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**LIST OF THE NORTH AMERICAN SPECIES OF THE GENUS
BRACHYSERPHUS (HYMENOPTERA, PROCTOTRUPIDAE)
WITH NOTES ON DISTRIBUTION AND SYNONYMY**

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Summary. An annotated list of the North American species of the genus *Brachyserphus* is presented. *Brachyserphus acuticaudatus* Kolyada, 2012 is found in Canada and being recorded for the first time in the Nearctic Region, while *B. parvulus* (Nees, 1834) is excluded from the list of Nearctic species. New synonymy is proposed: *Oxyserphus clypeatus* (Ashmead, 1893) = *Brachyserphus rugatus* (Townes, 1981), **syn. n.** A key to the Nearctic species of *Brachyserphus* is provided.

Key words: Hymenoptera, Proctotrupidae, parasitic wasps, new synonymy, key, fauna, new records, Nearctic Region.

В. А. Коляда. Список североамериканских видов рода *Brachyserphus* Hellén (Hymenoptera, Proctotrupidae) с замечаниями по их распространению и синонимии // Дальневосточный энтомолог. 2017. N 344. С. 10-17.

Резюме. Приведен аннотированный список североамериканских видов рода *Brachyserphus*. Найденный в Канаде *B. acuticaudatus* Kolyada, 2012 впервые указывается для Неварктики, а *B. parvulus* (Nees, 1834) исключен из списка неарктических видов. Установлена новая синонимия: *Oxyserphus clypeatus* (Ashmead, 1893) = *Brachyserphus rugatus* (Townes, 1981), **syn. n.** Дана определительная таблица неарктических видов рода *Brachyserphus*.

INTRODUCTION

Members of the genus *Brachyserphus* Hellén, 1941 are small to medium size parasitoids with predominantly black, smooth and shiny body. The biology of these proctotrupids is poorly studied. Beetle larvae from the families Erotylidae, Phalacridae and Melandryidae are recorded as hosts of *Brachyserphus* species (Townes & Townes, 1981). However, Hoebeke and Wheeler (1990) and Williams *et al.* (1992) also mentioned as hosts larvae of the fungus beetles (Mycetophagidae and Nitidulidae).

The genus comprises 30 valid species, which are distributed mainly in the Northern Hemisphere (Townes & Townes, 1981; Johnson, 1992; Kolyada, 1997, 1998; He & Xu, 2011, 2015; Choi *et al.*, 2012; Kolyada, 2012, 2016). Seven species were recorded in the fauna of

North America (Townes & Townes, 1981). In present paper the distribution of these species is clarified. One species is added to the North American fauna, another one is removed from the list, and one species is synonymized. A key for determination of six reliably known Nearctic species of the genus *Brachyserphus* is provided.

MATERIAL AND METHODS

The examined material is kept in the following collections: AEIC — American Entomological Institute (Gainesville, Florida, USA), CNCI — the Canadian National Collection of Insects (Ottawa, Canada). All photographs were obtained with a stereomicroscope Leica M165 and Camera Leica DFC450. Image stacking was performed using Helicon Focus 5.1. The length of ovipositor sheath is measured from the base (that may be covered by the last tergite) to the top on the straight line, and its width at its widest part. The general distribution of species is given after H. Townes (Townes & Townes, 1981), Choi *et al.* (2012), and Kolyada (2016).

LIST OF THE SPECIES

Genus *Brachyserphus* Hellén, 1941

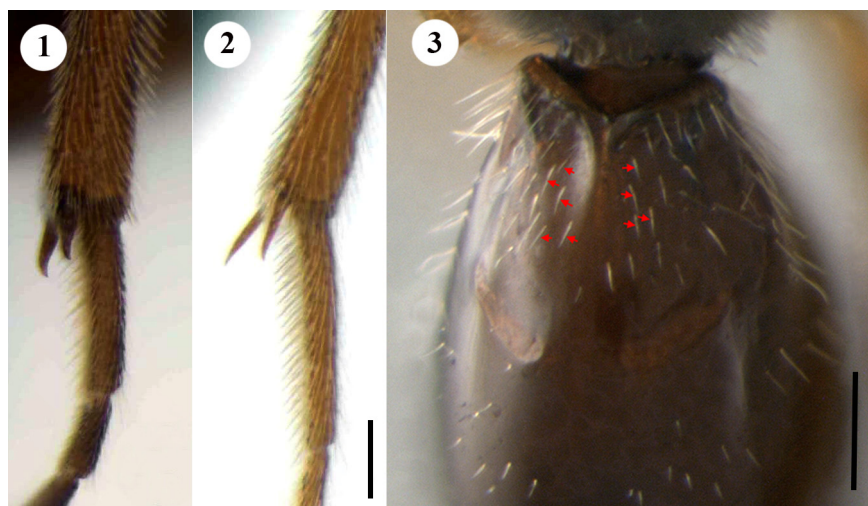
Brachyserphus abruptus (Say, 1836)

