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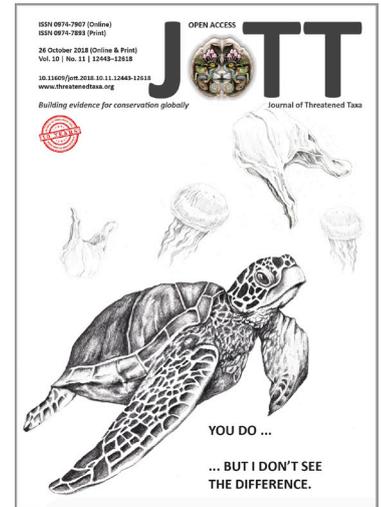
## NOTE

### TWO MOTH SPECIES OF LASIOCAMPIDAE (LEPIDOPTERA: LASIOCAMPOIDEA) RECORDED FOR THE FIRST TIME IN BHUTAN

Jatishwor Singh Irungbam & Meenakshi Jatishwor Irungbam

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Bhutan is one of the most isolated countries in the world situated at the eastern end of the Himalayan mountains. The country is surrounded by India to the south, east and west and to the north by Tibet (Autonomous region of China). The country covers an area of 38,394km<sup>2</sup>. The landscape ranges from subtropical plains in the south to the Himalayan heights in the north. The northern region of Bhutan consists of eastern Himalayan alpine shrub and meadows reaching up to glaciated mountain peaks. In central Bhutan, the forest type consists of eastern Himalayan subalpine conifer forests in higher elevations and eastern Himalayan broadleaf forests in lower elevations. In the south, the Shivalik Hills are covered with dense Himalayan subtropical broadleaf forests, alluvial lowland river valleys, and mountains up to around 1,500m. The foothills descend into the subtropical Duars Plain of Bhutan neighbouring the Indian Duars. Thus, the forest of Bhutan harbours a rich diversity of flora and fauna, especially in terms of invertebrate fauna. The least studied group of invertebrates in Bhutan is the moths whose data is still lagging behind.

The Lasiocampidae Harris, 1841 which are commonly known as the Lappet moths are among the families of

**TWO MOTH SPECIES OF LASIOCAMPIDAE (LEPIDOPTERA: LASIOCAMPOIDEA) RECORDED FOR THE FIRST TIME IN BHUTAN**

Jatishwor Singh Irungbam<sup>1</sup> & Meenakshi Jatishwor Irungbam<sup>2</sup>

<sup>1,2</sup> Faculty of Science, University of South Bohemia, Ceske Budejovice 37005, Czech Republic

<sup>1,2</sup> Institute of Entomology, Biology Centre, Czech Academy of Science, Ceske Budejovice 37005, Czech Republic

<sup>1</sup> jatishwor.irungbam@gmail.com (corresponding author), <sup>2</sup> meenakshi.irungbam@gmail.com

moths which are poorly studied in Bhutan. The family Lasiocampidae consists of 1,952 species (224 genera) worldwide (van Nieukerken et al. 2011). The members of the family are generally large species with deep forewings and rounded hind wings; abdomen protruding well beyond the wings (Holloway 1987). The Lasiocampidae fauna of the country have been poorly studied. Earlier works on the fauna were conducted by Hampson (1892), Dudgeon (1901), Dierl (1975), and recently by Hauenstein et al. (2011). So far, a total of 42 species of Lasiocampidae have been recorded from Bhutan.

**Material and Methods:** The study was conducted at different locations of four districts (Tsirang, Dagana, Sarpang, Gelephu) in southern Bhutan. The collection of moths was undertaken opportunistically, as well as by

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Přirodovědecká fakulta  
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setting up light traps at night using fluorescent lamps and Mercury vapour lamp. Moths were observed overnight in all the locations from July 2010 to August 2015. The moths were photographed using a DSLR camera and specimens were collected and killed using ethyl acetate fumes. Later the specimens were sorted, pinned, labelled and identified to species level in the laboratory. These voucher specimens are deposited in the Invertebrate Referral Collection Centre (IRCC), National Biodiversity Centre, Thimphu (Bhutan).

Identifications are based on the keys and descriptions provided by Hampson (1892), Holloway (1987), Zolotuhin & Witt (2000), and Zolotuhin & Pinratana (2005).

