

NEW SPECIES OF NORTH AMERICAN WEEVILS OF THE GENUS *LIXUS*

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The study of several collections of the curculionid genus *Lixus* inhabiting America north of Mexico resulted in finding several species which the writer considers new to science, and also a few variants, all of which will be described.

It has not been possible for the writer to secure the loan of Blatchley's types of *lupinus*, *morulus*, and *cavicollis*, as they are all unique, but that author very kindly furnished a specimen of his *leptosomus*. *L. crassulus* Notman is also unique, and Fall's *peninsularis* has not been seen, although specimens of his *bischoffi*, *perlongus*, and *maritimus* were available.

In the studies relative to this paper the writer has enjoyed access to the collection of the United States National Museum, including the Casey collection containing Casey's types and other valuable material; the collections of the Philadelphia Academy of Natural Sciences, the National Museum of Canada, the Illinois State Natural History Survey, the University of Kansas, and the Colorado State Agricultural College; and the collections of Messrs. L. L. Buchanan, F. S. Carr, D. K. Duncan, Warren Knaus, and H. P. Löding. Valuable material was furnished also by C. A. Frost, M. H. Hatch, E. C. Van Dyke, and J. B. Wallis.

It is a matter of common knowledge that the secondary sexual characters are vested in the rostrum: 1, that of the female being longer and usually more arcuate, and that of the male being both shorter and thicker; 2, that of the female being usually more shining black, and that of the male being more or less covered with pubescence. This is noticeable in such species as *fimbriolatus*, *perforatus*, *scrobicollis*, *mucidus*, *laramiensis*, and *pervestitus*. The place of in-

¹ Doctor Chittenden died on September 15, 1929. A short biographical sketch by Dr. L. O. Howard was published in the Journal of Economic Entomology, vol. 22, No. 6, 1929, pp. 989-990.

sersion of the antenna, as in the case of genera having long rostra, is nearly always nearer the apex in the male than in the female, but in small lots of a given species this character is difficult of observation, mainly because of imperfect mounting which does not show the point of insertion clearly.

The first abdominal segment is usually more or less distinctly convex in most females, but quite frequently is flat, or nearly so, as in the males. In the male of *concavus* this segment bears a distinct median elongate concave impression. In few other species is such a difference discernible; and the only apparent differentiation in certain small species, *marginatus* for example, is to be looked for in the rostrum and antennal insertion. In some females of this species the first ventral segment is feebly convex, and in some nearly flat or even feebly impressed. The sexual characters which have been mentioned are for the most part comparative, the exceptions being the presence of distinct abdominal impressions and the point of insertion of the antennae.

It naturally follows from what has been said that because of the extreme variations it is frequently a very difficult matter to describe adequately many species, as well as to indicate the sex in those species where only one or two examples are available.

The species are mostly of medium or large size; a few are small. Many are covered naturally with a dense vestiture, squamulose, scaly, or hairy on the disk of the elytra, but becoming longer, denser, more hairy, and paler or yellow at the sides, and frequently forming distinct lateral bands or vittae, especially on the prothorax. The pollinose coating of fresh specimens, varying in color from yellowish to red, is a form of this vestiture which is occasionally but not usually persistent in specimens that have been properly treated. In the case of the larger species, the chitinous structure is of such firm consistence that it is difficult to impale specimens by means of an ordinary insect pin.

DESCRIPTIONS OF NEW SPECIES

LIXUS ALBISETIGER, new species

Elongate cylindrical, four times as long as wide, moderately compressed, black, antennae, tibiae and tarsi red; vestiture extremely fine, gray, very short, moderately dense on sides of elytra but not forming vittae. Head finely punctate, especially at vertex, interocular fovea small. Rostrum of female fully as long as the pronotum, slender, evenly cylindrical, distinctly, evenly arcuate; surface nearly covered with fine hair-like scales, punctation fine, distinct and very dense throughout, somewhat coarser at the sides. Second funicular joint equal to or slightly longer than first, not so

long as third plus fourth. Prothorax distinctly wider than long, moderately arcuate at the sides, rather strongly tubulate at apex, where it is slightly wider than the head; base truncate, depression at middle shallow; surface with rather large shallow subvariolate punctures, very sparsely irregularly set; interspaces distinctly, finely, and closely punctulate. Elytra not wider at base than pronotum, sides parallel, striae punctures moderate in size, not closely set, first two striae rather feebly depressed at base, fourth and fifth also feebly depressed; vestiture rather feebly mottled.

All tibiae finely, not very distinctly serrulate on the inner margin.

Male.—Rostrum shorter than the pronotum, also thicker than in the female. First ventral segment rather widely, distinctly but not deeply depressed at the middle.

Length, 8–9 mm.; width, 2.2–2.8 mm.

Type locality.—Brownsville, Tex., November 19, 1911. Two examples.

Type.—Female, in the Illinois State Natural History Survey at Urbana, Ill. Allotype, male, Cat. No. 29030, U.S.N.M.

Nearly related to *marginalis* Say, differing notably by the slenderer, more distinctly arcuate rostrum with its much finer and denser punctation, and by the wider and more distinctly tubulate pronotum on which its larger punctures as well as punctules are comparatively indistinct. The male is not so strongly marked as the female type, the outline of the pronotum being less tubular anteriorly, while the elytra at the base are just perceptibly wider with fine acute angles. On the male rostrum there is also a faint line running from the interocular to the interantennal fovea showing a slight tendency to the development of a carina, which is probably never present.

LIXUS ASPERICOLLIS, new species

Comparatively robust, a little more than twice as long as wide; black, strongly shining, somewhat strongly depressed, vestiture mostly fine gray and very sparse. Head finely punctate, fovea small but distinct, in front of which there is a distinct fine carina scarcely extending to the apex of the scrobes. Rostrum nearly as long as the prothorax, thick, less than three times as long as wide, moderately arcuate, of nearly uniform dimensions, although a little wider near the apex from the dorsal view; scrobes extending fully two-thirds from base to apex; surface at base very strongly and coarsely punctate on sides, a little finer on anterior face. Antennae dark reddish, sparsely covered with rather coarse, short gray hairs; club densely covered as usual; first and second funicular joints subequal in length and width, each shorter than the succeeding two combined. Prothorax short, distinctly wider at base than long, narrowed an-

teriorly, gently arcuate in basal half, more strongly so towards apex; surface depressed, rather strongly impressed at middle fourth; sculpture of disk as well as of sides, extremely rough and irregular, punctures large, subvariolate, irregular and sparse, finely punctulate at apex; lateral vittae feebly indicated. Elytra less than twice as long as wide, a little wider than prothorax at base; humeral angles obtusely rounded; sides subparallel to apical one-third; extreme apices nearly closed. Third interval strongly elevated at base, inclosing a comparatively long and deep impression; intervals minutely punctulate; strial punctures small, more or less rounded, closely placed in regular rows; vestiture sparse, composed of short, gray, hair-like scales, moderately mottled, denser at apex and without definite lateral vittae. Ventral segments sparsely clothed with very long, fine gray hairs, not areolated. First and second segments narrowly impressed. Legs with short gray hairs; anterior femora strongly clavate.

Length, 10–11.5 mm.; width, 3.4–4 mm.

Type locality.—Garden City, Kans., September 23, 1913 (C. H. Popenoe).

Other locality.—Douglass County, Kans., 900 feet elevation (F. H. Snow).

Type.—Female, Cat. No. 29023, U.S.N.M. Paratype in the Illinois State Natural History Survey Collection, Urbana, Ill.

