




Review of the genus *Bugacia* (Hymenoptera: Chalcidoidea: Pteromalidae) from Japan, with the description of a new species

Обзор рода *Bugacia* (Hymenoptera: Chalcidoidea: Pteromalidae) из Японии с описанием нового вида

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Abstract. A short review of the genus *Bugacia* Erdös, 1946 from Japan is given. From this country, a new species *Bugacia akutagawai* sp. nov. is described and illustrated, and *B. arenaria* Erdös, 1946 is recorded for the first time. A key for the identification of the two species known from Japan is given.

Резюме. Дан краткий обзор рода *Bugacia* Erdös, 1946 из Японии. Из этой страны описан новый вид *Bugacia akutagawai* sp. nov. и впервые отмечен вид *Bugacia arenaria* Erdös, 1946. Дан ключ для определения двух видов, известных из Японии.

Key words: taxonomy, key, Japan, Chalcidoidea, Pteromalinae, *Bugacia*, new record, new species

Ключевые слова: таксономия, определительный ключ, Япония, Chalcidoidea, Pteromalinae, *Bugacia*, новая находка, новый вид

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Introduction

The genus *Bugacia* Erdös, 1946 (Hymenoptera: Pteromalidae) was established based on the type species *Bugacia arenaria* Erdös, 1946 collected from Hungary (type locality: “Bugac”). Additional two species were described by Z. Bouček: *Bugacia submontana* Bouček, 1955 from the Czech Republic and *B. classeyi* Bouček, 1965 from the United Kingdom.

During our study of this genus in the collection of Ehime University Museum (Matsuyama, Japan, EUM), several specimens were found to belong to a new species, which is described below. In addition, the species *B. arenaria* is recorded for the first time from Japan, based on material from the collection of Hokkaido University (Sapporo, Japan).

Material and methods

The specimens examined are deposited in the Hymenoptera collections of Ehime University Museum, Matsuyama, Japan (EUM), Entomological Laboratory of Hokkaido University, Sapporo, Japan (EIHU), Hungarian Natural History Museum, Budapest, Hungary (HNHM), the Natural History Museum, London, United Kingdom (NHMUK), and the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia (ZISP).

Specimens were examined using Nikon SMZ800, Leica MZ95 and Olympus SZX12 stereomicroscopes. Photographs were taken with a Nikon DS-Fi1 digital camera mounted on a Nikon SMZ800 microscope at Hokkaido University,

a Canon EOS 70D digital camera mounted on an Olympus SZX10 microscope at the Zoological Institute RAS, and a Canon 5DsR camera and Mitutoyo 393, 10× lens at the Natural History Museum.

Morphological terminology, including sculpture and wing venation nomenclature, follows Bouček & Rasplus (1991) and Gibson (1997). The following abbreviations are used: POL – posterior ocellar line, the minimum distance between the posterior ocelli; OOL – ocello-ocular line, the minimum distance between a posterior ocellus and compound eye; F1–F6 – funicular segments 1–6. The scape is measured without the radicle, the pedicel, in lateral view. The distance between the clypeal margin and toruli is measured from the lower margins of toruli. The mesosoma and metasoma (including the ovipositor sheaths) are measured in lateral view.

The holotype (female) and the male paratype of the new species are deposited in the collection of EUM; the single female paratype is deposited in the collection of ZISP.

Taxonomic part

Order Hymenoptera

Family Pteromalidae

Subfamily Pteromalinae

Genus *Bugacia* Erdős, 1946

Type species: *Bugacia arenaria* Erdős, 1946, by original designation and monotypy.

Redescription. Head and mesosoma dark metallic blue with bronze-green lustre, metasoma dark blue or green with metallic lustre; disc of fore wing hyaline or subhyaline, venation yellowish brown or brown. Head finely reticulate, clypeus nearly smooth, transversally rugulose or reticulate; mesosoma distinctly reticulate; propodeum irregularly rugulose or smooth; metasoma weakly alutaceous and shiny. Face with scrobes. Hind margin of vertex strongly raised or with weak transverse ridge. Clypeus trapezoidal, with clear-cut margins, tentorial pits lying near the middle of its lateral margins, lower margin of clypeus emarginate, with two rounded lobes. Antenna short, at most 12-segmented, inserted at level of lower margin of eyes or slightly above. Antennal formula of female 11153, of male 11163. Mandibular formula 4:4. Pronotum

with cross-carina. Notauli of mesoscutum complete. Mesosoma with triangular metapleuron not reaching cavity of hind wing. Metasoma sessile, petiole short. Fore wing with speculum; basal cell pilose in distal part or with several setae; parastigma thickened.

Remarks. The species of this genus are rare, with few specimens being represented in collections. The bionomics of *Bugacia* species is unknown besides the records of their occurrence near oak trees from early spring to the middle of summer (Bouček & Rasplus, 1991).

