

OPEN ACCESS

The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

Journal of Threatened Taxa

Building evidence for conservation globally

www.threatenedtaxa.org

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

VIEWPOINT

A UNIQUE ARCHETYPE OF CONSERVATION IN HIMACHAL PRADESH, WESTERN HIMALAYA, INDIA

Rupali Sharma, Monika Sharma, Manisha Mathela, Himanshu Bargali & Amit Kumar

26 May 2021 | Vol. 13 | No. 6 | Pages: 18647–18650

DOI: [10.11609/jott.6421.13.6.18647-18650](https://doi.org/10.11609/jott.6421.13.6.18647-18650)



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

For reprints, contact [<ravi@threatenedtaxa.org>](mailto:ravi@threatenedtaxa.org)

The opinions expressed by the authors do not reflect the views of the Journal of Threatened Taxa, Wildlife Information Liaison Development Society, Zoo Outreach Organization, or any of the partners. The journal, the publisher, the host, and the partners are not responsible for the accuracy of the political boundaries shown in the maps by the authors.

Member



Publisher & Host





A unique archetype of conservation in Himachal Pradesh, western Himalaya, India

Rupali Sharma¹ , Monika Sharma² , Manisha Mathela³ , Himanshu Bargali⁴ & Amit Kumar⁵

^{1–5} Wildlife Institute of India, Chandrabani, Post Box # 18, Dehradun, Uttarakhand 248002, India.

¹rupalisharma060@gmail.com, ²monika.iirs@gmail.com, ³manishamathela@gmail.com, ⁴himanshubargali@rediffmail.com,

⁵amit@wii.gov.in (corresponding author)

Abstract: Owing to numerous emerging threats to biodiversity, its conservation has been of paramount importance in today's world. Interestingly, many modern practices have been followed globally for the conservation of natural resources, yet traditional conservation practices that could set an excellent example need to be explored worldwide. Keeping this in view, the current communication aims to highlight a unique conservation method that has been practiced in the remote and cold-arid region of the state of Himachal Pradesh in the western Himalaya. Locally known as 'Praja Mandal', this indigenous system of conservation needs to be addressed and adopted nationwide with an eye towards a sustainable ecosystem.

Keywords: Conservation, Himalaya, Praja Mandal, sacred grove, traditional knowledge.

The Himalaya, a massive biodiversity hotspot supplying ample ecosystem services, is one of the active and youngest mountain ranges in the world (Roy & Purohit 2018). Covering a vast area of >2500km long and 80–300 km wide amidst five countries, India shares 12 states with 95 districts, eventually known as the Indian Himalayan Region (IHR). The region is quite rich in endemic and threatened flora and fauna such as *Panthera uncia* (Snow Leopard), *Moschus moschiferus* (Musk Deer), *Pinus gerardiana* (Chilgoza), *Betula utilis* (Bhojpatra), *Aconitum heterophyllum* (Atis), and

Nardostachys jatamansi (Jatamansi) (Singh & Kumar 2017). Conservation of biodiversity holds importance for the steady flow of ecosystem services as well as for ecological balance. Notably, in order to conserve these natural resources, native knowledge has been of paramount importance to land productivity, food security, and ensuring environmental conservation (Sillitoe 2017). It acts as a bridge between culture and nature, so as to aid the process of conservation and management of biological resources (Reimerson 2013; Potts 2017). These time-honored ideas with a deep understanding of protecting natural resources are primitive and transfer from one generation to another.

Several developed countries have been practicing many forest policies and conservation programs for the preservation of their natural resources, on the other hand, some developing countries have documented their traditional practices for sustainable environment conservation (Ens et al. 2015; Aya & Waswa 2016). For instance, sustainable management of forests by Cordillera communities in Philippines has continued to thrive with their limited resources and habitat whilst following their cultural practices of conservation (Camacho et al. 2015). Therefore, blending indigenous and modern practices

Editor: Anonymity requested.

Date of publication: 26 May 2021 (online & print)

Citation: Sharma, R., M. Sharma, M. Mathela, H. Bargali & A. Kumar (2021). A unique archetype of conservation in Himachal Pradesh, western Himalaya, India. *Journal of Threatened Taxa* 13(6): 18647–18650. https://doi.org/10.11609/jott.6421.13.6.18647-18650

Copyright: © Sharma et al. 2021. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use, reproduction, and distribution of this article in any medium by providing adequate credit to the author(s) and the source of publication.

