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.

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 (Mycetophilidae and Nitidulidae).

The genus comprises 30 valid species, which are distributed mainly in the Northern Hemi-
sphere (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


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.

Biology. Reared from Carpophilus hemipterus (L.), C. freeman Dobson, C. lugubris Murray, Stelidota geminate (Say), S. octomaculata (Say), S. ferruginea Reitter, Glischrochilus quadriscignatus (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 Palaearctic 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


DISTRIBUTION. USA.

Brachyserphus leptura Townes, 1981

Fig. 6


DISTRIBUTION. Canada, USA, Mexico.

Brachyserphus lucens (Provancher, 1883)

Figs 1, 3, 4


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

**Brachyserphus obliquus** Townes, 1981

Fig. 5


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 ...................................

   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 SYNONMY**

**Oxyserphus clypeatus** (Ashmead, 1893)

Figs 13, 14


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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