

NEW RECORDS OF ORTHOPTERA AND DERMAPTERA FROM THE UNITED STATES

ASHLEY B. GURNEY¹

Three of the four species here recorded from Florida (two cockroaches and one earwig) are primarily West Indian, and the fourth, *Conocephalus cinereus* (Thunberg), a small widespread katydid, is more dominant there than in Central or South America. One of the cockroaches, *Hemiblabera tenebricosa* R. & H., was taken on Key Largo, Florida, more than 60 years ago, but a recent capture on Elliott Key is of interest in confirming its recent occurrence in Florida. Except for *C. cinereus*, which has been taken about 35 miles northwest of Lake Okeechobee, records of these four species in the United States are limited to Dade County or the Keys. The earwig, *Pyragropsis buscki* (Caudell), is represented by three specimens, all taken within about ten miles of Miami. This species is the first member of the family Pygidicranidae to be recorded from the United States.

Except as noted, all specimens recorded are in the U. S. National Museum.

I am grateful to the following scientists who have assisted materially by their generous cooperation in supplying specimens or collection data, or by making other specimens available for comparison: R. M. Baranowski, Subtropical Experiment Station, Homestead, Florida; H. H. Keifer, California Bureau of Entomology, Sacramento, California; J. A. G. Rehn, Academy of Natural Sciences of Philadelphia; Albert Schwartz, Albright College, Reading, Pennsylvania; H. F. Strohecker, University of Miami, Coral Gables, Florida; Howard V. Weems, Jr., Florida State Plant Board, Gainesville, Florida.

Eurycotis lixa Rehn (Orthoptera, Blattidae)

Figures 12-14

U. S. records: Key West, Fla., July 1952 (Schwartz and Porter), 1 female; Key West, Fla., Sept. 21, 1956 (W. W. Warner), 1 female.

Other records: "Taken at New York City on banana ship from Jamaica, Oct. 20, 1924 (F. M. Schott)", 1 male (holotype), 1 female (allotype) (Acad. Nat. Sci. Phila.). Original material described by Rehn (Trans. Amer. Ent. Soc. 56: 45-48, pl. 4, figs. 1-9, 1930).

This species was thought by Rehn (l. c.) to be native to Jamaica. Unfortunately, no confirming data are available. Concerning the Key West specimen taken in 1952, I am indebted to one of the collectors for comments about the circumstances of capture. Dr. Albert Schwartz (*in litt.*, Oct. 8, 1955) stated that the specimen was collected at night in the "downtown" section of Key West, probably along a low wall which separated a garden from a sidewalk. Regarding the 1956 specimen, Dr. Howard V. Weems has informed me (*in litt.*, April 25, 1958) that three additional specimens of *lixa* were taken by Mr. Warner.

The Key West specimens were identified by comparison with the types of *lixa* and a review of described species, especially the West Indian species treated in my 1942 key (Bull. Mus. Comp. Zool. 89: 34-37). *E. lixa* (fig.

¹ Entomology Research Division, Agricultural Research Service, U. S. Department of Agriculture.

12) is approximately the same size as *E. floridana* (Walk.), which was shown in habitus sketch by Hebard (Mem. Amer. Ent. Soc. 2: pl. 6, fig. 11, 1917) and in photographs by Roth and Willis (Smithsonian Misc. Coll. vol. 122, no. 12: pls. 1, 3, 5, 1954).

E. floridana, the only other species of *Eurycotis* established in the United States, has very broad, subquadrate tegmina, quite unlike the lateral subtriangular tegmina of *lixa*, which in the Key West specimens vary as in figs. 13-14 and differ slightly from those of the allotype (Rehn, l. c., pl. 4, fig. 4). Most specimens of *floridana* are definitely brownish, whereas *lixa* is essentially black to the naked eye, though under magnification in a strong light a brownish tinge is noticeable, this being more conspicuous in the 1952 than in the 1956 specimen. The basal segment of the hind tarsus of *lixa* is more elongate than that of *floridana*, and the pulvillus occupies about one-fourth the ventral length of the segment, as contrasted with one-third to one-half the length in *floridana*.