This species bears little resemblance to any other than *musculus* Say, being of similar size. It is a comparatively robust form and unusually depressed. The distinct carina, rough and coarse pronotal sculpture, with medium impression, and deeply concave postscutellar impression are among the distinctive characteristics. The paratype is less robust, with much shorter frontal carina, shorter pronotal impression, denser vestiture and smaller strial elytral punctures, and indistinctly subvariolate pronotal punctures.

LIXUS COLORADENSIS, new species

Elongate cylindrical, nearly four times as long as wide; black, coated with dense plumbeous vestiture, composed of minute yellowish gray squamules and longer hairs, mixed with reddish and yellowish, especially on prothorax and head. Rostrum cylindrical, as long as prothorax, distinctly arcuate, a little wider at base, very gradually narrowing to apex, not carinate, finely densely punctate, more coarsely between the eyes, punctation nearly concealed by long reddish yellow hairs. Eyes imperfect reniform, widest near the middle. Interocular fovea small. Antennae inserted less than three-fifths from the base; second funicular joint subequal to first but shorter than third and fourth together. Prothorax a little wider than long,

feebly arcuate at the sides, narrowly impressed at the middle and in the basal half, more deeply at the base; disk coarsely sparsely punctate, with closely-set fine punctules in the intervals, surface of disk moderately irregular, with dense yellowish red hairs in the impression and at the sides, not forming lines. Elytra at base slightly narrower than prothorax, humeri obsolete, sides subparallel in anterior three-fourths, distinctly narrowed at the middle, widening again in apical half, apices not divergent, disk flattened at middle, lightly impressed near the base, but distinctly impressed at the base of the third, fourth, and fifth striae; strial punctures small, moderately closely-set, of irregular shape, not rounded. Vestiture composed of a dense coating of extremely fine, short, gray squamules with slight reddish and yellowish hues, not mottled, not forming longitudinal lines, punctation largely concealed by the vestiture. Ventral surface with longer parallel gray hairs.

Female.—First ventral segment convex.

Length, 8.5 mm.; width, 2.2 mm.

Type locality.—Colorado. One specimen.

Type.—Female, Cat. No. 28822, U.S.N.M.

This appears to be a distinctive species with perhaps some relationship to *concurvus* Say, the rostrum of the female resembling the latter in structure, although it is proportionately not so long and more nearly perfectly cylindrical. A striking character is the narrowed or slightly constricted middle of the elytra, possibly individual.

LIXUS PERSTRIATUS, new species

Elongate cylindrical, three and a half times as long as wide, moderately shining black throughout; vestiture of prothorax white at sides, composed of long pendant hairs, elytra with wide lateral vitta, and narrow sutural and discal and sublateral vittae, composed of silvery gray hairs. Head finely punctulate throughout, intermixed with very large coarse punctures extending from the occiput and encroaching far on the rostrum; fovea large, rounded. Rostrum in the female robust, about three and a half times as long as wide, feebly arcuate, of nearly uniform diameter; surface very finely punctulate, a few small punctures near the base and larger ones at the sides. First and second funicular joints subequal in length, first only a little wider than second, second not so long as third plus fourth. Pronotum nearly as long as wide, subquadrate, tubulate at apex; surface rather narrowly impressed at the middle in basal half, very deeply, coarsely and very irregularly variolate-punctate, punctures closely set, gradually increasing in size toward the base; apex and interspaces finely punctulate. Elytra about two and one-third times as long as wide, scarcely wider at base than the pronotum, but distinctly wider at humeri; sides parallel, suddenly narrowed toward the apex; extreme

apices nearly closed; disk flattened at base, scarcely depressed in post-scutellar region, strongly impressed at sides. Vestiture of fine, silvery gray hairs, in basal half moderately short, in apical half, especially toward apex, longer, vittae more clearly defined. Intervals vittate as follows: Sutural, third, fourth (not strongly defined), and last lateral four, these latter practically separated by one or more rows of strial punctures; strial punctures larger, deep, quadrate, closely placed in rows, first and second rows close together with punctures more closely set than those of the other striae. Lower surface thickly coated with long gray and yellow hairs with longer tufts at the sides, not distinctly ocellate. Anterior femora rather strongly clavate, all femora densely clothed with long silvery gray hairs. Anterior tibiae not serrulate.

Female.—Rostrum nearly as long as the pronotum, not at all carinate.

Male.—Rostrum shorter and much thicker, about two and a half times as long as wide, more or less carinate from the frontal to the infra-antennal fovea.

Length, 7–9 mm.; width, 2–2.3 mm.

Type locality.—Cortez, Colo., June 19, 1925.

Type.—Female, Cat. No. 29037, U.S.N.M. Type, allotype, and paratype. Three paratypes in the collection of the State Agricultural College at Fort Collins, Colo.

Quite distinctive, bearing no resemblance to any other species in our fauna. The general appearance as viewed from above is more like *Oleonus* than *Lixus* since the elytra are decidedly striate-vittate, much more strongly than in *ivae*, new species. The punctuation of the head and base of the rostrum, and especially that of the pronotum and elytra, is unique. The short thick rostrum is unlike that of *scrobicollis* Boheman and the fact that the short carina is distinct only in the male is unusual also.

LIXUS ACIROSTRIS, new species

Elongate cylindrical, nearly four times as long as wide, black, antennae dark brown, rostrum polished black; vestiture consisting of sparse minute silvery gray scales on dorsum; prothorax and elytra with distinct but inconspicuous, rather narrow lateral vittae of longer pubescence covering, although not concealing, the punctuation of the last four intervals. Rostrum in the female fully as long as prothorax (as viewed from the side), continuous with the head, extremely slender, subcylindrical, very feebly arcuate, slightly bent backward at the middle where it is also distinctly widened at the sides, subcarinate in basal half; surface finely punctate in apical half, distinctly sparsely punctate in lines beginning with the head

and extending to the middle. Pronotum about as wide as long, arcuate at sides, not quadrate, subtubulate at apex; disk convex, flattened and feebly impressed in antescutellar region, deeply remotely punctate. Elytra about two and a half times as long as wide, at base little wider than pronotum, widening at humeri, thence parallel for two-thirds their length, suddenly, strongly narrowed to apex, extreme apices nearly closed. Disk distinctly, not deeply impressed in scutellar region, impression wider than long, including three intervals each side, humeral impression also distinct, narrow; striae punctures rather small and deep, remotely placed, arranged in sub-regular rows in type specimen, but distinctly confused in outer basal half of elytra in paratype; vestiture not mottled. First ventral segment convex, unimpressed, second very long, distinctly longer than third and fourth combined; surface sparsely punctate, vestiture whitish, moderately long, subocellate, forming a triangular yellow tuft each side of fifth segment. Legs long, slender, with sparse pubescence.

Length, 6–8.4 mm.; width, 1.4–2.7 mm.

Type locality.—Black Mountains, N. C., June 24, 1912 (W. Beutenmuller).

Type.—Female, Cat. No. 29022, U.S.N.M. Paratype (Black Mountains, N. C., June, 1902, E. C. Van Dyke) in collection of Doctor Van Dyke, University of California.

The male is unknown. This species is distinctive in the *sylvius* group. It is of similar form and closely related to *sylvius* Boheman but distinctly slenderer, with much slenderer female rostrum, the apex of which is nearly impunctate rather than distinctly punctulate, the lateral elytral vitta is somewhat narrower and the elytral punctation is not so coarse nor so deep. In *sylvius* Boheman the elytra, in perfect specimens, may have broad vittae or be entirely mottled, and the rostrum in both sexes is sparsely pubescent.

