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Butterflies of Tatamari Eco Centre, Chhattisgarh, India

Silver Royal *Ancema blanka* is a species of the Lycaenidae family commonly known as blue butterflies, chiefly reported from the Indomalayan realm. The species was first described by Lionel de Niceville in 1894. It was first recorded in the Indian subcontinent at Nilgiri in 1941 and reported in 1943 by Wynter-Blyth (1957). It is a rare butterfly recently recorded from Kunjappanni in 2015 by Jeevith et al. (2017) and now it is legally protected in India under Schedule II of Wildlife (Protection) Act, 1972. In the present survey during a trip for discovery of medicinal plants in Keshkal Forest Division and Kanger Valley National Park, Chhattisgarh, the species was first photographed from central India.

The Chhattisgarh State shows abundant diversity of butterflies with 164 species documented (Chandra 2006; Chandra et al. 2014; Sharma & Chandra 2009; Sisodia 2019; Sisodia & Kshirsagar 2020; Tandan et al. 2020). Chhattisgarh has more diversity of butterflies in its tropical, hot, and humid climate; the bordering highlands and plateaus between the Eastern and Western Ghats are good habitats for butterflies with a dense forest and water bodies. Present study was done in the trip 'Jal-Jangal Yatra: For the

discovery of medicinal plants' organized by Keshkal Forest Division of Kondagaon District in association with Chhattisgarh Vigyan Sabha (CGVS), a non-governmental organisation working for developing scientific temper among the people and exploring biodiversity in the state Chhattisgarh. During this trip of 10 km long trekking, 73 species of medicinal plants were observed which are used traditionally by local tribes to treat various diseases and 42 species of butterflies were also recorded. One of them was a rare species, listed under schedule II of WPA-1972 in India.

Tatamari is a plateau and historical heritage site in Keshkal FD spread over 150 acres. The forest type at the study area is classified as mixed forest about 16,346.02 ha of sal forest, cane and bamboo brakes, reserve area, and indistinct forest area. The climate is hot-humid to dry in this area whereas March to May shows hot, June to September is rainy, autumn in October and November to February is cold season.

Tatamari is a hill station where the Eco Center is developed to promote ecotourism and explore biodiversity with sustainable development and enhancement of livelihood

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Table 1. List of the butterflies recorded from Tatamari Eco Centre, Keshkal Forest Division, district-Kondagaon, Chhattisgarh, India (09–11 October 2020).

	Family	Subfamily	Common name	Scientific name	Distribution in India (Varshney & Smetacek 2015)
Order: Lepidoptera					
1	Papilionoidea	Papilioninae	Lime Swallowtail	<i>Papilio demoleus</i> (Linnaeus 1758)	Throughout India below 2000 m elevation
2			Common Mormon	<i>Papilio polytes</i> (Linnaeus 1758)	Throughout India below 2000 m elevation
3			Blue Mormon	<i>Papilio polymnestor</i> Cramer 1775	Peninsular India as far north as West Bengal and Bangladesh, to Madhya Pradesh and Gujarat.
4			Common Banded Peacock	<i>Papilio crino</i> Fabricius 1793	Peninsular India as far north as West Bengal.
5			Common Mime	<i>Papilio clytia</i> Linnaeus 1758	Throughout India except Jammu & Kashmir, Punjab and Rajasthan, elevation. below 2750 m.
6			Common Jay	<i>Graphium doson</i> (C & R. Felder 1864)	Jammu & Kashmir to N.E India. South India to W. Bengal
7	Pieridae	Coliadinae	Common Emigrant	<i>Catopsilia pomona</i> (Fabricius 1775)	Throughout India
8			Mottled Emigrant	<i>Catopsilia pyranthe</i> (Linnaeus 1758)	Throughout India
9			Common Grass Yellow	<i>Eurema hecabe</i> (Linnaeus 1758)	Throughout India including Andaman & Nicobar Islands
10			Small Grass Yellow	<i>Eurema brigitta</i> (Stoll 1780)	Throughout India including the Andaman and Nicobar Islands.
11		Pierinae	Indian Wanderer	<i>Pareronia hippia</i> (Fabricius 1787)	Throughout India except Jammu & Kashmir, Punjab and Rajasthan.
12	Lycaenidae	Polyommatainae	Common Pierrot	<i>Castalius rosimon</i> (Fabricius 1775)	Throughout India including Andaman and Nicobar Islands
13			Lesser Grass Blue	<i>Zizina otis</i> (Fabricius 1787)	Throughout India, W. Bengal and Sikkim to N.E India, Andaman & Nicobar Islands
14			Dark Grass Blue	<i>Zizeeria karsandra</i> (Moore 1865)	Throughout India; Andaman and Nicobar Islands.
15			Angled Pierrot	<i>Caleta decidia</i> (Hewitson 1876)	Peninsular India; Sikkim to N.E India
16			Common Lineblue	<i>Prosotas nora</i> (C. Felder 1860)	Andaman & Nicobar Islands (All Nicobars).
17			Pointed Ciliate Blue	<i>Anthene lycaenina</i> (R. Felder 1868)	Gujarat southwards to Kerala and eastwards to Odisha and West Bengal.
18			Dingy Lineblue	<i>Petrelaea dana</i> (de Nicéville 1884)	Uttarakhand to N.E India; Maharashtra to Kerala; Jharkhand and Andaman Islands.