Figs 7, 12

MATERIAL EXAMINED. **Canada:** Britain Colombia (B.C.): Cowichan L., flight trap, VII-IX 1963, 1♀, (J. Chapman); Hixon, VIII 1965, 1♀, (E.D.A. Dyer). Yukon Territory (Y.T.): 13 mi E Dowson, 1300 ft, 30.VI 1962, 1♀, (R.E. Leech); Klo-Kut, Old Crow area, 3-7.VII 1975, MT. Quebec, 1♀, (QC): Laniel, 16-22.IX 1933; 1 VII 1944, 1♀, (A.R. Brooks); 1♀, Laniel, Lac Braule, 7.VIII 1965, 1♀, (O. Peck); Gatineau Pk., 13.IX 1981, 1♀, (L. Masner); Gatineau Pk., 11-14.VII 1982, 1♀, (L. Masner). Ontario (ON): Beamsville, 1.IX 1927, 1♀, (W. Putman); Ingeysoll, 12-13.IX 1933, 1♀, (G.S. Walley); Ottawa, 16.X 1951, 1♀, (L.F. McAlpine); Island Falls, 23.VIII 1959, 1♀, (S.M. Clark); Pt. Pelee N.P., 22.X 1968, MT, 1♀; Aylmer, 8.VI 1973, MT, 1♀; Rondeau Prov. P., X 1973, MT, 1♀; St. Lawrence Is. N.P., Thwartway Is., 5.IX 1976, 1♀; Oxford Mills, 21.VIII 1978, 2♀, (N. Tulsiram); Rondeau Prov. P., 16.VIII-18.IX 1979, 1♀, (L. Masner); Haley Sta., 15 km W Renfrew, 2.IX-6.X 1979, MT, 1♀, (S. Peck); 7 km SW Carleton Place, 18.IX-2.X 1980, 1♀, (S.J. Miller); Hamilton, 27.VII-9.VIII 1981, 1♀, (M. Sanborne); Flint Hill, nr. Kemptville, 9-16.VIII 1983, 1♀, (L. Dumouchel); Alfred bog, 12.VIII 1984, 1♀, (M. Sanborne); Kemptville, Flint Hill, forest, 21-30.X 1984, 3♀, (J. Denis); Stittsville, 11-16.VII 1989, YPT, 1♀, (J. Denis); Ottawa, 45°21.365'N 75°42.416'W, city garden, 20-23.vVII 2009, 3♀, (L. Masner). Manitoba (MAN): Clear Lake, Riding Mt. Nat. Park, 12.VIII 1958, 1♀, (J.G. Chillcott). **USA:** Missouri (MO): Williamsville, X-XI 1968, 1♀; 1-5.VII, 1♀, 5-9.VII, 4♀, 16.VII 1969, 4♀; VI 1970, 12♀; VIII 1987, 2♀, (J.T. Becker). South Carolina (SC): Aiken, 23.VI 1957, 1♀, (W.R.M. Mason); Anderson, 21.VII 1957, 1♀, (J.G. Chillcott); Mountain Rest, Oconee Co., 26.VI 1957, 1♀, (J.G. Chillcott); Oconee Co., 12 mi NW Walhalla, 570m, 3.VI-13.VIII 1981, INT Tr., 1♀, (S.B. Peck); Dorchester Co., Francis Beidler For. 10 km NE Harleyville, 11-23.VI 1987, MT, FIT, 1♀, (BRC Hym Team); Anderson, Pendleton, 250 m, 24.VI-7.VII 1987, MT, 12♀, (BRC Hym. Team). North Carolina (NC): Highlands, 15.VIII 1957, 1♀, (L.A. Kelton); 21.VI 1957, 4♀, (J.R. Vockeroth); 16.VI, 12.VII, 21.VIII 1957, 4♀, (W.R. Richard); Mecklenburg Co., Charlotte, 14-25.VII 1977, MT, 3♀, (N.C.D.A.); Buncombe Co., Great Cragy Mts, 2.VI-15.VIII 1981, 2♀, (S. Peck). Illinois (ILL): Champaign, 18.X 1956, 2♀, (J.F. McAlpine); Pine,