**Results and Discussion:** In total, we identified 10

species of Lasiocampidae, which belong to seven genera from Tsirang, Sarpang, Dagana and Gelephu districts of southern Bhutan. Two species namely *Kunugia siamka* Zolotuhin, 2002 and *Alompra roepkei* Tams, 1953 are new records for Bhutan. Some earlier work done by G.S. Dudgeon (1901) in the early 19<sup>th</sup> century reported 14 species from Bhutan. Later, W. Dierl (1975) recorded an additional five species of Lasiocampidae based on the collections of Bhutan Expedition 1972 by the Natural History Museum in Basel, Switzerland. Recently, A. Hauenstein and his colleagues have reported 42 species of Lasiocampidae from Bhutan based on the collections made by A. Hauenstein and V.V. Sinjaev from 2003 to 2009 from different places of Bhutan (Hauenstein et al. 2011).

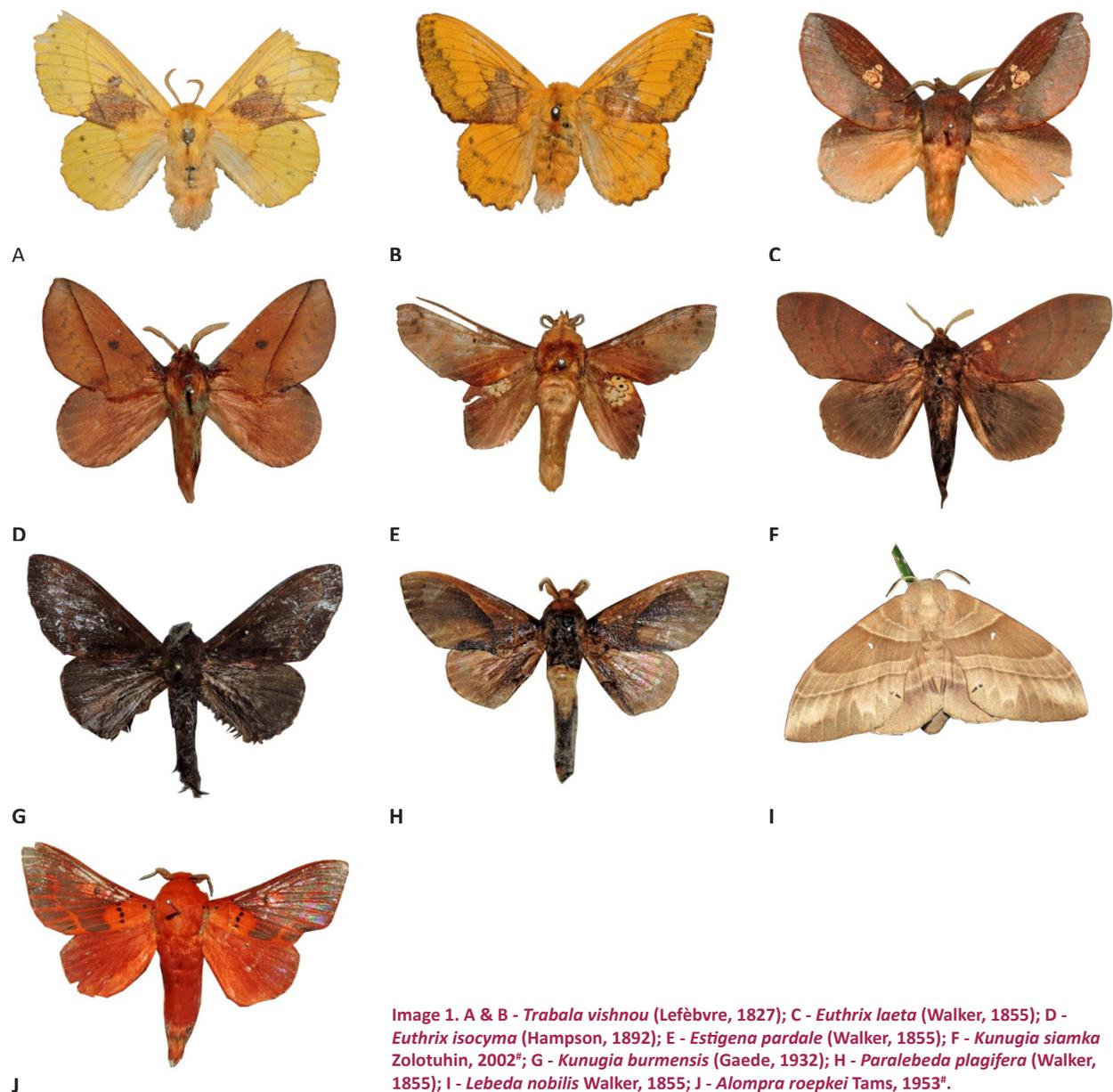


Image 1. A & B - *Trabala vishnou* (Lefèbvre, 1827); C - *Euthrix laeta* (Walker, 1855); D - *Euthrix isocyma* (Hampson, 1892); E - *Estigena pardale* (Walker, 1855); F - *Kunugia siamka* Zolotuhin, 2002<sup>#</sup>; G - *Kunugia burmensis* (Gaede, 1932); H - *Paralebeda plagifera* (Walker, 1855); I - *Lebeda nobilis* Walker, 1855; J - *Alompra roepkei* Tams, 1953<sup>#</sup>.

Thus, an updated checklist consisting of 44 species of the Lasiocampidae of Bhutan is provided in Appendix I.

**Notes on the new records**  
***Kunugia siamka* Zolotuhin, 2002**  
**(Image 1F)**

*Kunugia siamka* Zolotuhin, 2002, Ent. Z. 112: 138, figs 8, 12. Type locality: Thailand, Chiang Mai, Doi Phahompok, 25km NW of Fang, 2,100m.

Material examined. IRCC/472, IRCC/473, 20.xi.2014, 23.xi.2014, 3 males, Tashipang, Mendrelgang, Tsirang (Bhutan) (26.950°N & 90.114°E, 1,247m); IRCC/474, 19.vii.2014, 1 male, Dagapela, Dagana (26.939°N & 89.920°E, 1,599m). coll. J.S. Irungbam.

Note: This species is recorded for the first time from Bhutan. The species is earlier recorded from northern Thailand, Laos, Malaysia (Zolotuhin 2002; Zolotuhin & Ihle 2008). The present record from Bhutan is a new range location and extension from its earlier known distribution.

***Alompra roepkei* Tams, 1953**  
**(Image 1J)**

*Alompra roepkei* Tams, 1953, Tijdschr. Plant. 59: 166, figs 3, 6, 8, 13. Type locality: [northern India] Assam.