Funding: United Nations Development Programme (UNDP) and Global Environment Facility (GEF).

Competing interests: The authors declare no competing interests.

Acknowledgements: The authors are thankful to the Director and Dean, Wildlife Institute of India, Dehradun for institutional support. United Nations Development Programme and Global Environment Facility are acknowledged for funding for funding the SECURE Himalaya project and Himachal Pradesh Forest Department for continuous field support and encouragements.



भारतीय वन्यजीव संस्थान
Wildlife Institute of India





Image 1. Magnificent view of *Betula utilis* forest conserved by Praja Mandal in Sural Bhattori, Pangi, Himachal Pradesh. © Amit Kumar

will be a boon for conserving resources (Reniko et al. 2018). Concerning this, Mavhura & Mushure (2019) also suggested documentation of indigenous practices and mainstreaming in the teaching and learning pedagogy.

In India, especially IHR, limited studies have been undertaken and reported conserving biodiversity through traditional practices. An excellent example of conservation of medicinal plants was reported in the sacred groves of Manipur where rare species are preserved that are already extirpated in the locality (Khumbongmayum et al. 2005). Similarly, the sacred land of Tholung, Sikkim has put forward a perfect example of analogy between culture and ecosystem (Arora 2006). In Uttarakhand too, taboos and sacred grooves act as a tool for biodiversity management through people's participation (Anthwal et al. 2010; Kumar et al. 2013). Furthermore, in Himachal Pradesh (HP), traditional practices and local cultural beliefs play a significant role in the sustainable conservation of the ecosystem and its services (Kandari et al. 2014). In HP, a few areas such as Shivbadi (Una), Murari, and Naina Devi (Mandi) have been studied in terms of ethno-botany and ethno-medicine of sacred groves (Jaryan et al. 2010; Sharma et al. 2015). Although, HP is known to have the largest number of ca. 5,000 sacred groves in the country (Kandari et al. 2014), there is poor documentation of indigenous conservation practices and the floristic and faunistic composition of known sacred groves. The current communication aims to highlight a unique and indigenous archetype,

popularly known as 'Praja Mandal' in the Pangi Valley (32.1916–33.2183 °N and 75.75–77.059 °E) of HP in the western Himalaya, India (Image 1). The valley mainly lies in the rain shadow or cold-arid zone with scanty rainfall (<800mm) and relatively high snowfall. Covering a total area of 1,601km² with 16 village councils (locally known as panchayat) and 60 villages inhabited by *Pangwals* and *Bhots* (local communities), the valley has 18,868 human population (GOI 2011). 'Praja' means community and 'Mandal' is federation and it exists solely in the Pangi Valley of HP. This local practice of conservation has been successful in protecting the wild resource base of not only medicinal and aromatic plants, but also managing the resources such as timber fuelwood, fodder, and non-wood forest products by designating a forest or community forest as a separate conservation unit. Depending on the number of villages included in a village council (Panchayat), there can be more than one Praja in a council. During British rule, Praja Mandal was a part of the Indian Independence movement in the 1920s where the people fought for their democracy and similar rights against the princely states and British administrators. Presently, however, the concept of Praja Mandal has been directed towards conservation of local biodiversity (Image 2).

Locally known as the Praja Mandal, it is entirely governed by a village council with one member from each family. Owing entirely to a community-based approach, decisions on matters such as conservation