Bugacia akutagawai sp. nov.

(Figs 1–9)

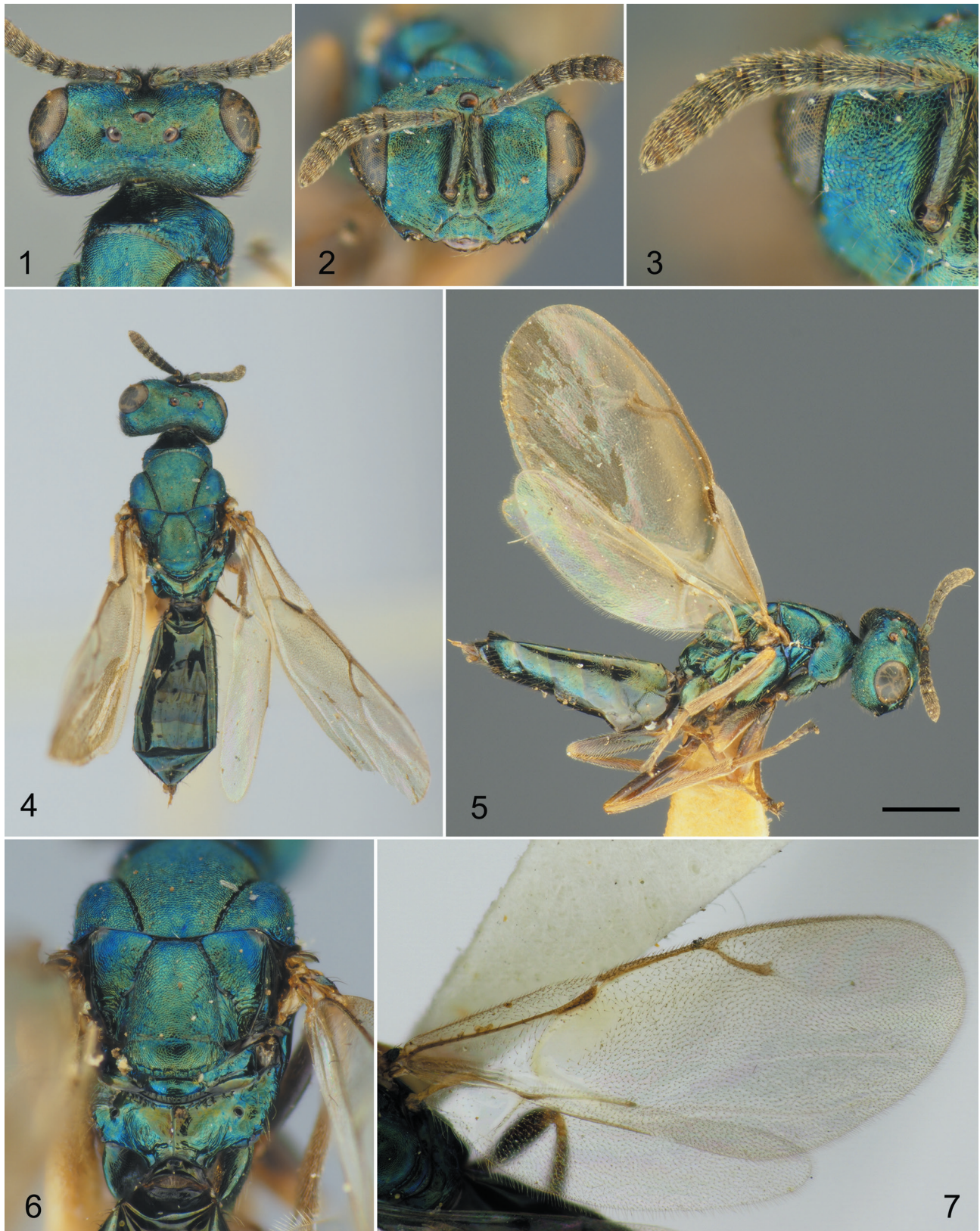
Holotype. Female, **Japan**, “Ehime Pref., Shikoku Isl., Matsuyama City, Komenono, 3.V.1977, coll. N. Yashiro” (EUM).

Paratypes. **Japan:** “Ehime Pref., Shikoku Isl., Sara Mt., 15.V.1955, coll. T. Yano”, 1 female (ZISP); “Ehime Pref., Shikoku Isl., Matsuyama City, Saragamine, 26.IV.1997, coll. S. Hayakawa”, 1 male (EUM).