Material examined. IRCC/469, 09.vi.2015, 1 female, Tashipang, Mendrelgang, Tsirang (Bhutan) (26.950°N & 90.114°E, 1,247m), coll. J.S. Irungbam.

Note: This species is recorded for the first time from Bhutan. The moth has a reddish-brown fasciae and is slightly larger than *Alompra ferruginea* Moore, 1872, which is smaller, darker, with narrower forewings. In the male, the forewings have convex margins centrally. The valve in *A. roepkei* is divided but it is bifid in *A. ferruginea* (Holloway 1987). The species was expected to be present

as *A. ferruginea* was already found in Bhutan (Hauenstein et al. 2011). Holloway (1987) recorded the species in Borneo from 1700m at forested localities and it is rare.

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**Appendix 1. An updated checklist on the Family Lasiocampidae of Bhutan based on Hampson (1892), Dudgeon (1901), Dierl (1975), Hauenstein et al. (2011) and the present study.**

**N.B. (\*) denotes the species recorded during the study and (#) denotes the new records in Bhutan.**

	Species	Local distribution	Global distribution
1	<i>Amurilla subpurpurea dharma</i> Hauenstein, Ihle, Sinjaev & Zolotuhin, 2011	Paro, Wangdue Phodrang, Trongsa.	Eastern Nepal.
2	<i>Baodera khasiana</i> (Moore, 1879)	Thimphu, Bumthang, Trongsa	Northern India, Nepal, southern China, Myanmar.
3	<i>Trabala vishnou</i> (Lefèbvre, 1827)* [Image 1 A & B]	Punakha, Wangdue Phodrang, Mongar, Samdrup Jongkhar, Tsirang, Dagana.	Northeastern Pakistan, Nepal, India, Sri Lanka, China, Taiwan, Thailand, Laos, Vietnam, Malaysia.
4	<i>Crinocraspeda torrida</i> (Moore, 1879)	Mongar.	Northern & central India, southern China, northern Thailand, Laos, northern Vietnam.
5	<i>Euthrix vulpes</i> Zolotuhin, 2001	Thimphu, Punakha, Trongsa.	Northern India, Nepal.
6	<i>Euthrix inobtrusa</i> (Walker, 1862)	Samtse.	Northern India, Nepal, central & southern China, Thailand, Vietnam, peninsular Malaysia, Sumatra.
7	<i>Euthrix laeta</i> (Walker, 1855)* [Image 1 C]	Tsirang, Dagana.	Nepal, India, Sri Lanka, Myanmar, China, Russia Far East, Korea, Japan, Thailand, Laos, Vietnam, Malaysia, Sumatra, Borneo, Philippines, Java.

