

***LEIOBUNUM LINEATUM*: A SYNONYM OF *LEIOBUNUM CRETATUM* (OPILIONES, GAGRELLIDAE)**

James C. Cokendolpher

The Museum
Texas Tech University
Lubbock, Texas 79409

and

William F. Rapp

430 Ivy Avenue
Crete, Nebraska 68333

ABSTRACT

The harvestman *Leiobunum lineatum* Edgar is synonymized with *Leiobunum cretatum* Crosby and Bishop. *Leiobunum cretatum* is rediagnosed, briefly compared to congeners, and numerous new records from central and eastern U.S.A. are provided. The labra and seminal receptacles are illustrated for the first time and the penis is redrawn.

INTRODUCTION

The original description of *Leiobunum lineatum* by Edgar (1962) mentions that this species may be confused with *Leiobunum aurugineum* Crosby and Bishop. Because *L. aurugineum* differs remarkably (leg and body relative lengths, body shape and microsculpturing, and genitalia) from *L. lineatum* no further comparisons need be made. Judging from the specific name, Edgar (1962) considered the silver lines on the abdomen to be diagnostic for the species. This character was used in his key (Edgar 1966) to separate *L. lineatum* from all congeners of the Great Lakes region. In his revision of *Leiobunum* Koch, Davis (1934) reports that *Leiobunum cretatum* Crosby and Bishop has the "dorsum golden-yellow, central marking obsolete." Presumably, Edgar (1966) was following Davis' description when he too reported no dorsal abdominal pattern on *L. cretatum*. This is indeed unfortunate, as in the original description of *L. cretatum* Crosby and Bishop (1924) described the species as having narrow longitudinal light lines on the abdomen. Furthermore, they used that character to separate their new species in a key to males of *Leiobunum*. Our examinations of the type materials and numerous other specimens of *L. lineatum* and *L. cretatum* reveal they are conspecific.

MATERIALS

The American Museum of Natural History, New York, is abbreviated "AMNH" in the text and specimens referred to as "JCC" and "WFR" are in the personal collections of the authors.

