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The *Thomomydoecus wardi* Complex (Mallophaga: Trichodectidae) of the Pocket Gopher, *Thomomys talpoides* (Rodentia: Geomyidae)

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ABSTRACT: Three species of the *Thomomydoecus wardi* complex are described and illustrated from material off the Northern Pocket Gopher, *Thomomys talpoides* (Richardson): *Thomomydoecus wardi* (Price and Emerson) from three subspecies of hosts [type host: *Thomomys talpoides macrotis* F. W. Miller]; *Thomomydoecus barbarae*, n. sp. from 15 subspecies [type host: *Thomomys talpoides attenuatus* Hall and Montague]; and *Thomomydoecus arleneae*, n. sp. from two subspecies [type host: *Thomomys talpoides fossor* J. A. Allen].

Thomomydoecus wardi (Price and Emerson, 1971) was initially described as a species of *Geomydoecus* Ewing and subsequently included in the subgenus *Thomomydoecus* Price and Emerson (Price and Emerson, 1972). *Thomomydoecus* was elevated to generic status by Hellenthal and Price (1984a) to include 17 species of chewing lice from the pocket gopher *Thomomys bottae* (Eydoux and Gervais) and one species of louse, *Thomomydoecus wardi*, from *Thomomys talpoides* (Richardson). The latter species, along with *Thomomydoecus byersi* Hellenthal and Price, 1984, off *Thomomys bottae*, is sufficiently different from the other *Thomomydoecus* lice as to result in their placement together in the *wardi* complex.

In our studies of the various complexes of pocket gopher lice, we have collected, examined, and identified 1113 specimens of the *wardi* complex from *Thomomys talpoides*, with quantitative morphological data obtained from 205 specimens representing both males and females. The quantitative character data for lice in our study, combined with their host and locality information, are included as part of a computerized pocket gopher louse data base at the University of Notre Dame. With this study, we are able to recognize three species within what has been known as *Thomomydoecus wardi*. It is our purpose to describe and illustrate these species here.

In the following descriptions, counted or measured characters are followed by the minimum and maximum observed values, then sample size, mean, and standard deviation in parentheses. Measurements are in millimeters. Illustrations are for specimens from the type host. In evaluating character usefulness for specific discrimination, critical values for each character were calculated at the point where the likelihood of single character misidentification of the two compared taxa was equal, given normality and equal variance, and ignoring probability of collection. For characters offering moderately good discriminating ability, these critical values and the corresponding probabilities of misidentification are given. In an abbreviated comparative species description, quantitative data are given only for those characters whose means differ at a significance level of $P \leq 0.01$. Detailed descriptions of the characters used for lice of the genus *Thomomydoecus* are given

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in Price and Hellenthal (1980). Discussion of the quantitative procedures used in this study are included in Hellenthal and Price (1980).

