

## Distribution of Himalayan white-lipped pit viper *Trimeresurus septentrionalis* Kramer 1977 (Reptilia: Viperidae) in Kumaon Zone, Uttarakhand, India

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### Abstract

The status with geographical distribution of Himalayan White-lipped Pit viper, *Trimeresurus septentrionalis* Kramer 1977 in Kumaon Zone, Uttarakhand of India has been described in this article. Various specimens of this species were recorded during a herpetological survey, which was carried out from 2015 to 2020 in different sites of Kumaon Zone, Uttarakhand. There are four specimens found during the survey; 03 dead and 01 alive specimens have been recorded. All dead specimens were victims of roadkill. One alive individual was rescued from a densely populated area. These sightings suggest further surveys to make a baseline database and take effective initiatives for conservation to protect the snakes fauna and protection of people against snake bites in the region.

**Keywords:** geographical, Various specimens, roadkill

### 1. Introduction

Uttarakhand has a great diversity of flora and fauna. The vegetation of the state majorly comprises riverine forests, Chir & Sal forests, alpine trees and tropical rain forests. Wildlife in Uttarakhand thrives in these dense forests. It is home to more than 30 species of snakes and most of them are non-venomous. The present paper confirms the previously unreported presence of White-lipped Pit viper (*Trimeresurus septentrionalis*) in Nainital, Bageshwar and Almora districts of Kumaon Zone, Uttarakhand, India.

### 2. Material and Methods

#### 2.1 Study area

The survey was done in various sites of Nainital, Almora and Bageshwar districts. The study areas contain mostly subtropical evergreen forests. One of the sites Song village (1500m-2000m) of Kapkote block lies in the northern part of Bageshwar district. This region is dominated by Oak species associated with Deodar (*Cedrus deodara*), Bamboo (subfamily *Bambusoideae*), Chir pine (*Pinus roxburghii*), Rhododendron (*Rhododendron arboreum*) and Yew (*Taxus baccata*). Other sites include Bhatronjkhan (Almora), Nainital and Ranikhet (Almora); these sites contains large portions of the land covered by Deodar, Kafal, Oak, Akhrot, Hill Pipal, Chinar, Angu, Kilmora, Kunj, Hisalu, Weeping Willow, and Chir pine.

#### 2.2 Methodology

During the survey, 03 dead specimens were found as road-kills, their pictures were recorded by mobile camera. Tail,

head and skin were also photographed separately and live specimen was also photographed.

### 3. Results and Discussion

#### Himalayan White-lipped Pit Viper (*Trimeresurus septentrionalis*) Kramer, 1977

This snake also known as “Northern white-lipped pit viper” belongs to *Trimeresurus* genus, and is highly poisonous. It is recorded from Nepal <sup>[1, 2, 3]</sup>, Bangladesh <sup>[6]</sup> and India <sup>[8]</sup>. In India, it is known from Uttarakhand <sup>[4, 5]</sup> and Himanchal Pradesh <sup>[2]</sup> are only two states of India, where the presence of this species is documented. In Uttarakhand, this snake is recorded from Dehradun <sup>[4]</sup> and Pithoragarh <sup>[4, 5]</sup> district only. Vasudevan and Sondhi <sup>[7]</sup> included this species in the checklist of Uttarakhand without mentioning the local records. Whitaker and Captain <sup>[8]</sup> include this species in the checklist of India; they also not give the local records of this species.

A single dead individual of Himalayan white-lipped pit viper was photographed at the road, where it was crushed by a vehicle. This sighting was made at 0630 hrs on 29th September, 2020 in Bhatronjkhan of Almora district of Uttarakhand. Two dead individuals, also victim of road kill, were photographed at Ranikhet-Almora motor road and Nainital. These sighting was made at 1305 hrs on 29th September 2020 and 1030 hrs on 25 October, 2017 respectively. The alive individual was photographed during rescue in Song Village. This Sighting was made at 1500 hrs on 12 November, 2016.



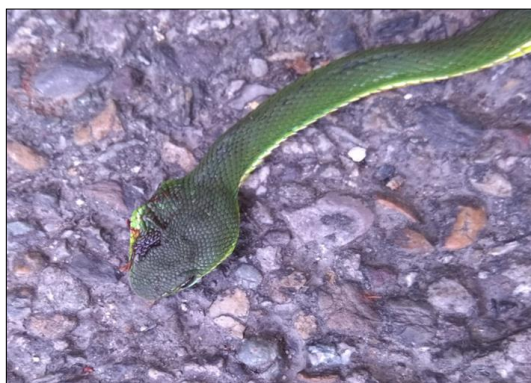
**Fig 1:** Road-kill of a *Trimeresurus septentrionalis* at Almora-Ranikhet motor road.



**Fig 2:** Road-kill of a *Trimeresurus septentrionalis* at Bhatronjkhan-Ranikhet motor road.



**Fig 3:** Tail of the dead specimen of *Trimeresurus septentrionalis* found at at Bhatronjkhan-Ranikhet motor road.



**Fig 4:** Head of the dead specimen of a *Trimeresurus septentrionalis* found at Bhatronjkhan-Ranikhet motor road.



**Fig 5:** A dead specimen of a *Trimeresurus septentrionalis* found at Bhatronjkhan-Ranikhet motor road.

#### 4. Conclusion

The records of this snake at various sites in three districts of Kumaon Zone, Uttarakhand increases the possibility of snake in the remaining districts of Garhwal zone also as both regions have same geographical features. The main reason for not finding this species previously is that the surveys have not be done at the right time and right place. The camouflage of this species makes it almost hidden in grass could also be one of the reasons. Despite the fact that the most of the snakes found in Uttarakhand are non-venomous, the death toll from snake bites in Uttarakhand is significant. In this situation neglect of such deadly poisonous species can undoubtedly increase the death toll from snake bite. We emphasize the need of proper and systematic surveys of this species in Uttarakhand for biodiversity conservation and protection of this species.

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