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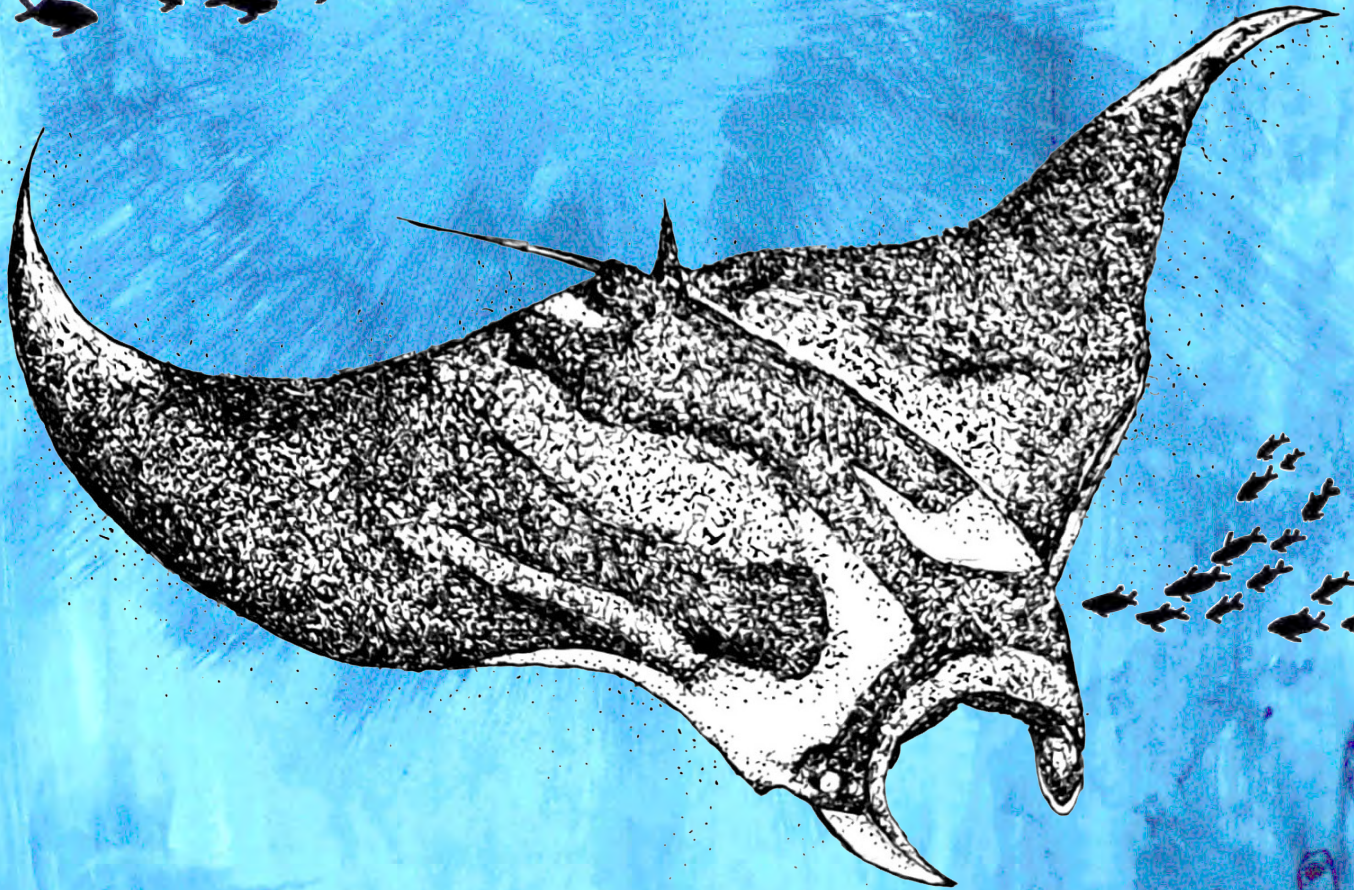
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43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

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continued on the back inside cover

Cover: Giant Oceanic Manta Ray *Mobula birostris* in ink on acrylic wash by Elakshi Mahika Molur adapted from scientific illustration by Roger Hall.