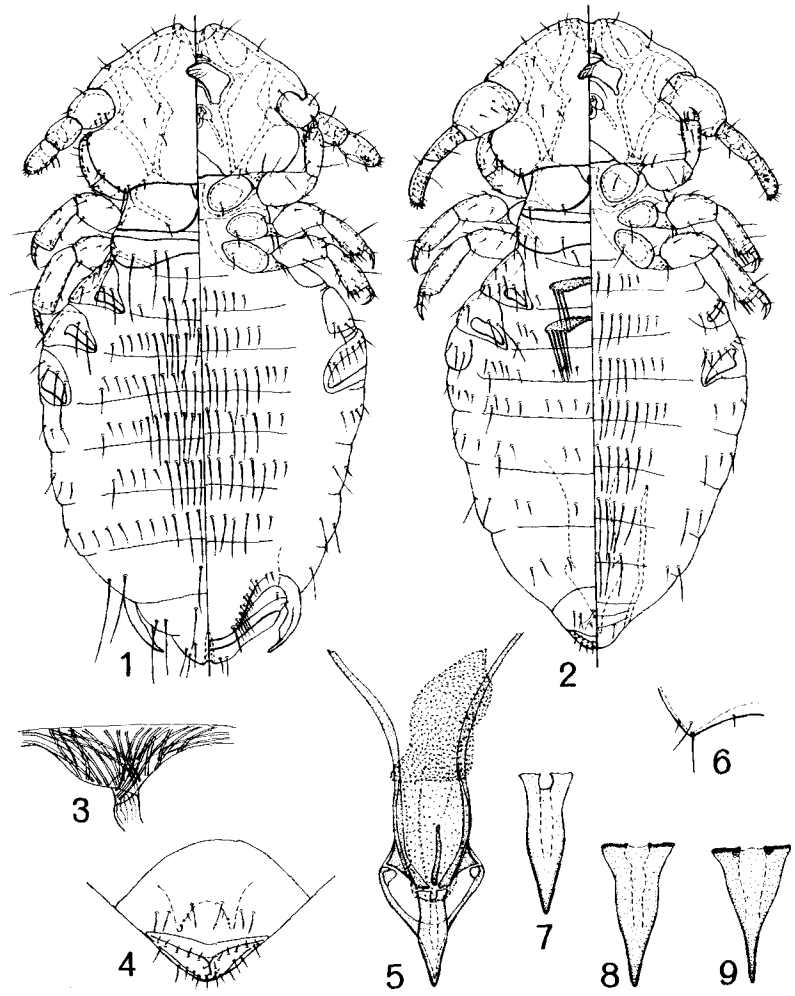
In the "Material" sections, a number in parentheses following a locality represents the total number of gophers from which lice were taken. The host distribution map was produced by a computer from a pocket gopher/louse association data base (Hellenthal and Price, 1984b). The map projection is rectangular to facilitate determination of the latitude and longitude of individual collection sites. Original locality data expressed in miles are followed parenthetically by the metric equivalent to 0.1 km; the English figure, rather than the metric, expresses the precision of the location estimate. In some cases we have changed the original host identifications to reflect the current classification of the Geomyidae as given by Hall (1981).

Thomomydoecus wardi (Price and Emerson) (Figs. 1–7)

Geomydoecus wardi Price and Emerson, 1971, J. Med. Entomol. 8:248. Type host: *Thomomys talpoides macrotis* F. W. Miller.

MALE: As in Fig. 2. Temple width 0.350–0.385 (11: 0.369 ± 0.0076); head length 0.270–0.290 (11: 0.273 ± 0.0065); submarginal and inner marginal temple setae 0.020–0.030 (11: 0.024 ± 0.0032) and 0.030–0.040 (10: 0.036 ± 0.0039) long, respectively, with submarginal seta essentially anterior to inner marginal seta (Fig. 6). Antenna with scape length 0.105–0.120 (11: 0.111 ± 0.0052), scape width 0.070–0.080 (11: 0.079 ± 0.0034). Prothorax width 0.245–0.270 (10: 0.258 ± 0.0076). Abdominal tergal setae: I, 2; II, 8–11 (11: 9.3 ± 1.19); III, 15–20 (11: 16.4 ± 1.36); IV, 16–21 (10: 17.4 ± 1.84); V, 12–17 (11: 14.1 ± 1.45); VI, 8–13 (11: 10.8 ± 1.47); tergal and pleural setae on VII, 12–16 (11: 13.5 ± 1.44). Dorsal terminalia (Fig. 4) with chaetotaxy as shown, each side medially with anterior medium seta followed by short seta and 2 sensilla. Abdominal sternal setae: II, 8–11 (11: 9.3 ± 0.90); III, 12–17 (11: 13.7 ± 1.79); IV, 13–20 (11: 17.1 ± 1.87); V, 11–16 (10: 13.4 ± 1.51); VI, 11–13 (11: 12.0 ± 0.77); VII, 8–12 (11: 10.1 ± 1.30); VIII, 5–8 (11: 6.5 ± 0.82). Total length 0.990–1.245 (11: 1.096 ± 0.0826). Genitalia as in Fig. 5; parameral arch broadly tapered to posterior point, width 0.100–0.115 (11: 0.109 ± 0.0051); endomeral plate as in Fig. 7, with deep medioanterior notch, median width subequal to anterior width, and evenly tapered to posterior point, width 0.035–0.045 (11: 0.041 ± 0.0030), length 0.075–0.100 (9: 0.092 ± 0.0073); with conspicuous spinose sac.

