

SYNOPSIS OF THE NORTH AMERICAN
PYRGOTIDAE (DIPTERA)

George C. Steyskal

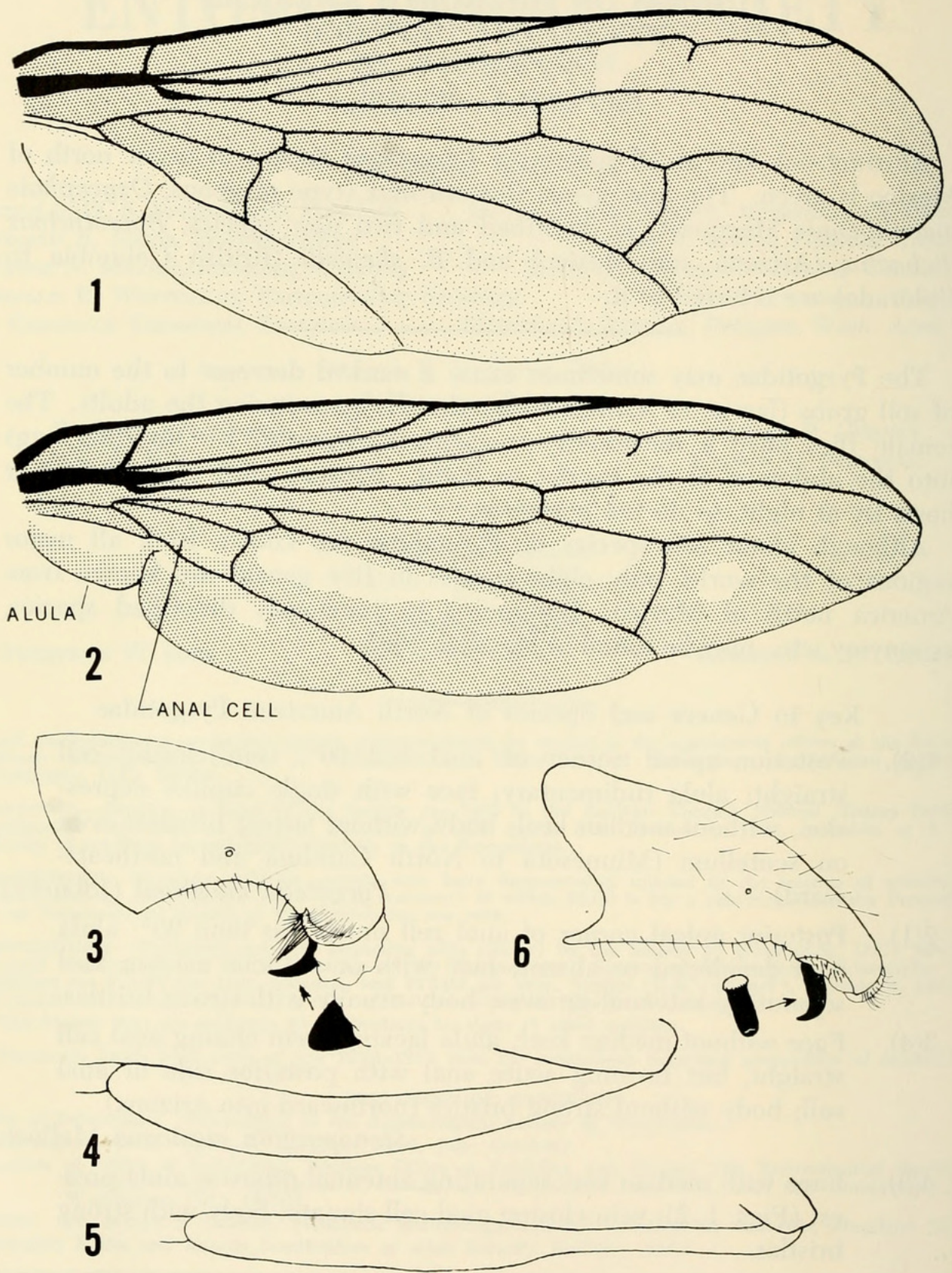
Abstract.—A key to all species of Pyrgotidae known to occur north of Mexico is given. The new genus *Boreothrinax* (type of genus, *Oxycephala maculipennis* Macquart) is described and two new species, *Boreothrinax dichætus* (Arizona and Mexico) and *B. shewelli* (British Columbia to Colorado) are referred to it.

