

A NEW RECORD FROM THE GENUS *CALLICERA* PANZER, 1809 (INSECTA: DIPTERA: SYRPHIDAE) FROM INDIA

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ABSTRACT: One species of genus *Callicera* namely *Callicera nitens* Coe, 1964 is recorded for the first time from India. A brief diagnosis, images and comparison with allied species are provided to validate this species scientifically as a new faunal record from India. The genera as well as the species shows rare distribution pattern along India as well as Oriental region range. There are various environmental and anthropogenic factors that contribute as a threat to the survival strategy of this pollinating hoverfly. Therefore documentation of this species hold high significance in conservation decision making and in ensuring future food security.

KEY WORDS: Taxonomy, New Record, Hoverfly, Syrphidae, *Callicera*, India

The distribution of *Callicera* Panzer, 1809 genus in India is limited with the availability of only 2 species out of total available 355 species from India (Sengupta-Naskar et al., 2016). Genus *Callicera* Panzer, 1809 is characterized by the presence of comparatively longer antennae with long terminal arista. Apart from the 2 available species, 1 species *Callicera nitens* Coe, 1964 is recorded for the first time from India. The species has been collected from Tukpa Valley, Kinnaur district during Survey in the state of Himachal Pradesh in the year 2018. *Callicera nitens* Coe, 1964 have been reportedly associated with pine vegetation (*Pinus* sp.). Thus distribution of this species is evidently in close concordance with that of the pine forests. The aphidophagous larval stages lived in water filled root holes of pine trees (Dixon, 1960) while the pollinating adults are available in upper elevational region where pine dominant vegetation is available. Therefore both the larvae as well as adults are economically important from agricultural view. Thus the present work is relevant in updating the list of current availability of pollinating hoverfly species in India.

MATERIALS AND METHODS

Study area: Kinnaur district of Himachal Pradesh is also known as the “The Land of Gods”. Kinnaur surrounded by the Tibet to the east, in the northeast corner of Himachal Pradesh, about 235 kms from Shimla having the three high mountains ranges i.e. Zaskar, Greater Himalayas and Dhauladhar, enclosing

valleys of Sutlej, Spiti, Baspa and their tributaries. It is located in the geographical range of 31°05' to 32°05' north to 77°45' to 79°00' East. Survey was conducted in the month of April, 2018 along the district of Kinnaur, Himachal Pradesh.

Collection method: Syrphid flies were collected from the field during day time by using insect sweep nets, traps like malaise trap, pan traps were also used for collection of hoverflies. The collected samples are narcotized by using ethyl acetate and stored for further study in insect envelopes in the field. The specimens were later carried back to the laboratory, mounted on insect pins and stored in insect cabinets.

Identification of specimens: Identification of the fly has been done by following the keys of Miranda & Young et al. (2013), Vockeroth (1992) and Petersen & Shewell et al. (1981) keeping in mind the recent nomenclatural changes. After identification, the specimen was deposited in the designated repository of National Zoological Collection, Diptera section, Zoological Survey of India, Kolkata.

Technical details: The 3D map of species distribution has been generated by using ARC GIS software Version 10.1. The photograph of habitus and insect body and parts were taken by using Leica Microscope M205A, where 0.32x Acro lens was used for habitus photography and PLANAPO 1.0x lens was used for the photography of body parts.

RESULT

Systematic Account

Subfamily Eristalinae

Tribe Callicerini

Genus *Callicera* Panzer, 1809

Type species: *Bibio aenea* Fabricius

Diagnosis: Body metallic shiny black in colour. Eyes completely covered with hairs, Antennae normally longer in size than normal shape. Long terminal arista present. Scutellum bears hair fringe on ventral side.

Key to species of Genus *Callicera* Panzer, 1809

1. Legs entirely clear orange reddish in colour except for coxa and trochanter.....
.....*robusta*, Coe, 1964
- Tarsi area of legs are blackish, legs never orange red in colour.....2
2. Hairs on mesonotum portion of thorax blackish at posterior end.....
.....*nitens* Coe, 1964
- Hairs on mesonotum portion of thorax wholly yellowish whitish colour.....
.....*christiani* Ghorpade, 1994

Callicera nitens Coe, 1964 (Figs. 1A-1F)

1964. *Callicera nitens* Coe. Bull. Brit. Mus. Nat. Hist., 15: 287.