FEMALE: As in Fig. 1. Temple width 0.390–0.405 (9: 0.395 ± 0.0055); head length 0.255–0.285 (9: 0.274 ± 0.0095); submarginal and inner marginal temple setae 0.020–0.030 (8: 0.024 ± 0.0035) and 0.035–0.050 (7: 0.045 ± 0.0064) long, respectively, positioned as for male. Prothorax width 0.260–0.300 (9: 0.280 ± 0.0128). Abdominal tergal setae: I, 2; II, 9–13 (9: 11.9 ± 1.36); III, 18–23 (9: 20.7 ± 1.66); IV, 22–27 (9: 24.0 ± 1.50); V, 19–26 (9: 23.8 ± 2.22); VI, 19–25 (9: 22.2 ± 2.17); tergal and pleural setae on VII, 26–31 (9: 28.2 ± 1.64); median setae tergite VIII, 2. Longest seta of medial 10 on tergite VI, 0.100–0.105 (9: 0.103 ± 0.0026); on tergite VII, 0.095–0.115 (9: 0.105 ± 0.0063), with 0–4 (9: 1.4 ± 1.59) of these longer than 0.100. Longer of medial setae on tergite VIII, 0.065–0.100 (9: 0.088 ± 0.0125). Last tergite with 2 lateral setae close together



Figs. 1–9. *Geomydoecus wardi*. 1. Female. 2. Male. 3. Female genital sac. 4. Male dorsal terminalia. 5. Male genitalia. 6. Male left temple margin. Endomeral plate of male genitalia. 7. *G. wardi*. 8. *G. barbarae*. 9. *G. arleneae*.

on each side and pair near midline; outer seta 0.070–0.095 (6: 0.086 ± 0.0084), middle seta 0.075–0.085 (6: 0.081 ± 0.0055), inner seta 0.055–0.070 (9: 0.063 ± 0.0057) long. Abdominal sternal setae: II, 10–13 (8: 11.0 ± 1.07); III, 11–15 (9: 12.7 ± 1.32); IV, 13–21 (9: 17.4 ± 2.19); V, 16–20 (9: 17.9 ± 1.62); VI, 15–20 (9: 16.6 ± 1.81); VII, 12–16 (9: 13.1 ± 1.27). Subgenital plate with 23–32 (9:

27.4 ± 3.36) setae, with longer heavier medioposterior seta on each side. Genital sac with paired close-set faint lines much as in Fig. 3; width 0.150–0.225 (8: 0.185 ± 0.0316), length 0.060–0.090 (7: 0.071 ± 0.0100). Total length 0.980–1.255 (8: 1.115 ± 0.0881).

MATERIAL: 6 males, 7 females, *ex Thomomys talpoides macrotis,* Colorado, Douglas Co., Cherry Creek, D'Arcy Ranch (5), D'Arcy Ranch, 2 mi (3.2 km) N Parker (1).

2 males, 4 females, *ex T. t. retrorsus* Hall, Colorado, Elbert Co., 1.5 mi (2.4 km) W Elizabeth (1); El Paso Co., 6.3 mi (10.1 km) N Colorado Springs (1); Teller Co., 4.7 mi (7.6 km) N, 1.3 mi (2.1 km) W Woodland Park (1).

