

Last updated: 15 May 2025

PLENOCULUS

Plenoculus W. Fox, 1893e:554. Type species: *Plenoculus davisi* W. Fox, 1893, by monotypy.

Ptygosphex Gussakovskij, 1928a:18. Type species: *Ptygosphex murgabensis* Gussakovskij, by original designation and monotypy. [Spelled *Ptigosphex* on the generic heading, but obviously this is a printer's lapsus since the name is spelled *Ptygosphex* several times in the body of the description].

Pavlovskia Gussakovskij, 1935:424. Type species: *Pavlovskia tadzika* Gussakovskij [= *Ptygosphex murgabensis* Gussakovskij, 1928], by original designation and monotypy.

Revision: F. Williams, 1960b.

Rubin and O'Neil, 1980 (hemipteran prey in *propinquus* group, female clypeus emarginate; larval lepidopteran prey in *cockerellii* group, female clypeus arcuate).

Review of biology: Kazenas, 2001b:166.

1. *beaumonti* de Andrade

Plenoculus beaumonti de Andrade, 1957:2, ♀, ♂. Holotype: ♀, Portugal: Setúbal District: Albufeira Lagoon (Mus. Zool. Univ. Coimbra). – Diniz, 1959:31 (Portugal: Lagoa de Albufeira, Sines); F. Williams, 1960b:44 (in revision of *Plenoculus*); de Beaumont, 1962b:26 (Spain); Ceballos, 1964:93 (in supplement to catalog of Spanish Sphecidae); Diniz, 1964a:2 (Portugal: Lagoa de Albufeira, Sines); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Gayubo, Tormos, and Asís, 1993a:203 (as first record from Spain); Gonzáles, Gayubo, and Torres, 1999:355 (Spain: Valladolid: Viana de Cega); Bitsch in Bitsch et al., 2001:293 (in Sphecidae Fauna of Western Europe); Baños-Picón, Asís, Gayubo, and Tormos, 2009:312 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:314 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:50 (in catalog of Sphecidae *sensu lato* of Portugal).

2. *boharti* F. Williams

Plenoculus boharti F. Williams, 1960b:28, ♀, ♂. Holotype: ♀, USA: California: San Diego County: Campo (USNM). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1633 (in catalog of North American Hymenoptera).

3. *boregensis* F. Williams

Plenoculus boregensis Williams, 1960b:20, ♀, ♂. Holotype: ♀, USA: California: San Diego County: Borrego Springs (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Rubink and O'Neill, 1980:191 (nesting habits); Rust, Hanks, and Bechtel, 1983:406 (Nevada: Churchill County: Sand Mountain).

***ssp. perniger* F. Williams**

Plenoculus boregensis perniger Williams, 1960b:21, ♂. Holotype: ♂, USA: California: Riverside County: Thousand Palms (CNC). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Sarazin, 1986:307 (holotype in CNC).

4. *cockerellii* W. Fox

Plenoculus cockerellii W. Fox, 1894a:538, ♀ (as *Cockerellii*, incorrect original capitalization). Lectotype: ♀, USA: New Mexico: Las Cruces (ANSP), designated by Cresson, 1928:44. – Dalla Torre, 1897:699 (in catalog of world Hymenoptera); Ashmead, 1899c:338 (in key to *Plenoculus*), 1899d:251 (in checklist of North American Crabronidae); Cockerell, 1899a:144 (New Mexico: Mesilla Valley, Rincon); Krombein in Muesebeck, Krombein, and Townes, 1951:941 (in catalog of North American Hymenoptera); F. Williams, 1960b:15 (in revision of *Plenoculus*, description of ♂, Arizona, California, New Mexico, Texas; Mexico: Baja California), 46 (nesting habits); Krombein, 1961a:81 (visiting flowers of mat euphorbia, *Euphorbia albomarginata* Torr. And Gray); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae, Texas to California); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Rubink and O'Neill, 1980:188 (nesting habits); Amarante, 2002:42 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:664 (in checklist of Mexican Sphecidae).

5. *cuneatus* F. Williams

Plenoculus cuneatus F. Williams, 1960b:12, ♀, ♂. Holotype: ♀, USA: California: Imperial County: Pinto Wash (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera).