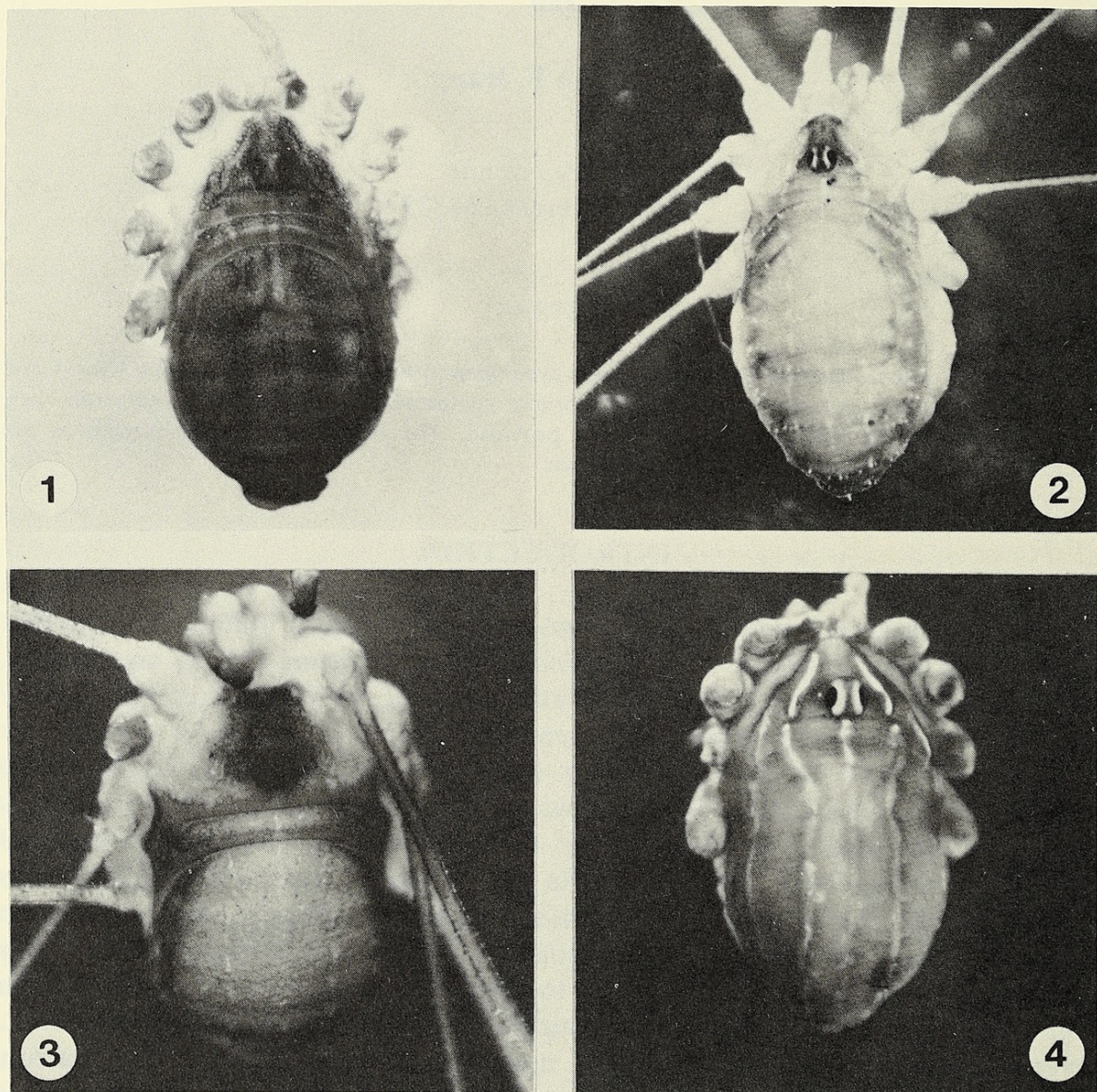
SYSTEMATICS

Leiobunum cretatum Crosby and Bishop

Figs. 1-12

Leiobunum cretatum Crosby and Bishop 1924:14, 19, 20, fig. 15; Davis 1934: 664, 673, figs. 14, 36; Goodnight and Goodnight 1942:12; Edgar 1966: 354, 361, 365.

Leiobunum lineatum Edgar 1960:377 (*nom. nud.*), 1962:146-149, figs. 1-3, 1966:6, 61, 62; Levi and Levi 1968:237, fig. (13-11); Cokendolpher 1982:89. **NEW SYNONYMY.**



Figs. 1-4.—*Leiobunum cretatum*: 1, female holotype from Georgia; 2, female from Tennessee; 3, male from Michigan; 4, juvenile paratype from Georgia.

Type data.—*Leiobunum cretatum* holotype female (reported “probably male” by Crosby and Bishop 1924) from Oglethorpe, Macon Co., Georgia (1 July 1910, J. C. Bradley), Cornell Collection in AMNH, examined, and two immature paratypes from Unadilla, Dolly Co., Georgia (28 June 1910, J. C. Bradley), one Cornell Collection in AMNH, examined—other juvenile not located. Holotype male and “allotype” female of *L. lineatum* from Locus Key T1N R5W S1, Eaton Co., Michigan (coll. 24 July 1959, reared to maturity/fixed 17 Aug. 1959, A. L. Edgar), in AMNH, examined.

Diagnosis.—Small species (body lengths: 2.3–3.5 mm for males, 2.6–5.25 mm for females) with femora I longer than body length. Dorsum with silvery-white longitudinal lines (Figs. 1–4). Ocular tubercle with several pointed spines over each eye. Male with alate penis (Fig. 5) and with only few weak teeth on palpal tarsi. Female seminal receptacles as in Figs. 6, 7. The labra of males are pointed and simple, similar to those of females (Figs. 8–10). All legs uniform in color, lacking white bands.

