

Confirmation of *Liopeltis rappi* (Günther, 1860) in Himachal Pradesh

Kuttalam, Sourish Rajagopalan; Santra, Vishal; Owens, John Benjamin; Ahmed, Molla Talhauddin; Bharti, Omesh ; Selvan, Melvin ; Mukherjee, Nilanjan ; Malhotra, Anita

Hamadryad

Published: 01/10/2022

Peer reviewed version

[Cyswllt i'r cyhoeddiad / Link to publication](#)

Dyfyniad o'r fersiwn a gyhoeddwyd / Citation for published version (APA):

Kuttalam, S. R., Santra, V., Owens, J. B., Ahmed, M. T., Bharti, O., Selvan, M., Mukherjee, N., & Malhotra, A. (2022). Confirmation of *Liopeltis rappi* (Günther, 1860) in Himachal Pradesh. *Hamadryad*, 39(1-2), 85-88. <https://hamadryad.org/index.php/journal/article/view/76/81>

Hawliau Cyffredinol / General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/363319914>

Confirmation of *Liopeltis rappi* (Fitzinger, 1943) in Himachal Pradesh, India

Article in *Hamadryad* · July 2022

CITATIONS
0

READS
30

8 authors, including:



Sourish Kuttalam
Bangor University

6 PUBLICATIONS 19 CITATIONS

[SEE PROFILE](#)



Vishal Santra

Society for Nature Conservation, Research and Community Engagement

27 PUBLICATIONS 81 CITATIONS

[SEE PROFILE](#)



John Benjamin Owens
Bangor University

11 PUBLICATIONS 51 CITATIONS

[SEE PROFILE](#)



Omesh Kumar Bharti

Indira Gandhi Medical College

159 PUBLICATIONS 298 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Use of IDRV in prescapular region for rabies rabies prophylaxis in dogs and it's comparison with traditionally used method IMRV [View project](#)



Sri Lanka Snakebite Project [View project](#)

HAMADRYAD

Accepted Manuscript (Not copy-edited)



Title Confirmation of *Liopeltis rappi* (Günther, 1860) in Himachal Pradesh, India.

Authors Sourish Kuttalam^{1,3}, Vishal Santra^{1,2}, John Benjamin Owens^{2,3}, Molla Talhaiddin Ahmed¹, Omesh Bharthi⁴, Melvin Selvan⁵, Nilanjan Mukherjee¹ and Anita Malhotra^{3*}

¹Society for Nature Conservation, Research and Community Engagement (CONCERN), Nalikul, Hooghly, West Bengal, India

²Captive & Field Herpetology, Wales, 13 Hirfron, Anglesey, LL65 1YU, Wales, UK

³Molecular Ecology and Evolution, School of Natural Sciences, Bangor University, Wales, UK

⁴State Institute of Health & Family Welfare, Shimla, Himachal Pradesh, India

⁵Endangered Wildlife Trust, Dingdudal, Tamil Nadu, India

*Corresponding author e-mail: a.malhotra@bangor.ac.uk

DOI

Date submitted 15/02/2021

Date accepted 10/06/2021

Available online 22/07/2022

Citation Kuttalam, S., Santra, V., Owens, J.B., Ahmed, M.T., Bharthi, O., Selvan, M., Mukherjee, N., and Malhotra, A. (2022). Confirmation of *Liopeltis rappi* (Günther, 1860) in Himachal Pradesh, India. *Hamadryad*. In Press.

IMPORTANT This current version of the accepted manuscript is a submission that has been peer reviewed and accepted for publication by *Hamadryad*. This manuscript has not been copy-edited and this version will have minor differences from the final publication. During the article production process, the text and other elements of this article are likely to change.

When the final article is available, the 'Accepted Manuscript' version will be removed and replaced by the copy-edited final article. The date the article was first made available online will be carried over, but the year of publication will correspond to the volume/issue of inclusion.

An accepted manuscript at *Hamadryad* can be cited in text as "In Press".

Keywords Himachal Pradesh, Stoliczka, *Liopeltis*, *rappi*, Chamba

Liopeltis Fitzinger, 1943, is an Asian genus consisting of small, slender, and non-venomous colubrid snakes. It is characterized by a cylindrical body bearing smooth scales in 13, 15 or 17 rows, without the presence of apical pits. Ventrals are rounded and the tail is long with paired subcaudals. These snakes do not exceed 800mm in total length (Smith 1943). Smith placed the members of the genus in two distinct groups, one with the head distinct from the neck and midbody scales uniformly in 15 rows, and the second with the head not or scarcely distinct from the neck, a dark bar across the neck, and nostrils large, between two nasals. Currently, *Liopeltis* is represented globally by six species, four of which are present in India (Poyarkov Jr et al. 2019).

