Building evidence for conservation globally

Journal of Threatened Taxa

Open Access

10.11609/jott.2024.16.10.25951-26062
www.threatenedtaxa.org

26 October 2024 (Online & Print)
16(10): 25951–26062
ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)

ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

Publisher
Wildlife Information Liaison Development Society
www.wild.zooreach.org

Host
Zoo Outreach Organization
www.zooreach.org

Srivari Illam, No. 61, Karthik Nagar, 10th Street, Saravanampatty, Coimbatore, Tamil Nadu 641006, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

For Focus, Scope, Aims, and Policies, visit https://threatenedtaxa.org/index.php/JoTT/aims_scope
For Article Submission Guidelines, visit https://threatenedtaxa.org/index.php/JoTT/about/submissions
For Policies against Scientific Misconduct, visit https://threatenedtaxa.org/index.php/JoTT/policies_various

continued on the back inside cover

Cover: A digital art of water birds of Noyyal River and its wetlands in Coimbatore District by Megha A. Kashyap.

Journal of Threatened Taxa | www.threatenedtaxa.org | 26 October 2024 | 16(10): 26060–26062
ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)
https://doi.org/10.11609/jott.9417.16.10.26060-26062
#9417 | Received 14 August 2024
OPEN ACCESS
REPLY TO RESPONSE

Reply to Sheikh's Response to First record of *Pieris napi* L.

Firdousa Rasool [1] & **Altaf Hussain Mir** [2]

[1,2] Entomology Research Laboratory, Department of Zoology, University of Kashmir, Srinagar, Jammu & Kashmir 190006, India.
[1] firdousabintirasool@gmail.com (corresponding author), [2] draltaf_786@yahoo.com

It is an immense pleasure for us that our manuscript is gaining attention from entomologists nationwide and read with enthusiasm. As a result, some of them are responding to our published article entitled "First record of *Pieris napi* L. (Lepidoptera: Pieridae) from Kashmir Valley, India" [#8233], which was published on 26 July 2024 in the *Journal of Threatened Taxa*.

Firstly, it should be made clear that no one is an expert in any field and that humans are lifelong learners. Diversity is a vast issue that is constantly changing due to the discovery of hundreds of new species and the extinction of old ones after every blink.

We communicated this manuscript in October 2022, peer reviewed three times and taken almost one year and nine months to publish in this reputed journal.

Furthermore, we have some collaborated with taxonomists of Lepidoptera at international forum like Butterfly Research Center from Bhimtal and others for butterfly identification.

We were well aware of the most recent publications, and we cited all the sources that were pertinent to our study. Nevertheless, the scope of our research study was limited to Srinagar District's Dachigam National Park, a popular tourist destination with a global reputation, where undoubtedly more opportunities for the presence of new species is obvious. Hence, a good study site for upcoming researchers. Besides, all the references the querier had quoted were already reviewed thoroughly and have nothing to do with the subject of our investigation. It appears that they wish to draw attention to their own checklist (Sheikh et al. 2021) and receive a greater number of citations. It is highly recommended that they update their checklist as some species require modification.

Furthermore, our study is a new report and obviously not published before. It should be accepted by everyone in this context that new species do not wait to be discovered before being reported by professionals or experts only. We did sampling in the study area and have specimens available; if anybody is unsure, they can visit our lab anytime to view the samples.

Here we just highlight the differences between *P. napi* L. and *P. ajaka* (Moore) on certain grounds.

Butterfly databases: Butterflies of the World – Natural History Museum; Lepidoptera Barcode of Life; Scientific articles and research papers – published studies on Pieridae butterflies in journals like Journal of Lepidopterists' Society, Zoological Science, Entomological Research; Online encyclopedias and wikis: Encyclopedia of Life; Butterfly enthusiast websites; ifoundbutterflies website; Butterfly enthusiast forums; Butterfly Conservation; iNaturalist and much more.