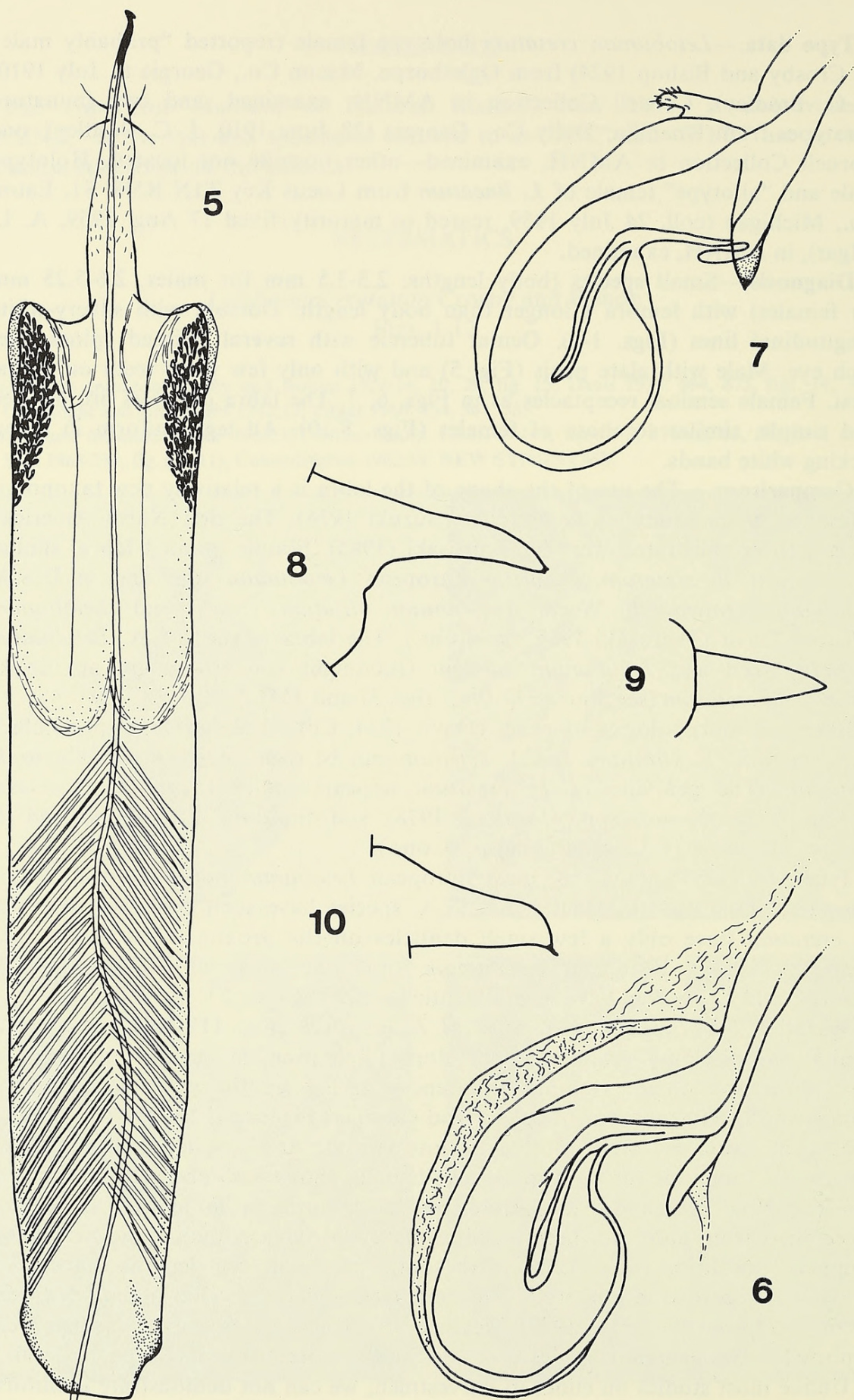
Comparisons.—The use of the shape of the labra is a relatively new taxonomic character in the study of *Leiobunum* (Suzuki 1976). The first North American species to be illustrated were by Tsurusaki (1985). Simple pointed labra, similar to those of *L. cretatum*, occur in European *Leiobunum* spp. and in U.S.A. *Leiobunum townsendi* Weed, *Leiobunum vittatum* (Say), and *Leiobunum relictum* Davis (Tsurusaki 1985: pers. obs.). The labra of the U.S.A. *Leiobunum aldrichi* Weed and *Leiobunum gordonii* Goodnight and Goodnight are unlike those of *L. cretatum* (see Tsurusaki 1985: figs. 3I and 3M).

Based on morphologies of penes (Davis 1934; Cokendolpher 1982; pers. obs.), *L. townsendi*, *L. vittatum*, and *L. relictum* can be eliminated as near kin to *L. cretatum*. The genitalia of *L. cretatum* appear similar to those of several European *Leiobunum* spp. (Martens 1978) and those of *L. aldrichi* and *L. gordonii* (Davis 1934; Cokendolpher pers. obs.).