The Pyrgotidae may sometimes cause a marked decrease in the number of soil grubs (larvae of scarabaeid beetles) by parasitizing the adults. The female flies have a remarkably specialized ovipositor for inserting eggs into the abdomen of the beetles in flight. Because most species of their hosts fly at night, so do the pyrgotids.

Although about 330 species of Pyrgotidae are known from all major regions of the world, only eight species in five genera are known from America north of Mexico. References to previously described species, synonymy, etc., may be found in Steyskal, 1965.

Key to Genera and Species of North American Pyrgotidae

- 1(2). Posterior apical corner of anal cell 90° , vein closing cell straight; alula rudimentary; face with single cuplike depression, without median keel; body without strong bristles, even on scutellum (Minnesota to North Carolina and northeastward)
Pyrgotella chagnoni (Johnson)
- 2(1). Posterior apical corner of anal cell much less than 90° ; alula well developed or absent; face with or without median keel separating antennal grooves; body usually with strong bristles.
- 3(4). Face without median keel; alula lacking; vein closing anal cell straight, but forming acute anal with posterior side of anal cell; body without strong bristles (northward into Arizona)
Stenopyrgota mexicana Malloch
- 4(3). Face with median keel separating antennal grooves; alula present (Figs. 1, 2); vein closing anal cell sinuate; body with strong bristles.
- 5(8). Wing (Figs. 1, 2) with large areas of plain color, not mottled; 2nd vein usually with stump vein extending backwards near tip; hindtibia tapering to base (Fig. 4); female with strong hook (often more or less withdrawn) below at tip of abdomen (Fig. 3)
Genus *Pyrgota*