LIXUS ORDINATIPENNIS, new species

Elongate subcylindrical, about three and one-third times as long as wide, black, antennae dark brown; vestiture consisting of short, fine, scale-like hairs, sparse on dorsum of elytra, denser at middle of pronotum; sides of prothorax and elytra with an inconspicuous narrow gray lateral vitta attaining the elytral apex. Rostrum in the female about as long as the pronotum, robust, three times as long as wide, subcylindrical, somewhat flattened anteriorly; rather feebly arcuate, widest near middle; comparatively coarsely and very sparsely punctate in basal portion and at sides, punctulate at apex below scrobes; entire surface covered with gray pubescence partially obscuring the sculpture. Second funicular joint shorter than third plus fourth. Prothorax nearly as wide as long, basal three-fourths

subparallel, narrowed but not tubulate anteriorly; flattened on disk, surface sparsely variolately punctate, punctures of nearly same size except at apex, where they are very small and rather widely separated; interspaces very finely densely punctulate; feebly impressed in antescutellar region, where the vestiture is longer. Elytra less than three times as wide as long, scarcely wider at base than pronotum, humeri not prominent, umbone not visible, sides parallel from humeri nearly three-fourths to apex, apices nearly closed at the ends; postscutellar impression very short, wider than long, moderate in depth, not extending at the sides beyond the second intervals; humeral impression obsolete, strial punctures small, rounded, moderately separated in very regular rows, both transversely as well as longitudinally, the transverse rows imparting a subrugose aspect to the exterior; disk vestiture mottled. Ventral segments finely sparsely punctate, with fine gray hair-like vestiture. Legs slender.

Length, 6 mm.; width, 1.8 mm.

Type locality.—Opelousas, La. (G. R. Pilate).

Type.—Female, Cat. No. 29031, U.S.N.M. A single specimen.

A distinctive species of the *sylvius* group, easily recognized by the remarkable regularity of the strial rows of elytral punctures. It is, moreover, the smallest and slenderest of this group. Other distinguishing characters are the short and narrow postscutellar impression, obsolete humeral impression and unusual rostrum.

LIXUS QUADRATIPUNCTATUS, new species

Elongate subcylindrical, a little more than three times as long as wide, sides parallel, convex, pronotum distinctly flat, plumbeous, antennae red, vestiture gray, moderately coarse on the head, sides and middle of prothorax and sides of elytra with long hairs coated with yellow; elytra with last four intervals covered with a gray vitta that more or less conceals the punctation. Head finely punctate on vertex, coarsely, somewhat sparsely punctate between the eyes; fovea small. Rostrum not quite so long as the pronotum, very feebly arcuate, coarsely sparsely punctate at base, feebly punctulate at apex. First funicular joint subequal to second, second shorter than third plus fourth. Pronotum subquadrate, tubulate at apex; feebly irregularly depressed at middle, depression wider at base; surface irregularly subvariolately punctate. Elytra distinctly although only slightly wider at base than pronotum, humeri not prominent, umbone obsolete, sides parallel in basal three-fourths, widest a little posterior to the middle, narrowing in apical fourth, apices nearly closed, postscutellar impression short, humeral impression wide and deep; strial punctures coarse, dense; vestiture short and fine. Ventral surface with dense very long gray hair. Femora slender.

Length, 5.8 mm.; width, 1.8 mm.

Type locality.—Colorado Springs, Colo., 6,000-7,000 feet, June 15-30, 1896 (H. F. Wickham).

Type.—Cat. No. 29024, U.S.N.M. Sex indeterminate. Unique.

The species is moderately distinctive by reason of the peculiar coarse punctation of the rostrum, the irregularly variolate-punctate pronotum, and the dull gray or plumbeous color. It belongs in the *sylvius* group.

LIXUS SYLVIUS PROFUNDUS, new variety

Elongate cylindrical, nearly four times as long as wide, polished black, mostly glabrous with very sparse vestiture. Head with round interocular fovea, surface at base distinctly, very irregularly punctate and finely densely punctulate. Rostrum in the female longer than pronotum (as viewed from the side), more slender than in normal *sylvius* Boheman but not so slender as in *acirostris*, new species, very feebly arcuate. Pronotal impression distinct, extending from base nearly to apex, punctures very irregular. Elytra with prominent umbone, striae strongly deeply punctate. Vestiture sparse on ventral surface.

Male.—Rostrum a little shorter than pronotum, much more robust than in female, a little less than three times as long as wide, coarsely punctate in basal portion to interantennal fovea, from that point punctulate to apex. Entire surface still more coarsely punctate than in female. First ventural segment faintly and narrowly impressed at middle.

Length, 6.75-10 mm.; width, 2-3 mm.

Type locality.—St. Louis, Mo.

Other localities.—Washington, D. C. (F. H. Chittenden); Arlington, Va. (F. H. Chittenden); Georgia; Mobile, Ala. (H. P. Löding); Nashville, Tenn.; Texas; Lexington, Tex. (Birkman); San Saba River, Tex.

Type.—Female, in the Canadian National Collection, Ottawa, Canada. Allotype and nine paratypes, Cat. No. 29029, U.S.N.M. Paratypes in collections of Illinois Natural History Survey and of C. A. Frost.

It is evident that the specimens studied, 12 in number, are abraded and there is evidence that the lateral vittae of the elytra may be distinct in some specimens and wanting in others, as in normal *sylvius* Boheman.

LIXUS CRASSIPUNCTATUS, new species

Elongate cylindrical, about four times as long as wide, moderately depressed, black, feebly shining, vestiture consisting of long gray hair-like scales forming a very broad lateral vitta from eyes to apex of elytra, somewhat concealing punctation of nearly half the elytral

striae; elytra also with a narrower median vitta. Head finely, densely punctate on occiput, fovea shallow, very coarsely and densely punctate between the eyes. Rostrum in the male much shorter than pronotum, very feebly arcuate, distinctly carinate in more than half its length; surface very coarsely punctate in basal two-thirds, apical third punctulate, an interantennal fovea indicated at end of carina. First funicular joint wide and short, second longer and slenderer, not so long as third and fourth together. Pronotum scarcely longer than wide, basal two-thirds subparallel, apex faintly tubular; surface irregularly and deeply variolately punctate, punctures small at apex, concealed by vestiture at sides; interspaces punctulate; widely but not deeply impressed in antescutellar region. Elytra narrow, especially at extreme base; humeral umbonal process prominent, shining; basal three-fourths of sides subparallel; apices closed; post-scutellar impression moderate in width and depth; a small rather deep impression above each umbone. Punctuation of discal striae very coarse and moderately irregular in closely set rows; punctures very irregular in shape and size, mostly rounded, but some in basal portion of disk oval and elongate oval; the first row most densely punctate and the second and third striae containing elongate oval punctures. Ventral surface sparsely punctate, punctures quite visible because of sparse vestiture, first segment nearly flat, second convex, third, fourth, and fifth widely separated, fifth transversely moderately depressed at middle. Legs of moderate length, not very strongly clavate.

Length, 9 mm.; width, 2.3 mm.; rostrum, 1.5 mm.

Type locality.—Santa Rita Mountains, Ariz., 5,000–8,000 feet, July (F. H. Snow).

Type.—Male, in University of Kansas Museum, Lawrence, Kans. Unique.

This species resembles the male of *scrobicollis* Boheman, from which it may be distinguished readily by the much coarser punctuation of the rostrum and elytra. The pronotal punctuation is finer and more sparse. The humeral umbone is more prominent, the vittae are broader and different, and the rostrum is distinctly carinate.

