

This table is prepared from first instar nymphs but, allowing for certain variations due to development, it may be used successfully for any period of the immature life. A further mark of identity, useful in the field, may be observed in the rather peculiar habit of this grasshopper in waving its hind legs in the air before finally taking hold of a support. This at once draws attention to what we have referred to as the black socks and white shoes.

NOTES ON THE DISTRIBUTION OF COLEOPTERA IN FLORIDA  
WITH NEW ADDITIONS TO THE KNOWN FAUNA OF THAT STATE.

BY W. S. BLATCHLEY,

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My last paper on the Coleoptera of Florida was prepared in the autumn of 1927, and published in the Canadian Entomologist for March, 1928. I spent the winter of 1927-28 in California and did not return to Florida until November, 1928. During the winter of 1928-29 circumstances were such that I did little collecting, and that only about Dunedin, until March, when I made a visit to Gainesville, Fla. While there I was in the field every day with Prof. J. R. Watson, A. N. Tissot and H. E. Bratley. Later in the month I made a fifth visit to Royal Palm Park for a period of ten days. While at Gainesville (and on a preceding visit there in February, 1927) I secured a number of very interesting beetles, as the Coleopterous fauna of that section of the State, especially among the smaller species, has not been well worked up. A number of these and also some of those taken on the last trip to Royal Palm Park (20 in all) had not before been recorded from the State, while new station records for many others were secured. It is of these and a few others which have been on hand for some time, but not previously determined as to name, that the present paper deals.<sup>1</sup> My thanks are due H. C. Fall, Tyngsboro, Mass., Chas. Schaeffer, Brooklyn, N. Y. and L. G. Gentner, East Lansing, Mich., for aid in verifying or naming a number of the species.

(1082). *Fenestria morio* (Dej.)—By its smooth, shining unstriated elytra this beetle is easily separated from its close allies. It is recorded only from Alabama and Florida. In the latter state it is very scarce, only a half dozen having been taken by me in 17 years' collecting. Two were taken in dense woodland at Gainesville, March 6, from beneath a thick layer of leaf mold at the base of a large magnolia; two others in recent years at Dunedin from beneath bunches of Spanish moss in open pine woods.

(1666). *Lebia lobulata* Lec. One was taken at Gainesville, March 6, by sifting leaf debris on the border of the Experiment Station gardens. The only other Florida record is that of Schwarz, as "Enterprise, rare."

(1760). *Pentagonica flavipes* (Lec.). Two were taken at Dunedin, February 5, by sifting weed debris at the border of a hammock. It also is a rare species, 44 years' collecting having yielded me but six specimens, three from northern Indiana and three from Florida. There are three color forms, the ones from Indiana being piceous with legs and thorax yellow, those from Florida (as

1.—In it the sequence, and for the most part the nomenclature, is that of Leng's "Catalogue of the Coleoptera North of Mexico" (1920), or the Supplement thereto (1927), and the number in parenthesis before each species mentioned is the serial number of that species in one or the other of these two works.

was Leconte's type from Louisiana)<sup>2</sup> wholly piceous with pale legs while his variety *bicolor*<sup>3</sup> from the "Western States" is piceous, with the head, thorax and legs "rufo-testaceous."

(2329). *Peltodytes floridensis* Math. Two were taken, March 9, from a pool in the Prairie Creek bottoms near Gainesville. Originally described from Sanford and recorded elsewhere only from near Dunedin and Okeechobee City.

(19172). *Bidessus subsericeus* Blatch. Several examples were taken at Gainesville, March 6, from the border of a pond on the University grounds. Described from Dunedin, Kissimmee and Okeechobee City, Fla. and not recorded elsewhere.

(3009). *Anisotoma obsoleta* (Melsh.). This is evidently a scarce species, which has a wide recorded distribution across the United States, but has not before been recorded from Florida. One was taken at Dunedin March 13, 1929, at light at my desk.

(—). *Corylophodes flavo-ocellus* Blatch. This minute species was described<sup>4</sup> from Royal Palm Park. A specimen at hand was taken at Ft. Myers, February 24, by sweeping the flowers of St. Peter's-wort, *Ascyrum tetrapetalum* (Lam.).

