfoveolate, setose, short area near trochanteral insertion with setose foveolae, small elongate lustrous area on anterior portion. Hind femur constricted basally and apically, expanded medially to about width of coxa, with very shallowly sulcate ventral margin, with one small, sharp spine on inner margin of sulcus one-fourth from apex of femur (Fig. 2); tibia with dorsomesal, lateral and ventral carinae, inner face convex; apex with about five spinules, outer lateral and inner ventral spinules usually subequal, others shorter; claws lobed at base.

Abdomen. First abdominal sternum three times as long as second; 2–4 subequal; fifth slightly longer, slightly emarginate apically; sterna without lines of strong, black setae. Pygidium ovate and convex.

Size. Length (pronotum-elytra) 1.5 to 2.3 mm. Width 0.8 to 1.3 mm. Maximum thoracic depth 0.7 to 1.2 mm.

Genitalia. Median lobe elongate; in ventral view, ventral valve broader than apex of median lobe, sides slightly concave, apex broadly blunt; dorsal valve membranous, gently rounded at apex; armature of internal sac with narrow, medial chain of spines near apex, chain attached to

a broad, elongate cluster of small spines occupying medial portion of internal sac, interrupted near base by group of finely dentate scales attached to large cluster of minute spines at base (Fig. 17). Lateral lobes expanded at apex with many short setae, lateroventral surface of apices strongly sclerotized on periphery, without stout spines, lobes cleft to 0.8 their length (Fig. 18).

Female. Similar to male except fifth sternum not emarginate.

Size. Length (pronotum-elytra) 1.9 to 2.2 mm. Width 1.1 to 1.2 mm. Maximum thoracic depth 1.0 to 1.2 mm.

Host Plants. Unknown.

Type Series. Male holotype, female allotype, and eight paratypes: Mexico. Nuevo Leon: 79 mi. S. Linares, Hwy. 57, VI-23 1971, 6,700′, C. O'Brien and Marshall. Fourteen paratypes: Mexico. Queretaro; 8 km de la carr. a San Joaquín, San Joaquín, 18/V/2001; 20°54′22″N, 99°40′10″W; Col. J. L. Cozar; sobre flores de Condalia mexicana Schltdl. One paratype: USA. Arizona: Pima Co., Tucson, 28 mi. N. VI-17-63, J. Doyen, Collector.

Holotype, allotype, and six paratypes deposited in the USNMNH. One paratype deposited in the C. D. Johnson Collection. Other paratypes deposited in the following collections in Mexico: J. Romero Collection; Coleccion Entomologica de la Universidad Autonoma de Queretaro, Queretaro; Coleccion de la Universidad Nacional Autonoma de Mexico; Coleccion Entomologica del Instituto de Ecología A. C., Xalapa, Veracruz; Coleccion Nacional de Insectos, Instituto Nacional de Investigaciones Forestales y Agropecuarias, Campo Experimental El Bajio, Celaya, Guanajuato.

Discussion

Neltumius dospatrias is more closely related to *N. texanus* than to *N. arizonensis* and *N. gibbithorax*. The male genitalia of *N. texanus* and *N. dospatrias* are similar to each other but are distinctly different from *N. arizonensis* and *N. gibbithorax*. The external characters that separate the four species are given in the key.

Neltumius dospatrias and *N. texanus* are similar in size and general characteristics. Externally, the two species differ most noticeably in that *N. texanus* has vestiture that is mostly white interrupted by lighter or darker coloration while that of *N. dospatrias* is mostly reddish brown interrupted by lighter or darker coloration. More specifically, they differ from each other in that the head of *N. dospatrias* has many deep punctations while that of *N. texanus* is finely punctate. The male genitalia are distinctly different. The genitalia of *N. dospatrias* are more complex in their structure than *N. texanus*. The ventral valve of *N. dospatrias* has an apex that is broadly blunt (Fig. 17). The armature of the internal sac has a narrow, medial chain of spines near the apex that is attached to a broad, elongate cluster of small spines occupying the medial portion of the internal sac. This cluster is interrupted near the base by a group of finely dentate scales that are attached to a large cluster of minute spines at the base (Fig. 17). The lateroventral surfaces of the apices of the lateral lobes are strongly sclerotized on their periphery and lack the stout spines possessed by *N. texanus* (Figs. 14, 18).

Etymology. The specific epithet *dospatrias* is a noun in apposition to *Neltumius*. It refers to the two countries in which these insects occur, Mexico and the USA.

Acknowledgments

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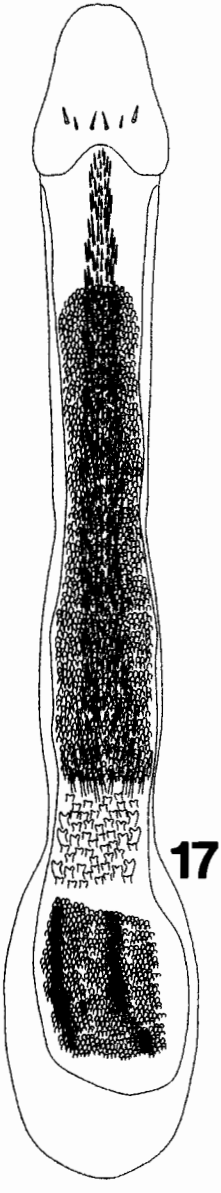

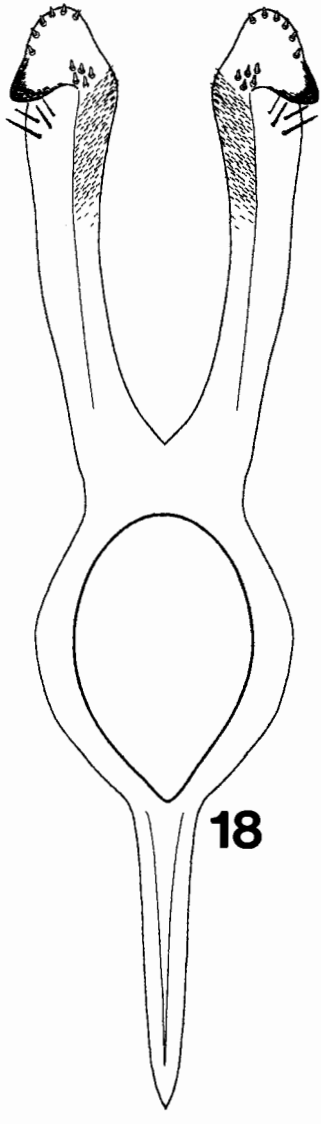

Figs. 17–18. *Neltumius dospatrias*, male genitalia. **17**) Median lobe, ventral view; **18**) lateral lobes, ventral view.

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