LIXUS IVAE, new species

Elongate oval, cylindrical, about four times as long as wide, entirely black; vestiture gray, long, fine and hair-like on sides of prothorax and on legs; lateral elytral vittae covering, but not concealing, the punctuation of the last five elytral intervals. Head punctulate just in front of occiput, then coarsely densely punctate, punctuation extending far between and under the eyes on the rostrum, largely concealed by vestiture. Male rostrum nearly one-fourth shorter than pronotum, less than three times as long as wide, distinctly

flattened on the anterior face, punctulate at apex, punctation much obscured by vestiture. First funicular joint wide, little longer than wide, second distinctly longer but not longer than third and fourth together. Pronotum as wide as long, moderately depressed, sides for two-thirds their length parallel, anterior third narrowed to apex. Antescutellar impression about one-fourth the length of the pronotum, narrow, of moderate depth; surface coarsely irregularly and deeply, variolately punctate, vestiture at middle fine and hair-like. Elytra more than twice as long as wide, slightly wider at base than pronotum; humeral umbone not prominent; postscutellar impression shallow, nearly flat, wider than long; sides from humeri two-thirds toward apex nearly parallel, apices nearly closed; vestiture fine, dull gray, third and fifth intervals each with a vitta of long gray squamules with lateral transverse branches, the effect being strongly vitate; strial punctures of moderate size, deep, comparatively sparsely placed, the spaces between variable but averaging less than the diameter of one puncture. Legs rather slender, except anterior femora which are strongly clavate.

Length, 5.5-8.4 mm.; width, 1.4-2.2 mm.

Type locality.—Baton Rouge, La., August 17, 1909. Reared from stem of *Iva ciliata* (Hunter No. 219).

Other locality.—Torras, La.

Type.—Male, Cat. No. 29033, U.S.N.M. Type and three paratypes.

Female.—Rostrum a little shorter than the pronotum and about one-fourth longer but scarcely more slender than male.

The species is fairly distinctive by the unusual arrangement of the elytral vestiture, causing a beautifully striped effect. It is apparently most closely related to *scrobicollis* Boheman. The smallest measurement applies to a specimen that is immature and obviously depauperated, from Torrass, La. It has been reared also from stem of *Ambrosia* species.

LIXUS DISSIMILIS, new species

Elongate oval, less than three times as long as wide; subcylindrical, black, joints of antennae dark rufous. Vestiture dense gray with broad vitta on flanks of prothorax and with or without a broad sublateral vitta on each elytron. Head with large irregularly-shaped shallow fovea, punctures coarse in undulating rows. Rostrum in the male short, about three times as long as wide, thick, distinctly arcuate, slightly bent backward below middle, coarsely punctate in undulating rows to apical third where punctation is finer. Prothorax and elytra very similar to *scrobicollis* Boheman but the strial punctures are larger and more closely set and the basal ones are either quadrate or nearly so.

Length, 7-9 mm.; width, 2.2-3.4 mm.

Type locality.—Barnesville, Ga., August 11, 1927 (T. L. Bissell).

Type.—Male, Cat. No. 29034, U.S.N.M. Type and paratype.

Resembles *scrobicollis* Boheman and is closely related to that species. It is shorter, has a distinctly arcuate and backward bent rostrum and the stria punctures at the base are larger, more closely set and quadrate. The two specimens differ in a few respects, the smaller one having smaller stria punctures with the pronotum narrowed just before the base.

LIXUS TRICRISTATUS, new species

Elongate cylindrical, nearly four times as long as wide. Black, feebly shining, dorsum with dull plumbeous effect; vestiture fine, forming a wide gray lateral vitta on elytra and prothorax; elytral vitta pale whitish gray; antennae dark reddish brown, legs black. Head moderately coarsely and deeply punctate; fovea rounded and deep. Rostrum in the female a little shorter than the prothorax, thick, distinctly arcuate, somewhat coarsely, deeply and densely punctate at base, finely in apical third, finely subcarinate in basal half. Scrobes not extending to apical third. First funicular joint very wide, about one-fourth longer than wide; second slightly longer but more slender, scarcely wider than third and fourth, which combined equal it in length. Prothorax short, distinctly wider than long, subconical; basal half subparallel; punctures moderate sized and fairly densely placed, interspaces very finely, irregularly punctulate, a very short rather deep impression at middle just before the scutellum; vestiture fine, long, depressed, extending irregularly backward toward the base, a short median line at apex extending one-third toward the base, each side of which there is an incurved line directed toward the sides; at the sides a wide vitta of yellowish gray thicker hairs. Elytra about four-ninths as wide as long, wider than prothorax at base; humeri not prominent, umbone hardly visible; sides subparallel in basal two-thirds, apices scarcely separate; punctures rather small and deep in rows, vestiture very short and fine, lightly mottled, a vitta of longer, lighter gray squamules covering the outer four intervals. Ventral surface with longer hairs, dense, partly concealing the fine surface punctulation. Inner margin of anterior tibiae distinctly serrulate.

Rostrum in the female longer than in the male. First ventral segment in the female feebly convex; third, fourth, and fifth segments strongly separated.

Rostrum in the male notably shorter and thicker. First ventral segment broadly but feebly impressed at middle.

Length, 7.2-10.4 mm.; width, 2-2.8 mm.

Type locality.—Iowa City, Iowa, April 23, 1895 (H. F. Wickham).

Other localities.—Elliott, Iowa (H. F. Wickham); Ames, Iowa (D. Stoner); Onaga, Kans.; Mountain Grove, Mo. (J. L. Horsfall); Carlisle, Ark. (Stromberg collection); New York City, N. Y. (C. H. Roberts); Riverdale, Md. (Mrs. D. H. Blake); Washington, D. C. (F. H. Chittenden); Rosslyn, Va. (F. H. Chittenden); Delchamps, Ala.; Rosedale, Miss. (H. L. Sutherland); Baton Rouge, La. (T. H. Jones).

Type.—Female, Cat. No. 29021, U.S.N.M. Type, allotype and eight paratypes. Paratypes also in collection of Illinois State Natural History Survey, Canadian National Collection, University of Kansas, and in the private collections of F. S. Carr, Warren Knaus, and H. P. Löding.

Mrs. D. H. Blake observed the beetle ovipositing on *Bidens* species at Riverdale, Md.

This species differs from *scrobicollis* Boheman, with which it has been mixed in collections, in the relatively more slender rostrum of the male, noticeably finer pronotal punctation and the three lines of hairs at the apex, unfortunately likely to be worn off. The lateral elytral vittae are also usually and normally pronounced. The inner margin of the anterior tibiae are strongly serrulate, but not, or very feebly so, in *scrobicollis* Boheman.² The male rostrum, in many specimens, is remarkably short and thick. The rostral carina is sometimes wanting as is also the prothoracic median line. In some examples there is also an interantennal fovea. In the series studied the prothoracic vestiture does not extend in divergent pale lines each side of the disk as in well-marked *scrobicollis* Boheman. Fresh specimens show some reddish pollinose coating.

The shape of the rostrum varies moderately in the female, one being longer than the pronotum, but in the male it is quite variable from gently arcuate to a blunt form resembling *musculus* Say male in miniature. The punctation of the male rostrum is very similar in the two species.