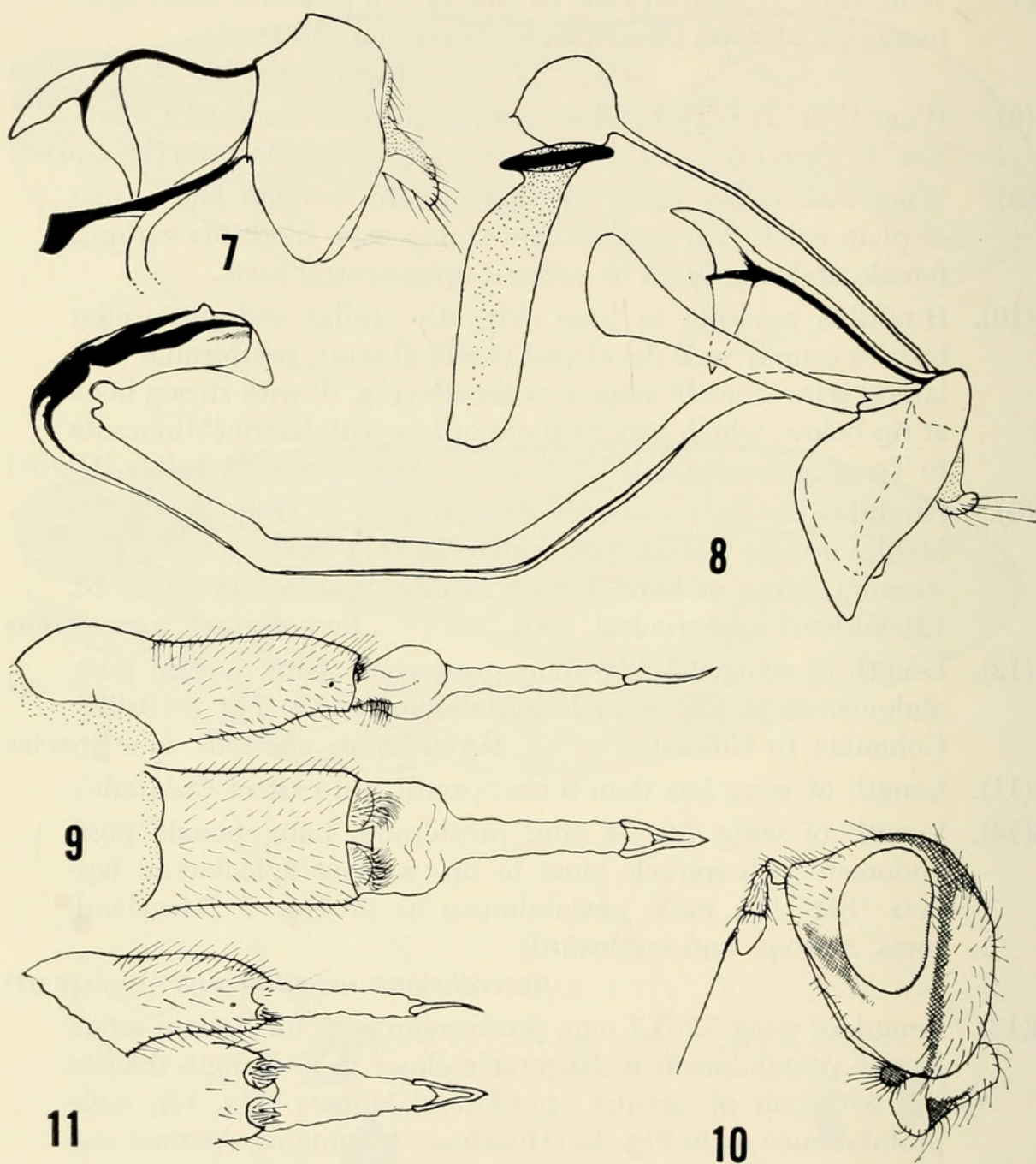
Figs. 1-6. Details of Pyrgotidae. 1. *Pyrgota undata*, wing; 2. *Pyrgota fenestrata*, wing; 3. *Pyrgota undata*, lateral view of female postabdomen; 4. *Pyrgota undata*, lateral outline of hindtibia; 5. *Boreothrinax shewelli*, lateral outline of hindtibia; 6. *Sphecomyiella valida*, lateral view of female postabdomen.

- 6(7). Wing (Fig. 1) with hyaline to pale-brown posterior areas open to margin of wing (Manitoba to Texas and eastward)
Pyrgota undata Wiedemann
- 7(6). Wing (Fig. 2) with hyaline to whitish areas enclosed ("Carolina" to Florida)
Pyrgota fenestrata (Macquart)
- 8(5). Wing with rather finely mottled pattern, without large areas of plain color; 2nd vein without stump vein; hindtibia various; female abdomen with or without apicoventral hook.
- 9(10). Hindtibia tapering to base (Fig. 4); ocellar and postocellar bristles usually well developed (ocelli absent); prosternum with lateral setae; female ovipositor sheath (Fig. 6) with strong hook at tip below, which may be more or less withdrawn (Minnesota to Texas and eastward)
Sphecomyiella valida (Harris)
- 10(9). Hindtibia strongly constricted near basal $\frac{1}{3}$ (Fig. 5); ocellar bristles usually lacking, postocellars lacking (ocelli absent); prosternum setose or bare; female ovipositor sheath (Figs. 9, 10, 12) without apicoventral hook
Boreothrinax, new genus
- 11(12). Length of wing 9.3–12.0 mm; prosternum bare; female postabdomen as in Fig. 9; male postabdomen as in Fig. 8 (British Columbia to Colorado)
Boreothrinax shewelli, new species
- 12(11). Length of wing less than 9 mm (south and east of Colorado).
- 13(14). Length of wing 7.0–8.4 mm; prosternum bare; female postabdomen with spiracle close to tip, without apicolateral lappets (Fig. 11); male postabdomen as in Fig. 7 (Maryland, Iowa, Arizona, and southward)
Boreothrinax maculipennis (Macquart)
- 14(13). Length of wing 5.7–7.7 mm; prosternum with fine lateral setae; female postabdomen with spiracle closer to midlength than to tip, with pair of circular apicolateral lappets (Fig. 12); male postabdomen as in Fig. 13 (Huachuca Mountains, Arizona and Mexico)
Boreothrinax dichæetus, new species