Tsurusaki (1985) noted that most European *Leiobunum* spp. lack denticles on the palpal tarsi and that males of U.S.A. species have such denticles. Males of *L. cretatum* have only a few small denticles on the proximal end of the tarsi ventrally. Unlike European *Leiobunum* spp.; specimens of *L. cretatum*, *L. aldrichi*, and *L. gordonii* have several denticles over the eyes.

Variation.—Throughout the range of *L. cretatum* (Fig. 11), little variation in genital morphology, granulation of dorsa, spination of ocular tubercles, or coloration was noted. Obvious differences in leg lengths were noticed when comparing specimens from Michigan and Georgia. Femora II lengths for all adult specimens examined were plotted against latitude and longitude. The plots of lengths vs. longitude for both males and females showed no observed correlation, but the plots of lengths vs. latitude revealed variation in femora II lengths. Specimens from more northern localities have shorter legs than those from more southern localities (Fig. 12). North/south clines in leg lengths have been previously recorded in numerous Northern Hemisphere gagrellid opilionids (Weed 1892, 1893; Suzuki 1971, 1973; McGhee 1977) and the reverse cline has been reported in two gagrellid species from the Southern Hemisphere (Ringuelet 1960).

Unlike most studies on clines in harvestmen, we can not demonstrate a uniform decrease in body size with increase in latitude. Leg length clines were reported for the eastern U.S.A. *Leiobunum politum* Weed and *Leiobunum bracchiolum*



Figs. 5-10.—*Leiobunum cretatum*: 5, dorsal aspect of penis; 6, seminal receptacle of holotype from Georgia; 7, seminal receptacle of Tennessee female; 8, lateral aspect of male labrum; 9, ventral aspect of male labrum; 10, lateral aspect of female labrum.

McGhee by McGhee (1977). Plots of body lengths vs. latitude of adult males and females of *L. cretatum* revealed that: (1) males are smaller than females, (2) males do not vary with latitude, and (3) females from northern latitudes are generally larger than females from southern localities. These differences between females though are possibly due to the dates of capture. All females studied from southern localities were collected in summer and those from more northern localities were collected during late summer and fall. Unless females in the southern regions are gravid earlier than those from the north, we suggest that the noted differences in body sizes are due to the extended abdomen of egg-laying females.

Comments.—*Leiobunum cretatum* is one of the smaller members of the genus from North America. Due to this small size, it is possible specimens have been disposed of by collectors, thinking they were juveniles. This could account for the scarcity of specimens in museum collections.

Distribution and natural history.—*Leiobunum cretatum* is widely distributed in the eastern half of the U.S.A. (Fig. 11). It appears to be most abundant in