LIXUS PLANICOLLIS, new species

Elongate subcylindrical, rather feebly depressed, a little less than four times as long as wide; black with plumbeous effect; vestiture fine gray, very short except at sides of prothorax and on legs; no lateral vittae, antennae and tarsi red. Head rather indistinctly punctate, fovea distinct. Rostrum in the male nearly one-fourth shorter than the prothorax, not quite three times so long as wide, nearly cylindrical, moderately arcuate, not distinctly carinate, cov-

²This character is found in some unrelated species, notably in *rubellus* Randall, *taramiensis* Casey, and in some specimens of *terminalis* LeConte.

ered with short vestiture, rather closely and irregularly punctate forming rows at sides, finer toward apex. Scrobes extending fully four-fifths from the base. First funicular joint a little shorter and wider than second, second subequal to third and fourth combined, third and following joints not very distinctly separated, club long. Prothorax nearly as long as wide, tubulate anteriorly, sides posteriorly subparallel; disk with shallow median impression; surface rather finely and densely, not variolately punctate, interspaces distinctly punctulate. Elytra distinctly wider at base than prothorax, anterior angles acute; base of outer two striae flat at sides forming a slight depression, which borders a slight tumidity at the sixth and seventh intervals; surface feebly rugose, strial punctures rather coarse, in regular rows; vestiture not mottled. First and second ventral segments nearly flat at the middle. Legs slender; anterior tibiae finely serrulate on the inner edge.

Length, 7-8 mm.; width, 1.9-2.2 mm.

Type locality.—Iowa City, Iowa, October 7, 1916 (R. Whittle).

Other locality.—New Orleans, La. (H. Soltau).

Type.—Male, Cat. No. 29028, U.S.N.M. Two males, type and a paratype.

Moderately distinctive, differing from *tricristatus*, new species, by the much shorter and slenderer rostrum, which with the head is more coarsely and densely punctate. The ante-scutellar impression is negligible. The female is unknown.

LIXUS PERVESTITUS, new species

Moderately elongate subcylindrical, three times as long as wide; opaque black, surface except rostrum, and antennae with fine, short, cinereous pubescence, over which is a longer yellow pollen-like coating, much obscuring the punctation. Rostrum shining black, approximately as long as the prothorax, slender, somewhat feebly subequally arcuate, slightly bent downward in front of scrobes, with or without a fine carina from head to interantennal fovea; interocular fovea wanting; head with comparatively very large subvariolate punctures, similarly punctulate on intervals between as on prothorax, punctures continuing on rostrum in the basal half much finer, distantly irregularly placed; on the apical two-fifths, finely punctulate. Antennal scape dark red, remainder covered with gray pubescence, first and second funicular joints subequal in length, latter shorter than third and fourth together. Prothorax a little longer than wide, subconical, widely and moderately deeply impressed in the basal half, or more or less throughout its length, feebly arcuate at sides; surface of disk very coarsely variolately and sparsely punctate, intervals between punctures minutely punctulate, the yellow vestiture at sides diverging from the apex toward the base, becoming felted at the sides.

Elytra much wider at base than prothorax, humeri gradually obtusely rounded, rather prominent; sides subparallel in basal three-fourths, apical fourth narrowed, apices scarcely separated. Third intervals strongly elevated for a short distance at base, the two somewhat convergent ridges thus formed enclosing the subdeltoid, nearly flat post scutellar impression; between the ridge on third interval and the feeble humeral umbone is another smaller impression; discal punctures coarse, somewhat irregularly and rather closely placed, largely obscured by coating; vestiture not forming stripes and not mottled. Ventral surface nearly flat, with much longer hairy pubescence; sculpture of large, shallow, rounded punctures, distantly placed. Legs large, with similar coating to body.

Female.—Rostrum about the same length as the prothorax, subequally arcuate. Antennae inserted slightly beyond the middle.

Male.—Rostrum a little shorter than the prothorax, thicker, about three times as long as wide. Antennae inserted nearly three-fifths from the base.

Length, 9.5–11 mm.; width, 2.8–3.6 mm.

Type locality.—Phoenix, Ariz. (D. K. Duncan).

Other localities.—Roosevelt Lake, Rice, Florence, and Bill Williams Fork, Ariz.; Las Cruces, N. Mex.

Type.—Female, Cat. No. 29025, U.S.N.M. Type, allotype, and eighth paratypes in National Museum. Paratypes in the collections of the Canadian National Museum, Philadelphia Academy, Kansas University, Colorado Agricultural College, Illinois State Natural History Survey, and in the private collections of F. S. Carr, D. K. Duncan, C. A. Frost, Warren Knaus, H. P. Löding, and J. B. Wallis.

Somewhat closely related to *perforatus* LeConte but considerably larger and more robust, and nearly completely covered with a thick pollinose coating. The rostrum is proportionately longer and more distinctly depressed. There is no visible lateral elytral stripe as in fresh specimens of that species. The punctures on the head are smaller, not so closely set, therefore do not generally tend to coalesce and form grooves, and the punctures on the upper half of the rostrum are also smaller. The punctures on the pronotal disk and on the elytra are smaller and shallower. On the pronotum of *pervestitus* the intervals might be described as alutaceous. In both species the pronotum may be either moderately sulcate as in the type or impressed by a narrow line.

LIXUS FLEXIPENNIS, new species

Elongate subcylindrical, somewhat strongly depressed, a little less than four times as long as wide. Black, strongly shining; vestiture fine gray, not forming lateral stripes; rostrum, disk of prothorax, and anterior half of elytra at middle highly polished glabrous or

subglabrous black. Head finely distinctly punctate; interocular fovea well defined, oblong. Rostrum about as long as the prothorax, slender, feebly arcuate, at base and on head between eyes strongly punctate in longitudinally impressed rows, more finely punctate toward apex. Scrobes scarcely extending three-fifths from the base. Antennae reddish, long and slender. First funicular joint short and moderately wide; second very narrow and slender, nearly one-third longer than first and longer than the two succeeding joints together. Prothorax about as wide as long, feebly tubulate at apex, feebly arcuate at sides, widest just behind the middle; disk somewhat deeply impressed at middle in posterior half, surface moderately deeply, variolately punctate, punctures irregularly set, interspersed with fine punctules, closely set, and some sparse vestiture toward base; sides with longer irregular vestiture. Elytra three times as long as wide, humeral angles prominent but not tumid, sides subparallel in apical three-fifths; base of first two intervals rather flat, scarcely impressed, extreme apices very slightly everted; striae punctures rounded in fairly regular rows; vestiture scant anteriorly, dense toward apex, mottled. Ventral surface moderately hairy, denser at posterior extremes of each segment, last segment still denser. Legs slender; first pair of femora distinctly clavate.

Female.—Rostrum as described. First and second abdominal segments with a somewhat deep median impression.

Length, 9.7 mm.; width, 2.6 mm.

Type locality.—Lake Okoboji, Iowa, July 6, 1917 (L. L. Buchanan).

Type.—Female, Cat. No. 29027, U.S.N.M. Unique.

This species looks more slender than the measurements indicate. Some of the more salient characters include, besides the slenderness, the strongly depressed body, polished black color, sparse vestiture, and long slender rostrum with impressed rows of punctures at base, flat rather than impressed scutellar portion of elytra, and the long ventral impression of the female. The antennal structure indicates some affiliation with *julichii* Casey, from which it differs by many characters, more especially by the prominent humeral angles not being distinctly tumid. It is, moreover, much slenderer and has much less vestiture than that species.

LIXUS BUCHANANI, new species

Elongate cylindrical, nearly four times as long as wide, black, shining; vestiture gray, sparse, with broad lateral vitta on prothorax only. Elytra strongly mottled with gray. Rostrum slender, distinctly longer than pronotum, cylindrical, moderately arcuate, not at all carinate; surface finely, strongly, sparsely punctulate throughout. Head a little more coarsely punctulate; interocular fovea small. Antennae dark piceous, inserted a little posteriorly from the middle.