Liopeltis rappi (Günther 1860) is distributed sporadically across the Himalayan region in India and Nepal (Bhattacharai 2017). It was described by Günther (1860) from two specimens found in Sikkim and Nepal. It was reported from India thereafter by Stoliczka (1870) from Shimla, Himachal Pradesh; Anderson (1871) from the Jurta Valley, Darjeeling; Boulenger (1890) from Sikkim and Darjeeling; Wall (1909) from Peshok and Tindharia, Darjeeling; and Chettri et al. (2011) from Sikkim. Smith (1943) and Anderson (1871) both mention that the snake is not uncommon in the Darjeeling area. Bhattacharai et al. (2017) provide a list of reported localities in eastern and central Nepal.

Stoliczka's 1870 report of a specimen from the "neighbourhood of *Simla*" (Shimla, Himachal Pradesh) is the only known record of this species in the Western Himalayas, although it has subsequently been included in checklists of the state herpetofauna on this basis (Saikia et al. 2007). Smith (1943) believed that the locality given for the Shimla specimen may have been an error since no additional specimens had been reported from the Western Himalayas since, and that remained true until August 2018, when we collected a freshly road-killed specimen of *L. rappi* in Bhanjraru, Chamba district, Himachal Pradesh (N 32°53.945' E 076°09.123'), at an elevation of 1690m. The habitat that surrounded the highway the specimen was found at was mainly dense pine forests with a shrub undergrowth. The forests were also punctuated by some large boulders and rock faces. The elevation at which it was found also falls within the confirmed elevational distribution of the species in Himachal Pradesh (Saikia et al. 2007). This is the first report of this species in the 148 years since Stoliczka's documentation from Himachal Pradesh. The specimen (IM8370) described by Stoliczka was cross verified at the Indian Museum, Kolkata, and confirmed to be *Liopeltis rappi*. It verifies a distribution of this species into the Western Himalayas and extends the range of the species by 210km further west within the state of Himachal Pradesh.

The specimen (Figure 1) is in good condition with 5-6 small puncture wounds on the ventral side of the body not interfering with scale counts, and the dorsal surface is untouched. It was preserved in 70% ethanol and deposited in the collection of the High-Altitude Regional Centre, Zoological Survey of India, Solan, Himachal Pradesh.

The specimen was identified as *Liopeltis rappi* from the following combination of characteristics: a slightly depressed head that is not distinct from the neck, large nostril between two nasals, long tail, body uniformly dark coffee brown with a faded but distinct nuchal collar and a few dark spots on the forebody, this specimen possessed a dark lateral stripe extending from two head lengths behind the head till the anal shield, the lateral stripe uniformly spanned three dorsal scales on either side of the body, colour below is a yellowish-white.

Scalation is as follows: dorsal scales 15:15:15, ventrals 176, anal paired, subcaudals 65 paired, temporals 1+1, postoculars 2, preoculars 1, loreal singular and longer than high, supralabials 6 on right side and 5 on left, 3 and 4 entering eye on both sides and 5th being the largest, on the left side supralabials 5 and 6 appear to be fused forming one long shield, infralabials 6 on left side and 7 on the other, 4 infralabials in contact with anterior genials. A comparison with other specimens of this species reported in the literature is presented in Table 1.

The present record emphasizes the need for more surveying effort in the intervening areas between Himachal Pradesh in India and Central Nepal, where there are currently no records of this species.

Acknowledgements

We would like to thank the Forest Department of Himachal Pradesh for permission to survey permit number FFE-FB-F(10)-3/2017. Funding for this work was provided by the European Union Seventh Framework Programme (under the grant agreement number PIRSES-GA-2013-612131) to the BITES consortium in 2017, and a small grant from The Rufford Foundation to Vishal Santra (Offer Letter: 25313-1) in 2018. We would also like to extend our thanks to Wolfgang Wüster, Stuart Graham, Anatoli Togridou, Richard Southworth, Jasmine Torrez, Sankha Suvra Nandy, Shyamal Kumar Ghosh and Anweshan Patra for volunteering their help during fieldwork in 2018.