(3938). *Biocrypta magnolia* Blatch. Originally described<sup>5</sup> from Gainesville, this Staphylinid has since been taken sparingly at Dunedin and in numbers at Royal Palm Park. It occurs in winter beneath bunches of weed debris along the borders of ponds and ditches and at the Park was beaten from dead decaying leaves of the Royal Palm in the dense hammock on Paradise Key.

(6396). *Nanosella fungi* (Lec.). Numerous examples of this, one of the most minute of North American beetles, were received from J. R. Watson and A. N. Tissot of Gainesville. They were taken November 29 by passing particles of a fungus, *Daedalea ambigua* Berkley, through a Berlese funnel, and again on December 7 from debris from beneath a mixed growth of trees passed through the same funnel. The species has hitherto been recorded only from specimens taken at Atlanta, Georgia, by Motschulsky in 1854.<sup>6</sup>

(6723). *Paromalus aequalis* Say. One taken at Dunedin, January 22, from beneath bark of sweet gum. Not before recorded from the State except from Gainesville, where H. L. Dozier found it in numbers in February and March beneath bark of fallen oaks.

(6728). *Isolomalus seminulum* (Er.). Two specimens are at hand, one taken March 1, at Dunedin, the other at Gainesville, March 8, from beneath oak bark. Recorded only from Palatka, Enterprise and St. Augustine.

(19456) *Bacanius subdepressus* Blatch. One taken near Gainesville, March 7, from beneath bark of oak log. Recorded heretofore only from Dunedin, the type locality, where it occurs frequently beneath bark and cow dung.

2.—Trans. Amer. Phil. Soc. (2) X, 1853, 377.

3.—New Spec. N. Amer. Coleop., I, 1863, 7.

4.—Ent. News, XXXVII, 1927, 139.

5.—Can. Ent., XLIX, 1917, 236.

6.—For an interesting account of this beetle and its nearest allies see Barber, H. S., Proc. Ent. Soc. Wash., Vol. 26, 1924, pp. 167-178.

(7605). *Enoclerus ichneumoneus* (Fabr.). This handsome Clerid was recorded in the Schwarz List from Haulover as "very rare," and in his Ms. notes from Key West. In 1910 A. B. Wolcott described<sup>7</sup> the color variety *knabi* from Marion Co., Fla. I did not take it in the State until Feb. 21, 1927, when one was beaten from holly in low ground open woods along Hogtown Creek near Gainesville. A second example was beaten from a bunch of Spanish moss in the same woods on March 8, 1929. These specimens are larger (11.2 mm.) than those from Indiana (8 mm.) and probably represent var. *knabi*, as the apical fourth of elytra has a narrow pale reddish cross-bar separating a broader black one from the triangular subapical black spot.

(7698). *Neichnea laticornis* Say. My first specimen was taken March 9, by sweeping herbage in the Prairie Creek bottoms near Gainesville. It is the first record for the State. Say's type was from North Carolina, that being heretofore its most southern record.

(8332). *Dilandius unicus* Casey. A single specimen was taken March 20, near Moore Haven, by sweeping low herbage along a ditch. Originally described<sup>8</sup> from a unique taken at Haw Creek, Fla., and not recorded elsewhere.

(8335). *Tomoderus impressulus* Casey. Two specimens were taken at Gainesville, December 1, by A. N. Tissot, from a tree orchid, *Epidendrum*, on an oak. Described<sup>9</sup> from North Carolina; not previously recorded, from Florida.

(8463). *Anthicus sapintus timidus* Casey. Two taken in February at Dunedin, one by sifting beneath carrion trap, the other by beating Spanish moss. Originally described<sup>10</sup> from "Florida" without definite station, not recorded elsewhere. Mr. Fall has one taken at Royal Palm Park. My specimens are straw-yellow, not "rufo-testaceous," as mentioned by Casey, but otherwise agree very well with his key and description.

(8476). *Elonus nebulosus* Lec. Three taken at Gainesville, March 5, by beating dead bay and magnolia foliage in a low ground hammock. Mentioned in the Schwarz Ms. from Centerville. No other State record.