Type location: Nepal.

Material examined: 3 ♂♂, Tukpa Valley, Kinnaur district, 2530 mt, 31°25'59"N, 78°14'36"E, 15.iv.18, coll: J.Sengupta.

Diagnosis: Head: Shining black in colour, covered sparsely with golden orange hairs. Antennae comparatively long with basoflagellomere having excessively long terminal arista. Arista terminal in appearance. Frons less densely haired than face. **Thorax:** Entirely shining black in colour and covered with dense hairs. Hairs predominantly black on notopleuron, posterior anepisternum and on scutellum rim. **Abdomen:** Shining black in colour and highly covered with pubescences. 1st and 2nd abdominal segments covered with dense white pubescences. Whereas hairs covering rest of the segments are brown yellow to black in colour. **Legs:** Dark brown to yellow brown in colour. Tibia covered with white coloured pubescences. Trochanters entirely brownish orange, claws usually bicolored. **Wing:** Clear in appearance, brown suffusion across the middle of wing. Wing venation normal. Microtrichia present in very few abundance. All veins yellow orange in appearance.

Distribution: India: Himachal Pradesh: Kinnaur: Tukpa Valley.

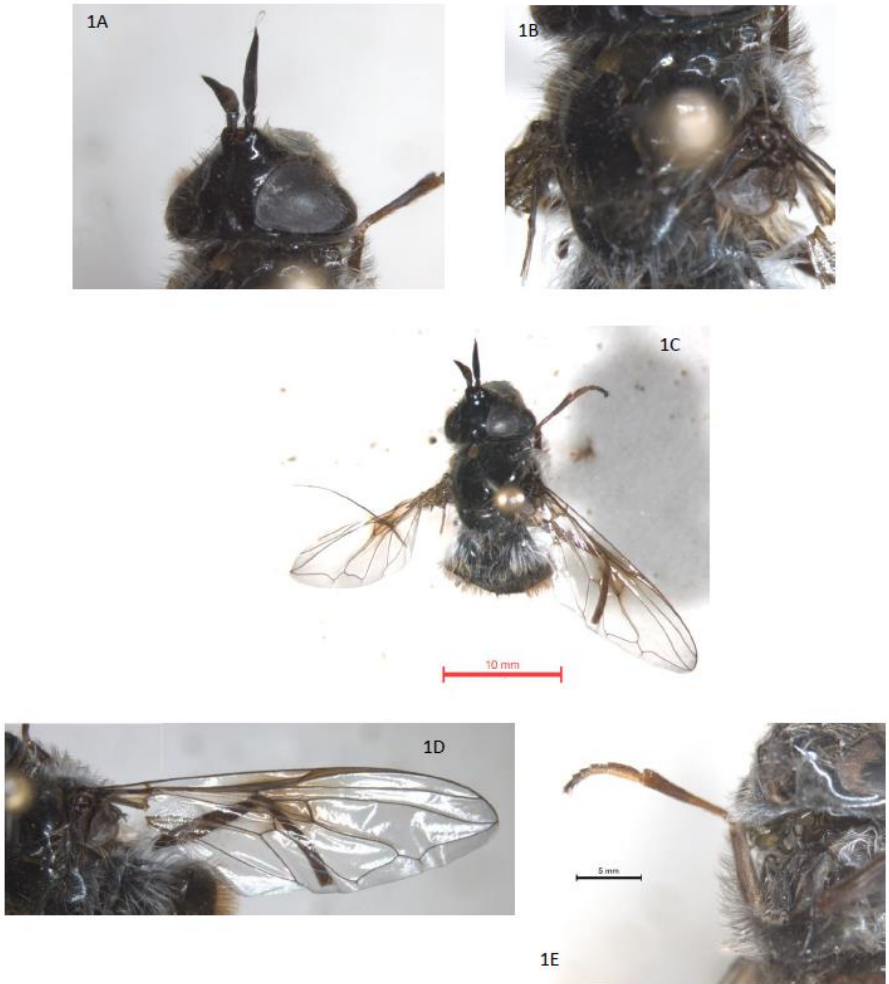
Distribution: Elsewhere: Oriental Region (Nepal).