References

- Anderson, J. (1871) On some Indian reptiles. *Proceedings of the Zoological Society of London 1871*: 149–211.
- Bhattarai, S., Thapa, K. B., Chalise, L., Gurung, A., Pokheral, C. P., Subedi, N., Thapa, T. B., & Shah, K. B. (2017) On the distribution of the Himalayan Stripe-necked Snake *Liopeltis rappi* (Günther, 1860) (Serpentes: Colubridae) in Nepal. *Amphibian & Reptile Conservation*, 11(1): 88–92.
- Boulenger, G. A. (1890) The Fauna of British India, Including Ceylon and Burma. Reptile and Batrachia. Taylor and Francis, London, England. 541 p.
- Chettri, B., Bhupathy, S. and Acharya, B.K., 2011. An overview of the herpetofauna of Sikkim with emphasis on the elevational distribution pattern and threats and conservation issues. Biodiversity of Sikkim: exploring and conserving a global hotspot. Gangtok: Information and Public Relations Department, Government of Sikkim, pp.233-254.
- Dowling, H. G. (1951) A proposed standard system of counting ventrals in snakes. *British Journal of Herpetology*, 1: 97-99.
- Günther, A. (1860) Contributions to a knowledge of the reptiles of the Himalaya mountains. I. Descriptions of the new species. II. List of Himalayan reptiles, with remarks on their horizontal distribution. *Proceedings of the Zoological Society of London*, 1860: 148–175.
- Poyarkov Jr., N. A., Nguyen, T. V., Vogel, G. (2019) A new species of the genus *Liopeltis* Fitzinger, 1843 from Vietnam (Squamata: Colubridae). *Journal of Natural History*, 53: 27-28.
- Saikia, U., Sharma, D. K., Sharma, R. M., (2007) Checklist of the reptilian fauna of Himachal Pradesh, India. *Reptile Rap (Newsletter of the South Asian Reptile Network)*, 8: 6–9.
- Smith, M. A. (1943) The Fauna of British India, Ceylon and Burma, Including the Whole of the Indo-Chinese Sub-Region. Reptilia and Amphibia, 3 (Serpentes). Taylor and Francis, London, England.
- Stoliczka, F. (1870) Observations on some Indian and Malayan Amphibia and Reptilia. *J. Asiat. Soc. Bengal*, 39: 134-228.
- Wall, F. (1909) Notes on snakes from the neighbourhood of Darjeeling. *Journal of the Bombay Natural History Society*, 19: 337–357.



Figure 1 Photograph of the freshly dead specimen of *Liopletis rappi* from Chamba district, Himachal Pradesh.
(Photo: Vishal Santra)

Accepted
Manuscript

Table 1 Scalation details (where available) of specimens of *Liopeltis rappi* reported in the literature in comparison to the specimen described in this study. MBD: Number of mid-body dorsal scale rows, ND: Number of dorsal scale rows around neck, VD: Number of dorsal scales by vent, VEN: Ventral scales (measured according to Dowling (1951), SUB: Number of subcaudal scales. Na: not available.

Locality	Sex	MBD	ND	VD	VEN	SUB	Source
Sikkim	M	15	15	15	185	63	Boulenger, <i>Proc. Zool. Soc.</i> 1860 - 1890
Sikkim	Na	15	15	15	184	60	Boulenger, <i>Proc. Zool. Soc.</i> 1860 – 1890
Sikkim	F	15	Na	Na	191	60	Günther, 1860
Darjeeling	M	15	15	15	189	74	Boulenger, <i>Proc. Zool. Soc.</i> 1860 – 1890
Darjeeling	M	15	15	15	178	68	Boulenger, <i>Proc. Zool. Soc.</i> 1860 – 1890
Darjeeling	M	15	15	15	180	71	Boulenger, <i>Proc. Zool. Soc.</i> 1860 – 1890
Darjeeling	M	15	15	15	182	69	Boulenger, <i>Proc. Zool. Soc.</i> 1860 – 1890
Darjeeling	M	15	15	15	184	75	Boulenger, <i>Proc. Zool. Soc.</i> 1860 – 1890
Darjeeling	Na	na	na	na	190	60	Anderson, 1871
Darjeeling	Na	Na	Na	Na	190	75	Anderson, 1871
Darjeeling	Na	Na	Na	Na	194	65	Anderson, 1871
Darjeeling	Na	Na	Na	Na	198	50	Anderson, 1871
Darjeeling	Na	Na	Na	Na	191	73	Anderson, 1871
Darjeeling	Na	Na	Na	Na	190	71	Anderson, 1871
Darjeeling	Na	Na	Na	Na	190	77	Anderson, 1871
Darjeeling	Na	Na	Na	Na	196	70	Anderson, 1871
Nepal	Na	15	Na	Na	198	Na	Günther, 1860
Nepal	F	15	15	15	195	Na	Boulenger, <i>Proc. Zool. Soc.</i> 1860 – 1890
Chitwan, Nepal	Na	15	15	15	176	60	Bhattarai et al. 2017
Shimla	Na	Na	Na	Na	196	67	Stoliczka, 1870
Chamba, Himachal Pradesh	M	15	15	15	176	65	Present study, 2018