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	Family	Subfamily	Common name	Scientific name	Distribution in India (Varshney & Smetacek 2015)
19	Lycaenidae	Polyommatae	Common Hedge Blue	<i>Acytolepis puspa</i> (Horsfield 1828)	Andaman & Nicobar Islands (Nicobar and central Nicobar Islands).
20		Theclinae	Common Shot Silverline	<i>Spindasis ictis</i> (Hewitson 1865)	Rajasthan northwards to Himachal Pradesh, eastwards to West Bengal and southwards to Kerala.
21			Monkey Puzzle	<i>Rathinda amor</i> (Fabricius 1775)	Kerala to N.E India.
22 #			Silver Royal	<i>Ancema blanka</i> (de Nicéville 1894)	Sikkim to N.E India.
23	Hesperiidae	Coeliadnae	Common Banded Awl	<i>Hasora chromus</i> (Cramer 1780)	Throughout India and Andaman & Nicobar Islands.
24	Nymphalidae	Danainae	Plain Tiger	<i>Danaus chrysippus</i> (Linnaeus 1758)	Throughout India
25			Common Crow	<i>Euploea core</i> (Cramer [1780])	Throughout India, Andaman & Nicobar Islands
26		Satyrinae	Common Evening Brown	<i>Melanitis leda</i> (Linnaeus 1758)	Throughout India
27			Common Palmfly	<i>Elymnias hypermnestra</i> (Linnaeus 1763)	Maharashtra to Kerala.
28			Common Bushbrown	<i>Mycalesis perseus</i> (Fabricius 1775)	Himachal Pradesh to N.E India.
29			Dark-branded Bushbrown	<i>Mycalesis mineus</i> (Linnaeus 1758)	
30		Heliconiinae	Common Leopard	<i>Phalanta phalantha</i> (Drury 1773)	Throughout India.
31		Limenitidinae	Common Sailer	<i>Neptis hylas</i> (Linnaeus 1758)	Andaman Island, Uttarakhand to N.E India, southern Nicobar Island, Gujarat, Madhya Pradesh and Jharkhand southwards to Kerala
32			Colour Sergeant	<i>Athyma inara</i> Westwood 1850	Uttarakhand to N.E India; Karnataka to Kerala and northwards to Odisha.
33			Staff Sergeant	<i>Athyma selenophora</i> (Kollar 1844)	N.E India.
34			Baronet	<i>Euthalia nais</i> (Forster 1771)	Tamil Nadu to Gujarat and Rajasthan, eastwards to West Bengal and along the Himalaya from Uttarakhand to West Bengal
35			Grey Count	<i>Tanaecia lepidea</i> (Butler 1868)	Uttarakhand to N.E India.
36		Nymphalinae	Peacock Pansy	<i>Junonia almana</i> (Linnaeus 1758)	Throughout India
37			Gray Pansy	<i>Junonia atlites</i> (Linnaeus 1763)	Throughout India
38			Lemon Pansy	<i>Junonia lemonias</i> (Linnaeus 1758)	Sikkim to N.E India, Jammu & Kashmir to Uttarakhand, Rajasthan to Kerala and eastwards to Jharkhand
39			Chocolate Pansy	<i>Junonia iphita</i> (Cramer [1779])	Jammu & Kashmir to N.E India