First funicular joint at apex wider than second; second about one-fourth longer, slender but at apex as wide as third, about as long as third, fourth, and fifth together. Pronotum only a little wider than long, feebly arcuate at sides; antescutellar impression moderately shallow, without median impressed line; disk rather feebly and indistinctly variolately punctate, punctures small, irregularly placed, scarcely evident anteriorly; interspaces densely and distinctly punctulate. Elytra scarcely wider than pronotum, three times as long as wide, sides parallel in basal two-thirds; postscutellar region nearly flat; humeral angles scarcely visible; surface with quite regular rows of fine rounded punctures. Legs long, moderately slender; femora somewhat strongly clavate; anterior tibiae strongly serrate on inner margin; surface of legs coated with fine, short, gray hair-like scales. Vestiture of abdominal segments dense.

Length, 10.5 mm.; width, 2.7 mm.; rostrum, 3 mm.

Type locality.—Lake Okoboji, Iowa, July 6, 1917 (L. L. Buchanan).

Type.—Female, Cat. No. 29027, U.S.N.M. Unique.

A quite distinctive species named in honor of L. L. Buchanan. The size, and the length and shape of the rostrum, are suggestive of *sylvius* Boheman, from which it is separated readily by the pronotal punctation. Superficially it resembles *flexipennis*, new species, but it is wider and has a longer, more arcuate rostrum, with finely punctulate surface throughout its length. That the second funicular is as long as the third plus the fourth plus the fifth is remarkable.

LIXUS PLUCHEAE, new species

Elongate cylindrical, a little less than four times as long as wide, dark reddish brown, head and rostrum black, antennae a little lighter red than body, densely coated with fine dull ochereous-yellow pubescence. Rostrum shorter than prothorax, moderately thick, about three times as long as wide, rather feebly arcuate on anterior surface, nearly straight on posterior, obsolete carinate basally, surface punctation partly obscured by vestiture, coarsely punctate between the eyes with a tendency to form grooves, punctures finer toward apex. Interocular fovea very small. Antennal scrobes beginning about one-third from apex; antennae inserted a little above that point or a little below the middle; first and second funicular joints subequal in length, second about as long as third and fourth together. Eyes comparatively small, ovate, wider toward apex. Prothorax about as wide as long; wide at apex, sides nearly straight; disk without sulcus and without asperities; deeply impressed at base in middle, especially deeply in scutellar region, narrower and more shallow apically; surface nearly smooth, coarsely, sparsely punctate; interspaces finely and densely punctulate; vestiture composed of long,

yellow hairs, sparse in impression, at sides very dense. Elytra at base not wider than prothorax; humeri scarcely visible; widest just behind base; sides subparallel in basal three-fourths; apices very slightly divergent; surface smooth, not rugose, rather feebly impressed at middle near base; discal punctures of moderate size, nearly round in outline, deep, remotely placed, closely-set at apex; vestiture composed of very minute ocher-yellow scales, lightly interspersed with paler squamules, producing feebly indicated mottling, not forming lateral or other stripes. Ventral surface with longer hairs, especially long on fifth ventral segment. Femora annulate.

Female rostrum a little shorter than the prothorax. First ventral segment flat at middle.

Male rostrum a little shorter than female. First ventral segment distinctly impressed at middle.

Length, 7-10 mm.; width, 1.8-3 mm.

Type locality.—Brownsville, Tex., July 22, 1923 (T. C. Barber).

Other locality.—Victoria, Tex. (J. D. Mitchell).

Type.—Female, Cat. No. 28800, U.S.N.M. Type, allotype, and four paratypes.

Mr. Mitchell found that the species breeds in the roots of *Pluchea camphorata* (Linnaeus) DC. or salt-marsh fleabane.

Closely related to *fossus* LeConte, a striking difference being in the dense ocher-yellow vestiture in contrast to the scant pale-gray pubescence of the latter. The rostrum is a little stouter and less arcuate and the elytra are smooth, not rugose as in normal *fossus* LeConte. The color appears to be constant, at least in the series of six specimens studied. The two species agree closely in dimensions. The comparative length of the rostrum is subject to variation.

LIXUS FOSSUS OCELLATUS, new variety

Form and general appearance similar to typical *fossus* LeConte. Head coarsely punctate in undulating groove-like rows; fovea small, rounded, distinct. Rostrum in the female shorter and a little thicker than in *fossus* LeConte, but nearly as long as the pronotum, somewhat flattened, distinctly arcuate, not distinctly carinate, punctures fine and very close with a tendency to form narrow longitudinal rows. Antennae inserted a little above the apical third of the rostrum. Eyes prominent. Vestiture very fine gray, covering somewhat lightly the entire body surface, including the rostrum in the male. Pronotum subconical, approximately as long as wide; antescutellar depression deeply, rather widely concave at base, forming an irregular somewhat rounded area; surface very minutely, very densely punctulate, also with coarser but comparatively fine punctures, variably, very sparsely placed. Ventral surface with long gray pubescence, ocellate at the sides of the first and second segments.

Female.—Rostrum as above described. First and second ventral segments feebly convex at the middle.

Male.—Rostrum a little shorter and thicker than in the female.

Length, 6.5–8 mm.; width 1.9–2.2 mm.

Type locality.—Coney Island, N. Y., June 18, 1887 (F. H. Chittenden).

Other localities.—New York City and vicinity (Wm. Jülich); Elizabeth, N. J. (H. F. Wickham); New Jersey.

Type.—Female, Cat. No. 29036, U.S.N.M. Type, allotype, and three paratypes.

The type is somewhat different from the paratypes. The rostrum is polished black and evidently for this reason appears more slender. The pronotum is abraded, thus showing the sculpture to advantage. Through the longer vestiture of the flanks of the prothorax, however, the surface is shown covered with fine punctures, sparsely set, minutely punctulate in the interspaces.

LIXUS CAPITATUS, new species

Slender, oblong, nearly four times as long as wide, very dark plumbeous with slight reddish tint, strongly convex on dorsum, lower surface somewhat flat. Rostrum nearly as long as prothorax, very thick, subcylindrical, not carinate but bearing a distinct median groove below middle two-fifths, interocular fovea small, distinct; surface moderately and irregularly punctate, in finely twisting grooves. Head large and prominent, punctulate. Antennae red; first funicular joint wide, second narrow and slender, subequal to third and fourth combined. Prothorax about as long as wide, distinctly wider at base than the elytra; surface rather coarsely but not variolately nor deeply punctate, punctures widely set with intervals between finely punctulate; rather deeply concave in basal half with a deep linear impression; vestiture composed of fine hairy squamules at sides. Elytra long, about three and one-half times as long as wide, no median impression at base, apices slightly divergent; surface deeply, moderately finely punctate, punctures oblong with tendency to form transversely parallel rows at base, first impressed at apex; vestiture finely squamulose. Legs long; tarsi pale. Vestiture of ventral surface moderately long, dark gray, not nucleated.

First and second ventral segments in the male longitudinally impressed at middle.

Length, 8 mm.; width, 2.5 mm.

Type locality.—Chevy Chase, Md., June 14, 1905 (F. H. Chittenden). Unique.

Type.—Male, Cat. No. 28799, U.S.N.M.

Taken from the stem of *Ambrosia trifida* Linnaeus with *L. scrobicollis* Boheman.