Hills Field, Sta. Union Co., 15-22.V 1967, 1♀, (J.M. Campbell). Tennessee (TENN): Great Smoky Mt. N.P., 2.VII 1957, 1♀, (W.R.M. Mason); Lexington, Natchez Trace S.P., 20-26.VI 1972, MT, 1♀, (G. Heinrich). Mississippi (MS): Washington Co., Delta Exp. Forest, 33°28'N 90°54'W, 7-20.VII 1997, MT, 1♀, (N.M. Schiff). Florida (FLA): Mount Pleasant, 1.V 1952, 1♀, (G.S. Walley); Jackson Co., Fla. Caves St. Park, 9.VI-11.VIII 1981, IT, 1♀, (S.B. Peck). Georgia (GA): Warwaman Crk., 26.VII 1957, 1♀, (W.R. Richards); Forsyth, 8-22.IX 1970, 3♀, (F.T. Naumann); Forsyth, 7-26.VIII 1971, 2♀, (G. Heinrich). New York (NY): Ithaca, 30.V 1947, 1♀; Ithaca, 6 mile Creek, 27.VIII 1956, 1♀. Maryland (MD): Laurel, 20-27.IV 1965, MT, 1♀; Patuxent, 22.VII-6.VIII 1979, 1♀, (E.E. Grissell & M. Schauff). Louisiana (LA): Alexandria, 11 mi SW, 28.III 1960, 1♀, (J.G. Chillott); Lake Bistineau State Park, IV 1972, MT, 1♀, (G. Heinrich).

DISTRIBUTION. Canada, USA, Mexico, Costa Rica, Brazil, Russia (Siberia).



Figs 1–3. *Brachyserphus lucens* (1, 3): 1 – spurs on tibia of hind leg; 3 – base matasoma, dorsal view; *Brachyserphus* sp. (2): spurs on tibia of hind leg. Scale bar = 0.1 mm.

BIOLIGY. Reared from *Carpophilus hemipterus* (L.), *C. freeman* Dobson, *C. lugubris* Murray, *Stelidota geminate* (Say), *S. octomaculata* (Say), *S. ferruginea* Reitter, *Glicshrochilus quadrisignatus* (Say), *Lobiopa insularis* (Castelnau) and *Haptoncus luteolus* (Erichson) (Coleoptera, Nitidulidae) (Williams *et al.*, 1992).

REMARKS. *Brachyserphus abruptus* is the most abundant species in the Nearctic Region, which is distributed from Yukon (British Columbia) to the south States of the USA. Moreover the species was found in the Palearctic Region (Kolyada, 2016).

The material from the Canadian National Collection labelled by Townes as *Brachyserphus parvulus* (Nees, 1834) were studied and determined by me as *B. abruptus*. These species differ in the ovipositor sheath characters: in *B. abruptus* ovipositor sheath short, in lateral view 3.2 times as long as wide (Fig. 7), in dorsal view 3.9 times as long as wide (Fig. 12), as opposed to *B. parvulus*, in which ovipositor sheath long, in lateral view 4.2–5.0 times as long as wide (Fig. 10), in dorsal view 5.0–5.6 times as long as wide (Fig. 11). Thus, the record of *B. parvulus* in Canada is erroneous, and this species has to be excluded from the list of Nearctic members of the genus.

***Brachyserphus acuticaudatus* Kolyada, 2012**

Fig. 8

MATERIAL EXAMINED. **Canada:** Quebec (QC): Gatineau Pk., 19-26.X 1982, 1♀, (L. Masner) (CNCI).

DISTRIBUTION. Sweden, Russia (Karelia, Siberia, Far East), South Korea, Japan, Canada.