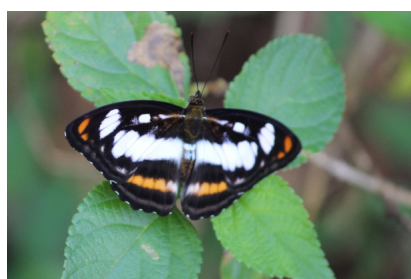
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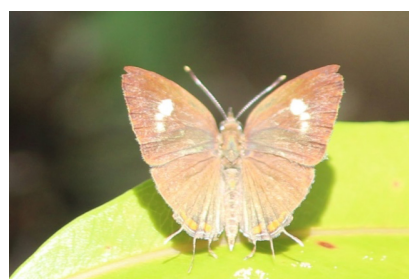
	Family	Subfamily	Common name	Scientific name	Distribution in India (Varshney & Smetacek 2015)
40	Nymphalidae	Nymphalinae	Blue Pansy	<i>Junonia orithya</i> (Linnaeus 1758)	Sikkim to N.E India, Nicobar Islands, J&K to Kerala and W. Bengal
41			Great Eggfly	<i>Hypolimnys bolina</i> (Linnaeus 1758)	Throughout India except very arid region
42		Acraeinae	Tawny Coster	<i>Acraea violae</i> (Fabricius 1793)	Throughout India
# New record added to the state fauna of butterflies, Chhattisgarh in the present study.					



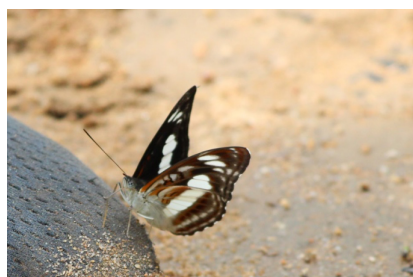
Angled Pierrot © H.N. Tandan.



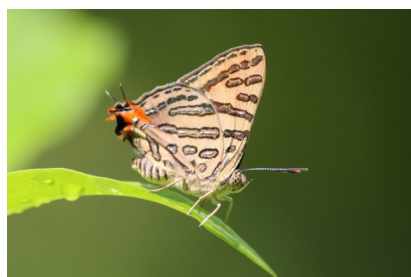
Colour Sergeant © H.N. Tandan.



Monkey Puzzle © H.N. Tandan.



Staff Sergeant © H.N. Tandan.



Common Shot Silverline © Gulab Chand.



Silver Royal © H.N. Tandan.



Common Hedge Blue © H.N. Tandan.

of 'Paradhee' and other local tribes. Tatamari and other plateaus are not only rich in biodiversity but there is evidence of residence, cave painting, stone paintings and boundary wall of primitive man eater tiny men, locally

known as 'Uikas'.

The Jal Jangal Yatra started started at approximately 0530 h, from the base camp Tatamari. The track of 10 km was covered in deep forest. The butterflies were photographed in random

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survey in the study area using Canon 1300D DSLR Cameras and mobile camera iPhone 6S. Field identification was made with the help of Wynter-Blyth (1957), Haribal (1992), Kehimkar (2016), and Smetacek (2016).

During the study, a total of 42 species of butterflies belonging to five families were observed, photographed and systematically placed under 12 subfamilies. Family Nymphalidae dominated with 19 species of 13 genera, family Lycaenidae with 11 species of 11 genera, followed by family Papilionoidea with six species of two genera, family Pieridae with five species of three genera, and family Hesperioidea with one species of one genera. Silver Royal *Ancema blanka* had not been recorded earlier by either Chandra et al. (2014) or Sisodia (2019) from Chhattisgarh, while it is reported here as a new species to the state fauna of butterflies.

The one addition to the butterfly fauna of Chhattisgarh State is as follows:

***Ancema blanka* (de Nicéville 1894) – Silver Royal**

Specimen Photographed: 02.x.2020, 10.x.2020.

Known Distribution: Sikkim to northeastern India (Varshney & Smetacek 2015).