47 males, 53 females, *ex T. t. rostralis* Hall and Montague, Colorado, Boulder Co., Kelly-Dahl Campground (2), 2.1 mi (3.4 km) W, 1.6 mi (2.6 km) S Raymond (1), no locality (2); Clear Creek Co., 4.4 mi (7.1 km) W, 1.0 mi (1.6 km) S Bergen Park (1), 0.2 mi (0.3 km) E, 0.1 mi (0.2 km) N Summit Lake (1); Douglas Co., 2.6 mi (4.2 km) W, 2.2 mi (3.5 km) N Castle Rock (1); Fremont Co., 9 mi (14.5 km) N (1) and 12.5 mi (20.1 km) N (1) Cotopaxi; Gilpin Co., 2.7 mi (4.3 km) N, 1.6 mi (2.6 km) W Black Hawk (2); Jefferson Co., 2.0 mi (3.2 km) N, 0.3 mi (0.5 km) E (1) and 2.6 mi (4.2 km) N, 0.3 mi (0.5 km) W (1) Morrison, 2.2 mi (3.5 km) N, 1.6 mi (2.6 km) W Evergreen (1), 3.9 mi (6.3 km) S, 3.3 mi (5.3 km) W Buffalo Creek (2), 4.7 mi (7.6 km) W, 1.6 mi (2.6 km) S Deckers (1), Golden (1); Lake Co., 1.3 mi (2.1 km) N, 0.6 mi (1.0 km) W (1) and 2.9 mi (4.7 km) W, 0.4 mi (0.6 km) S (1) Leadville; Park Co., Jefferson (1); Summit Co., 6.3 mi (10.1 km) E, 2.5 mi (4.0 km) N Frisco (1).

REMARKS: The shape of the male genitalic endomeral plate (Fig. 7) offers the best means of separating *Thomomydoecus wardi* from the other species in the complex. *T. wardi* is limited in its distribution to three subspecies of *Thomomys talpoides* that occur in 12 counties in central Colorado (Fig. 10).

Thomomydoecus barbarae, new species
(Fig. 8)

MALE: Much as for *Thomomydoecus wardi,* except as follows. Head length 0.255–0.295 (67: 0.279 ± 0.0074). Abdominal tergal setae on III, 12–18 (71: 15.0 ± 1.34). Total length 1.050–1.325 (63: 1.177 + 0.0622). Genitalia with endomeral plate as in Fig. 8, distinctly wider anteriorly and without deep medioanterior notch; width 0.040–0.060 (71: 0.050 ± 0.0046).

FEMALE: Much as for *T. wardi,* except as follows. Head length 0.260–0.300 (65: 0.283 ± 0.0072); inner marginal temple seta 0.030–0.050 (58: 0.038 ± 0.0045) long. Abdominal sternal setae on III, 11–20 (75: 14.7 ± 1.83). Total length 1.000–1.325 (65: 1.186 ± 0.0674).

MATERIAL: Holotype male, *ex Thomomys talpoides attenuatus* Hall and Montague (University of Kansas Museum of Natural History 41841), 27 mi (43.5 km) N, 2 mi (3.2 km) E Powder River, Natrona Co., Wyoming, 15.VII.1951, K. L. Fitch; in collection of the University of Kansas. Paratypes: 66 males, 33 females, *ex T. t. attenuatus,* Wyoming, Albany Co., 7.6 mi (12.2 km) E, 4.8 mi (7.7 km) S Laramie (1); Converse Co., 2.4 mi (3.9 km) W, 0.8 mi (1.3 km) N (1) and 5.1 mi (8.2 km) W, 0.1 mi (0.2 km) N (1) Warbonnet Peak, 12 mi (19.3 km) N, 6 mi (9.7 km) W Bill (1), 21 mi (33.8 km) S, 24 mi (38.6 km) W Douglas (1); Natrona Co., same as holotype (2), 10 mi (16.1 km) S Casper (2); paratypes distributed among U.S. National Museum of Natural History, Field Museum of Natural History, University of Minnesota, and Oklahoma State University.