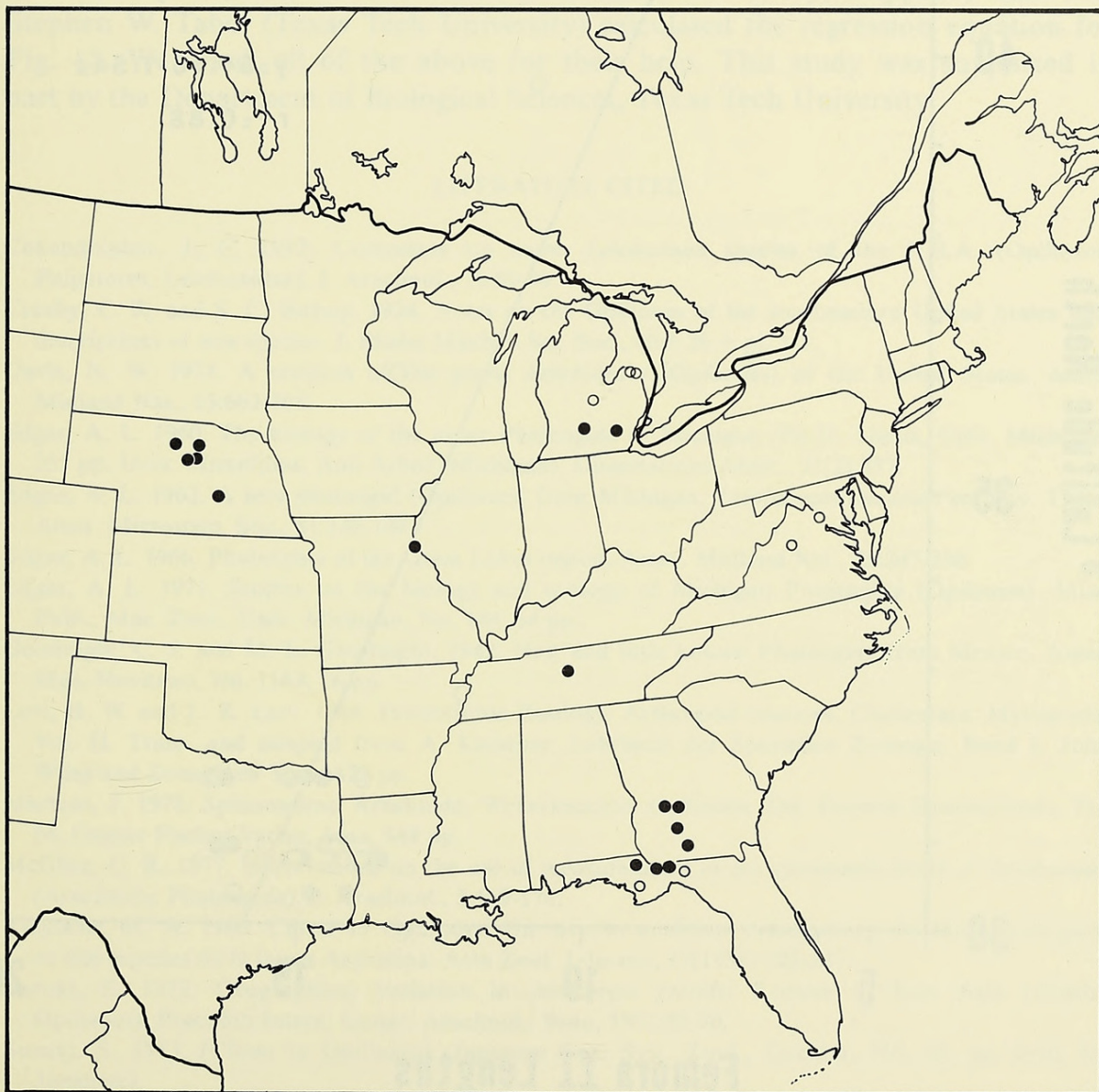


Fig. 11.—Distribution of *Leiobunum cretatum* in the eastern U.S.A., localities mapped by open circles are from Davis (1934) and Edgar (1962, 1971).

deciduous forest and does not appear to exist in the eastern coastal woodlands. It extends west into the Grassland Biome (*Stipa-antilocapra* biotic formation), but is not found in the grasslands, rather in the subclimax woodlands along streams. It is limited to floodplain woodlands where there is a heavy shrub and herb layer. From our observations it appears that there are no true grassland species of *Leiobunum*. However, in habitats which have high moisture content at least *Leiobunum vittatum* and *L. cretatum* can exist.

Specimens examined.—U.S.A.: MICHIGAN; *Eaton Co.*, 4 miles S. Charlotte, 4 Sept. 1979 (J. C. & J. E. Cokendolpher), 3 males, 1 female (1 male WFR, others JCC); *Washtenaw Co.*, 20 Sept. 1930 (J. S. Rogers), 1 male, 1 female (AMNH); MISSOURI; *Marion Co.*, Hannibal, 29 Sept. 1979 (W. F. Rapp), 1 female (JCC); NEBRASKA; *Brown Co.*, Long Pine, 10 Sept. 1975 (W. F. Rapp), 1 female

