BULLETIN OF THE IRAQ NATURAL HISTORY MUSEUM
Iraq Natural History Research Center & Museum, University of Baghdad
https://jnhm.uobaghdad.edu.iq/index.php/BINHM/Home
 Online ISSN: 2311-9799, Print ISSN: 1017-8678

Bull. Iraq nat. Hist. Mus.
(2025) 18 (4): 971-979. https://doi.org/10.26842/binhm.7.2025.18.4.0971

ORIGINAL ARTICLE

A NEW RECORD OF *AMMATOMUS RUFONODIS* (RADOSZKOWSKI, 1877) (HYMENOPTERA, CRABRONIDAE, BEMBICINAE) FROM IRAQ

Shatha Abdullateef Hamodee*♦ and Maan Abdul Azeez Shafeeq**

*Iraq Natural History Research Center and Museum, University of Baghdad, Baghdad, Iraq
**Department of Biology, College of Science, Mustansiriyah University, Baghdad, Iraq
♦Corresponding author: shatha.a.909@nhm.uobaghdad.edu.iq

Received: 6 Oct. 2025, Revised: 11 Dec. 2025, Accepted: 14 Dec. 2025, Published: 20 December 2025

ABSTRACT

The present study reports the first record of *Ammatomus rufonodis* (Radoszkowski, 1877) for insect fauna of Iraq. Although this species shows morphological similarity to *A. mesostenus* (Handlirsch, 1888), it can be distinguished by the clear large diameter of the gastral punctures, which are similar in size to those on the mesopleuron. Thorough synonyms, diagnostic features, morphological descriptions, and distribution notes are given.

Keywords: Bembicini, Crabronidae, Digger wasps, *rufonodis*, Sand wasps, Taxonomy.

INTRODUCTION

Bembicinae include 1718 recorded species under 17 genera in four tribes (Alyssontini, Bembicini, Heliocausini, and Nyssonini) among them 1402 species in 54 genera belong to Bembicini (Pulawski, 2025); nests usually are great-density aggregations. Preys include a high range of insects including Hemiptera, Diptera, Lepidoptera, Hymenoptera, Homoptera, Odonata, and Neuroptera (Bohart and Horning, 1971).

Ammatomus A.Costa, 1859 is a sand wasp; species belonging to this genus are medium solitary wasp; according to de Beaumont (1954) *Ammatomus* is characterized by: epistenal-scrobal sulcus curved around hypoepimeron; hindwing with media diverging previous cu-a, mid tibia with two terminal spurs , while Pulawski (1973) added bristles on foreleg metatarsus directed obliquely forward, and not outward, as is generally the case of Bembicinae. Bohart and Menke (1976) provided more features such as: compound eyes large, inner margins strongly diverging above; last four articles of antennae clublike; frontal line clearly impressed; scutum is closely pressed by the thin pronotal collar; lateroposterior oblique sculal carina existing but weak or an angle in the edge; omaulus, sternaulus and acetabular carina lack; forewing with media diverging before cu-a, veinlet of submarginal cell II between recurrents small; tegulae lobe major than tegula; posterior tarsus about twice as long as middle tarsus;

propodeum convex dorsally; no spiracular groove; male with seven tergites generally visible; male genitalia with digitus undifferentiated; pygidium in female closely setose (Bohart and Menke, 1976).

According to the recent study, in Iraq Bembicinae incldes fifteen species belonging to six genera, among them, only *Ammatomus mesostenus* (Handlirsch, 1888) has been referred to *Ammatomus* which was reported in Iraq by Roche (2007).

The present paper is a contribution to description, illustration of, and the assured new record of *A. rufonodis* for the first time from Iraq. This investigation is a part of exploring Apoidea diversity from the study region.

MATERIALS AND METHODS

Collection: The specimens in the current study were collected by aerial nets and obtained throughout the field survey within Baghdad and Wasit Provinces, central Iraq, which aimed to check the presence of Sand wasps within Iraq. Wasps were collected using sweep nets, pinned and labelled according to their localities for preservation. Specimens are deposited in the collections of the Department of Insects and Invertebrates in Iraq Natural History Research Center and Museum, University of Baghdad, under the catalog number HYC.14.023.

Morphology and Identification: Morphological data for comparisons were acquired from the taxonomic keys including Bohart and Menke (1976) and Schmid-Egger (2011, 2019) as well as being compared with original descriptions of closely species; in addition to being compared with species belonging to *Ammatomus* preserved in Department of Insects and Invertebrates, Iraq Natural History Research Center and Museum –University of Baghdad. The specimens were examined with a digital microscope camera on OPTIKA microscope, illustration figures were prepared using a camera LUCIDA attached to a ZEISS microscope. Images were captured using a Sony a7riv digital camera. The terms used in the descriptions of the new recorded species were mainly taken from Bohart and Menke (1976).