(8484). *Zonantes fasciatus* (Melsh.) Two taken March 7, ten miles north of Gainesville, by beating foliage in a dense hammock. Known elsewhere in the State from Enterprise, St. Augustine and Jacksonville.

(—). *Monocrepidius fuscus* Blatch. Mr. H. C. Fall has recently re-described<sup>11</sup> this species under the name *M. planidiscus*, which must fall as a synonym. His specimens were from Savannah, Ga., and St. Petersburg, Dunedin and Homestead, Fla. I have taken it only at Dunedin, where it occurs frequently from January to April beneath gunny sacks and other cover in citrus groves.

(8633). *Limonius quercinus* (Say). One taken near Gainesville March 7, by beating in a dense hammock. Mentioned in the Schwarz list from Jacksonville; no other State record.

7.—Ent. News, XXI, p. 321.

8.—Ann. N.Y. Acad. Sci., VIII, 1895, p. 643.

9.—Loc. cit., p. 649.

10.—Loc. cit., p. 741.

11.—Can. Ent., LXI, 1929, 56.

(—). *Limonius semiaeneus* Lec. Numerous examples taken March 7-9, at Gainesville by beating Spanish moss, etc. Known elsewhere in the State from Ormond, Jacksonville and St. Augustine. Leng lists this as a synonym of *L. basillaris* (Say), but *semiaeneus*, as found in Florida, is a distinctly narrower less depressed form, with the entire elytra and hind angles of thorax reddish yellow, than the *basillaris* of Indiana, where the tips of the hind angles alone are pale. In *semiaeneus* these angles are also broader and less acute, and the punctures of disc of thorax more aciculate than in *basillaris*. I regard the two as very distinct species.

(9122). *Esthesopus pusio* Horn. One specimen taken March 18, at Royal Palm Park from a mass of weed debris lying beneath a bridge. Described<sup>12</sup> from "Florida" and mentioned in the Schwarz Ms. from Key West, Biscayne Bay and Punta Gorda.

(9133). *Deltometopus amocicornis* (Say). Two specimens were beaten from oak March 7, near Gainesville. The only other recorded station is Enterprise by Schwarz.

(9687). *Helodes pulchella* Guer. My second Florida specimen was taken near Gainesville March 9, from beneath a bunch of pine needles in the Prairie Creek bottoms. The only other State record is that of mine from Dunedin.<sup>13</sup> These two specimens are exactly alike in color, and differ from northern ones in having the disk of thorax largely black. They probably represent a southern color race or variety.

(9847). *Nosodendron unicolor* Say. Taken by H. E. Bratley, June 28, 1928, from a pond near Gainesville. Not before recorded from the State. Leng gives the distribution as "Northern Illinois, Kansas and Indiana."

(10011). *Lycoptis villosa* Casey. One taken at Dunedin, December 10, from beneath bark of a decaying white bay. Described<sup>14</sup> from South Carolina and hitherto recorded elsewhere only from the District of Columbia.

(10094) *Epuraea umbrosa* Horn. This species was described<sup>15</sup> in 1879 from Fort Cobb, Indian Territory (now Oklahoma). Leng gives no other record of its distribution. Two specimens are at hand from Dunedin taken in January and March from beneath blocks of pine wood, and one from Gainesville, taken March 8 from beneath bark of oak.

(10239). *Laemophloeus adustus* Lec. One taken at Gainesville, March 8, by beating dead leaves of holly. No previous Florida record.

(—). *Pharaxonotha zamiae* Blake. Examples of this recently described<sup>16</sup> Cryptophagid from Royal Palm Park have stood unnamed in my collection for several years. The types of Miss Blake were from Homestead, Fla. and other points from Crescent City southward. It occurs on the flowers of the Florida arrowroot or coontie, *Zamia floridana* DC.

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12.—Trans. Amer. Ent. Soc. XII, 1884, 43.

13.—Can. Ent., LX, 1928, 65.

14.—Ann. N.Y. Acad. Sci., V, 1890, 312.

15.—Trans. Amer. Ent. Soc., VII, p. 300.

16.—Psyche, XXXV, 1928, 111.