	Species	Local distribution	Global distribution
8	<i>Euthrix isocyma</i> (Hampson, 1892) [Image 1 D]	Thimphu, Wangdue Phodrang, Mongar, Tsirang,	Northern India, Nepal, southeastern China, Myanmar, Thailand, Laos, northern Vietnam, Cambodia.
9	<i>Euthrix fossa</i> (Swinhoe, 1879)	Trongsa, Samdrup Jongkhar	Northeastern India.
10	<i>Eteinopla signata</i> (Moore, 1879)	Thimphu, Punakha, Wangdue Phodrang.	Northern India, Nepal, southern China, Thailand, Laos, Vietnam, peninsular Malaysia.
11	<i>Lenodora castanea</i> (Hampson, 1892)	Thimphu, Punakha, Bumthang.	Northern India, Nepal, southwestern China.
12	<i>Micropacha lidderdalii</i> (Druce, 1899)	Gasa, Thimphu, Punakha, Wangdue Phodrang, Trongsa.	Nepal, northeastern India.
13	<i>Radhica flavovittata</i> Moore, 1879	Mongar.	Northern India, Nepal, southern China, Taiwan, Myanmar, northern Thailand, Laos, Vietnam, Sumatra, Borneo, Peninsular Malaysia
14	<i>Radhica puana</i> Zolotuhin, 1995	Mongar.	Northern Thailand, Laos, Vietnam.
15	<i>Zolotuhinia bhutata</i> (Zolotuhin, 2000)	Punakha, Mongar.	Endemic to Bhutan.
16	<i>Estigena pardale</i> (Walker, 1855)* [Image 1 E]	Punakha, Tsirang.	Pakistan, India, southern China, Taiwan, Thailand, Vietnam, Malaysia, Java, Sumatra
17	<i>Estigena philippinensis swanni</i> (Tams, 1935)	Samdrup Jongkhar.	Pakistan, Nepal, India, Andaman Is., southern China, Thailand, Laos, Vietnam, Myanmar, Borneo, Sumatra, the Philippines.
18	<i>Gastropacha (Stenophylloides) moorei</i> Zolotuhin, 2005	Thimphu.	Nepal, India
19	<i>Paradoxopla sinuata sinuata</i> (Moore, 1879)	Thimphu, Trongsa, Mongar, Wangdue Phodrang.	Pakistan, northern India, Nepal, southern & northern China
20	<i>Kunugia ampla</i> (Walker, 1855)	Wangdue Phodrang.	India, Bangladesh, Southern China, Thailand, Laos, Vietnam, peninsular Malaysia.
21	<i>Kunugia fulgens</i> (Moore, 1879)	Trongsa.	Northern India, Nepal, southern China, Thailand, Vietnam.
22	<i>Kunugia placida</i> (Moore, 1879)		India, southern China, Thailand, Vietnam, peninsular Malaysia.
23	<i>Kunugia lineata</i> (Moore, 1879)	Paro, Thimphu, Trongsa, Punakha	Northern India, Nepal, Myanmar, southern & eastern China, northern Thailand, Laos, Vietnam.
24	<i>Kunugia siamka</i> Zolotuhin, 2002# [Image 1 F]	Tsirang, Dagana.	Northern Thailand, Laos, Malaysia.
25	<i>Kunugia burmensis</i> (Gaede, 1932)* [Image 1 G]	Tsirang, Thimphu	Myanmar, southern China, northern Vietnam, northern Thailand.