OTHER: 17 males, 28 females, *ex T. t. agrestis* Merriam, Colorado, Alamosa Co., Uracca Pioneer Cemetery (2), 12.4 mi (20.0 km) E, 0.5 mi (0.8 km) N (1), 12.3 mi (19.8 km) E, 0.9 mi (1.4 km) N (2), 11.3 mi (18.2 km) E, 0.8 mi (1.3 km) N (1), and 15.7 mi (25.3 km) E, 0.5 mi (0.8 km) N (1) Mosca, Medano Ranch, 15 mi (24.1 km) E Mosca (1), 11.7 mi (18.8 km) W, 2.5 mi (4.0 km) N Saguache (2), 9.9 mi (15.9 km) W, 8.1 mi (13.0 km) N La Garita (1); Costillas Co., Blanca (1); Saguache Co., 0.5 mi (0.8 km) N, 0.1 mi (0.2 km) E (1), 0.3 mi (0.5 km) W, 0.5 mi (0.8 km) S (1), 0.1 mi (0.2 km) E, 0.6 mi (1.0 km) N (1), 2.7 mi (4.3 km) E, 1.0 mi (1.6 km) S (1), 3.5 mi (5.6 km) N, 0.5 mi (0.8 km) W (1), and 1.4 mi (2.3 km) E, 7.0 mi (11.3 km) N (1) Moffat, 13.5 mi (21.7 km) W, 1.0 mi (1.6 km) S Crestone (1).

15 males, 24 females, *ex T. t. bullatus* V. Bailey, Montana, Carter Co., 8 mi (12.9 km) N, 8 mi (12.9 km) W (1), 6 mi (9.7 km) N, 9 mi (14.5 km) W (1), 5.5 mi (8.9 km) N, 9.5 mi (15.3 km) W (1), and 5 mi (8.0 km) N, 3.5 mi (5.6 km) W (1) Camp Crook, Ekalaka (1); Dawson Co., Glendive (1); South Dakota, Harding Co., 12 mi (19.3 km) SSW Reva (1); Wyoming, Campbell Co., 48 mi (77.3 km) S, 14 mi (22.5 km) W Gillette (3); Fremont Co., 17 mi (27.4 km) S, 6.5 mi (10.5 km) W (1) and 17.5 mi (28.2 km) W, 2.5 mi (4.0 km) N (1) Lander; Johnson Co., 12 mi (19.3 km) S, 10.5 mi (16.9 km) W Buffalo (1).

5 males, 3 females, *ex T. t. caryi* V. Bailey, Wyoming, Big Horn Co., 28 mi (45.1 km) E Lovell (1).

1 male, *ex T. t. cheyennensis* Swenk, Wyoming, Laramie Co., 1 mi (1.6 km) W Pine Bluffs (1).

21 males, 20 females, *ex T. t. durranti* Kelson, Colorado, Garfield Co., 0.3 mi (0.5 km) W Baxter Pass (1), 28 mi (45.1 km) N, 5 mi (8.0 km) W Mack (1); Utah, Grand Co., Warner Ranger Station (2); San Juan Co., Johnson Creek, 14 mi (22.5 km) N Blanding (2), Elk Ridge, Gooseberry Ranger Station (1).

21 males, 36 females, *ex T. t. fossor* J. A. Allen, Colorado, Delta Co., Grand Mesa (6); Gunnison Co., Long Gulch, Black Mesa (3), 0.6 mi (1.0 km) S, 0.5 mi (0.8 km) E (1) and 5.2 mi (8.4 km) E, 3.7 mi (6.0 km) S (1) Crested Butte; Mesa Co., Grand Mesa (1), Divide Creek Campground (1), Spruce Grove Campground (2); Mineral Co., 4.9 mi (7.9 km) N Wolf Creek Pass (1); Montezuma Co., 10.5 mi (16.9 km) E Dolores (1); Ouray Co., 7.0 mi (11.3 km) W, 3.6 mi (5.8 km) S Ridgway (1); Saguache Co., 5.3 mi (8.5 km) E, 1.8 mi (2.9 km) N Cochetopa Pass (1), 0.5 mi (0.8 km) S jct. Samora Creek & West Pass Creek (1).

1 male, 1 female, *ex T. t. levis* Goldman, Utah, Wayne Co., 14 mi (22.5 km) N Torrey (1).