Differences

Pieris napi and *P. ajaka* share some similarities as members of the Pieridae family, however, they differ in taxonomy, classification, appearance, habitat preferences, behavior, and ecological roles. *Pieris napi* has been considered a separate species by many authors who have provided distinguishing characteristic features (Richards 1940; Petersen 1949; Smith 1980; Forsberg & Wiklund 1989; Wiklund et al. 1991; Bissoondath & Wiklund 1996; Ohsaki & Sato 1999; Ferkau & Fischer 2006; Rayor et al. 2007; Chew 2009; Perveen & Ahmad

Date of publication: 26 October 2024 (online & print)

Citation: Rasool, F. & A.H. Mir (2024). Reply to Sheikh's Response to First record of *Pieris napi* L. *Journal of Threatened Taxa* 16(10): 26060–26062. https://doi.org/10.11609/jott.9417.16.10.26060-26062

2012; Perveen & Fazal 2013; Tadokoro 2015; Bibi et al. 2022; Ge et al. 2023). Here we cite a few taxonomic keys for the reader's perusal. Taxonomic keys by Perveen & Fazal (2013).

In addition to our published paper one can check more differences as European or Green-veined White ***Pieris napi***:

Habitat: Europe, Asia and northern Africa; the Himalayan region, including the northeastern states of India such as Arunachal Pradesh, Manipur, Assam, Himachal Pradesh, Meghalaya, Mizoram, Nagaland, and Uttarakhand, as well as Bhutan, Myanmar, China, Japan, North America, and Japan (Geiger & Shapiro 1992; Shaoji 2009; Gogoi 2013; Perveen & Fazal 2013; Lodh & Agarwal 2015; Tadokoro 2015; Tadokoro 2017).

Geographical distribution: Cool-temperate to cold wooded biomes of the northern hemisphere (Geiger & Shapiro 1992).

Habitus: wingspan 40–50 mm.

Upper wings: white with black tips and greenish-yellow veins.

Lower wings: yellowish-green with black spots.

Habitat: meadows, gardens, and woodland edges.

Food source: garlic mustard, cuckooflower and other Brassicaceae.

Resting host: *Stellaria media*, *Geranium* sp., and *Rubus* sp.

Himalayan Green-veined White or Ajaka White ***Pieris ajaka***:

Habitat: eastern Asia including China, Japan, & Korea and southern Asia,

Wingspan: 50–60 mm.

Upper wings: white with black tips and veins.

Lower wings: yellowish-green with black spots and a distinctive red or orange spot.

Habitat: woodland edges, grasslands, and mountainous areas.

Food source: various plants, including Japanese Angelica tree and Japanese Spikenard.

Taxonomy and classification

- Both *P. napi* and *P. ajaka* belong to the family Pieridae, which is known for its white and yellow butterflies. However, they are distinct species within this family.

Appearance

- *Pieris napi*, commonly known as the Green-veined White Butterfly, typically has white wings with greenish veins, which is a key identifying feature.

- *Pieris ajaka,* on the other hand, is often referred to as the Japanese White Butterfly or commonly known as Himalayan Green-veined White and may exhibit variations in wing coloration and patterns that differ from those of *P. napi*.

Habitat and distribution

- *Pieris napi* is widely distributed across Europe and parts of Asia, often found in meadows, and gardens.

- *Pieris ajaka* is primarily found in eastern Asia, particularly in Japan, and may prefer different habitats compared to *P. napi*.

Behavior and ecology

- Both species have similar life cycles, including egg, larval, pupal, and adult stages, but they may have different host plants for their larvae.

- *Pieris napi* larvae typically feed on plants in the mustard family, while *P. ajaka* may have a different set of host plants.

Natural enemies

- Both species face threats from natural predators and parasites, but the specific enemies may vary based on their geographical locations and habitats.

Conservation status

- The conservation status of these species can differ based on their populations and the environmental pressures they face in their respective regions.

Based on the existing literature and our research, it can be concluded that *P. napi* differs greatly from *P. ajaka* and cannot be considered a single species as the querier had intended. The querier would like to divert our attention to their checklist (Sheikh et al. 2021) where they reported *P. ajaka* Moore, 1865 from Rajouri District of Jammu region of J&K and not any record of *P. napi*. We report *P. napi* solely in Dachigam National Park, although we had 30 more study sites in Kashmir Valley. We are working on the updated checklist as additional species require modifications and the updated version seems to be the need of the hour.