RESULTS AND DISCUSSION

Ammatomus rufonodis (Radoszkowski, 1877)

A. rufonodis was recorded as *Hoplisus rufonodis* (Holotype) from Tajikistan by Radoszkowski (1877); later, the species was listed by Handlirsch (1886) from Turkistan under the name *Gorytes rufonodis* (Radoszkowski, 1877). Finally, the current name is reported as valid name by Morawitz (1894) who considered the other names as synonyms of this species.

Diagnostic characters

Like the species *Ammatomus mesostenu*s (Handlirsch, 1888) (which was recorded previously in Iraq by Roche (2007) *Ammatomus rufonodis* characterized by the following features: yellow hind tarsi I–III, posterior tarsus V black at apex, first tergite with carina laterally and small diameter of gastral punctures but differentiates by large diameter of gastral punctures which similar of mesopleuron punctures.

Morphology

General description of male (Pl. 1, 2): Length 8-10 mm. Colourtion: almost black with exception: antennal scape, clypeus, F I-IV ventrally, two pairs of elongated blotches on first sclerite of mesonotum pronotal collar and lobule, majority of second sclerite of mesonotum, metanotum, tibia, tarsi, and wide band incomplete on apical of gastral segment with yellow colour; while compound eyes, antennal F and tegulae brown.

Head (Pl. 3, 4): Semi-rounded (Pl. 3); eyes ovoid shape, large occupying almost all head overview; frontal line distinct. Clypeus prolonged and flat clothed with long, golden, recumbent, heavy setae. Antenna (Pl. 4); with dense micro sculpture on surface. Scape arched, glossy and bare. Flagellomeres clothed with silver pruinose, elements more nearly spaced at apex.

Thorax (Pl. 5): Lateroposterior of scutum oblique, scutal carina visible though faint developed, by an angular height at posterolateral margin, punctures variable dense and mix with micro sculpture clothed with short, white, erect, scattered setae with several, short, erect, and dell setae at near tegulae (seen laterally. Two pairs of yellow maculae existing: anterior pair sub-rectangular, next to pronotal lobes; posterior pair semi-ovoid, situated adjacent to tegulae. Mesopleuron: epistenal-scrobal sulcus lightly arcuate about hypoepimeron; sculpture and setae as mentioned in scutum but dense, except dell and bare area adjacent mesopleural sulcus. Propodeum: with sculpture and setae dorsally as on scutum; with heavy setae laterally.

Wings (Fig. 1): Fumigate, clothed with brief and brown setae. Forewings: marginal cell acuminate at apex. Legs (Pl. 6): generally clothed with white and dense pruinose on surface with micropunctate. Fore tibia with three spines at apex; tarsi convex, sides subparallel; first tarsomere with sparse ventral bristles. Claws unmodified, arolia conspicuous. Mid tibia provided with two distinct apical spurs at apex. Posterior tibia with bar of spare spines.

Gaster (Pl. 7): Distinctly petiolate, petiole convex dorsally; dimeter of first segment increase onto apex; reddish lined with yellow apically and dell thin line posteriorly, T I with carina end in two-thirds of first tergite laterally; second gastral segment bigger about one and half times as long as petiole; third gastral segment as previous one in size but with bigger black line; rest gastral segments small, only posterior edge can see; pygidium acuminate (Fig. 2).

Male genitalia (Fig. 3): Gonostyles barrel-shaped stricture in mid part, with semi rounded end, clothed with moderate in length and dense bristles. Volsella include of cuspis which barrel-shaped; digitus undifferentiated. Penis valve stricture basally, top of penis valve ovoid in shape, internal part of head teethless; lower than gonostyles.

General description of female (Pl. 2 A, 3A, 6)

Total length: 10 mm. Colourtion mainly black with exception the parts: scape, clypeus, flagellomeres I-IV ventral surfaces, two pairs of elongated maculae on scutum, pronotal collar and lobe, most of scutellum, metanotum, tibia, tarsi, and wide band incomplete on apical

gastral segments with yellow; compound eye, flagellomeres and tegulae with brownish colour.

The rest of description similar to the male except: clypeus proportionally border, anterior ocelli clear distinctly, vertex clothed with densely setae, and setae on fore metatarsus directed obliquely anteriorly (Pl. 6).

