

New country record and commentary for *Aulacidea hei* Wang et al. (Hymenoptera: Cynipidae: Aulacideini)

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Introduction

The herb gall wasp fauna of the Eastern Palearctic is a diverse but understudied assemblage (Melika 2006). Recently, two species have been described from China: *Aulacidea hei* Wang et al., 2012 and *A. manchuria* Nastasi, 2024 (Nastasi & Deans 2024). While the latter species was described with high-quality images and a detailed discussion of its taxonomy, *A. hei* is virtually unknown aside from a morphological description and several photos. We discovered an herb gall wasp among unsorted cynipoids on loan from the Entomology Museum of Utah State (EMUS, Logan, Utah, USA) that perfectly agrees with the original description and images of *A. hei*. Locating this specimen allows us to re-illustrate key diagnostic characters, discuss its placement within the Aulacideini, and highlight important label data. The new specimen was collected in Russia, a new country record for *A. hei*.

Results and Discussion

Aulacidea hei Wang, Liu, & Chen, 2012

Material examined. 1 ♀ (Figs 1–4) – EMUS_CYN_0013. Russia: Primorsky Krai: Gornotayozhnoye; mountain, taiga habitat; 43.66°, 132.25°; coll. 23–27 June 1999; M. V. Michailovskaya leg.; collected in Malaise trap: https://data.canadensys.net/micropublications/resource?r=specimen_36

Diagnosis and morphology. *Aulacidea hei* is highly distinct from other Aulacideini by the following combination of characters: lower face and genae yellowish-brown (Fig. 2); female antenna with 13 antennomeres, with F2 longer than F1; posterior mesoscutellum excavated, appearing deeply concave in dorsal view (Fig. 4, arrow); notauli complete, deeply impressed across entire length of mesoscutum (Fig. 3); fore wing marginal cell closed (Fig. 1); second metasomal tergite with conspicuous anterolateral patch of dense setae (Fig. 1). An

excavated posterior mesoscutellum is not known in other Aulacideini, although a slight, nearly indistinct excavation is sometimes present in species of *Antistrophus* Walsh in Riley & Walsh, 1869 (Nastasi, pers. obs.). While not explicitly indicated in the original description, the mesoscutellar foveae of *A. hei* are also relatively unique amongst Aulacideini; the mesoscutellar foveae (Fig. 4) are short and transverse-ovate, occupying about anterior quarter of mesoscutellum, and with interior sculpture strongly rugose-reticulate. Lastly, in the original description, Wang et al. (2012) state that F1 is 0.9× as long as F2. In our specimen, F1 is 0.7× as long as F2, with F2 much longer than F1; this is also the case in the antenna image of the holotype accompanying Wang et al.'s description.

Remarks. This specimen is the first known individual of *Aulacidea hei* beyond the holotype female (Wang et al. 2012). This species was described from China, and our new specimen represents a new record from Russia to the east of the Chinese border. Specimen label indicates that this specimen was collected in a taiga; this habitat type has not been discussed in detail in the literature in relation to herb gall wasps, although the regions from which many herb gall wasps are known certainly contain taigas or similar habitats. Given the wide expanse of taigas and similar habitats across the Holarctic, the presence of *A. hei* could indicate the presence of yet-unidentified communities in need of urgent conservation given established impacts of rising temperatures and climate change.

As mentioned elsewhere (e.g., Nastasi & Deans 2024), the genus *Aulacidea* Ashmead, 1897 is polyphyletic, and most taxa currently placed there need to be moved to new genera. The high degree of morphological distinction exhibited by *A. hei* suggests that it should likely be placed in a new genus in a broader revisionary study. In their

description, Wang et al. (2012) state that *A. hei* is similar to *A. parvula* Diakontschuk, 1984. After consulting Diakontschuk's (1984) description and Melika's (2006) key to Palearctic *Aulacidea*, the resemblance between *A. hei* and *A. parvula* appears highly superficial; the species differ by many characters, especially those mentioned in the above diagnosis. At present, there are no other Aulacideini that are clearly related to *A. hei* on the basis of morphology.

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Figs 1–2. *Aulacidea hei*, ♀ EMUS_CYN_0013. 1: Lateral habitus. 2: Head, anterior view.



Figs 3–4. *Aulacidea hei*, ♀ EMUS_CYN_0013. 3: Mesoscutum. 4: Scutellum; arrow indicates posterior excavation.