REMARKS. *Brachyserphus acuticaudatus* was described from the Russian Far East and recorded from the Scandinavia (Sweden), Central and West Russia, South Korea and Japan (Choi *et al.*, 2012; Kolyada, 1997, 2016). In the Nearctic, *B. acuticaudatus* was found in the vicinity of Ottawa. It is the first record of the species in the Nearctic Region.



Figs 4–12. Ovipositor sheath, lateral and dorsal view. 4 – *Brachyserphus lucens*; 5 – *B. obliquus*; 6 – *B. leptura*; 7, 12 – *B. abruptus*; 8 – *B. acuticaudatus*; 9 – *B. barberi*; 10–11 – *B. parvulus*. Scale bar = 0.1 mm.

***Brachyserphus barberi* Townes, 1981**

Fig. 9

TYPE MATERIAL. Paratype, **USA**: Missouri, 1♀, Williamsville, 16.VII 1968 (J.T. Becker) (CNCI).

ADDITIONAL MATERIAL EXAMINED. **USA**. North Carolina (NC): 11 mi E of Cashiers, 12.VII 1957, 1♀, (J.G. Chillcott); Jackson Co., 5-22.VI 1984, FIT, 1♀, (S. Marshall). Virginia (VA): Bedford Co., 500m, Blue Ridge Pkwy, 80 km, 31.V-21.VIII 1981, IT, 1♀, (S. Peck). Texas (TX): Silsbee, 27.IV 1982, 1♀, (M. Sharky). South Carolina (SC): Oconee Co., 12 mi NW Walhalla, 570m, 3.VI-13.VIII 1981, IT, 1♀, (S.B. Peck). Illinois (ILL): Union Co., Shawnee, S. F. Pine Hill, 1-2.V 1979, 120m, IT, 2♀, (H. Goulet) (CNCI).

BIOLOGY. Reared from *Mycetophagus melsheimeri* Leconte (Coleoptera: Mycetophagidae) (Hoebeke & Wheeler, 1990).

DISTRIBUTION. USA.

***Brachyserphus leptura* Townes, 1981**

Fig. 6

TYPE MATERIAL. Paratypes. **Canada**: Ontario, Marmosa, 15.VIII 1952, 1♀, (J.F. McAlpine). **USA**: Missouri (MO), Williamsville, 16.VII 1969, 1♀, (J.T. Becker). **Mexico**: Pachuca, 1700 ft., Hidalgo, 29.VII 1954, 5♀, (J.G. Chillcott) (CNCI).

ADDITIONAL MATERIAL EXAMINED. **USA**. Tennessee (TENN): Blount Co., Top of the World, 35°38'N 83°55'W, 650m, 2.VII-16.VIII 1998, MT, 1♀, (H. Alley). Virginia (VA): Fairfax, Co., near Annandale, 9-15.VII, 2♀, 24-30.VII, 1♀, 14-20.VIII 1989, 1♀, (D.R. Smith). Arizona (AZ): Coconino Co., Grand Canyon N.P., Thomson Cyn., 8300 ft, 12-16.IX 1977, 1♀, (S. & J. Peck); Pina Co., Santa Catalina Mts., Molino Basin, 4200 ft, 24.VIII 1982, 1♀, (G. Gibson). North Carolina (NC): Swain Co., Smokemont, 15.VI 1977 MT, 1♀, (N.C.D.A.); Swain Co., Andrews Bald, 35°32'13"N 83°29'39"W, 10.IV-19.VII 2002, MT, 1♀, (I.C. Stocks). South Carolina (SC): Anderson Co., Pendleton, Tandlewood Sur., 34°38.7'N 82°47.1'W, 740 ft, MT, 23-30.IV 1987, 1♀, (J. Morse). Colorado (CO): Teller, 8000 ft, Woodland Park, 21-23.VII 1977, 1♀, (S. & J. Peck) (CNCI).

DISTRIBUTION. Canada, USA, Mexico.