Material examined: (2♂, 1♀), (1♂) collected in 3.xi.2022 from Baghdad Prov., Bab Al Moatham 33°21'16.7"N 44°23'34.7"E; (1♂,1♀), 13.vii. 2022, Wasit Prov., Al-Suwaira, Prenej Village, 32°53'50.5"N45°03'54.1"E.

Distribution: UAE, Iran, Algeria, North Africa and Egypt (Schmid-Egger, 2011). Newly recorded for Iraq.

Plate (1): *Ammatomus rufonodis* (male). Habitus, dorsal view.

Plate (2): *A. rufonodis*, lateral view of habitus; (A) Female, (B) Male.

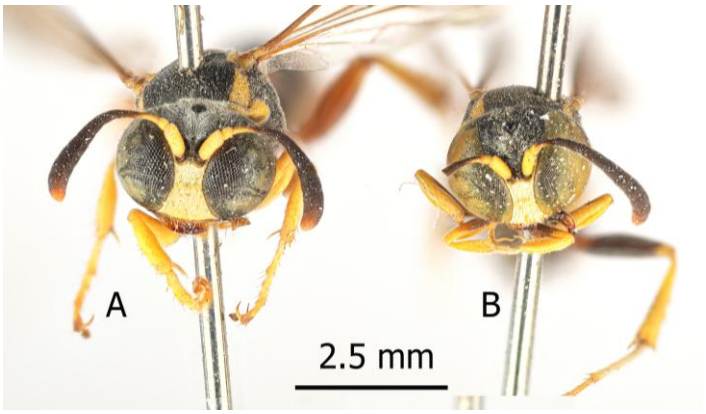

Plate (3): *A. rufonodis*, frontal view of head; (A) Female, (B) Male.

Plate (4): *Ammatomus rufonodis*; (male). Antenna, frontal view.

Plate (5): *A. rufonodis*; male, thorax; (A) Dorsal view, (B) Lateral view.

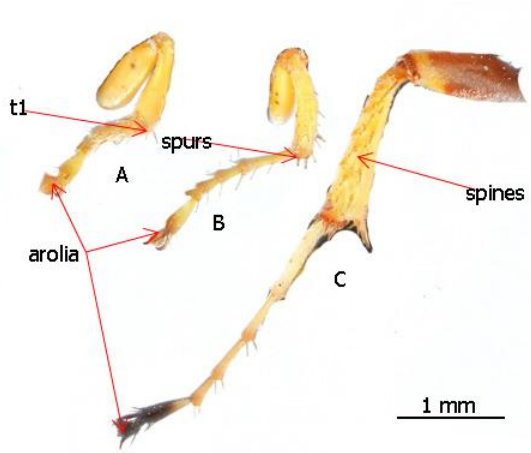

Plate (6): *A. rufonodis*; female, Legs; A) Foreleg, (B) Midleg, (C) Hindleg.

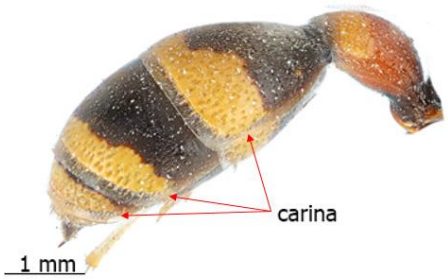

Plate (7): *A. rufonodis*; (male). Profile of gaster, lateral.

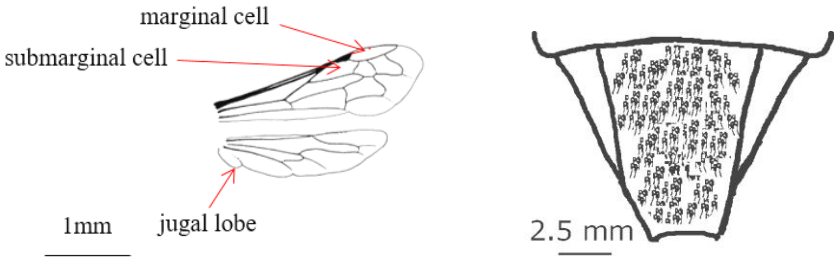

Figure (1): Wings of *A. rufonodis* (♂). **Figure (2):** Pygidial plate, *A. rufonodis* (♂).

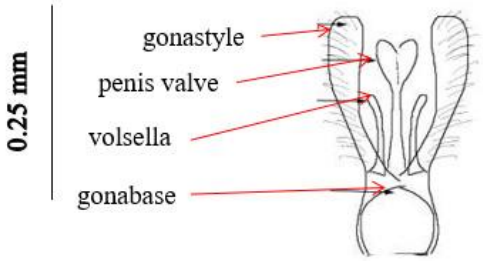

Figure (3): Male of *A. rufonodis*; genitalia.