6. *davisi* W. Fox

Plenoculus davisi W. Fox, 1893e:554, ♀, ♂. Lectotype: ♀, USA: Montana: no specific locality (ANSP), designated by Cresson, 1928:44. – W. Fox, 1894a:537 (in revision of North American Larrinae); Dalla Torre, 1897:699 (in catalog of world Hymenoptera, as *davisii*); Ashmead, 1899c:338 (in key to *Plenoculus*), 1899d:251 (in checklist of North American Crabronidae); H. Smith, 1908b:373 (in revision of Nebraskan Sphecidae); F. Williams, 1914a:175 (in revision of Larrinae of Kansas); Mickel, 1918b:431 (in catalog of Nebraskan Sphecidae); Krombein in Muesebeck, Krombein, and Townes, 1951:941 (in catalog of North American Hymenoptera); Evans, 1959b:166 (description of larva), 1960:225 (nesting habits); F. Williams, 1960b:32 (in revision of *Plenoculus*; transcontinental, north to New York and British Columbia, south to Mexico: Durango, Nayarit and Baja California), 46, 47 (preying on small Heteroptera and on aphids, certainly in error); Kurczewski and Kurczewski, 1963:146 (Pennsylvania: Presque Isle State Park); Kurczewski, 1968:179-207 (nesting habits); Kurczewski and Harris, 1968: 82 (New York: Groton, relative abundance); Evans, 1970:488 (Wyoming: Jackson Hole, nesting habits, as *davisi davisi*); Elliott and Kurczewski, 1973:79 (Alaska: Mount McKinley National Park); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Steiner, 1986:104 (references to publications on nesting habits); Dollfuss, 1989:11 (type material in NHMW); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1992:998 (species of miltogrammine parasites listed), 1002 (counter-cleptoparasitic behavior: freeze-stop and face-off, diversionary flight), 1003 (chasing flight), 1005 (post-larvipositional counter-cleptoparasitic behavior: abandon prey, clean prey); Finnamore, 1997:894 (expected to occur in Yukon, as *davisi davisi*); Kurczewski, 1998d:250 (pine barrens in upstate New York); Weissmann and Kondratieff, 1999:78 (Colorado: Great Sand Dunes National Monument); Amarante, 2002:42 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:664 (in checklist of Mexican Sphecidae); Buck, 2004:25 (Canada: in checklist of Crabronidae of Ontario), 30 (distribution within Ontario), 47 (first record from Ontario: list of localities); Amarante, 2005a:11 (correction to his 2002 catalog); Matthews and Matthews, 2005:68 (Nebraska: Keith County; nesting habits); Ratzlaff, 2016:26 (Canada: British Columbia: from F. Williams, 1960 and Krombein, 1979); Buck and Bennett, 2025:216 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and

Greenland: Alaska, Canada: Alberta, British Columbia, Manitoba, Ontario, Quebec, Saskatchewan: no specific locality).

Plenoculus abdominalis Ashmead, 1899c:339, ♂. Holotype: ♂, USA: Arizona: Prescott (USNM). Synonymized with *Plenoculus davisi* by F. Williams, 1960b:43. – Ashmead, 1899d:251 (in checklist of North American Crabronidae); Krombein in Muesebeck, Krombein, and Townes, 1951:941 (in catalog of North American Hymenoptera).

Plenoculus apicalis F. Williams, 1914:175, ♀, ♂. Holotype: ♀, USA: Kansas: no specific locality (Kansas Univ.). Synonymized with *Plenoculus davisi* by F. Williams, 1960b:44. – F. Williams, 1914a:207 (nesting habits); Krombein in Muesebeck, Krombein, and Townes, 1951:941 (in catalog of North American Hymenoptera); LaBerge, 1956:527 (holotype in Snow Entomological Museum).

ssp. *atlanticus* Viereck

Plenoculus atlanticus Viereck, 1902:74, ♂. Holotype: ♂, USA: New Jersey: Gloucester County: North Woodbury (ANSP). – Rohwer, 1916b:691 (in catalog of Hymenoptera of Connecticut); Britton, 1920:341 (in checklist of insects of Connecticut); Cresson, 1928:43 (holotype in ANSP); J.Ch. Bradley, 1928:1010 (in catalog of New York Crabronidae); Krombein in Muesebeck, Krombein, and Townes, 1951:941 (as new synonym of *Plenoculus davisi*). – **As *Plenoculus davisi atlanticus***: Krombein, 1955d:146 (new status, North Carolina: Kill Devil Hills); F. Williams, 1960b:43 (in revision of *Plenoculus*); Wray, 1967:124 (North Carolina: Kill Devils Hills); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); L. Davis, 1978:217 (North Carolina: Kill Devil Hills, data from Krombein, 1955d); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Finnamore, 1982:111 (in Sphecids Fauna of Southern Quebec); Ahlstrom, 1995:109 (in checklist of insects of North Carolina).

ssp. *gracilis* F. Williams

Plenoculus davisi gracilis F. Williams, 1960b:42, ♀. Holotype: ♀, USA: California: Riverside County: 6 mi west of Indio (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera).

ssp. *mojavensis* F. Williams

Plenoculus davisi mojavensis Williams, 1960b:39, ♀, ♂. Holotype: ♀, California: San Bernardino County: Apple Valley (CNC) – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Sarazin, 1986:307 (holotype in CNC).

ssp. *transversus* F. Williams

Plenoculus davisi transversus F. Williams, 1960b:40, ♀. Holotype: ♀, USA: California: Tulare County: 3 mi west of Three Rivers (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera).