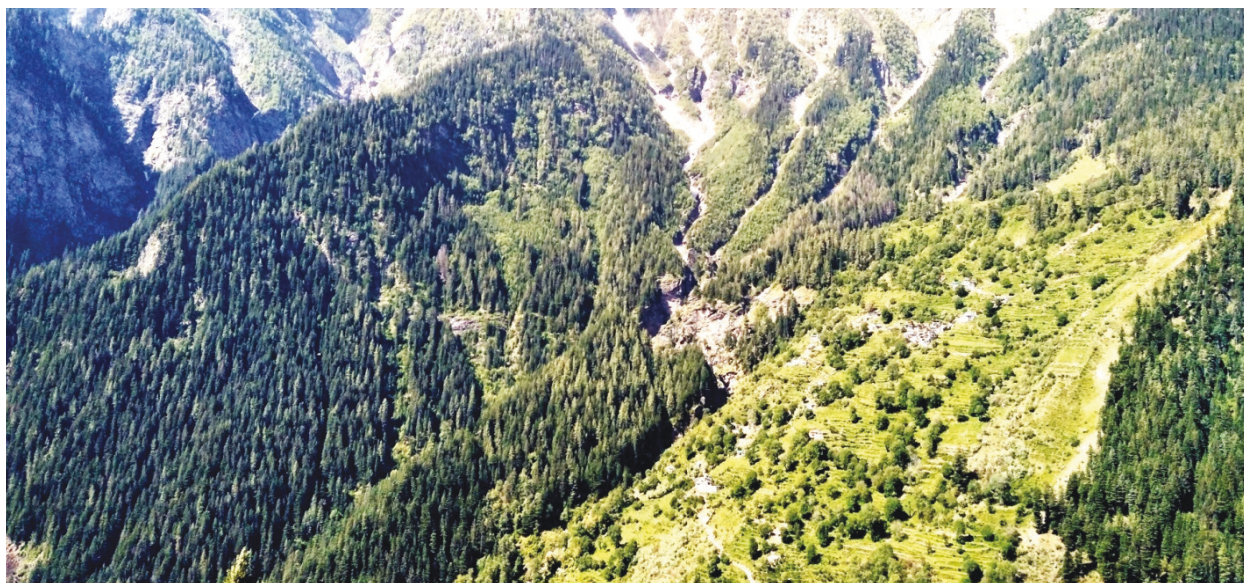


Image 2. A dense coniferous forest patch protected by Praja Mandal of Punto Village, Pangri, Himachal Pradesh. © Rupali Sharma.

of natural resources and social issues are of prime importance in this archetype. Furthermore, the local inhabitants in a Praja Mandal have their rights as well as limitations to the conservation ethos of biological resources. In order to prevent exploitation as well as sustainable management of the community forests, the forested area confined to a particular village are closed for a defined number of years with a set of rules framed by the Praja Mandal. As per the community rules and regulations, no legal jurisdiction is required as the Praja Mandal through its council penalizes the offenders. Boycotting violators from their regular rights is a major penalty in this system along with a deposit of tangible goods. A Praja Mandal includes ‘pradhan’ (village head), ‘up-pradhan’ (sub-head), cashier, secretary, ‘chad’ & ‘batwar’ (messengers), and ‘swar’ or ‘bhoti’ (cook) in its hierarchy. The penalty is determined case by case basis such as INR 5,000–10,000, 40kg ‘atta’ (whole wheat flour), 10kg ‘ghee’ (clarified butter), and a goat for cutting a tree or harvesting medicinal plants from their community land. Additionally, taboos also play a vital role in the conservation practices of locals; for instance, *Betula utilis* forests around monasteries have been conserved in such a way that even collection of fallen barks and twigs is not permitted. Although, this unique practice has remained intact in community forests of Pangri Valley in western Himalaya, it needs to be promoted and practiced for the sustainable utilization of wild resources in other regions of the country and set an example worldwide.