References

Bibi, M., S. Bibi, N. Akhtar, Z. Ullah, M.F. Khan & I.Z. Qureshi (2022). Butterfly (Order: Lepidoptera) species Richness, diversity and distribution in different localities of Battagram, Pakistan. *Saudi Journal of Biological Sciences* 29(3): 1853–1857.

Bissoondath, C.J. & C. Wiklund (1996). Effect of male mating history and body size on ejaculate size and quality in two polyandrous butterflies, *Pieris napi* and *Pieris rapae* (Lepidoptera: Pieridae). *Functional Ecology* 10(4): 457–464.

Tinged black veins on the upper side, veins of underside of hindwings are dusted with pale greenish-yellow and have conspicuous black color, tip of fore wing is black with a distal black spot in between veins 3 and 4.....***P. napi***

Black areas of forewing tip are heavily marked and no under hindwings tend to be yellowed..... **Female**
Heavy marking in forewing tip are absent.....**Male**
Undersides of both fore and hind wings are pale yellow, borders dusted with gray scales.....***P. ajaka***
Upper forewing with prominent black spots, veins heavily defined in black colour, noticeable black spot between veins 3 and 4.....**Female**
Upper forewings contain black weak markings, black spot is absent between veins 3 and 4.....**Male**
Ge et al. (2023) provided identification keys for males as well as females. Although they considered *P. napi* as a complex, however they did not include *P. ajaka* within this complex.

Male identification keys of *P. napi* are.
Hindwing distinctly yellowish on the underside, with dark stripes along veins completely absent; Forewing with the 3rd discal spot present on the upperside ..... ***P. napi muchei*** (Summer form)
Forewing with the 3rd discal spot present (East Kazakhstan) ..... ***P. napi sauro***
Tegumen with its terminal part moderately sclerotised as almost lobe-shaped convex..... ***P. napi bryonides***
Terminal part of tegumen without lobe-shaped convex ..... ***P. napi muchei*** Spring form

Female identification keys of *P. napi* are.
Medium size; hindwings yellowish on the underside; dark stripes along veins completely absent on the upperside.....
.....***P. napimuchei*** Summerform
Wings with brownish suffusion on the upperside extremely strong developed; dark suffusion almost filling the discocell of forewings (East Kazakhstan)..... ***P. napi sauron***
Forewing with the 3rd discal spot distinctly present (N. Tian-Shan, Dzhungarsky Alatau, the Alai and Sayan) ..... ***P. napi bryonides***

Chew, F.S. & W.B. Watt (2006). The green-veined white (*Pieris napi* L.), its pierine relatives, and the systematics dilemmas of divergent character sets (Lepidoptera, Pieridae). *Biological Journal of the Linnean Society* 88(3): 413–435.

Perveen, F. & F. Fazal (2013). Biology and distribution of butterfly fauna of Hazara University, Garden Campus, Mansehra, Pakistan. *Open Journal of Animal Sciences* 3(2A): 28–36.

Ferkau, C. & K. Fischer (2006). Costs of reproduction in male *Bicyclus anynana* and *Pieris napi* butterflies: effects of mating history and food limitation. *Ethology* 112(11): 1117–1127.

Forsberg, J. & C. Wiklund (1989). Mating in the afternoon: Time-saving in courtship and remating by females of a polyandrous butterfly *Pieris napi* L. *Behavioral Ecology and Sociobiology* 25: 349–356.

Gogoi, M.J. (2013). A preliminary checklist of butterflies recorded from Jeypore-Dehing forest, eastern Assam, India. *Journal of Threatened Taxa* 5(2): 3684–3696. https://doi.org/10.11609/JoTT.o3022.3684-96

Ge, S.X., Z.H. Jiang, J.Q. Wang, K. Song, C. Zhang & S.J. Hu (2023). A revision of the *Pieris napi*-complex (Lepidoptera: Pieridae) and similar species with distribution in China. *Arthropod Systematics & Phylogeny* 81: 257–287. https://doi.org/10.3897/asp.81.e85191

Geiger, H. & A.M. Shapiro (1992). Genetics, systematics and evolution of holarctic *Pieris napi* species group populations (Lepidoptera, Pieridae). *Journal of Zoological Systematics and Evolutionary Research* 30(2): 100–122.