7. *deserti* F. Williams

Plenoculus deserti Williams, 1960b:26, ♂, ♀. Holotype: ♂, USA: California: San Diego County: Borrego Springs (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Parker and Griswold, 1984:299 (Nevada, Utah).

8. *fremonti* Parker

Plenoculus fremonti Parker in Parker and Griswold, 1984:296, ♀, ♂. Holotype: ♀, Utah: Wayne County: 8 mi north of Hanksville (USNM).

9. *gillaspai* Krombein

Plenoculus gillaspai Krombein, 1938c:468, ♀. Holotype: ♀, USA: Texas: Williamson County: Round Rock (USNM). – Krombein in Muesebeck, Krombein, and Townes, 1951:942 (in catalog of North American Hymenoptera); F.

Williams, 1960b:8 (in revision of *Plenoculus*); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Hook, 2006a:191 (Texas: Val Verde County: Devis R. Dolan Falls, second specimens of species; correction to type locality name).

10. *hurdi* F. Williams

Plenoculus hurdi F. Williams, 1960b:10, ♀. Holotype: ♀, Mexico: Distrito Federal: Teotihuacán Pyramids (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Amarante, 2002:42 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:664 (in checklist of Mexican Sphecidae).

11. *mexicanus* F. Williams

Plenoculus mexicanus F. Williams, 1960b:17, ♀, ♂. Holotype: ♀, Mexico: Guerrero: Acapulco (depository not indicated, not in CAS?). Paratypes: Mexican States of Morelos and Veracruz. – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Amarante, 2002:42 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:664 (in checklist of Mexican Sphecidae).

12. *murgabensis* (Gussakovskij)

Ptygosphex murgabensis Gussakovskij, 1928a:19, ♀. Lectotype: ♀, Turkmenistan: Imam Baba (ZIN), designated by Mokrousov in Mokrousov, Shorenko, and Shlyakhtenok, 2019:13. – **As *Plenoculus murgabensis***: Pulawski, 1965c:575 (new generic assignment); Kazenas, 1972b:158 (Kazakhstan); Myartseva, 1972a:77 (Turkmenistan); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Kazenas, 1978b:142 (in key to Sphecidae of Kazakhstan and Central Asia), 2001b:33 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:81 (geographic distribution, collecting localities in Kazakhstan), 2013b:496 (southeastern Kazakhstan: 30 km south-southwest of Koktal in Ili River valley); Antropov, 2017b:241 (in catalog of Crabroninae of Russia); Mokrousov and Danilov, 2017:59 (Russia: Astrakhan' Oblast': near Volzhskiy village at 46.965°N 47.53°E); Mokrousov, Shorenko, and Shlyakhtenok, 2019:13 (locality records from Kazakhstan, Russia: Kalmykiya Republic, Tajikistan, Turkmenistan, and Uzbekistan); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:423 (Uzbekistan: distribution).

Pavlovskia tadzhika Gussakovskij, 1935:425, ♂. Holotype: ♂, Tajikistan: Darvaz 190 km east of Dushanbe (ZIN). Synonymized with *Plenoculus murgabensis* by Pulawski, 1965c:575. – **As *Plenoculus tadzhica* [sic]**: F. Williams, 1960b:44 (new generic assignment).

13. *palmarum* F. Williams

Plenoculus palmarum Williams, 1960b:22, ♀, ♂. Holotype: ♂, USA: California: Riverside County: Palm Springs (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1634 (in catalog of North American Hymenoptera); Parker and Griswold, 1984:299 (Arizona, Nevada, Utah).

14. *parvus* W. Fox

Plenoculus parvus W. Fox, 1897a:71, ♀. Holotype: ♀, USA: New Mexico: Las Cruces (USNM). – Ashmead, 1899c:338 (in key to *Plenoculus*); Cockerell, 1899a:144 (New Mexico: Las Cruces); Cresson, 1928:45 (holotype in ANSP); Krombein in Muesebeck, Krombein, and Townes, 1951:942 (in catalog of North American Hymenoptera); F. Williams, 1960b:22 (in revision of *Plenoculus*); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1635 (in catalog of North American Hymenoptera).