CONCLUSIONS

In conclusion, the sand wasp in Iraq appears vary diverse, resulting the complexity of the Iraq's environmental climatic conditions. However, the present findings based on specimens collected during November show that our understanding of their diversity and seasonal activity patterns is still incomplete. To achieve a more comprehensive assessment of species richness, distributional patterns, and diagnostic variation, future studies should expand field surveys across multiple months and ecological seasons. We recommend more research on these wasps. Wider field sampling across many months and seasons will enhance the evaluation of sand wasps diversity and distribution, and help define species limits within Iraq's Crabronid wasp fauna.

CONFLICT OF INTEREST STATEMENT

It is worth noting that this work is part of a M.Sc. in Zoology, Department of Biology, College of Science, Mustansiriyah University for the first author.

LITERATURE CITED

Bohart, R. M. and Horning Jr., D. S. 1971. California Bembicine sand wasps. *Bulletin of the California Insect Survey*, 13:1-49. [Click here]

Bohart, R. M. and Menke, A. S. 1976. Sphecid wasps of the world: a generic revision. University of California Press, Berkeley, Los Angeles, L- IX + 695 pp. [Click here]

de Beaumont, J. 1954. Remarques sur la systématique des Nyssoninae paléarctiques (Hym. Sphecid.). *Revue Suisse de Zoologie*, 61: 283-322.

Handlirsch, A. 1887. Monographie der mit *Nysson* und *Bembex* verwandten Grabwespen. *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Classe. Abtheilung* I, 95: 246-421. [Click here]

Morawitz F. 1894. Beitrag zur Raubwespenfauna Turkmeniens. *Horae Societatis Entomologicae Rossicae*, 28:327-365.

Pulawski, W. J. 1973. Les *Ammatomus* A. Costa (Hym., Sphecidae) de la région paléarctique occidentale et centrale –Gatunki rodzaju *Ammatomus* A. Costa (Hym., Sphecidae) zachodniej i środkowej Palearktyki. *Polskie Pismo Entomologiczne*, 43: 273-288. [Click here]

Pulawski, W. J. 2025. Catalog of Sphecidae sensu lato: family group names and classification. [Click here]

Roche, C. G. 2007. Conspectus of the Sphecid wasps of Egypt Hymenoptera: Ampulicidae, Sphecidae, Crabronidae). *Egyptian Journal of Natural History*, 4:12-149. [Click here]

Schmid-Egger, Ch. 2011. Order Hymenoptera, families Crabronidae and Sphecidae. *Arthropod Fauna of the UAE*, 4:488-608. [Click here]

Schmid-Egger, Ch. 2019. Review of the genus *Ammatomus* A. Costa, 1859 (Hymenoptera, Crabronidae) from the Palearctic Region with description of four new species. *Linzer Biologische Beiträge*, 51:437-457. [Click here]

Radoszkowski, O. 1877. Chrysidiformis, Mutillidae и Sphegidae in Voyage au Turkestan. *Papers of Anthropology and Ethnography at the Imperial Moscow University*, 26: 1-87. [In Russian]

Bull. Iraq nat. Hist. Mus.
(2025) 18 (4): 971-979.

تسجيل جديد للنوع Ammatomus *rufonodis* (Radoszkowski, 1877) من العراق (Hymenoptera: Bembicinae)

شذى عبد اللطيف حمودي* و معن عبد العزيز شفيق **

* مركز بحوث ومتحف التاريخ الطبيعي-جامعة بغداد، بغداد، العراق

** قسم علوم الحياة، كلية العلوم- الجامعة المستنصرية، بغداد، العراق

الاستلام: 2025/10/6، المراجعة: 2025/12/11، القبول: 2025/12/14، النشر: 2025/12/20

الخلاصة

وثقت الدراسة الحالية تسجيل النوع *Ammatomus rufonodis* (Radoszkowski, 1877) لأول مرة للمجموعة الحشرية في العراق. وعلى الرغم من ان هذا النوع يظهر تشابهاً مورفولوجياً مع النوع المسجل سابقا *A. mesostenus* (Handlirsch, 1888) ، إلا أنه يمكن تمييزه بوضوح من خلال الزخرفة السطحية المتمثلة بكُبر قطر الحُفَر في البطن، والتي تماثل في حجمها تلك الموجودة على جنب الصدر الوسطي. وقد قُدِّمت أسماء مرادفة، سمات تشخيصية، أوصاف مورفولوجية دقيقة، وملاحظات حول التوزيع.