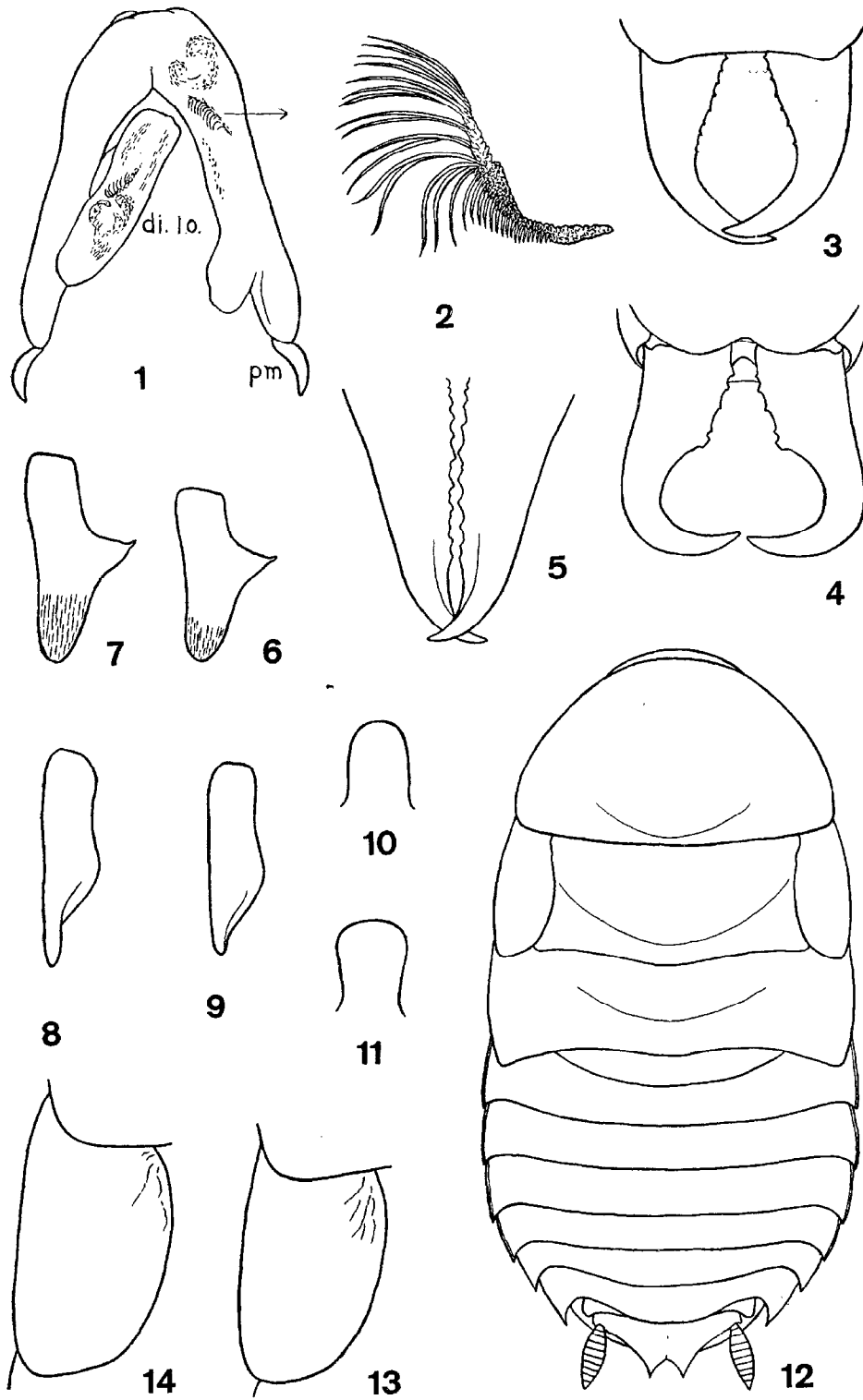
Compared with *E. tibialis* Hebard of Hispaniola, *lixa* is blacker, averages larger, and the hind tibia is not broadened and pitted as in *tibialis* (see Gurney, l. c., fig. 4). The Brazilian *E. manni* Rehn is much like *lixa*, but differs noticeably in that the latero-posterior angles of abdominal terga 5-7 are only briefly produced as acute points. *E. manni* was described by Rehn (Trans. Amer. Ent. Soc. 42: 238-239, pl. 14, fig. 15, 1916), based on a single male. I have examined a male in the U. S. National Museum collected at Natal, Brazil, May 1925, by E. C. Green. Apparent relationship to *E. nigra* Princis may also be noted. Described from Caracas, Venezuela (Ann. Istit. Mus. Zool. Univ. Napoli 4: 4-6, fig. 2, 1952), *nigra* is smaller (body length of male 20 mm., pronotum 5.5), and the lateral tegmina have the apices reaching almost to the hind margin of the metanotum.