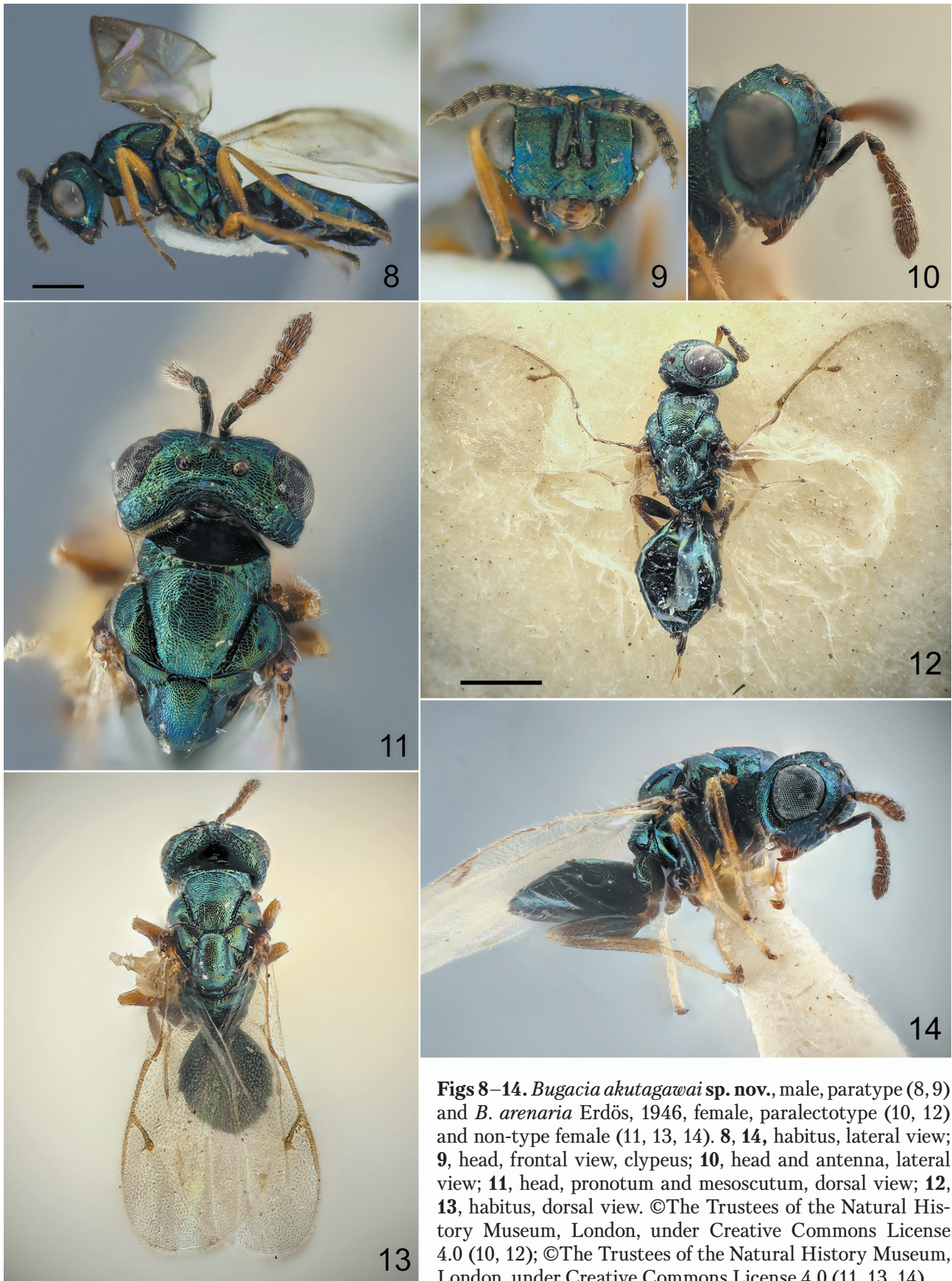
Description. Female. Body length 3.65–4.50 mm; fore wing length 3.35–4.10 mm.

Head and mesosoma dark blue with bronze-green metallic lustre, metasoma dark brown with bronze-green and bronze-blue metallic lustre; scape and pedicel dark metallic green with diffuse coppery lustre, flagellum dark brown; all coxae dark blue with bronze-green metallic lustre, all femora brown, all tibiae and tarsi yellowish brown, last segment of tarsus brown; fore wing subhyaline, venation yellowish brown; ovipositor sheath brown.