Boreothrinax Steyskal, new genus

Type of genus, *Oxycephala maculipennis* Macquart.

The sinuate vein at tip of apical cell, well-developed alula and median facial keel, and irrorate wing pattern bring this member of the tribe Pyrgotini into comparison only with *Sphecomyiella* Hendel, from which it differs as in the above key. The only known species besides the type of the genus are the new species described below. The name is of masculine gender and similar to a few names derived from Greek *thrinax* by Enderlein.



Figs. 7-11. Details of *Boreothrinax* species. 7. *Boreothrinax maculipennis*, lateral view of male postabdomen, less aedeagus; 8. *Boreothrinax shewelli*, lateral view of male postabdomen; 9. *Boreothrinax shewelli*, lateral and ventral views of female postabdomen; 10. *Boreothrinax shewelli*, profile of head; 11. *Boreothrinax maculipennis*, lateral and ventral views of female postabdomen.

Boreothrinax dicaetus Steyskal, new species

Figs. 12, 13

Differing from *B. maculipennis* and *B. shewelli* as in the preceding key; general color somewhat darker than in either of these species, with apical $\frac{2}{3}$ of 3rd antennal segment and most of femora blackish; size in-

intermediate, with length of wing 5.7–7.7 mm. Prosternum with about 5 fine lateral setae.

Female postabdomen as in Fig. 12; ovipositor sheath longer and more slender than in other species, with pair of circular lappets at latero-ventral apex, conspicuous pair of long ventral bristles, and spiracles little apicad of midlength of sheath.

Male postabdomen as in Fig. 13; epandrium in profile bluntly and obliquely truncate, roughly elliptical.

Types.—Holotype, allotype, and 1♂ and 3♀ paratypes, Huach. (= Huachuca) Mts., Ariz., Catal. No. 1311, Brooklyn Museum Coll. 1929 (No. 73650 in U.S. National Museum); paratypes; 2♀, Miller Canyon, Huachuca Mountains, Cochise County, Arizona, I.V. and 19.VII.1969, 5,000 ft (R. F. Sternitzky); 1♀, 5 mi W Durango, Durango, Mexico, 29.VI.1964, 6,500 ft (J. F. McAlpine); 1♀, 11 mi W Durango, Durango, Mexico, 15.VI.1964, 7,000 ft (J. F. McAlpine), all in Canadian National Collection, Ottawa.

The species-name, an adjective meaning “two bristle,” is derived from Greek.