Lodh, R. & B.K. Agarwala (2015). Inventory of butterfly fauna (Lepidoptera: Rhopalocera) of Tripura, India, in the Indo-Myanmar biogeographical zone, with records of threatened taxa. *Check List* 11(2): 1–37. https://doi.org/10.15560/11.2.1591

Ohsaki, N. & Y. Sato (1999). The role of parasitoids in evolution of habitat and larval food plant preference by three *Pieris* butterflies. *Population Ecology* 41(1): 107–119.

Perveen, F. & A. Ahmad (2012). Checklist of butterfly fauna of Kohat, Khyber Pakhtunkhwa, Pakistan. *Arthropods* 1(3): 1–12.

Petersen, B. (1949). On the Evolution of *Pieris napi* L. *Evolution* 3(4): 269–278.

Rayor, S.L., J.L. Mooney & J.A. Renwick (2007). Predatory behavior of *Polistes dominulus* wasps in response to cardenolides and glucosinolates in *Pieris napi* caterpillars. *Journal of Chemical Ecology* 33(6): 1177–1185.

Richards, O.W. (1940). The biology of the small white butterfly (*Pieris rapae*) with special reference to the factors controlling its abundance. *Journal of Animal Ecology* 9(2): 243–288.

Shaoji, H. (2009). Preliminary field survey of butterflies on Xishan Hill (Kunming, Yunnan Province, China). *The Journal of Research on the Lepidoptera* 41: 60 –69.

Smith, A.G. (1980). Environmental factors influencing pupal colour determination in Lepidoptera. II. Experiments with *Pieris rapae*, *Pieris napi* and *Pieris brassicae*. *Proceedings of the Royal Society of London Series B. Biological Sciences* 207(1167): 163–186.

Tadokoro, T. (2015). Taxonomic status of *Pieris* (*napi*) *nesis* Fruhstorfer, 1909 (Lepidoptera, Pieridae). *Lepidoptera Science* 66(3–4): 104–108.

Tadokoro, T., S. Wangchuk, S. Wangdi, K. Wangdi, R. Wangdi, S. Drukupa & M. Yago (2017). Description of a new subspecies of *Pieris erutae* Poujade, 1888 from Eastern Bhutan, with taxonomic notes on the *Pieris napi* group from the Himalayas (Lepidoptera, Pieridae). *Lepidoptera Science* 68(3–4): 81–91.

Wiklund, C., S. Nylin & J. Forsberg (1991). Sex-related variation in growth rate as a result of selection for large size and protandry in a bivoltine butterfly, *Pieris napi*. *Oikos* 60(2): 241–250.

Journal of Threatened Taxa is indexed/abstracted in Bibliography of Systematic Mycology, Biological Abstracts, BIOSIS Previews, CAB Abstracts, EBSCO, Google Scholar, Index Copernicus, Index Fungorum, JournalSeek, National Academy of Agricultural Sciences, NewJour, OCLC WorldCat, SCOPUS, Stanford University Libraries, Virtual Library of Biology, Zoological Records.

NAAS rating (India) 5.64

Print copies of the Journal are available at cost. Write to:
The Managing Editor, JoTT,
c/o Wildlife Information Liaison Development Society,
3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore,
Tamil Nadu 641006, India
ravi@threatenedtaxa.org & ravi@zooreach.org

Journal of Threatened Taxa

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

October 2024 | Vol. 16 | No. 10 | Pages: 25951–26062
Date of Publication: 26 October 2024 (Online & Print)
DOI: 10.11609/jott.2024.16.10.25951-26062

Publisher & Host

WILD zoo reach
Zoo Outreach Organisation

Threatened Taxa