(10519). *Thrimolus minutus* Casey. One was taken at Gainesville, November 7, by J. R. Watson by passing the fungus *Fomes fasciatus* through a Berlese funnel. Another, March 8, from the same fungus. Described from Texas; recorded elsewhere only from Indiana, and as *T. duryi* Casey, a synonym, from Ohio.

***Bitoma paradisea* sp. nov.**

Elongate, subparallel, subdepressed. Piceous-brown, the elytra dull red, with side margins, a cross bar at apical two-thirds and sutural line extending from base to this cross bar, piceous; legs and last three ventrals dull red; antennae reddish-brown, the club paler. Head three fourths as wide as thorax, strongly flattened, finely and closely granulate-punctate; eyes small, located close to thorax; basal joint of antennal club much larger than apical one, the latter bristly pubescent. Thorax subquadrate, sides straight from base to apical fifth, there incurved and partly surrounding basal half of eyes, margins distinctly but finely crenulate; disk with quadrate central portion elevated, finely and closely granulate, its outer margin formed by a sinuous raised line, the space between this and the outer margin of thorax proper, with a similar but lower raised line, the grooves (intervals between the raised lines) finely and closely granulate. Elytra equal in width to and three times as long as thorax, sides parallel from base to apical fifth, thence broadly rounded into tips; disk of each elytron with three raised lines (in addition to sutural and marginal ones), the intervals each with a double row of alternating granules. Length 1.8-2 mm.

Described from three specimens taken March 29, 1927, from beneath flakes of bark of a living wild-tamarind tree (*Lysiloma bahamensis* Benth.) growing on the side of the road running across Paradise Key, Royal Palm Park. From *B. quadriguttatus* Say, our common species in both Indiana and Florida, it differs in its smaller size, broader head, distinctive sculpture of thorax, more diffuse reddish hue of elytra and in the sutural line of elytra being entire, not bifurcate at base.

(10587). *Sosylus dentiger* Horn. One taken March 26, from light in my room at the Lodge at Royal Palm Park. It is a semitropical form, described<sup>17</sup> from Lower California and Santo Domingo. This is the first record for the United States. The peculiar tooth-like downward prolongations of the antennal grooves, from which the specific name was derived, are very distinct.

(10744). *Rhymbus ulkei* (Cr.). My first Florida specimen was taken by A. N. Tissot, November 29, by passing fragments of the fungus, *Daedalea ambigua* (Berk.) through a Berlese funnel. Florida stations previously mentioned are Enterprise and Crescent City.

(10753). *Endomychus biguttatus* Say. The first known Florida specimen of this handsome Endomychid was taken near Gainesville, March 8, from beneath the bark of an oak log. From Indiana specimens it differs in having the elytra a darker red, with front spot very small, hind one much larger, and punctuation distinctly coarser. It probably represents a southern race. The typical form has been recorded from New England to Iowa and Kansas, but in the south only by Summers<sup>18</sup> from Louisiana.

17.—Proc. Am. Phil. Soc. XVII, 1878, 582.

18.—Bull. Buff. Soc. Nat. Hist., II, 1874, p. 99.

(11112). *Scymnus myrmidon* Muls. No definite published station record for the State can be found. Schwarz mentions it in his Ms. from Punta Gorda. I have three specimens taken at Dunedin, February 9 and March 29, one of them clinging on my note book while I was writing in my bird "look-out" in the forks of a live oak in my lot.

(11120). *Scymnus stigma* Casey. Two examples are at hand, one taken at Santord March 12, the other at Royal Palm Park, March 26, the latter by beating shrubs along the roadside. The only published record is "Florida," that of Casey's type.

(12277). *Leichenium variegatum* Kust. This species is supposed to occur only along sandy beaches of the sea. It was described from Madagascar and has been taken in this country only at Mobile, Alabama and at Dunedin. In the Experiment Station collection at Gainesville there are several specimens taken at Alachua, Fla., ten miles northwest of Gainesville from "Insect traps on cotton."