34 males, 49 females, *ex T. t. meritus* Hall, Colorado, Eagle Co., Yeoman Park Campground (2); Garfield Co., Coffee Pot Campground (1); Grand Co., Gore Pass (1); Rio Blanco Co., 9.8 mi (15.8 km) E, 4.9 mi (7.9 km) N (3), 2.3 mi (3.7 km) S, 1.6 mi (2.6 km) E (1), and 2.9 mi (4.7 km) S, 2.3 mi (3.7 km) E (1) Buford; Routt Co., 5 mi (8.0 km) N Toponas (1), Toponas Creek Campground (2).

7 males, 6 females, *ex T. t. nebulosus* V. Bailey, South Dakota, Lawrence Co., Nemo (4); Wyoming, Crook Co., 1 mi (1.6 km) E, 0.5 mi (0.8 km) N Beulah (1).

13 males, 19 females, *ex T. t. ocius* Merriam, Colorado, Moffat Co., Snake River (1), Two Bar Spring (1), 10.7 mi (17.2 km) W, 0.3 mi (0.5 km) N Craig (2); Wyoming, Sweetwater Co., 9.8 mi (15.8 km) E, 5.9 mi (9.5 km) N Farson (2).

2 females, *ex T. t. pryori* V. Bailey, Montana, Carbon Co., 2 mi (3.2 km) E Shriver (1), head Sage Creek, Pryor Mts. (1).

1 female, *ex T. t. pygmaeus* Merriam, Wyoming, Uinta Co., 3.6 mi (5.8 km) W, 0.8 mi (1.3 km) N Ft. Bridger (1).

156 males, 185 females, *ex T. t. rostralis,* Colorado, Chaffee Co., 13 mi. (20.9 km) NW Salida (4), 0.3 mi (0.5 km) E, 0.2 mi (0.3 km) S Cottonwood Pass (2), 5.5 mi (8.9 km) S, 3.6 mi (5.8 km) W Poncha Springs (1); Custer Co., 2.7 mi (4.3 km) W, 0.3 mi (0.5 km) S Westcliffe (1), 6.9 mi (11.1 km) W, 1.1 mi (1.8 km) S Beulah (1); Eagle Co., Hornsilver Campground (1); Fremont Co., 6.5 mi (10.5 km) N Cotopaxi (1); Grand Co., 1 mi (1.6 km) S Jones Pass (2); Huerfano Co., 12.3 mi (19.8 km) NW Gardner (1); Jackson Co., 4.7 mi (7.6 km) W, 0.2 mi (0.3 km) N Cowdrey (1); Larimer Co., 1 mi (1.6 km) E (1), 4 mi (6.4 km) NNE (1), 1 mi (1.6 km) N (1), and at (28) Livermore, Buckhorn Ranger Station (5), 23 mi (37.0 km) NW Ft. Collins (1), 5.1 mi (8.2 km) N, 1.2 mi (1.9 km) W (1) and 7.6 mi (12.2 km) N, 4.9 mi (7.9 km) W (1) Rustic, 6.2 mi (10.0 km) N, 3.6 mi (5.8 km) E Clark Peak (1), 2.8 mi (4.5 km) N, 2.3 mi (3.7 km) E Estes Park (1); Wyoming, Albany Co., 3.5 mi (5.6 km) N (2), 2 mi (3.2 km) E (1), and at (1) Laramie; Carbon Co., 7 mi (11.3 km) S, 11 mi (17.7 km) E (1) and 25 mi (40.2 km) E, 10 mi (16.1 km) S (1) Saratoga, 6.3 mi (10.1 km) S, 3.2 mi (5.2 km) W (1) and 8.4 mi (13.5 km) S, 3.5 mi (5.6 km) W (1) Rawlins.

1 male, 1 female, *ex T. t. talpoides,* Montana, Fergus Co., 18 mi (29.0 km) S, 3 mi (4.8 km) W Lewiston (1).