REFERENCES

- Anthwal, A., N. Gupta, A. Sharma, S. Anthwal & K.H. Kim (2010). Conserving biodiversity through traditional beliefs in sacred groves in Uttarakhand Himalaya, India. *Resources Conservation and Recycling* 54(11): 962–971.
- Arora, V. (2006). The forest of symbols embodied in the Tholung Sacred Landscape of North Sikkim, India. *Conservation and Society* 4(1): 55–83.
- Aya, D.D. & F. Waswa (2016). Role of indigenous knowledge systems in the conservation of the bio-physical environment among the Teso community in Busia County-Kenya. *African Journal of Environmental Science and Technology* 10(12): 467–475. <https://doi.org/10.5897/ajest2016.2182>
- Camacho, L.D., D.T. Gevana, A.P. Carandang & S.C. Camacho (2015). Indigenous knowledge and practices for the sustainable management of Ifugao forests in Cordillera, Philippines. *International Journal of Biodiversity Science, Ecosystem Services and Management* 12: 1–2, 5–13. <https://doi.org/10.1080/21513732.2015.1124453>
- Ens, E., P. Pert, P. Clarke, M. Budden, L. Clubb, B. Doran, C. Douras, J. Gaikwad, B. Gott, S. Leonard, J. Locke, J. Packer, G. Turpin & S. Wason (2015). Indigenous biocultural knowledge in ecosystem science and management: Review and insight from Australia. *Biological Conservation* 181: 133–149. <https://doi.org/10.1016/j.biocon.2014.11.008>
- GOI (2011). Population totals, Series-3, Ministry of Home Affairs, Government of India, Census of India, New Delhi, India. <http://www.censusindia.gov.in/2011> (accessed on 2 April 2019).
- Jaryan, V., S.K. Uniyal, Gopichand, R.D. Singh, B. Lal, A. Kumar & V. Sharma (2010). Role of traditional conservation practice: highlighting the importance of Shivbari sacred grove in biodiversity conservation. *Environmentalist* 30(2): 101–110. <https://doi.org/10.1007/s10669-009-9249-x>
- Kandari, L.S., V.K. Bisht, M. Bhardwaj & A.K. Thakur (2014). Conservation and management of sacred groves, myths and beliefs of tribal communities: a case study from north-India. *Environmental Systems Research* 3(1): 16. <https://doi.org/10.1186/s40068-014-0016-8>
- Khumbongmayum, A.D., M.L. Khan & R.S. Tripathi (2005). Sacred groves of Manipur, North-East India: Biodiversity value, status and strategies for their conservation. *Biodiversity and Conservation*

- 14: 1541–1582. <https://doi.org/10.1007/s10531-004-0530-5>
- Kumar, A., M. Mitra, B.S. Adhikari, & G.S. Rawat (2013).** Archetype conservation in Trans Himalayan Region of Nanda Devi Biosphere Reserve, Western Himalaya. *eJournal of Applied Forest Ecology* 1(1): 84–86.
- Mavhura, E. & S. Mushure (2019).** Forest and wildlife resource-conservation efforts based on indigenous knowledge: The case of Nharira community in Chikomba district, Zimbabwe. *Forest Policy and Economics* 105: 83–90. <https://doi.org/10.1016/j.forpol.2019.05.019>
- Potts, A. (2017).** An urgent journey: realizing the potential of integrated nature-culture approaches to create a sustainable world. *The George Wright Forum* 34(2): 229–237.
- Reimerson, E. (2013).** Between nature and culture: exploring space for indigenous agency in the Convention on Biological Diversity. *Environmental Politics* 22(6): 992–1009. <https://doi.org/10.1080/09644016.2012.737255>
- Reniko, G., P. Mogomotsi & G. Mogomotsi (2018).** Integration of indigenous knowledge systems in natural resources management in Hurungwe District, Zimbabwe. *International Journal of African Renaissance Studies - Multi-, Inter- And Transdisciplinarity* 13(1): 96–112. <https://doi.org/10.1080/18186874.2018.1475869>
- Roy, A.B. & R. Purohit (eds.) (2018).** *Indian Shield, The Himalayas: Evolution through Collision*. Elsevier, Amsterdam, 398pp.
- Sharma, P., A. Agnihotry & P.P. Sharma (2015).** An ethno-botanical study of medicinal plants in Murari Devi and surrounding areas (Mandi District, Himachal Pradesh). *Indian Forester* 141(1): 68–78.
- Sillitoe, P (Ed.) (2017).** *Indigenous knowledge, enhancing its contribution to natural resources management*, CABI, United Kingdom, 272pp. <https://doi.org/10.1079/9781780647050.0000>
- Singh, H. & P. Kumar (2017).** A brief overview of vegetation of Pangri Valley: An high altitude region of northwest Himalaya. *Biosciences, Biotechnology Research Asia* 14(2): 625–630. <https://doi.org/10.13005/bbra/2487>





www.threatenedtaxa.org

OPEN ACCESS



The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

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

May 2021 | Vol. 13 | No. 6 | Pages: 18411–18678

Date of Publication: 26 May 2021 (Online & Print)

DOI: 10.11609/jott.2021.13.6.18411-18678

Conservation Application

First attempt at rehabilitation of Asiatic Black Bear cubs to the wild in Thailand

– Robert Steinmetz, Worrapan Phumane, Runnappa Phoonjampa & Suthon Weingdow, Pp. 18411–18418

Communications

Status of Sumatran Tiger in the Berbak-Sembilang landscape (2020)