(12310). *Hoplocephala ferruginea* Lec. Under the name of *Evoplus ferrugineus* Schwarz lists this species from "Enterprise, rare in company with *Bolitotherus bifurcus* (Fab.)," and no other State record can be found. It is at hand from Gainesville, Lakeland and Dunedin, all stages having been taken near Dunedin January 25, from a woody fungus attached to a partly buried oak log.

(—). *Hypophloeus mexicanus* Reit. ? Four examples, which I tentatively refer here, were taken March 27, in company with scores of the weevils, *Brentus anchorago* Linn. and *Cossonus impressus* Boh., beneath the bark of a dead gumbo-limbo [*Elaphrium simaruba* (L.)] tree in the burned over part of the hammock on Paradise Key, Royal Palm Park. There are two similar specimens, labelled *H. mexicanus* Reit. ? in the collection of the American Museum of Natural History, taken by Mrs. Slosson at Biscayne Bay. Schwarz in his Ms. notes refers to a "*Hypophloeus* n. sp., Lake Worth (Hamilton)=*mexicanus* Champ. ?", which is perhaps the same form. The named species of *Hypophloeus* are closely related and very similar in habitus. Reitter's species was described from Central and South America, and comparisons will have to be made with his type in fixing definitely the name of the Florida form.

(12576). *Microtonus sericans* Lec. Two taken near Gainesville, March 4, and 7, by beating dead leaves of shrubs. This is the first record for the State, the range being given by Leng as "New York to Georgia."

(14253). *Anoplium nanum* Fab. Two taken at Royal Palm Park, March 23, from beneath bark of a pine log; another at hand is from Marco. It is a West Indian species which occurs only in the southern part of the State and has been usually recorded as *Elaphidion cinereum* (Oliv.), a synonym. In the Schwarz Ms. both this and the next are mentioned as occurring at Key West and Biscayne.

(14702). *Neoclytus cordifer* (Klug). Also a West Indian species, usually recorded as *N. devastator* (Cast). Two were taken at Royal Palm Park, March 23, by beating dead leaves of a recently cut wayside shrub. At Punta Gorda, on November 7, W. T. Davis found several on the foliage of a cultivated Oleander.

(14726). *Euryscelis suturalis* (Oliv.). Four were taken, March 21, at light in my room at the Lodge in Royal Palm Park. They were all males, but much smaller and with shorter, more slender hind legs than the single example

taken in the same room two years previously.<sup>19</sup> Recorded from Florida only from the Park and Miami; it being also a semitropical form from the West Indies.

(15188). *Amphionycha suturalis* Linell. One taken at Royal Palm Park March 24 by beating dead limbs of oak. Described from Brownsville, Texas and not hitherto recorded elsewhere.

(15307). *Griburius larvatus decoratus* (Suffr.). This is a color variety of *G. larvatus* (Newn.) in which the front half of thorax bears two large triangular black spots and the elytra two more or less interrupted black cross bars. All specimens taken at Royal Palm Park were of this variety. Those of typical *larvatus*, which occur frequently throughout the State, have the spots on thorax small and round or wanting and the elytra each have two small round basal spots and one or two near middle.

(—). *Monachus viridanus* Fall. Four examples of this small greenish recently described<sup>20</sup> Cryptocephalid are at hand from Dunedin. They were taken in March and April by sweeping herbage in low wet places. The unique type was from St. Petersburg; not recorded elsewhere.

(15771). *Diabrotica balteata* Lec. One taken at Royal Palm Park, March 23, by sweeping herbage along the border of a tomato field. A semitropical species ranging south to Central America; not before recorded from Florida, but known from Alabama, Savannah, Ga. and elsewhere in the south. It is very close to, if not a synonym of *D. speciosa* Germ. The latter is a common South American species which I took in some numbers in 1924 near Rio de Janeiro, Montevideo, Buenos Aires and Mendoza.

(—). *Oedionychus spilonota* Blake. One taken, March 7, by beating foliage of oak in a hammock nine miles northwest of Gainesville. Described<sup>21</sup> from Crescent City, Fla. and not definitely recorded elsewhere.

(15904). *Disonycha discoidea* (Fabr.). One swept from herbage, March 9, in Prairie Creek bottoms, near Gainesville. The first record for the State, its distribution as given by Leng being North Carolina, Texas and Indiana.