Record of Himalayan Marmot *Marmota himalayana* (Hodgson, 1841) (Rodentia: Sciuridae) from Arunachal Pradesh, India

Hiranmoy Chetia¹ & Murali Krishna Chatakonda²

^{1,2}Amity Institute of Forestry and Wildlife, Amity University, Noida, Uttar Pradesh, 201313, India.

¹hiranmoychetia@gmail.com, ²mkchatakonda@amity.edu (corresponding author)

The mammalian family of Sciuridae includes squirrel species that are adapted to different habitats. Based on their adaptations, they are classified as tree squirrels, gliding squirrels, and ground squirrels. The particular tribe Marmotini, which includes the burrow-dwelling ground species has 13 genera comprising a total of 95 species (Thorington et al. 2012). The species, Himalayan Marmot *Marmota himalayana*, has a large range that extends over a vast area in the mountains of southern Asia, including the Kuenlun, Arkatag, Altyn Tagh, and Nan Shan mountain ranges, the Tibetan Plateau, Sikkim, and Bhutan (Sclater 1891; Bobrinskii 1937; Gromov et al. 1965; Sibo & Ganyun 1983; Bibikov 1989; Nikol'skii et al. 2006). In India, the species occurs in Ladakh, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.

The present study was carried out in high-altitude grasslands near Mago village of Thingbu Tehsil of Tawang district Arunachal Pradesh (Figure 1). Mago is situated at around 3,600 m elevation and the grasslands are at around 4,000 m elevation where the marmots occur. This particular observation was carried out at Zithang (27.733700°N, 92.285867°E, 4,100 m). Throughout the

year, there is no absolute frost-free period. The area is undulating with mountains surrounding the whole area (Image 1). The river that flows in the region is locally known as Yechum. The grasslands are used as grazing lands by the Yak-herders of Brokpa community (Brokpa people are a sect of the Monpa people, who rear livestock such as yak, dzo and sheeps, and live a nomadic lifestyle).

We trekked from the village of Mago to Zithang (Image 2). It took around four hours to reach Zithang. After reaching Zithang, we took shelter in a temporary makeshift tent. Visual observations were made using binoculars (Nikon Prostaff 3S 10x42). The observations were recorded using a camera (Nikon D500).

During our stay at the place, we observed that, when the weather was gloomy, marmots do not come out frequently. But when the weather was clear they spend most of the time, foraging, grooming, and playing (Image 3). We also documented Himalayan Marmots foraging on grass (Image 4). We also documented them coming out from the burrows, taking a mouthful of grass, and again going back to the burrows (Image 5). This can be

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Competing interests: The authors declare no competing interests.

Ethical statement: This study was conducted with permission from the village headmen of the village of Mago. We followed all guidelines for animal care and scientific research ethics.