Head in dorsal view 1.90–2.05 times as broad as long and 1.18–1.25 times as broad as mesoscutum; in frontal view, 1.35–1.44 times as wide as high. POL 0.92–0.96 times OOL. Eye height 1.25 times eye length and 1.80–1.90 times as long as malar space. Distance between antennal toruli and lower margin of clypeus 0.55–0.67 times distance between antennal toruli and median ocellus. Clypeus reticulate. Antenna with scape 0.80–0.88 times as long as eye height and 1.00–1.10 times as long as eye length; pedicel 1.60–1.80 times as long as wide and 0.88–0.96 times as long as F1; combined length of pedicel and flagellum 0.79–0.80 times width of head; flagellum clavate; anellus elongate, 1.15–1.30 times as long as wide;



Figs 1–7. *Bugacia akutagawai* sp. nov., female, paratype: 1, head, pronotum, dorsal view; 2, head, frontal view; 3, antenna; 4, habitus, dorsal view; 5, habitus, lateral view; 6, mesoscutum, scutellum and propodeum, dorsal view; 7, wings.



Figs 8–14. *Bugacia akutagawai* sp. nov., male, paratype (8, 9) and *B. arenaria* Erdős, 1946, female, paralectotype (10, 12) and non-type female (11, 13, 14). 8, 14, habitus, lateral view; 9, head, frontal view, clypeus; 10, head and antenna, lateral view; 11, head, pronotum and mesoscutum, dorsal view; 12, 13, habitus, dorsal view. ©The Trustees of the Natural History Museum, London, under Creative Commons License 4.0 (10, 12); ©The Trustees of the Natural History Museum, London, under Creative Commons License 4.0 (11, 13, 14).

F1 tapering to its basal part, 1.60–1.80 times as long as wide; F2 as long as wide; F3–F5 transverse; clava 1.45–1.52 times as long as wide.

Mesosoma 1.67–1.73 times as long as wide. Scutellum and frenal area reticulate. Propodeum medially 0.36–0.40 times as long as scutellum. Propodeum weakly alutaceous and shiny, with median carina; nucha reduced.

Fore wing 2.40 times as long as maximum width; basal cell pilose in distal part; speculum open; parastigma thickened, 0.37–0.44 times as long as marginal vein; marginal vein 0.97–0.98 times as long as postmarginal vein and 2.00–2.04 times as long as stigmal vein.

Metasoma lanceolate, 1.03–1.14 times as long as mesosoma and head combined and 2.3–2.4 times as long as wide; ovipositor sheath projecting slightly beyond apex of metasoma.

Male. Body length 3.6 mm; fore wing length 3.4 mm. Pedicel 1.44 times as long as wide and 1.15 times as long as F1; F1 0.94 times as long as wide. Marginal vein of fore wing 1.7 times as long as stigmal vein. Metasoma 1.33 times as long as mesosoma and head combined and 1.7 times as long as wide. Otherwise similar to female.

Etymology. The species is named in honour of the famous Japanese writer Ryuunosuke Akutagawa.

Distribution. Japan (Shikoku Island).

Comparison. The new species is similar to *B. arenaria* in having the pedicel longer than wide (Figs 3, 10), F1 tapering basally (Figs 3, 10), reticulate frenal area (Figs 6, 11), propodeum weakly alutaceous and shiny, and basal cell of fore wing pilose in distal part (Figs 7, 13). The differences between these species are given in the key.

***Bugacia arenaria* Erdős, 1946**
(Figs 10–14)

Bugacia arenaria Erdős, 1946: 163.

Type material examined. Lectotype, female, **Hungary**, “Bugac, 28.iv.1944, coll. Erdős, № 5738” (HNHM); 1 paralectotype, female, **Hungary**, “Bugac, 28.iv.1944, coll. Erdős”, “NHMUK 013457190” (NHMUK).

Additional material examined. **Japan**, “Kanagawa Pref., Yokohama, 21.IV.2004, coll. K. Kubo”, 1 female (EIHU); **Sweden**, “Höör distr. 17.vi.1938”, “D.M.S.P. & J.F.P.B.M. 1938-414”, “*Bugacia arenaria* Erd. det. Z. Bouček, 1981”, “NHMUK 013457191” (NHMUK).

Distribution. Sweden, United Kingdom, Czech Republic, Slovakia, Hungary, Moldova, Japan (new record).

Key to Japanese species of the genus *Bugacia* (females)

- 1 Anellus elongate, 1.15–1.30 times as long as wide (Fig. 3). F1 1.60–1.80 times as long as wide (Fig. 3). POL 0.92–0.96 times OOL (Fig. 1). Eye 1.80–1.90 times as high as malar space. Marginal vein of fore wing 0.97–0.98 times as long as postmarginal vein (Fig. 7) ***B. akutagawai* sp. nov.**
- Anellus not elongate, 0.37–0.50 times as long as wide (Figs 10, 11). F1 1.10–1.26 times as long as wide (Fig. 11). POL 1.60–1.80 times OOL (Fig. 11). Eye 2.30–2.60 times as high as malar space. Marginal vein of fore wing 1.23–1.26 times as long as postmarginal vein (Fig. 13) ***B. arenaria***

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