(—). *Haltica woodsi* Iseley. Two specimens were taken at Gainesville March 7, by beating bunches of Spanish moss. They differ from typical Indiana examples of *woodsi* in being purplish instead of greenish in hue, but agree in sculpture and structural characters. The general range of the species is northern, this being the first Florida record.

(16124). *Octotoma plicatula* (Fab.). This is apparently a scarce species in Florida, but two specimens having been taken by me in 17 years' collecting. They were beaten from Magnolia near Gainesville on February 21, 1927. H. L. Dozier records<sup>22</sup> them as occurring in March in some numbers near Gainesville on buckeye and ash. Elsewhere in the State they have been taken only at Archer, where they were taken by Kœbele, according to the Schwarz Ms.

(20226). *Systema plicata* Blatch. An example of this species, taken June

19.—See Can. Ent., LX, 1928, 70.

20.—Can. Ent. LIX, 1927, p. 139.

21.—Proc. U. S. Nat. Mus. Vol. 70, 1927, p. 36.

22.—Ent. News, XXIX, 1918, 372.

7 at Newman's Lake, near Gainesville, Fla., is in the collection of Chas. Schaeffer of Brooklyn, N. Y. The species was described<sup>23</sup> from Posey County, in southern Indiana and has not been recorded elsewhere.

***Mylabris wheelocki* sp. nov.**

Oblong, subquadrate, robust. Eyes, four basal joints of antennae, a broken line each side of thorax and some irregular spots on elytra dull red; tibiae, sides of last three ventrals and margin of pygidium also reddish. Eyes very large, almost approximate in front; antennae of male pectinate, the branch of joint 4 short, subulate, 5 twice as long, 6-11 longer, sub-equal. Thorax subconical, slightly wider at base than long, basal margin bisinuate, disk finely and densely granulate-punctate. Elytra conjointly subquadrate, about one-third longer than wide at base, sides subparallel, striae fine but distinct; surface, as well as that of thorax, sparsely clothed with a very short silken appressed pubescence and with reddish markings as follows: an irregular spot each side of scutellum covering the first three intervals, a common sutural spot just behind middle, a subapical line on second interval, a short line near apex of the seventh and eighth intervals, and the outer margin opposite these two lines. Pygidium perpendicular, finely and densely punctate, its upper half clothed with prostrate silvery white pubescence. Hind femora mutic. Length 1.8 mm.

Type, a male, taken March 21, 1929, at Royal Palm Park, Fla., by beating a mass of dead stems of the moonvine, *Ipomoea bona-nox* L. Belongs to Group IV of Horn<sup>24</sup> and Fall.<sup>25</sup> Allied to *M. impiger* (Horn) from Texas, Arizona and Southern California, but smaller, darker and with a very different color pattern of elytra. Named in honor of Mr. and Mrs. W. D. Wheelock, hosts of the Lodge at Royal Palm Park, who have shown me many favors during my visits to the Park.

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SOME NEW DIKRANEURA (HOMOPTERA, CICADELLIDAE)  
WITH NOTES ON OTHER SPECIES.\*

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***Dikraneura californica* sp. n.**

Pl. IV, fig. 4; Pl. V, figs. 5, 5a, 5b.

A milky-white species, sometimes tinged with yellow, with four red stripes on elytra. Allied to *D. cruentata*. Length 2.75-3 mm.

*Form*: Vertex distinctly wider than long, twice as long at middle as next the eye, anterior margin obtusely rounded. Pronotum one-half longer than vertex, distinctly widened posteriorly, posterior margin but slightly concave. Scutellum large. Elytra very long, greatly exceeding abdomen; apical cells progressively longer from first to the very large fourth cell. Second closed submarginal cell of hind wing triangular and small.

*Genitalia*: Last ventral segment of female moderately long, median third of posterior margin distinctly produced to obtuse apex which is slightly notched.

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23.—Journ. N. Y. Ent. Soc., XXIX, 1921, p. 26.

24.—Trans. Amer. Ent. Soc., IV, 1873, p. 321.

25.—Ibid. XXXVI, 1910, p. 163.

\*—Contribution from the Department of Entomology, University of Kansas.