Boreothrinax maculipennis (Macquart, 1846), new combination
Figs. 7, 11

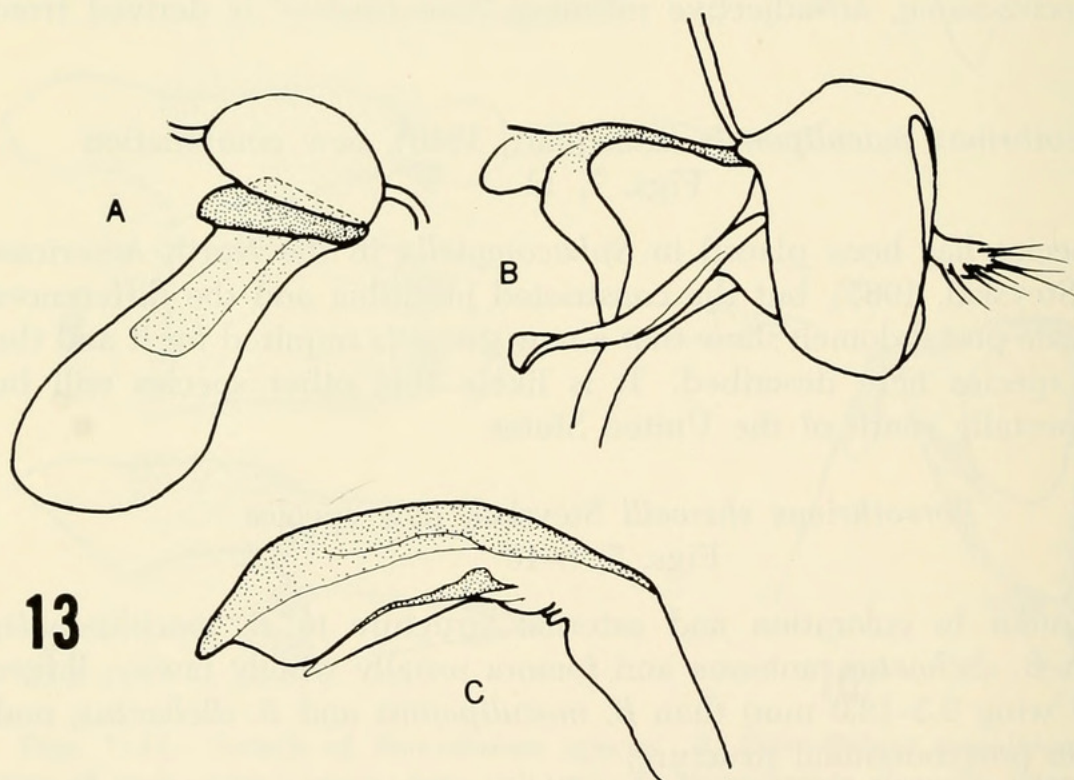
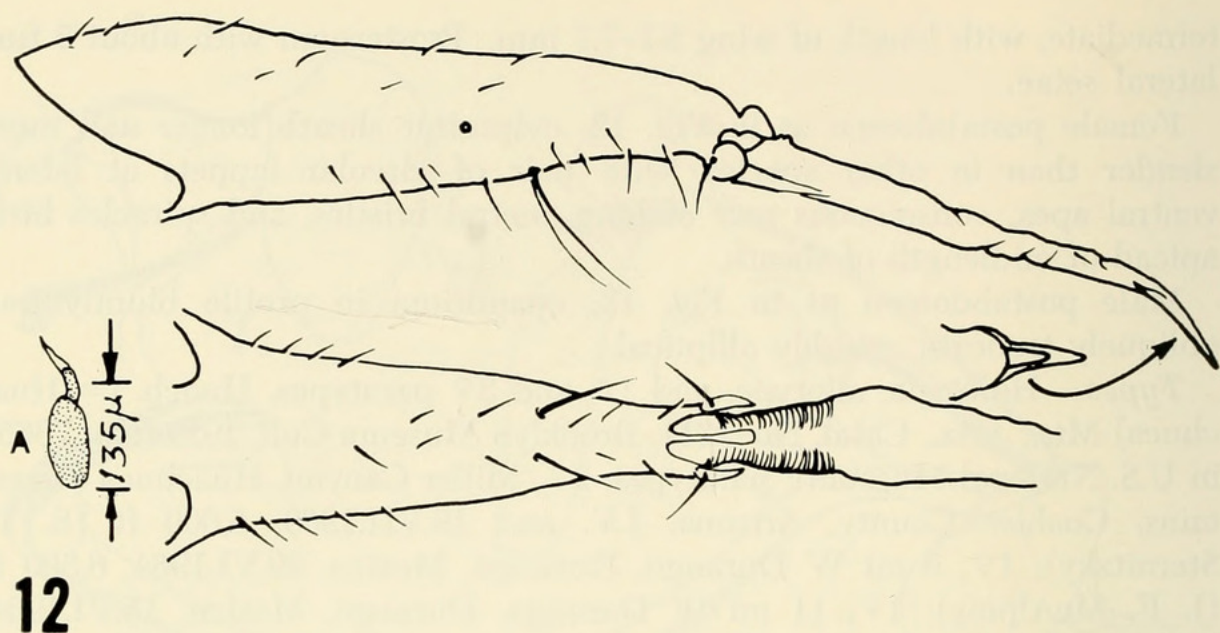
This species has been placed in *Sphecomyiella* in the North American Catalog (Steyskal, 1965), but the constricted hindtibia and the differences in the female postabdomen show that a new genus is required for it and the two new species here described. It is likely that other species will be found, especially south of the United States.