***Brachyserphus lucens* (Provancher, 1883)**

Figs 1, 3, 4

MATERIAL EXAMINED. **Canada**. Britain Colombia (B.C.): William's Lake, 20.VIII 1960, 1♀, (B. Heming); Summerland, 15.IX 1981, 1♀, (A.N. Gartrell). Quebec (QC): Aylmer, 17.VIII 1942, 8♀, (O. Peck). Saskatchewan (SC): Strongfield, 10.IX 1959, 1♀, (J.R. Vockeroth). Ontario (ON): Ottawa, 28.VIII 1940, 1♀, (O. Peck); Bradford, 4.IX 1950, 1♀, (T.N. Freeman); Grand Bend, 6.IX 1954, 4♀, (C.D.F. Miller); Dunnville, 3.VIII 1954, 1♀, (C.D.F. Miller); Brighton, 24.IX 1954, 1♀, (J.C. Martin); Bancroft, 1.VIII 1955, 1♀, (J.C. Martin); Pt. Pelee, 9.IX 1964, 1♀, (W.R.M. Mason); Ottawa, 8.X 1970, 1♀, (A. Sauvè); St. Lawrence Is. Nat. Park, McDonald Is., 4.VIII 1975, 1♀, (E. Sigler); Hamilton, 9-19.IX 198, 1♀, (M. Sanborne); Ancaster, 3-15.X 1994, 1♀, (H. Goulet); Ottawa, 20-27.IX 2008, 45°21.365'N 75°42.416'W, MT, 1♀, (H. Goulet). **USA**. Michigan (MI): Washtenaw Co., Ann Arbor, IX 1967, MT, 1♀, (R.W. Carlson). Colorado (CO): Gunnison Co., Gunnison National Forest, 38°57.993'N 106°59.582'W, 17.VIII 2010, 3000m, 1♀, (L. Masner). Virginia (VA): Shenandoah N.P., Big Meadow, 1006m, 19.IX 1980, 1♀, (Masner & Bowen).

New York (NY): Ithaca, 29.IX 1950, 1♀, (J.C. Martin); Ithaca, 14.IX 1981 (M. Sharkey); 3♀, Willow Creek, 21.IX 1981 (M. Sharkey), 1♀, (CNCI).

DISTRIBUTION. Canada, USA, Russia (Far East).

***Brachyserphus obliquus* Townes, 1981**

Fig. 5

TYPE MATERIAL. Paratypes. **Canada:** Yukon Territory (Y.T.): Whitehorse, 7.VIII 1948, 1♀, (W.R. Mason). Canada, Britain Columbia (B.C.): Robson, 18.VIII 1944, 1♀, (H.R. Foxlee). Canada, Squamish, Diamond Head Trail, 3200 ft, 6.VIII, 1♀, 9.VIII, 1♀, 14.VIII, 2♀, 16.VIII, 1♀, 18.VIII, 1♀, 19.VIII, 2♀, 30.VIII 1953, 4♀, (W.R. Mason) (CNCI).

ADDITIONAL MATERIAL EXAMINED. **Canada.** Ontario (ON): Nepean Pine Glen, 4-5.X 1991, FIT, 1♀, (L. Masner); Ottawa, 45°21.365'N 75°42.416'W, city garden, 20-23.VII 2009, 2♀, (L. Masner) (CNCI).

DISTRIBUTION. Canada, USA.

Key to *Brachyserphus* species of the Nearctic fauna
(females)

1. Metatibia with spurs hooked, short and thickened (Fig. 1). Syntergite with 30 setae anteriorly around median notch (Fig. 3). Ovipositor sheath with apex smoothly rounded ventrally (Fig. 4). Ovipositor sheath 0.9 times as long as metatibia ***B. lucens*** (Provancher)
– Metatibia with spurs normal shape, straight and slender (Fig. 2). Syntergite without setae around median notch.
2. Ovipositor sheath about 1.2 as long as hind tibia (Fig. 6) ***B. leptura*** Townes
– Ovipositor sheath 0.45 to 0.7 as long as hind tibia (Figs 5, 7–10).
3. Ovipositor sheath strongly pointed apically (Fig. 8) ***B. acuticaudatus*** Kolyada
– Ovipositor sheath weakly pointed apically (Figs. 5, 7, 9, 10).
4. Hairs on lower edge of ovipositor sheath about 0.5 as long as depth of ovipositor sheath (Fig. 9) ***B. barberi*** Townes
– Hairs on lower edge of ovipositor sheath about 0.25 as long as depth of ovipositor sheath (Figs. 5, 7, 10).
5. Ovipositor sheath dorsoapically convex and broadly rounded (Fig. 5) ***B. obliquus*** Townes
– Ovipositor sheath dorsoapically weakly convex and more tapered (Figs. 7) ***B. abruptus*** (Say)

