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Distribution of *Callindra principalis* (Kollar, 1844) (Erebidae: Arctiinae) in Himachal Pradesh, pollinating the flowers of *Koenigia polystachya* (Polygonaceae)

Avtar Kaur Sidhu, PC Pathania and Kamal Saini

Abstract

Callindra principalis (Kollar), tiger moth of family Erebidae has been recorded from the state of Himachal Pradesh for the first time between altitude of 2500 to 3400m asl. Its favourable habitat is glacier fed and rare *Betula utilis* forests where it has been observed in abundance. *Koenigia polystachya* (Polygonaceae) growing amongst Bhoj Parta forests has been recorded its nectar food plant for the time. The moth pollinates the flowers of its nectar food plant at dusk time.

Keywords: *Callindra principalis*, erebidae, distribution, nectar food plant, bhoj patra forests

Introduction

Callindra principalis (Kollar, 1844) is a larger moth of tribe Callimorphini (Lepidoptera, Erebidae, Arctiinae) with four sub-species world over i. e. *Callindra principalis principalis* (distributed in Pakistan, Kashmir, Himalayas, Nepal), *Callindra principalis flavicolor* (Moore, 1879) (distributed in Ladakh), *Callindra principalis fedtschenkoi* (Grum-Grshimailo, 1902) (distributed in Tajistan and Xinjiang in China), *Callindra principalis nuristanica* (Kardakoff, 1937) (distributed in Afghanistan) and *Callindra principalis regalis* (Leech, 1889) (distributed in Zhejiang, Jiangxi, Sichuan, Shaanxi, Hubei, Hunan, Fujian in China). From India, Hampson (1894)^[1] reported it from Kashmir, North-West Himalaya, Sikkim, and Singh *et al.* (2014)^[2] while giving the checklist of Arctiinae from India, gave its distribution as Indian Himalayas. However there are no precise records of the distribution, habitat and nectar food plants of *Callindra principalis* except Rishi (1968)^[3] and Bhagat (2018)^[4] recorded and reported *Prunus cerasus* (Cherry) as larval host plant of this species from Kashmir. In present studies (while working on moth diversity of Himachal Pradesh, 2008 to 2021), the distribution *Callindra principalis* has been explored from various localities of Himachal Pradesh besides reporting the nectar food plant of this species for the first time.

Observations and Discussion

Callindra principalis Kollar, 1844

1844, *Callimorpha principalis* Kollar, Hugel's Kaschmir iv: 465.

Diagnostic features: A tiger moth with crimson head; joints on the palpi spotted black; collar black with crimson edges; metallic green vertex on orange thorax; crimson spots present on black legs; abdomen crimson with lower area pale yellow. Fore wing metallic green with numerous yellow spots and hind wing orange with veins streaked with black and with sub-marginal black blotches (Fig. 1).

Wing expanse: 86mm.

Material examined: Himachal Pradesh: District Chamba, Pangi Valley, Sahali, 3400 m 21.VII. 2009, 4 exs.; Sural, 3234 m, 25.VII.2009, 1 ex, coll. A. K. Sidhu and party; Kalatop-Khajjiar Wildlife Sanctuary, Kalatop, 2500 m, 07.X.2010, 2 exs, 08.X.2010, 1 ex, coll. A. K. Sidhu and party; District Kinnaur, Sangla Valley, Sangla, 2593 m, 1 ex, 06.VI. 2016, 1 ex,

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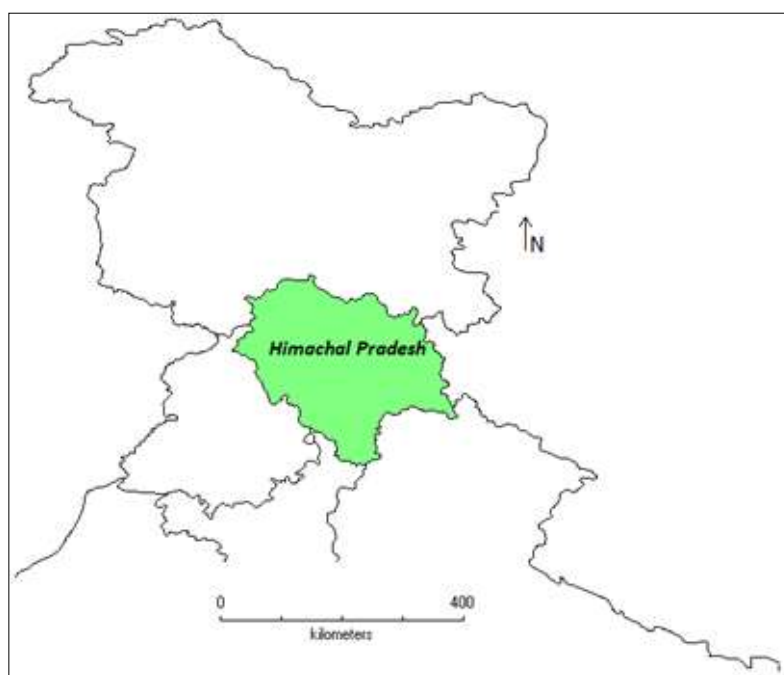
07.VI. 2016, 1 ex, 08.VI. 2016, 2 exs, 09.VI. 2016, 1 ex, 10.VI. 2016, 2 ex, 11.VI. 2016; District Lahaul & Spiti, Lahaul valley, Sissu, 3120 m, 5 exs, 26.VIII.2021, 7 exs, 27.VIII.2021, Between Gramphu & Cchota Dara, 3220m, 10 exs, 27.VIII.2021.