REMARKS: The male of *Thomomydoecus barbarae* is separable from that of *T. wardi* by the shape of the genitalic endomeral plate (Fig. 8 vs. Fig. 7). Quantitatively, the best character for separating males from *T. wardi* and its critical value for discrimination and probability of misidentification was the endomeral plate width 0.0455 (0.148). For females, there were no characters with a probability of misidentification less than 0.22. This species is the most widely distributed of the three, occurring on 15 subspecies of *Thomomys talpoides* in the eastern half of Montana and Utah, Wyoming, the western two-thirds of Colorado, and western South Dakota (Fig. 10).

This species is named for Barbara Hellenthal, the wife of the senior author, in appreciation of her patient help and support during the course of our pocket gopher/louse studies.

Thomomydoecus arleneae, new species
(Fig. 9)

MALE: Much as for *Thomomydoecus wardi,* except as follows. Head length 0.265–0.295 (19: 0.280 ± 0.0075); submarginal temple seta 0.025–0.030 (18: 0.027 ± 0.0026) long. Abdominal tergal setae on III, 12–19 (20: 14.3 ± 1.92); tergal and pleural setae on VII, 14–19 (20: 16.2 ± 1.41). Total length 1.050–1.325 (19: 1.176 ± 0.0644). Genitalia with endomeral plate as in Fig. 9, broad and flat to shallowly indented anteriorly and narrowly tapered posteriorly; width 0.045–0.060 (20: 0.052 ± 0.0049).

FEMALE: Much as for *T. wardi,* except as follows. Abdominal tergal setae on II, 11–16 (16: 13.6 ± 1.21); tergal and pleural setae on VII, 27–34 (14: 30.4 ± 2.06). Abdominal sternal setae on III, 10–19 (15: 15.0 ± 2.36). Total length 1.115–1.270 (16: 1.187 ± 0.0399).

MATERIAL: Holotype male, *ex Thomomys talpoides fossor* J. A. Allen (New Mexico State University 11397), 4.0 mi (6.4 km) S, 1.7 mi (2.7 km) E Redondo Peak, Sandoval Co., New Mexico, 18.VI.1967, C. S. Thaeler, Jr.; in collection of the University of Minnesota. Paratypes: 108 males, 106 females, *ex T. t. fossor,* Colorado, Archuleta Co., Gordon Creek near jct. Piedra River (1), Chromo (1); Conejos Co., 0.4 mi (0.6 km) N, 0.2 mi (0.3 km) W (3) and at (1) Spectacle Lake, 5 mi (8.0 km) S, 24 mi (38.6 km) W Antonito (1); New Mexico, Colfax Co., 1 mi (1.6 km) S, 2 mi (3.2 km) E Eagle Nest (1); Rio Arriba Co., 6.0 mi (9.7 km) E, 0.3 mi (0.5 km) N (1) and 6 mi (9.7 km) E, 1 mi (1.6 km) N (1) Cuba, 10.5 mi (16.9 km) E Chama (1), 5.0 mi (8.0 km) E, 4.8 mi (7.7 km) N (1) and 5.0 mi (8.0 km) E, 4.7 mi (7.6 km) N (1) Canjilon; Sandoval Co., same as holotype (1), 3.6 mi (5.8 km) S, 2.8 mi (4.5 km) E (1), 6.1 mi (9.8 km) N, 3.7 mi (6.0 km) W (1), and 3.9 mi (6.3 km) S, 2.0 mi (3.2 km) E (1) Redondo Peak, 15 mi (24.1 km) W, 5 mi (8.0 km) S Los Alamos (1), 11 mi (17.7 km) E, 3 mi (4.8 km) N Jemez Springs (1); San Juan Co., Aztec (1), 0.6 mi (1.0 km) N, 0.3 mi (0.5 km) W Berland Lake (1), 9.3 mi (15.0 km) W, 0.6 mi (1.0 km) S Naschitti (1); San Miguel Co., 1.7 mi (2.7 km) N, 0.3 mi (0.5 km) E Cowles (1); Santa Fe Co., Santa Fe (2); Taos Co., 7.3 mi (11.8 km) S, 5.9 mi (9.5 km) E Amalia (1), 4.5 mi (7.2 km) S Red River (1), 4 mi (6.4 km) NE Tres Ritos (1), 2 mi (3.2 km) SE (1) and at (1) Taos Ski Area, 5.7 mi (9.2 km) E, 2.5 mi (4.0 km) S Taos (1); Valencia Co., 1 mi (1.6 km) S La Mosca Peak (3); paratypes distributed as for *Thomomydoecus barbarae.*