26	<i>Kunugia vulpina omeiensis</i> Tsai & Liu, 1964	Wangdue Phodrang	Northern India, southern China, Myanmar, Thailand, Laos
27	<i>Kunugia dzong</i> Hauenstein, Ihle, Sinjaev & Zolotuhin, 2011	Mongar.	Endemic to Bhutan.
28	<i>Dendrolimus himalayanus</i> Tsai & Liu, 1964	Paro, Thimphu, Punakha, Wangdue Phodrang, Trongsa, Bumthang.	Northern India, Nepal, southern China (Tibet).
29	<i>Paralebeda plagifera</i> (Walker, 1855)* [Image 1 H]	Paro, Punakha, Wangdue-Phodrang, Tsirang, Dagana.	Northern & central India, Nepal, southern & southeastern China, northern Thailand, Laos, northern Vietnam.
30	<i>Paralebeda femorata karmata</i> Zolotuhin, 1996	Paro, Thimphu, Trongsa, Bumthang.	Northeastern Pakistan, Nepal, India.
31	<i>Suana concolor</i> Walker, 1855	Trongsa.	India, Sri Lanka, Myanmar, southern China, Thailand, Laos, Vietnam, Malaysia, Sumatra, Java, Borneo, the Philippines
32	<i>Metanastria hyrtaca</i> (Cramer, 1779)	Punakha, Wangdue Phodrang, Samdrup Jongkhar.	Nepal, India, China, Myanmar, Thailand, Vietnam, Malaysia, Sumatra, Borneo
33	<i>Lebeda nobilis</i> Walker, 1855* [Image 1 I]	Tsirang.	Nepal, India, central & southern China, Taiwan, Thailand, Laos, Vietnam, peninsular Malaysia, Sumatra, Java
34	<i>Pyrosis hreblayi</i> Zolotuhin & Witt, 2000	Trongsa, Mongar.	Eastern Nepal.
35	<i>Arguda vinata nepalina</i> Kishida, 1992	Thimphu, Wangdue Phodrang, Bumthang, Trongsa.	Nepal, northeastern India, Myanmar, Southern China, Thailand, northern Vietnam, Malaysia.
36	<i>Arguda thaica</i> Zolotuhin, 2005	Mongar.	Northeastern India, Vietnam, Laos, Thailand.
37	<i>Syrastrena minor</i> (Moore, 1879)	Mongar.	Nepal, northern India.
38	<i>Syrastrena lajonquierei</i> Holloway, 1982	Thimphu, Trongsa, Punakha.	Nepal, Myanmar, northern Vietnam, Thailand.
39	<i>Bharetta cinnamomea</i> Moore, 1865	Haa, Wangdue Phodrang.	Nepal, India, southern China, Myanmar, Vietnam.
40	<i>Odonestis pruni oberthueri</i> Tams, 1935	Thimphu.	Northern India, Nepal, northeastern Myanmar, Vietnam.
41	<i>Argonestis flammans</i> (Hampson, 1893)	Mongar.	Nepal, India, southern China, northern Thailand, Vietnam, Laos.
42	<i>Kosala kadoi</i> Hauenstein, Ihle, Sinjaev & Zolotuhin, 2011	Paro, Haa, Thimphu, Wangdue Phodrang, Trongsa.	Endemic to Bhutan.
43	<i>Alompra ferruginea</i> Moore, 1872	Samtse.	Northeastern Himalaya, Borneo, Sumatra, Mindanao.
44	<i>Alompra roepkei</i> Tams, 1953# [Image 1 J]	Tsirang.	Northeastern Himalaya, Myanmar, northern Vietnam, Laos, Thailand, peninsular Malaysia, Borneo, Sundaland, the Philippines