Distribution: Kashmir; North-West Himalayas; Sikkim

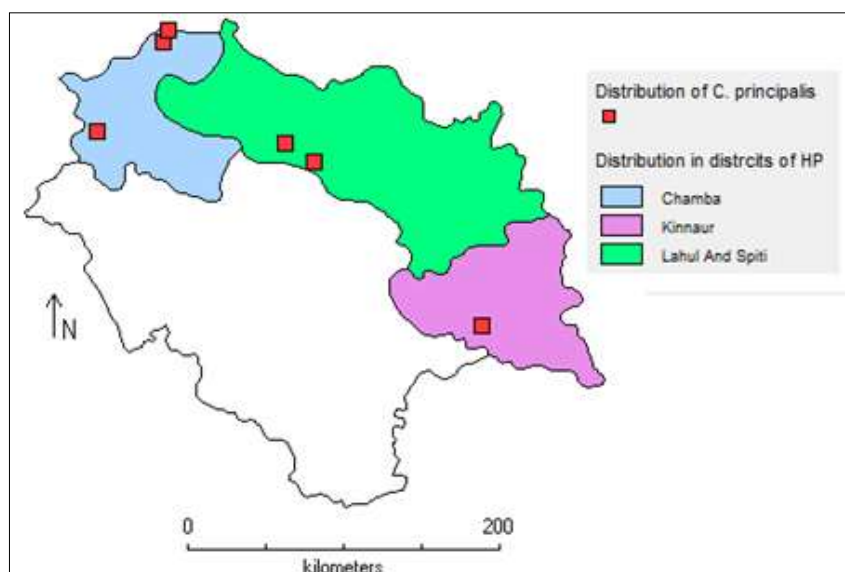
Elsewhere: Burma, China

During present studies the extensive surveys have been undertaken from various areas of Himachal Pradesh from 2008 to 2021. The species *Callindra principalis* has been recorded from Kalatop-Khajjjar WLS, Pangi valley (Sahali and Sural) of District Chamba, from Sangla valley in district Kinnaur and Lahaul Valley in District Lahaul and Spiti, which is new record to the state with extended distribution (Map:1 &2). The altitudinal range of the distribution of species has been recorded from 2500m asl to 3400m asl. The species has

been observed to be abundant in *Betula utilis* forests (Himalayan birch or Bhoj Patra) in the areas of Sural in Pangi Valley and between Gramphu and Cchatru in Lahaul valley. The typical habitat of the moth is moist, glacier fed Bhoj Batra forests. In the area between Gramphu and Cchatru in Lahaul valley, the species *Callindra principalis* was observed in abundance (more than 50 at one spot) during dusk time, pollinating the pinkish white flowers in the inflorescence of *Koenigia polystachya* (Polygonaceae) (commonly known as cultivated knotweed) growing among *Betula utilis* forests in the month of August, 2021 (Fig 2 & 3). In the Bhoj partra forests, the bushes of *Koenigia polystachya* were growing along water stream in full blooming stage covered with dense inferences of pinkish white flowers (Fig 4, 5 && 6). It is the first report of *Koenigia polystachya* as the nectar food plant of *Callindra principalis*. The adult moth was setting on the inflorescence and nectaring the different flowers setting at one place. After 2-10 minutes it fly over and again settle on some other inflorescence.



Map 1: Location of Himachal Pradesh



Map 2: Distribution of *Callindra principalis* in Himachal Pradesh



Fig 1: *Callindra principalis* (Kollar, 1844)

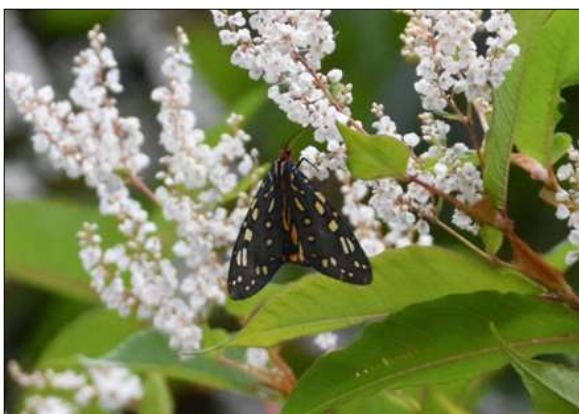


Fig 2: *Callindra principalis* nectaring the flowers of *Koenigia polystachya*



Fig 3: *Callindra principalis* Nectaring



Fig 4: *Koenigia polystachya*



Fig 5: *Koenigia polystachya* growing along stream in Bhoj Parta forests

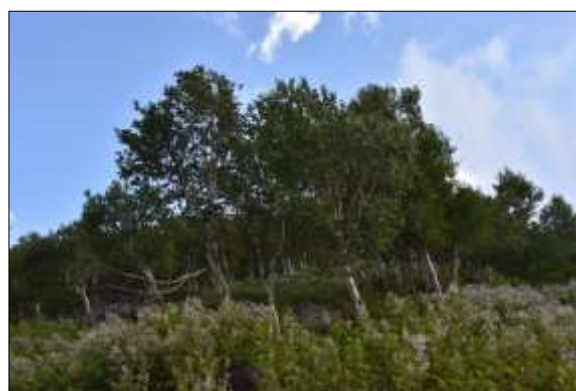


Fig 6: *Koenigia polystachya* growing among Bhoj Patra forests

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