Boreothrinax shewelli Steyskal, new species
Figs. 5, 8–10

Very similar in coloration and external structure to *B. maculipennis*; paler than *B. dichætus*, antenna and femora usually wholly tawny; larger (length of wing 9.3–12.0 mm) than *B. maculipennis* and *B. dichætus*; and differing in postabdominal structure.

Head as in Fig. 10; prosternum bare; outline of hindtibia in lateral view as in Fig. 5; female postabdomen as in Fig. 9, base of ovipositor much swollen and bearing 2 patches of dense, colorless hairs just apicad of black-setose patches at apex of ovipositor sheath; male postabdomen as in Fig. 8, epandrium acutely pointed and details of hypandrium, aedeagal apodeme, and cerci differing markedly from those of the other species.

Types.—Holotype and 1 paratype, ♂'s, Oliver, B.C., 13.V.1953 (D. F. Hardwick); allotype, Victoria, B.C., V.1916 (R. C. Treherne); ♂ paratype, Keremeos, B.C., 8.V.1923 (E. R. Buckell); ♀ paratype, Boulder, Colo., 18.VI.1961 (W. R. M. Mason); all in Canadian National Collection, Ottawa;



Figs. 12-13. *Boreothrinax dichactus*. 12. Lateral and ventral views of female postabdomen, with (A) spermatheca; 13. Male postabdomen, with (A) sperm pump, (B) lateral view of postabdomen less sperm pump and apical part of aedeagus, and (C) tip of aedeagus.

paratypes in U.S. National Museum: 4♀, 1♂, Stratton Experimental Watershed, near Saratoga, Carbon County, Wyoming, 31.V-12.VI.1972 (J. M. Schmid), Hopkins No. 36775-J, at light; 1♀, Logan, Utah, 1.VI.1939 (G. F. Knowlton, G. S. Stains), Madras, Ore. (Ore. Dept. Agr.).

The species is dedicated to Guy E. Shewell, who first recognized the distinctness of the species, and in gratitude for many favors.

Stenopyrgota mexicana Malloch

1929 Ann. Mag. Nat. Hist. (10)3:259.

Malloch described this species from a female specimen (now in U.S. National Museum) taken at an elevation of 7,300 ft at Rio Piedras Verdes, Sierra Madre, Chihuahua, Mexico. I have examined that specimen and 1 each from Fortin de las Flores, Veracruz, Mexico (in Florida State Collection of Arthropods) and Nicaragua (U.S. National Museum). A female specimen taken 0.7 mi SW Turkey Creek, Chiricahua Mountains, Cochise County, Arizona, 13.VII.1966 (R. G. Beard), examined and returned to Southwestern Research Station of the American Museum of Natural History, is the first record of the species north of Mexico.

Literature Cited

Steyskal, G. C. 1965. Family Pyrgotidae. In Stone, A., et al., A catalog of the Diptera of America north of Mexico. USDA, Agric. Res. Serv., Agr. Handbook no. 276:657-658.

Systematic Entomology Laboratory, IIBIII, Fed. Res., Sci. Educ. Admin., USDA c/o U.S. National Museum, Washington, D.C. 20560.



Steyskal, George C. 1978. "Synopsis of the North American Pyrgotidae (Diptera)." *Proceedings of the Entomological Society of Washington* 80, 149–155.

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