A distinctive species, evidently related to *sexualis* Casey but mainly differing by the much thicker rostrum, the absence of a definite median impression at the base of the elytra and the rather fine distinctly oblong punctures of the same. The subapical rostral fovea and the pronotal concavity with its deeply linear impression are also evidently constant and specific.

LIXUS LODINGI, new species

Moderately robust subcylindrical, black with dark reddish antennae; vestiture very fine, light gray. Rostrum in the female stout cylindrical, about as long as the prothorax, nearly straight, not at all carinate; surface finely densely punctate, in furrows at sides. Head densely, coarsely punctate in furrows between the eyes, interocular fovea rounded, deep. Antennal scrobes beginning about one-fourth from apex; first and second funicular joints long, second longer and slenderer but not quite so long as third, fourth, and fifth combined. Prothorax about as wide as long, not narrowed behind head, sides feebly arcuate, depressed in basal third, deeply so near base; disk somewhat depressed; surface in apical three-fourths nearly smooth without asperities, with comparatively small punctures, remotely placed, between which are very small punctules, closely set; surface well covered with long hairlike scales, a little denser and longer at the sides, forming a paler vitta. Elytra distinctly wider at base than prothroax, postscutellar and a humeral impression moderately deep; sides subparallel in middle half; apices separately and slightly rounded; surface moderately convex, striae with somewhat irregular rows of moderate sized, rather shallow, rounded punctures; vestiture dense, composed of very fine, short, dull gray hairlike squamules, mottled with many fine whitish gray spots; ventral surface with longer vestiture, on sides, legs and first and second abdominal segments distinctly ocellate.

Rostrum in the male shorter than in the female; first ventral segment feebly, distinctly impressed at middle.

Length, 10–10.5 mm.; width, 4 mm.

Type locality.—Mobile, Ala. (H. P. Löding).

Other localities.—Magazine Point, Ala.; Delchamps, Ala.; Tampa, Fla. (Hubbard and Schwarz); West Monroe, La. (Rehn and Hebard); Louisiana (Horn Collection).

Type.—Female, Cat. No. 28835, U.S.N.M. Type, allotype, and paratypes. Paratypes in the collections of the Philadelphia Academy and of H. P. Löding.

A comparatively distinctive form, not very closely related to any of the group with which it is placed. Next to *blakeae* Chittenden, it is the most robust species of the group. The rostrum is not dis-

tinctly arcuate, the pronotal disk is practically smooth, without asperities or variolate punctures and the antescutellar concavity is short and deep, much as in *julichii* Casey. The vestiture is not so noticeably mottled as in the latter and the ocellate character of the entire lower surface and sides is worthy of remark.

LIXUS REGULARIPENNIS, new species

Subcylindrical, about three times as long as wide, black throughout, moderately shining; surface densely covered with very fine, rather dark gray scalelike hairs, denser at sides, forming wide, not conspicuous lateral vittae. Surface of head coarsely and densely punctate, punctures rounded. Rostrum fully one-fourth shorter than the pronotum, cylindrical, robust, two and a half times as long as wide, rather feebly arcuate, finely carinate from the interocular fovea to the middle, where there is a longer interantennal fovea; apex narrowed as viewed from the side, subacuminate at the extremity, scrobes scarcely reaching to apical third. Surface from the base nearly to the middle closely and irregularly punctate, toward apex much finer and more regular, normally pubescent throughout, pubescence covering carina. Antennae with scape dark brown; first and second funicular joints subequal in length, first fully one-fourth wider than second, second slender, subequal to third and fourth together. Prothorax about as long as wide, feebly arcuate at the sides, more strongly so toward apex; feebly, narrowly impressed near the base, surface of disk coarsely, rather densely, irregularly punctate, interspaces finely densely punctulate. Elytra distinctly wider at base than prothorax, umbones not prominent, feebly arcuate at sides, apex moderately narrowed; first two intervals feebly impressed at base; apices not separated; surface finely punctulate, subalutaceous; strial punctures moderately large, each with a white seta directed posteriorly, arranged with a very strong tendency to regular, widely separated rows, especially in the basal half, where the scales are exceptionally fine and short. Ventral surface with long gray hairs, somewhat sparser on the legs. Anterior tibiae serrate along inner margin.

Length, 8.2–9 mm.; width, 2.3–3 mm.

Rostrum in the female a little longer than in the male, about two and a half times as long as wide.

Male rostrum more robust and shorter, scarcely more than twice as long as wide.

Type locality.—Indiana (H. F. Wickham).

Other localities.—Havana, Ill.; Algonquin, Ill. (Nason); Woodridge, D. C. (L. L. Buchanan); Mobile, Whistler, and Magazine Point, Ala. (H. P. Löding); Baton Rouge, La. (T. H. Jones).

Type.—Female, Cat. No. 28832 U.S.N.M. Type, allotype, and three paratypes. Paratypes also in the collections of the Illinois State Natural History Survey, and of H. P. Löding.

In many respects this species closely resembles the allied *cleonoides*, new species, the differences being largely comparative but sufficient for specific differentiation. The rostrum is longer and more robust, the body is on the average wider, and the vestiture of the dorsum is more profuse.

LIXUS CLEONOIDES, new species

Elongate, subcylindrical, a little less than four times as long as wide, black, only moderately shining, vestiture dense, forming a broad whitish-gray lateral vitta extending from the back of the eyes to the apex of the elytra; sharply limited on prothorax, but vaguely defined on elytra; antennae dull reddish brown; elytra and first and second pairs of legs densely covered with narrow dark brown scales. Head finely punctate, interocular and interantennal foveae connected by a fine thin carina. Rostrum in the male a little shorter than the pronotum, moderately thick, narrowing to apex, nearly evenly and distinctly arcuate; surface finely punctate, with a row of a few punctures each side, punctures nearly concealed by the vestiture; apex still more finely punctate. First funicular joint notably widest and longest, second narrow, not so long as next two combined; surface with very fine scales and sparse pale setae; scrobes extending nearly two-thirds toward apex. Pronotum wider than long, conical, depressed; sides feebly arcuate, basal third subparallel, apical two-thirds gradually narrowing to apex; surface with rather large, moderately dense punctures, more widely spaced along middle; interspaces densely punctulate. Antescutellar region very slightly impressed. Elytra slightly wider at base than pronotum, angles not prominent, humeri not prominent, sides for three-fourths their length parallel, postscutellar region feebly impressed, lateral basal region hardly impressed; striae punctures, except at extreme base, fine and sparse. First and second ventral segments finely ocellate, last three with very long hairs, especially at the sides. Middle and posterior femora incompletely annulate. Anterior tibiae distinctly serrate.

Length, 8.75 mm.; width, 2.75 mm.

Type locality.—Stamford, Tex., June 17, 1907. On *Helenium microcephala* DC. (Hunter No. 1436).

Type.—Cat. No. 29032, U.S.N.M.

This is a well-defined species. First, the brown body color due to the scaly covering is unusual and the broad lateral vitta and the arcuate and thick rostrum are noteworthy, as are also the unimpressed sides of the elytra at the base. The single tuft of hair on the lower

surface of each femur evidently corresponds to the ring or annulus, usually only partially completed, near the apex of the femur noted in many species of the genus.