15. *platycerus* Menke

Plenoculus platycerus Menke, 1968b:309, ♂. Holotype: ♂, Mexico: Morelos: Yautepec (UCD). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Amarante, 2002:42 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:664 (in checklist of Mexican Sphecidae).

16. *propinquus* W. Fox

Plenoculus propinquus W. Fox, 1894a:537, ♀. Holotype: ♀, USA: Colorado: no specific locality (ANSP). – Dalla Torre, 1897:699 (in catalog of world Hymenoptera); Ashmead, 1899c:338 (description of ♂, in key to *Plenoculus*), 1899d:251 (in checklist of North American Crabronidae); Snow, 1906:134 (Arizona: Oak Creek 20 mi. southwest of Flagstaff); H. Smith, 1908b:373 (in revision of Nebraskan Sphecidae); Mickel, 1918b:431 (in catalog of Nebraskan Sphecidae); Cresson, 1928:45 (holotype in ANSP); Krombein in Muesebeck, Krombein, and Townes, 1951:942 (in catalog of North American Hymenoptera); F. Williams, 1960b:25 (in revision of *Plenoculus*; California to Washington to Utah); Evans, 1970:488 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1635 (in catalog of North American Hymenoptera); Rubink and O'Neill, 1980:193 (nesting habits); Parks, 1986:35 (California: Torrey Pine State Reserve); Weissmann and Kondratieff, 1999:78 (Colorado: Great Sand Dunes National Monument); Ratzlaff, 2016:26 (first record from Canada: British Columbia: Southern Interior Mountains); 35 (British Columbia: Robson); Buck and Bennett, 2025:216 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: British Columbia, first record from Manitoba: no specific locality).

Plenoculus propinquus var. *rufescens* Cockerell, 1899a:144, sex not stated. Holotype or syntypes: USA: New Mexico: Santa Fe (depository?). Synonymized with *Plenoculus propinquus* by Krombein in Muesebeck, Krombein, and Townes, 1951:942.

17. *sinuatus* F. Williams

Plenoculus sinuatus F. Williams, 1960b:7, ♀, ♂. Holotype: ♀, USA: California: San Diego County: Borrego Springs (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1635 (in catalog of North American Hymenoptera).

18. *stygius* F. Williams

Plenoculus stygius F. Williams, 1960b:31, ♀, ♂. Holotype: ♀, USA: California: Riverside County: Palm Springs (CAS). – F. Williams, 1960b:46 (preying on mirids); R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Parker and Griswold, 1984:299 (Arizona, Nevada, Utah).

19. *timberlakei* F. Williams

Plenoculus timberlakei F. Williams, 1960b:11, ♀, ♂. Holotype: ♀, USA: California: Riverside County: 5 mi south of Palm Springs (CAS). – R. Bohart and Menke, 1976:311 (in checklist of world Sphecidae); Krombein, 1979b:1635 (in catalog of North American Hymenoptera); Ohl and Linde, 2003:151 (number of ovarioles).

20. *ute* Griswold

Plenoculus ute Griswold in Parker and Griswold, 1984:297, ♀, ♂. Holotype: ♀, Utah: Emery County: 3.2 air mi northeast of Little Gilson Butte (USNM).

21. *vanharteni* Schmid-Egger

Plenoculus vanharteni Schmid-Egger, 2011a:574, ♀, ♂. Holotype: ♂, United Arab Emirates: Al-Ajban at 24°36'N 55°01'E (ZMHU). – Schmid-Egger, 2011a:578 and 579 (color photographs of male); S. Gess and Roosenschoon, 2016:105 (Dubai Desert Conservation Reserve, visiting flowers of *Prosopis cineraria* (L.) Druce).

sp.

Strickland, 1947:129 (Canada: Alberta: Drumheller); Weissmann and Kondratieff, 1999:78 (Colorado: Great Sand Dunes National Monument).

SPECIES DESCRIBED IN *PLENOCULUS* AND TRANSFERRED TO OTHER GENERA

albipes Ashmead, 1899 = *Solierella*

foxii Viereck, 1902 = *Solierella*

niger Ashmead, 1899 = *Solierella peckhami* (Ashmead, 1897)

peckhami Ashmead, 1897 = *Solierella*

punctatus Ashmead, 1899 = *Nyssus rufiventris* Cresson, 1882