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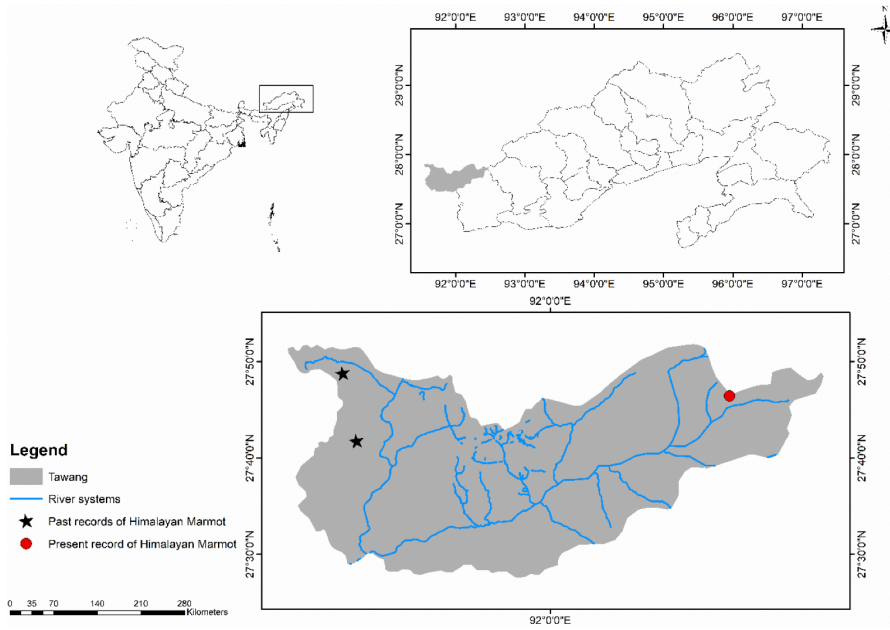


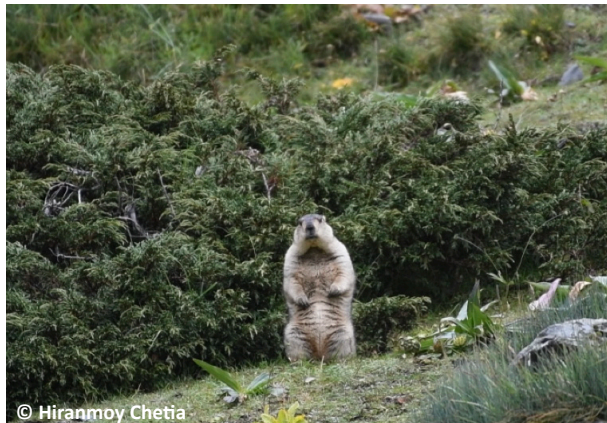
Figure 1. Map of the study area along with past and present records of Himalayan Marmot from Arunachal Pradesh.



Image 1. Terrain map of Mago.



Image 2. Trail from Mago to Zithang.



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Image 3. A curious Himalayan Marmot.



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Image 4. A foraging Himalayan Marmot.



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Image 5. A burrow of Himalayan Marmot.



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Image 6. A yak-herding dog.

indicative of preparedness for the harsh winters.

Himalayan Marmot locally in Dirang Monpa (language) is known as 'Gomchen Chikpa' (Gomchen meaning hermit). When asked about why it is called so, they told that since they are not seen during the winters (because they hibernate), they are thought to be meditating in the burrows, like a hermit. As the inhabitants of the region predominantly follow Tibetan Buddhism, they usually do not hunt. But there are reports of using marmots in the preparation of ethnomedicines (Mishra et al. 2006). The fat of the animal is used as a pain reliever. The fat is melted and rubbed in the area of pain. The skin of the animal is also used as a pain-relieving belt and wrapped around the area of pain to get relief from pain. The high-altitude grasslands are used as grazing places for livestock by the Brokpa people. In order to organise and control large numbers of livestock and to protect them from potential predators, herding dogs are used (Image 6). During our visit to the grasslands, we were reported instances of dogs preying on marmots.

There is scanty information available for Himalayan

Marmot from Arunachal Pradesh. There are no historical reports of the species in the state, according to previous literature, including works by Ellerman (1961), Alfred et al. (2006), and De et al. (2006). Mishra et al. (2006) recorded the presence of the species in Tawang and West Kameng districts. In the CAMP report, Molur et al. (2005), recorded its occurrence from Manmagyalem and Tawang, the same is followed by Srinivasulu & Srinivasulu (2012) and Menon (2014). However, in the chapter on Sciurids in Mammals of South Asia (Datta & Nandini 2015), there is no mention of any occurrence of the marmot species from Arunachal Pradesh. Therefore, this is the first study that has presented photographic evidence of the species from Arunachal Pradesh.