– Tomi Ariyanto, Yoan Dinata, Dwiyanto, Erwan Turyanto, Waluyo Sugito, Sophie Kirklin & Rajan Amin, Pp. 18419–18426

The diversity of small mammals in Pulau Perhentian Kecil, Terengganu, Malaysia

– Aminuddin Baqi, Isham Azhar, Ean Wee Chen, Faisal Ali Anwarali Khan, Chong Ju Lian, Bryan Raveen Nelson & Jayaraj Vijaya Kumaran, Pp. 18427–18440

Patterns, perceptions, and spatial distribution of human-elephant (*Elephas maximus*) incidents in Nepal

– Raj Kumar Koirala, Weihong Ji, Yajna Prasad Timilsina & David Raubenheimer, Pp. 18441–18452

Assessing spatio-temporal patterns of human-leopard interactions based on media reports in northwestern India

– Kaushal Chauhan, Arjun Srivathsa & Vidya Athreya, Pp. 18453–18478

Bat diversity in the Banpale forest, Pokhara, Nepal during spring season

– Prabhat Kiran Bhattarai, Basant Sharma, Anisha Neupane, Sunita Kunwar & Pratyush Dhungana, Pp. 18479–18489

A patho-microbiological study of tissue samples of the Greater Adjutant *Leptoptilos dubius* (Aves: Ciconiiformes: Ciconiidae) that died in Deeporbeel Wildlife Sanctuary, Assam, India

– Derhasar Brahma, Parikshit Kakati, Sophia M. Gogoi, Sharmista Doley, Arpita Bharali, Biswajit Dutta, Taibur Rahman, Saidul Islam, Arfan Ali, Siraj A. Khan, Sailendra Kumar Das & Nagendra Nath Barman, Pp. 18490–18496

Vaduvur and Sitheri lakes, Tamil Nadu, India: conservation and management perspective

– V. Gokula & P. Ananth Raj, Pp. 18497–18507

A new species of shieldtail snake (Squamata: Uropeltidae: Uropeltis) from the Bengaluru uplands, India

– S.R. Ganesh, K.G. Punith, Omkar D. Adhikari & N.S. Achyuthan, Pp. 18508–18517

A looming exotic reptile pet trade in India: patterns and knowledge gaps

– A. Pragatheesh, V. Deepak, H.V. Girisha & Monesh Singh Tomar, Pp. 18518–18531

Legal or unenforceable? Violations of trade regulations and the case of the Philippine Sailfin Lizard *Hydrosaurus pustulatus* (Reptilia: Squamata: Agamidae)

– Sarah Heinrich, Adam Toomes & Jordi Janssen, Pp. 18532–18543

Conservation breeding of Northern River Terrapin *Batagur baska* (Gray, 1830) in Sundarban Tiger Reserve, India

– Nilanjan Mallick, Shailendra Singh, Dibyadeep Chatterjee & Souritra Sharma, Pp. 18544–18550

Discovery of two new populations of the rare endemic freshwater crab *Louisea yabassi* Mvogo Ndongo, von Rintelen & Cumberlidge, 2019 (Brachyura: Potamonautidae) from the Ebo Forest near Yabassi in Cameroon, Central Africa, with recommendations for conservation action

– Pierre A. Mvogo Ndongo, Thomas von Rintelen, Christoph D. Schubart, Paul F. Clark, Kristina von Rintelen, Alain Didier Missoup, Christian Albrecht, Muriel Rabone, Efole Ewoukem, Joseph L. Tamesse, Minette Tomedi-Tabi Eyango & Neil Cumberlidge, Pp. 18551–18558

Checklists of subfamilies Dryptinae and Panagaeinae (Insecta: Coleoptera: Carabidae) from the Indian subcontinent

– V.A. Jithmon & Thomas K. Sabu, Pp. 18559–18577

Mantids (Insecta: Mantodea) of Uttar Pradesh, India

– Ramesh Singh Yadav & G.P. Painkra, Pp. 18578–18587

An assessment of genetic variation in vulnerable Borneo Ironwood *Eusideroxylon zwageri* Teijsm. & Binn. in Sarawak using SSR markers

– Siti Fatimah Md.-Isa, Christina Seok Yien Yong, Mohd Nazre Saleh & Rusea Go, Pp. 18588–18597