The two Key West females of *lixa* show some variation in the number and position of the spines borne by the hind tibia, and neither agrees exactly with the allotype as regards the spines on the outer lateral margin of the hind tibia (Rehn, l. c., pl. 4, fig. 8). Respective measurements in

Explanation of Plate

1. *Pyragropsis buscki* (Caud.), male genital armature, non-KOH preparation in alcohol. Jamaica.
2. Same, partial details of distal lobe, KOH preparation on slide. Cuba, intercepted at N. Y.
3. Same, male forceps of elongate type, dorsal view. Holotype.
4. Same, male forceps of arcuate type, ventral view including apex of subgenital plate. Same specimen as fig. 1.
5. Same, female forceps, dorsal view, reconstructed from broken specimen. Palm Island, Fla.
6. *Conocephalus fasciatus fasciatus* (De G.), left cercus of male, dorsal view. Alachua Co., Fla.
7. *C. cinereus* (Thunb.), left cercus of male. Martin Co., Fla.
8. Same, left cercus of male, laterodorsal view. Same specimen as fig. 7.
9. *C. fasciatus*, left cercus of male, laterodorsal view. Same specimen as fig. 6.
10. Same, fastigium of female, dorsal view. Martin Co., Fla.
11. *C. cinereus*, fastigium of female, dorsal view. Martin Co., Fla.
12. *Eurycotis lixa* Rehn, dorsal view of female. Key West, Fla., July 1952.
13. Same, left tegmen, dorsolateral view. Key West, Fla., Sept. 21, 1956.
14. Same, left tegmen, dorsolateral view. Key West, Fla., July 1952.

(All drawings by the author)



millimeters of the 1952 and 1956 specimens are as follows: Body length, 34.0, 36.0; interocular width, 4.0, 3.7; length of pronotum, 10.5, 9.8; maximum width of pronotum, 14.6, 14.0; costal length of tegmen, 6.7, 5.7; maximum width of tegmen, 3.3, 3.2; length of hind tibia, 13.0, 11.7; length of hind tarsus, 8.7, 8.0.

Hemiblabera tenebricosa Rehn and Hebard (Orthoptera, Blattidae)

U. S. Records: Elliott Key, Fla. [about 20 miles south of Miami], about 1952 (Ray Porter), 2 females (Strohecker Collection); Key Largo, Fla., Jan. 1896 (E. A. Popenoe), 1 male, 1 female.

Other records: West Indies, including Nassau, Bahamas (Rehn and Hebard, Bull. Amer. Mus. Nat. Hist. 54: 271-274, pl. 19, figs. 9-11, 1927).

Brief comments on *tenebricosa*, including the Key Largo record, appeared in my 1953 paper (Gurney, Proc. U. S. Nat. Mus. 103: footnote, p. 46). This is a predominantly reddish-brown cockroach, ranging from 32 to 46 millimeters in body length, and with subquadrate tegmina covering less than half of the abdomen. In view of the recent Elliott Key records, it appears to be established in the Florida Keys, and perhaps on the adjacent mainland.