NEW SYNONYMY

***Oxyserphus clypeatus* (Ashmead, 1893)**

Figs 13, 14

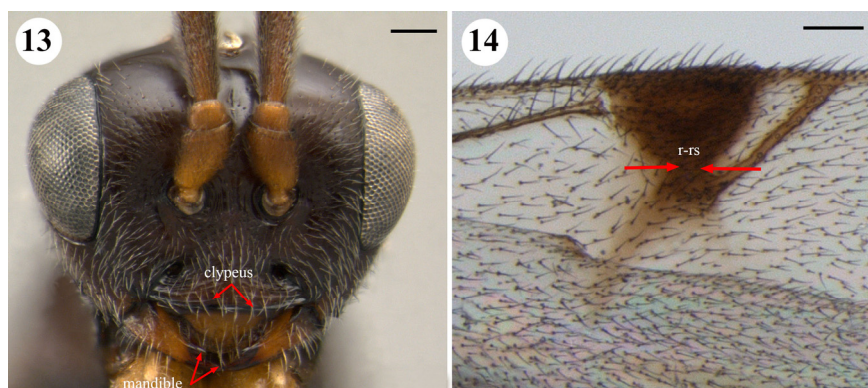
Proctotrupes clypeatus: Ashmead, 1893: 339. Holotype – ♀, USA, Ithaca in New York, Collection Ashmead, [USNM 11711 (USNMENT 01223753)] (USNM).

Oxyserphus clypeatus: Kolyada & Mostovski, 2017: 576.

Brachyserphus rugatus H. Townes in Townes & Townes, 1981: 120. Holotype – ♀, near Stanley, Idaho, Aug. 8, 1978, H. and M. Townes (AEIC); **syn. n.**

TYPE MATERIAL. Paratype. **USA**: Oregon, Corvallis, 10.X 1980, 1♀, (H. Townes), [Yellow label: Paratype *Brachyserphus rugatus* sp.n. H. Townes det.] (AEIC).

ADDITIONAL MATERIAL EXAMINED. **Canada**. Ontario (ON): Trenton, 17.VII 1901, 1♂, (Evans); Ottawa, 7.XI 1938, 1♀, (O. Peck); Ottawa, 12-19.VIII 1987, MT, 1♂, (H. Goulet); Burnstown, 29.VIII-6.IX 1969, 1♀, (J.Robillard); Thunder Bay, 13.VIII 1979, MT, 1♀, (M. Sauborne); Constance Bay, 12-24.VII 1983, MT, 1♀, (M. Sanborne); Shaw Forest nr. Eganville, 30.VII-6.VIII 1992, MT, 3♀, (M. Sharky); 3 km NNE Almonte, 45°15'N/76°10'W, 12-28.VII 1993, 1♀, (F.W. Grimm); North Gower to Smiths Falls, 1km N of City Rd6 & Montague Bdy Rd, 45°02'N 75°54'W, 17-31.VII 2004, MT, 1♀, (A. Bennet & D. Barnett). Nova Scotia (NS): Victoria Co., Beinn Bhreagh Baddeck, 27-31.VIII 1977, 1♀, (G.B. Fairchild). **USA**. California (CA): Strawberry Tuolumne Co., 14.VIII 1960, 1♀, 20.VIII 1960, polyporous fungi, 2 ♀, (D.Q. Cavagnaro) (CNCI).



Figs 13–14. *Oxyserphus clypeatus* (13– 14): 13 – head, front view; 14 – pterostigma. Scale bar = 0.1 mm.

REMARKS. *Brachyserphus rugatus* was described by Townes (1981) from two females from the West of the USA. The study of the paratype of *B. rugatus* has resulted in a new synonymy, since *B. rugatus* possesses a suite of morphological characters typical for *O. clypeatus*: a strong margin of the clypeus is bordered by one or more longitudinal keels; the pterostigma has a short r-rs (Fig. 14); the mandibles are bidentate (Fig. 13); and the form of the ovipositor sheath.

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