LIXUS MEPHITIS, new species

Form elongate fusiform, three times as long as wide, polished black, except on lower surface, with a conspicuous white lateral vitta, wider and rather broad on the prothorax, becoming denser and gradually narrower on the elytra until it attains the apex; antennae bright red. Head wide, convex, finely, densely punctate, more coarsely between the eyes; interocular fovea of moderate size, rounded. Rostrum in the female distinctly shorter than the pronotum, robust, scarcely three times as long as wide, wider basally, narrower in apical third, cylindrical, moderately arcuate, completely noncarinate; interantennal fovea indistinct; surface rather finely punctate at base, finely punctulate apically, coarser at sides above antennae. Antennae inserted at a point less than half the length of the rostrum from the base; first funicular joint distinctly narrower than the scape; second joint much narrower but of similar length, slightly longer than third and fourth combined, these latter very short; club covered with gray pubescence. Prothorax slightly wider than long, basal two-fifths parallel at sides, thence evenly narrowed to apex; disk irregularly, rather feebly, variolately punctate; interspaces finely punctulate; surface covered with short gray scale like hairs; antescutellar impression very small. Elytra distinctly wider than the prothorax, a little more than twice as long as wide, subparallel in basal three-fourths; a short postscutellar area embracing first two elytral striae flat, fifth and sixth striae at base forming a shallow depression; base bisinuate elevated. Elytral striae composed of coarse punctures, closely set in quite regular rows, forming rugae as viewed from the sides; vestiture comparatively sparse, becoming mildly mottled, particularly toward the apex; lateral vitta covering the eighth and ninth intervals for a short distance at base, but the eighth only from basal fourth to apex. First ventral segment coarsely and rather sparsely punctate, comparatively sparsely pubescent; second as long as third and fourth together, fifth nearly flat, all widely separated. Legs long, sparsely covered with short gray hairs; femora strongly clavate; anterior tibiae strongly serrate on inner face.

Length, 7.5 mm.; width, 2.5 mm.

Type locality.—Myrtle Beach, Horry County, S. C. April 22, 1919 (E. R. Kalmbach).

Type.—Female, Cat. No. 29035, U.S.N.M.

This beautiful species is quite distinctive in the Group II of Blatchley and Leng 1916-340, in which it falls because of the an-

tennal characters. There are no others in this group in which the vestiture is condensed into such distinct narrow white elytral vittae.

LIXUS ELEPHANTULUS, new species

Elongate cylindrical, about three times as long as wide; head, rostrum, and prothorax black, elytra and femora dark reddish brown, apices of femora, tibiae, tarsi, and antennae red; vestiture not vittate, of dorsum moderately long, mixed with much shorter scale-like hairs on elytra, much longer on lower surface. Head wide, prominent, finely, rather densely punctate on occiput, coarser punctures forming rows longitudinally between the eyes. Rostrum in the female longer than the prothorax, rather strongly and nearly evenly arcuate, finely carinate, carina extending from the elongate interocular fovea to the somewhat indistinct interantennal fovea; surface coarsely punctate at the sides near the eyes, finer toward apex; first and second funicular joints subequal, second narrower, about as long as third and fourth together. Pronotum about one-fourth wider than long, sides nearly evenly arcuate; surface rough, subrugose, without distinct asperities, punctation coarse and sparse, punctures shallow, not variolate, few at apex, spaces between feebly indistinctly punctulate, antescutellar impression distinct, narrow. Elytra twice as long as wide, scarcely wider at extreme base than pronotum, more distinctly wider at humeri, which are not prominent; sides in basal two-thirds parallel, apices slightly open; post-scutellar impression shallow, not definitely horse-shoe shaped, humeral impression feeble; strial punctures coarse and of irregular size, many obscured by thick coating of short scale-like hairs intermixed with tufts of longer ones, gray, yellow, and reddish, not mottled. Ventral surface gray pubescent. First ventral segment with a very small oval median impression at extreme base; surface finely and sparsely punctate; second segment more distinctly convex, fifth flattened across apical half. Femora comparatively slender, tibiae rather strongly arcuate, feebly serrulate on inner face.

Length, 6.8 mm.; width, 2.2 mm.; rostrum, 1.5 mm.

Type locality.—Havana, Ill., August 18, 1912.

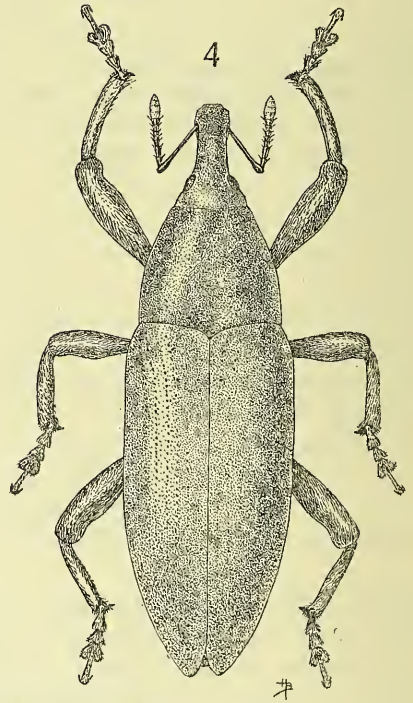
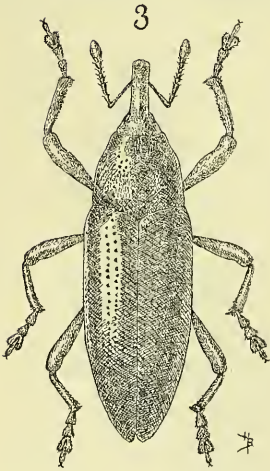
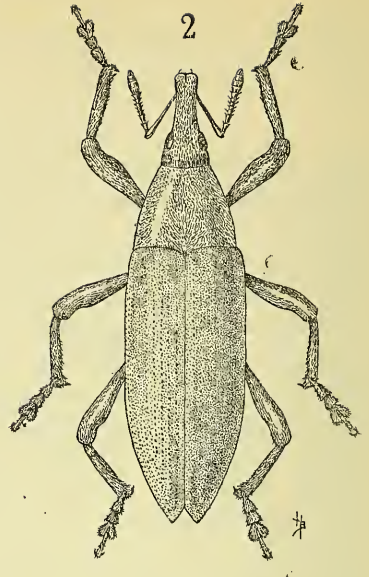
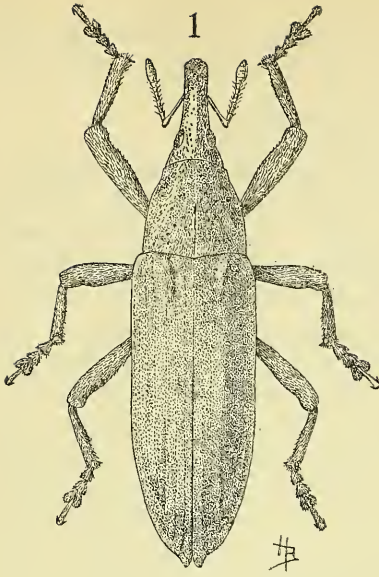
Type.—Female, unique, in collection Illinois State Natural History Survey, Urbana, Ill.

This species is distinctive but not conspicuous. Notable characters are the long curved carinate beak, large and prominent head, red tips of the femora, strongly transverse pronotum, concavity in fifth segment in the female and the abundance of vestiture. There is a trace of reddish pollinose coating in the postscutellar impression.

EXPLANATION OF PLATE

(All figures drawn by Harry Bradford)

- FIG. 1. *Lixus pervestitus* Chittenden.
2. *Lixus blakeae* Chittenden. (Ent. Soc. Washington, vol. 30, 1928, p. 90.)
3. *Lixus tricristatus* Chittenden.
4. *Lixus lodingi* Chittenden.



NEW SPECIES OF LIXUS
FOR EXPLANATION OF PLATE SEE PAGE 25