Conocephalus cinereus (Thunberg) (Orthoptera, Tettigoniidae)

Figures 7-8, 11

U. S. records: Sebring, Fla., Nov. 25, 1954 (H. V. Weems, Jr.), 1 male; Martin Co., Fla., Nov. 5, 1954 (H. V. Weems, Jr.), 8 males, 2 females; Dade Co., Fla., Oct. 22, 1954 (H. V. Weems, Jr.), 2 males, 4 females; Homestead, Fla., Dec. 2, 1946 (D. O. Wolfenbarger), 1 male. (Foregoing specimens Fla. Plant Board and USNM). 8 miles east of Homestead, Fla., Jan. 17, 1957 (R. M. Baranowski), 2 males (Baranowski and Strohecker collections).

Other records: This is a well known species of the Neotropical region, occurring from the Bahamas and northern Mexico to British Guiana and Peru. Tampico and Mazatlan are northern known limits in Mexico. It is a dominant species of the genus in the Bahamas, Greater Antilles, and northernmost Lesser Antilles (Rehn and Hebard, Trans. Amer. Ent. Soc. 41: 243-248, 1915); Hebard, *Ibid.* 58: 335, 1932). It was not listed by Piran in his catalogue of Argentine Tettigoniidae (Rev. Soc. Ent. Arg. 11: 119-168, 240-287, 1941 and 1942).

Conocephalus cinereus was originally described from Jamaica, and has been discussed fully by Rehn and Hebard (*l. c.*). It has been reported as injurious to tobacco seedlings at San Lorenzo, Puerto Rico, by Wolcott (Jour. Agric., Univ. P. R. 32: 54, 1950). Dr. R. M. Baranowski (*in litt.*, May 19, 1958) has reported that the specimens he collected were actively feeding on the banded cucumber beetle, *Diabrotica balteata* Lec. Among the few studies of food habits of the genus *Conocephalus* are those of the late F. B. Isely dealing with *C. fasciatus* (De G.) (Isely, Ann. Ent. Soc. Amer. 37: 62, 1944; Isely and Alexander, Science 109: 115-116, 1949), on the basis of which he concluded that *Conocephalus* is mainly carnivorous and seed-eating. It appears that careful observations are required to determine the exact food preferences of these small orthopterons.

C. cinereus is a small, slender katydid, or "meadow grasshopper," about 16 to 27 millimeters in length (including apices of folded tegmina). It is

most likely to be confused with *C. fasciatus*, a species very widespread in the United States. The best feature enabling the separation of the two species is the cerci of adult males (figs. 6-9). The cercus of *cinereus* has on the dorsal surface a distinct flattened apical portion, but that of *fasciatus* is tapered near the apex. The cercus of *cinereus* usually is the same color as the apical portion of the abdomen, normally yellowish or light brown, while that of *fasciatus* usually is green, in contrast to the abdomen. In both sexes the lateral lobe of the pronotum is a helpful separating feature: In *cinereus* the humeral sinus is less evenly and broadly rounded, and the ventral margin is about right-angled, in contrast to the more evenly and broadly rounded humeral sinus and very broadly rounded ventral margin in *fasciatus* (see Rehn and Hebard, Trans. Amer. Ent. Soc. 41: pl. 17, fig. 2, pl. 22, fig. 12, 1915). When seen in dorsal view, the apical portion of the fastigium of *cinereus* usually shows lateral expansion, rather than approximately equal width as in *fasciatus* (figs. 10-11).

Other species of *Conocephalus* recorded from Florida are *aigialus* R. & H., *brevipennis* (Scudd.), *fasciatus fasciatus* (De G.), *gracillimus* (Morse), *nigropleuroides* (Fox), and *spartinae* (Fox). Material of *fasciatus* from Martin Co., Fla., with label data identical to that of *cinereus*, has been examined, suggesting that both species may occur together in some areas. The most distant Floridian localities occupied by *cinereus* are some 150 miles apart, and the earliest record is 1946, so the species appears to be well established. It is one of the very few katydids occurring in both the United States and South America. Isely (Ecol. Monogr. 2: 470, 1941) stated that *Neoconocephalus triops* (L.) is unique in such a distribution, and in a hasty check I had found no others until, now, *C. cinereus*.