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**Article**

**The terrestrial life of sea kraits: insights from a long-term study on two *Laticauda* species (Reptilia: Squamata: Elapidae) in the Andaman Islands, India**  
-- Zoya Tyabji, Nitya Prakash Mohanty, Erina Young & Tasneem Khan, Pp. 12443–12450

**Communications**

**Fishing Cat *Prionailurus viverrinus* Bennett, 1833 (Carnivora: Felidae) distribution and habitat characteristics in Chitwan National Park, Nepal**  
-- Rama Mishra, Khadga Basnet, Rajan Amin & Babu Ram Lamichhane, Pp. 12451–12458

**Status distribution and feeding habit of Wild Boar *Sus scrofa* (Mammalia: Artiodactyla: Suidae) in Pench Tiger Reserve, Madhya Pradesh, India**  
-- Shaheer Khan & Orus Ilyas, Pp. 12459–12463

**The composition and status of waterbirds of Perur Lake in Tamil Nadu, India**  
-- G. Parameswaran & R. Sivashankar, Pp. 12464–12488

**The herpetofauna of Jigme Singye Wangchuck National Park in central Bhutan: status, distribution and new records**  
-- Sangay Tshewang & Letro Letro, Pp. 12489–12498

**The Odonata (Insecta) of Dhofar, southern Oman**  
-- Elaine M. Cowan & Peter J. Cowan, Pp. 12499–12514

**New kissing bug (Hemiptera: Reduviidae: Triatominae) records from Napo and Morona-Santiago provinces with distribution updates in Ecuador**  
-- Ana Soto-Vivas, Sandra Enríquez, Ernesto Villacrés, Jazmin Arrivillaga, Martín Hinojosa & Jonathan Liria, Pp. 12515–12522

**Orchid diversity in two community forests of Makawanpur District, central Nepal**  
-- Bijaya Pant, Mukti Ram Paudel, Mukesh Babu Chand, Shreeti Pradhan, Bijaya Bahadur Malla & Bhakta Bahadur Raskoti, Pp. 12523–12530

**Habitat distribution modeling for reintroduction and conservation of *Aristolochia indica* L. - a threatened medicinal plant in Assam, India**  
-- Bhaskar Sarma, Prantik Sharma Baruah & Bhaben Tanti, Pp. 12531–12537

**Pollination ecology of *Synedrella nodiflora* (L.) Gaertn. (Asteraceae)**  
-- B. Usharani & A.J. Solomon Raju, Pp. 12538–12551

**Review**

**Status of studies on zooplankton fauna of Arunachal Pradesh, India**  
-- Bikramjit Sinha, Pp. 12552–12560

**Short Communications**

**First record of the endangered Arabian Tahr *Arabitragus jayakari* (Thomas, 1894) in the Hatta Mountain Conservation Area, Dubai, United Arab Emirates**  
-- Jeruel Cabadonga Aguhob, Junid N. Shah, Esmat Elfaki Mohammed Elhassan, Aisha Almurr Al Muhery, Mohamed Mustafa Eltayeb Mohamed, Juma Abdulla Saeed Mohammad Al Omairi, Hamad Hashim Mohammed Khalaf Albedwawi, Obaid Mohammed Salem Mohammed Al Bedwawi, Hassan Zain Alsharif & Afra Mahmood Mohammad Ali Haji, Pp. 12561–12565

**Partners**



**A winter roost count of the Short-eared Owl *Asio flammeus* (Aves: Strigiformes: Strigidae) at Porbandar, Gujarat, India**  
-- Dhavalkumar Varagiya & Anita Chakraborty, Pp. 12566–12570

**Crocodiles of river Krishna: impact on agriculture, economy, and the sociology of human population in Sangli, Maharashtra, India**  
-- Rajaram Hindurao Atigre, Pp. 12571–12576

**A new report on the clasper movements of a captive Sand Tiger Shark *Carcharias taurus* (Lamniformes: Odontaspidae) and a possible reason for the behaviour**  
-- Helen Colbachini, Rafael Caprioli Gutierrez, Cristiane Schilbach Pizzutto & Otto Bismarck Fazzano Gadig, Pp. 12577–12581

**New species of termite *Pericapritermes travancorensis* sp. nov. (Isoptera: Termitidae: Termitinae) from India**  
-- Jobin Mathew & Chinnu Ipe, Pp. 12582–12588

**A checklist of vascular epiphytes of El Cometa Lagoon, Pantanos de Centla Biosphere Reserve, Mexico**  
-- Derio Antonio Jiménez-López, Candelario Peralta-Carreta, Jonathan V. Solórzano, Gerardo Luis Cervantes-Jiménez & Marco Antonio Domínguez-Vázquez, Pp. 12589–12597

**Notes**

**Two moth species of Lasiocampidae (Lepidoptera: Lasiocampoidea) recorded for the first time in Bhutan**  
Jatishwor Singh Irungbam & Meenakshi Jatishwor Irungbam, Pp. 12598–12601

**New nymphalid butterfly records from Jammu & Kashmir, India**  
-- Shakha Sharma & Neeraj Sharma, Pp. 12602–12606

***Argostemma khasianum* C.B. Clarke (Rubiaceae): a new record of a genus and species of flowering plant for the state of Arunachal Pradesh (India) and its lectotypification**  
-- Umeshkumar L. Tiwari & V.K. Rawat, Pp. 12607–12609

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**Miscellaneous**

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