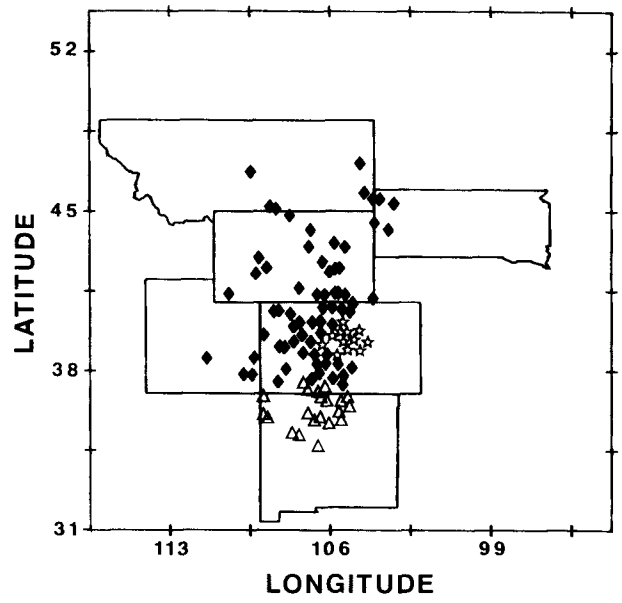


Fig. 10. Geographical distribution of *Thomomydoecus wardi* (open stars), *T. arleneae* (open triangles), and *T. barbarae* (solid diamonds) in the west central United States.

OTHER: 3 males, 9 females, *ex Thomomys talpoides taylori* Hooper, New Mexico, Valencia Co., Mirabel Spring, Mt. Taylor (1), 2.9 mi (4.7 km) N, 0.3 mi (0.5 km) W Mt. Taylor (1).

REMARKS: As with the other species of the *wardi* complex, *Thomomydoecus arleneae* is best distinguished by the shape of the male genitalic endomeral plate (Fig. 9 vs. Figs. 7, 8). For males, the best quantitative characters for separating *T. arleneae* from *T. wardi* and their critical values for discrimination and probabilities of misidentification were the endomeral plate width 0.0466 (0.096) and the number of tergal and pleural setae on VII 14.85 (0.162). There were no female characters for *T. arleneae* compared to the other two species with a probability of misidentification under 0.250; there were no quantitative male characters for *T. arleneae* compared to *T. barbarae* with a probability of misidentification under 0.280. The geographical distribution of *T. arleneae* is on *Thomomys talpoides fossor* and *T. t. taylori* in northern New Mexico and southern Colorado (Fig. 10). Hall (1981) questions whether the northeastern populations of *T. t. fossor* may in fact be *T. t. agrestis.*

This species is named for Arlene Price, the wife of the junior author, in appreciation of her patient help and support during the course of our pocket gopher/louse studies.

As has been found with other species of *Thomomydoecus,* the most consistently useful feature for recognizing taxa has been associated with the male genitalia, especially the shape of the endomeral plate. Separation of the females is difficult, if not impossible, from what we now know. However, the use of the male genitalic character consistently separates our material into three geographical units and we feel confident in recognizing these groups as distinct taxa. Males of the three species key to couplet 13 of the male key in Price and Emerson (1971) and all identify as *T. wardi,* where they may be separated from each other by the shape of the endomeral plate. Females key to couplet 6 of the female key in Price and Emerson (1971) and identify as *T. wardi*; we know of no satisfactory means of separating female specimens of these species at this time.

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