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LITERATURE CITED

- Coe, R. L. 1964. Diptera from Nepal, Syrphidae. Bulletin of the British Museum, Natural History, 15: 255-290.
- Dixon, T. J. 1960. Key to and descriptions of the third instar larvae of some species of Syrphidae (Diptera) occurring in Britain. Transactions of the Royal Entomological Society of London, 112 (13): 345-379.
- Ghorpade, K. D. 1982. A new *Callicera* (Diptera, Syrphidae) from the northwest Himalaya. Colemania, 1 (3): 163-167.
- Ghorpade, K. D. 1994. Diagnostic keys to new and known genera and species of Indian subcontinent Syrphini (Diptera, Syrphidae). Colemania, 3: 1-15.
- Mitra, B., Mukherjee, M. & Banerjee, D. 2008. A check list of hoverflies (Diptera: Syrphidae) of Eastern Himalayas. Rec. Indian Mus. Zool Surv India, 284: 1-47.
- Miranda, G. F. G., Young, A. D., Locke, M. M., Marshall, S. A., Skevington, J. H. & Thompson, F. C. 2013. Key to the genera of Nearctic Syrphidae. Canadian Journal of Arthropod Identification, 23 (1): 351.
- Peterson, B. V., Shewell, G. E., Teskey, H. J., Vockeroth, J. R. & Wood, D. M. 1981. Manual of Nearctic Diptera. Vol. 1. Ottawa: Agriculture Canada.
- Reuters, T. 2013. UK. Insecta. Part-C Diptera. Family Syrphidae. Zoological Record, 149 (13): 383-398.
- Pavel, L. P., Mazanek, L. & Vitezslav, V. 2012. Key to adults and larvae of the genera of European Syrphinae (Diptera, Syrphidae). Acta Musei Silesiae Scientiae Naturales, 62 (3): 12-31.
- Sengupta, J., Naskar, A., Maity, A., Hazra, S., Mukhopadhyay, E., Ghosh, S. & Banerjee, D. 2016. An Updated Distributional Account of Indian Hover flies (Insecta: Diptera: Syrphidae). Journal of Entomology and Zoology Studies, 4 (6): 381-396.
- Vockeroth, J. R. 1992. The flower flies of the subfamily Syrphinae of Canada, Alaska, and Greenland: Diptera, Syrphidae. Vol. 1867. Agriculture Canada.



Figures 1A-1E. Dorsal view of head, Dorsal view of thorax, habitus, lateral view of wing and lateral view of leg of *Callicera nitens*, Coe, 1964.

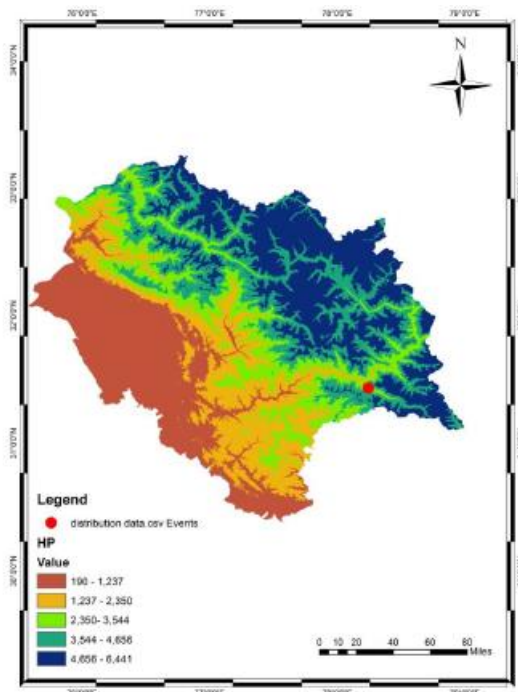


Figure 2. DEM Map of Himachal Pradesh and Shimla district showing the collection site of *Callicera nitens*, Coe, 1964.



Figure 3. Habitat of collection site of *Callicera nitens*, Coe, 1964 from Kinnaur district, HP.