Review

Termites (Blattodea: Isoptera) of southern India: current knowledge on distribution and systematic checklist

– M. Ranjith & C.M. Kalleshwaraswamy, Pp. 18598–18613

Short Communications

Population status and distribution of Ibisbill *Ibidorhyncha struthersii* (Vigors, 1832) (Aves: Charadriiformes: Ibidorhynchidae) in Kashmir Valley, India

– Iqam Ul Haq, Bilal A. Bhat, Khurshed Ahmad & Asad R. Rahmani, Pp. 18614–18617

A new fish species of genus *Garra* (Teleostei: Cyprinidae) from Nagaland, India

– Sophiya Ezung, Bungdon Shangningam & Pranay Punj Pankaj, Pp. 18618–18623

Occurrence of Tamdil Leaf-litter Frog *Leptobrachella tamdil* (Sengupta et al., 2010) (Amphibia: Megophryidae) from Manipur, India and its phylogenetic position

– Ht. Decemson, Vanlalsiammawii, Lal Biakzuala, Mathipi Vabeiryureilai, Fanai Malsawmdawngliana & H.T. Lalremsanga, Pp. 18624–18630

Further additions to the Odonata (Insecta) fauna of Asansol-Durgapur Industrial Area, Paschim Bardhaman, India

– Amar Kumar Nayak & Subhajit Roy, Pp. 18631–18641

A note on the ecology and distribution of Little Bloodtail *Lyriothemis acigastra* Brauer, 1868 (Insecta: Odonata: Libellulidae) in Kerala, India

– Jeevan Jose, Muhamed Sherif & A. Vivek Chandran, Pp. 18642–18646

Viewpoint

A unique archetype of conservation in Himachal Pradesh, western Himalaya, India

– Rupali Sharma, Monika Sharma, Manisha Mathela, Himanshu Bargali & Amit Kumar, Pp. 18647–18650

Notes

A camera trap record of Asiatic Golden Cat *Catopuma temminckii* (Vigors & Horsfield, 1827) (Mammalia: Carnivora: Felidae) in State Land Forest, Merapoh, Pahang, Malaysia

– Muhamad Hamirul Shah Ab Razak, Kamarul Hambali, Ainaa Amir, Norashikin Fauzi, Nor Hizami Hassin, Muhamad Azahar Abbas, Muhammad Firdaus Abdul Karim, Ai Yin Sow, Lukman Ismail, Nor Azmin Huda Mahamad Shubli, Nurul Izzati Adanan, Ainur Izzati Bakar, Nabihah Mohamad, Nur Izyan Fathiah Saimhe, Muhammad Syafiq Mohamad Nor, Muhammad Izzat Hakimi Mat Nafi & Syafiq Sulaiman, Pp. 18651–18654

Reappearance of Dhole *Cuon alpinus* (Mammalia: Carnivora: Canidae) in Gujarat after 70 years

– A.A. Kazi, D.N. Rabari, M.I. Dahya & S. Lyngdoh, Pp. 18655–18659

Mating behavior of Eastern Spotted Skunk *Spilogale putorius* Linnaeus, 1758 (Mammalia: Carnivora: Mephitidae) revealed by camera trap in Texas, USA

– Alexandra C. Avrin, Charles E. Pekins & Maximillian L. Allen, Pp. 18660–18662

Record of Indian Roofed Turtle *Pangshura tecta* (Reptilia: Testudines: Geoemydidae) from Koshi Tappu Wildlife Reserve, Nepal

– Ashmita Shrestha, Ramesh Prasad Sapkota & Kumar Paudel, Pp. 18663–18666

Additional distribution records of *Zimiris doriae* Simon, 1882 (Araneae: Gnaphosidae) from India

– Dhruv A. Prajapati, Pp. 18667–18670

Notes on new distribution records of *Euspa motokii* Koivaya, 2002 (Lepidoptera: Lycaenidae: Theclinae) from Bhutan

– Jigme Wangchuk, Dhan Bahadur Subba & Karma Wangdi, Pp. 18671–18674

New distribution records of two little known plant species, *Hedychium longipedunculatum* A.R.K. Sastry & D.M. Verma (Zingiberaceae) and *Mazus dentatus* Wall. ex Benth. (Scrophulariaceae), from Meghalaya, India

– M. Murugesan, Pp. 18675–18678

Publisher & Host



Member