Conclusion

Though Himalayan Marmot occurs in different areas of India, no systematic work has been done till now to assess their population status and distribution of Himalayan Marmots, let alone in the state of Arunachal Pradesh. So, proper research is needed to fill the

knowledge gaps for planning conservation measures for these beautiful creatures.

References

- Alfred, J.R.B., Ramakrishna & M.S. Pradhan (2006).** Validation of Threatened mammals of India. (Published by the Director, *Zoological Survey of India*, Kolkata), 158 pp.
- Bibikov, D.I. (1989).** *Surki (The Marmots)*, Agroprom Press, Moscow, 255 pp.
- Bobrinskii, N.A. (1937).** A Review of Eurasian Marmots (genus *Marmota*), in *Pamyati akademika M.A. Menzbira (In Memory of Academician M.A. Menzibir)*, Moscow: Akademii Nauk SSSR, 51–68.
- Datta, A. & R. Nandini (2015).** Sciurids, pp. 513–573. In: Johnsingh, A.J.T. & N. Manjrekar (eds). *Mammals of South Asia Vol. 2*: Universities Press (India), 739 pp.
- De, J.K., A.K. Mandal & M.K. Ghosh (2006).** Mammals in Fauna of Arunachal Pradesh, State Fauna Series 13 (Part-1) (Published by the Director, *Zoological Survey of India*, Kolkata), 21–68.
- Ellerman, J.R. (1961).** *The Fauna of India including Pakistan, Burma and Ceylon. Mammalia (Rodentia)*. 2nd Edition. Zoological Survey of India, Calcutta, vol. 3 (Part I): 482 pp.
- Gromov, I.M., D.I. Bibikov, N.I. Kalabukhov & M.N. Meier (1965).** Fauna SSSR. Mlekopitayushchie. Nazemnye belich'i (Marmotinae) [(Fauna of the Soviet Union. Mammals. Ground Squirrels (Marmotinae)], Moscow: Nauka, 464 pp.
- Menon, V. (2014).** *Indian Mammals- A Field Guide*. Hachette Book Publishing India, 528 pp.
- Mishra, C., M.D. Madhusudan & A. Datta (2006).** Mammals of the high altitudes of western Arunachal Pradesh, eastern Himalaya: an assessment of threats and conservation needs. *Oryx* 40(1): 29–35.
- Molur, S., C. Srinivasulu, B. Srinivasulu, S. Walker, P.O. Nameer & L. Ravikumar (2005).** Status of south Asian non-volant small mammals: conservation assessment and management plan (CAMP) workshop report. Zoo Outreach Organization/CBSG-South Asia, Coimbatore, India, 618 pp.
- Nikol'skii, A.A. & A. Ulak (2006).** Key factors determining the ecological niche of the Himalayan marmot, *Marmota himalayana* Hodgson (1841). *Russian Journal of Ecology* 37: 46–52.
- Sclater, W.L. (1891).** *Catalogue of Mammalia in the Indian Museum, Calcutta. Part II (Rodentia, Ungulata, Proboscidea, Hyracoidea, Carnivora, Cetacea, Sirena, Marsupialia, Monotramata)*, Calcutta: Indian Museum, 406 pp.
- Sibo, W. & Y. Ganyun (1983).** *Rodent fauna of Xinjing*. Wulumiqi: Xinjing People's Publishing House, 66–68.
- Srinivasulu, C. & B. Srinivasulu (2012).** *South Asian Mammals. Their Diversity, Distribution, and Status*. Springer, New York, 468 pp.
- Thorington Jr, R.W., J.L. Koprowski, M.A. Steele & J.F. Whatton (2012).** *Squirrels of the world*. JHU Press, 472 pp.



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c/o Wildlife Information Liaison Development Society,
43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore,
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ravi@threatenedtaxa.org



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