Pyragropsis buscki (Caudell) (Dermaptera, Pygidicranidae)

Figures 1-5

U. S. records: Little River, Fla. [adjacent to Miami] intercepted in plant quarantine inspection of box of palm seed, at Redondo Beach, Los Angeles Co., Calif., March 9, 1947 (through H. H. Keifer), 1 male; Palm Island, Miami Beach, Fla., in house, July 24, 1951 (M. B. Byrne), 1 female; Key Biscayne, Fla., on *Cocos nucifera*, June 5, 1958 (C. F. Dowling, Jr.), 1 female (Fla. Plant Bd.).

Other records: Baracoa, Cuba, Oct. 14, 1901 (August Busck), 1 male (holotype), 1 nearly mature female; Cuba, intercepted in plant quarantine inspection at New York City, May 6, 1937, 1 male; Jamaica, in rotten palm, March 12, 1907 (J. R. Johnston), 3 males; Dominican Republic, intercepted in plant quarantine inspection at New York City, July 1934, 1 female.

This species originally was described in the genus *Pyragra* by Caudell (Jour. N. Y. Ent. Soc. 15: 166-167, 1907). It was listed in the genus *Pro-pyragra* by Burr (Trans. Ent. Soc. London, p. 167, 1910; Gen. Insect. 122: 22, 1911). Rehn and Hebard (Bull. Amer. Mus. Nat. Hist. 37: 635-636, 1917) transferred it to the genus *Pyragropsis* and recorded a male from Santiago de Cuba, Cuba. Gowdey (Cat. insect. Jamaicensis, Dept. Agric. Jam. Ent. Bull. 4: 9, 1926) recorded it from Jamaica as *Pyragropsis buscki*. No records additional to those cited have come to my attention.

P. buscki varies in body length from 14 to 19 millimeters, and is fully winged. The abdomen is dark reddish-brown; the pronotum and tegmina

light brown, the pronotum pale in the central area and along the lateral margins, each tegmen with small pale area near base; exposed portion of folded wings pale adjacent to tegmen; both tegmina and tip of folded wing bear numerous short stiff setae. Male forceps of two types (figs. 3-4), either evenly arcuate or more elongate; posterior margin of subgenital plate emarginate. Female forceps elongate with numerous denticulations (fig. 5); posterior margin of subgenital plate narrowly projecting mesally; terga 5-7 each with a very pronounced longitudinal ridge along lateral margin in male, ridge absent in female. This species differs from all other United States earwigs in the possession of a well developed padlike arolium between the tarsal claws, as illustrated for the Costa Rican *P. tristani* Borelli by Burr (Gen. Insect. 122: pl. 3, fig. 2a, 1911). The only other United States earwigs whose males have forceps at all resembling those of *buscki* are the species of *Euborellia* and *Anisolabis*, and of these *E. cincticollis* (Gerst.) is the only one here with fully developed wings, though rare winged examples of *E. annulipes* (Lucas) have been recorded abroad. The pronotum, tegmina and wings of *cincticollis* (which is frequently but not always winged) bear no such conspicuous setae as occur in *buscki*. A list of the United States species accompanied the initial report of *cincticollis* in this country (Gurney, Proc. Ent. Soc. Washington 52: 200-203, 1950).

P. buscki is the only species of Pygidicranidae in the United States. For information on the relationships of the family and genus, readers may consult the keys and references given by Hincks (Acta Zool. Lilloana 7: 623-652, 1949) in his comprehensive paper on Argentine earwigs. The male armature of *buscki* is distinctive, and differs from that of *P. brunnea* (Burr) of Argentina (Hincks, l. c., p. 627, fig. 1) by having curved parameres (fig. 1, *pm*) instead of relatively straight ones. Presumably the sclerotized structures of the distal lobes (*di. lo.*) (see fig. 2) also differ, but details of those structures in *brunnea* are not available to me. Hincks (pp. 66-69 in Taxonomist's glossary of genitalia in insects, S. L. Tuxen, Ed., 1956) has briefly discussed the anatomy of earwig genitalia.

Make plans now to attend the
42nd ANNUAL MEETING OF THE
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in Miami on September 10 and 11.