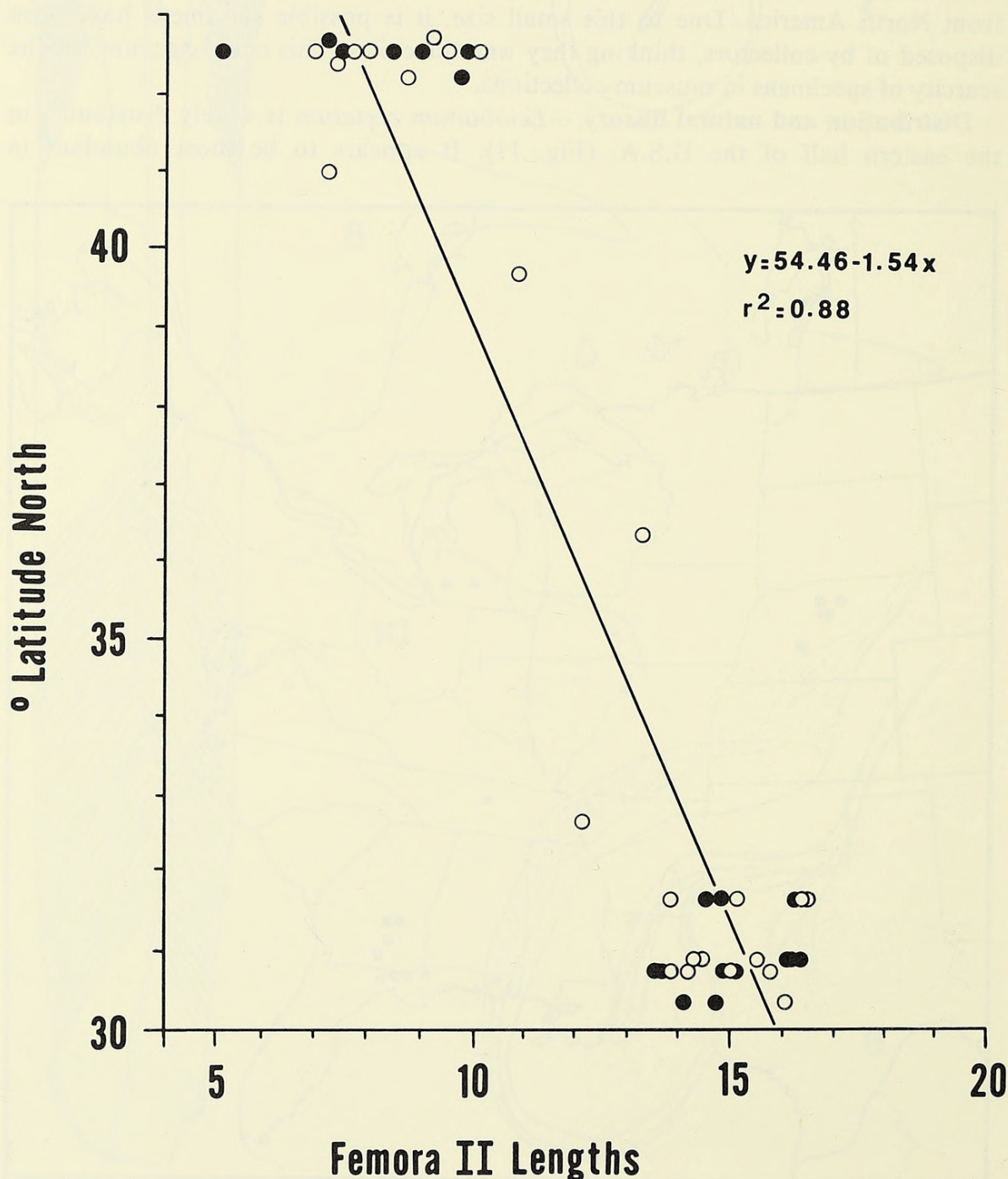


Fig. 12.—*Leiobunum cretatum* femora II lengths (in mm): male (solid circles), female (open circles).

(JCC), 11 Sept. 1979 (W. F. Rapp), 1 male (WFR); *Holt Co.*, O'Neill, 9 Sept. 1975 (W. F. Rapp), 2 males, 2 females (1 pair JCC, 1 pair WFR), Chambers, 10 Oct. 1979 (W. F. Rapp), 1 female (WFR), Swan Lake, 5 Sept. 1978 (W. F. Rapp), 1 female (JCC); *Merrick Co.*, Central City, 31 Aug. 1976 (W. F. Rapp), 1 female (WFR); TENNESSEE; *Williamson Co.*, 17 miles SW of Nashville, Mary Mount Campground, 20 Sept. 1981 (W. D. Sissom), 1 female (JCC); GEORGIA; *Lowndes Co.*, Valdosta, 1 Sept. 1940 (C. J. Goodnight), 4 males, 3 females (AMNH); *Turner Co.*, Ashburn, 31 Aug. 1940 (C. J. Goodnight), 3 males, 5 females (AMNH); FLORIDA; *Gadsden Co.*, Ochlochonee River and Marianna Road, 24 July 1930 (N. W. Davis), 3 males, 2 females, 3 juveniles (AMNH); *Jackson Co.*, Marianna, 24-29 July 1930 (N. W. Davis), 8 males, 7 females, 2 juveniles (AMNH); *Jefferson Co.*, Monticello (date & collector unknown), 1 male (AMNH).

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