Remarks: The species was photographed

by H.N. Tandan on 10.x.2020, at Tatamari Eco Center (20.1164° N & 81.5906° E) and Ravi Naidu on 02.x.2020, at Kanger Valley National Park (18.9369° N & 82.1361° E), Bastar. The specimen was found highly active and flew out within seconds. It took just a few seconds to take photographs and go away from the site. Ravi Naidu found it puddling on dry animal dung and H.N. Tandan observed it on vegetation at about 3 m height in dense forest near the waterfall.

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Ghost fishing of the Atlantic Ghost Crab

Scientists are concerned about fishery impacts on marine life. Ghost fishing occurs when lost or abandoned fishing gear continues to catch organisms. Annually, approximately 640,000 tons of fishing gear are lost in the marine environment (Macfayden et al. 2009).

Ghost fishing occurs mainly with cage traps, gillnets, trammel nets and small seine nets (Matsuoka et al. 2005). Lost traps are conjectured to last for a relatively short period of time in shallower waters, but depending on the fishing gear, they can maintain their capture for years (Matsuoka et al. 2005).

Consequently, well-known disastrous effects of this 'ghost fishing' include high mortality rates of charismatic marine fauna, including marine turtles, seabirds, and mammals on coastal areas. Part of lost fishing gears



Atlantic Ghost Crab *Ocypode quadrata* at Grussaí Beach in southeastern Brazil. © Danilo Rangel.



Ghost Crabs *Ocypode quadrata* entangled in a derelict fishing gear on the beach sand in southeastern Brazil. A burrow was constructed on the side of a trunk and net. © Leonardo Costa.

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achieves sandy beaches. From marine to terrestrial zones of this ecotone, a teeming of microscopic and macroscopic organisms coexists. The spectrum of life in the sand includes transitional nesting turtles, birds, surf zone fishes, and endemic clams, whelks, worms, sand hoppers, sand dollars, and crabs, all of them threatened by marine litter. Carcasses of large animals entangled with fishing gears commonly strand on sandy beaches. Nevertheless, endemic fauna has also been reported to interact with marine litter (Gusmão et al. 2016; Costa et al. 2018, 2019a, 2019b). A bulk of knowledge about interaction of beach invertebrates with marine litter is now available in the literature, including direct interaction by confusion, ingestion and risk of trophic transfer (Lourengo et al. 2017; Costa et al. 2019a, 2019b). However, although ghost fishing can potentially exert mortality of surface-active organisms on sandy beaches, the occurrence of these events is underexplored.

The Ghost Crab *Ocypode quadrata* (Fabricius, 1787) is an endemic crustacean from Atlantic sandy beaches. The species usually has nocturnal activity and feed on wrack, carrion, macroinvertebrates and vertebrates' eggs or hatchlings (Tewfik et al. 2016). One of their most conspicuous characteristics is the construction of semi-permanent burrows on the sand. It is common to find burrows around freshly

deposited food as an opportunistic behavior (Schlacher et al. 2013). Although ghost crabs visually detect objects and predators at tens of meters, their ability to visualize objects around their usage area is limited and chemical senses are more commonly used to detect food (Lucrezi & Schlacher 2014). For this reason, ghost crabs interact with odorized marine debris, misidentifying them as food sources (Costa et al. 2019).

Here, we present the first report of 'ghost fishing' of an endemic species from sandy beaches, the Atlantic Ghost Crab *O. quadrata*. This impact was found at Grussaí Beach (-21.723° S, -41.024° W), northern Rio de Janeiro State, Brazil on November 2017. Two individuals were found entangled in a derelict fishing gear on the sand. The construction of a burrow on the side of a trunk represents a common behaviour that probably benefits the ghost crab with higher sediment and burrow stability and/or spatial memorization (Lucrezi & Schlacher 2014). In addition, the presence of a carrion (i.e., dead animals) represents a feeding opportunity (Schlacher et al. 2013) and may have induced the crabs to construct a burrow around the gillnet. As ghost crabs use mainly chemical senses to recognize potential food, it is possibly that the first crab was randomly entangled and the next ones were captured during the feeding on the first crab. Otherwise, all the crabs might have been

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randomly entangled. Due to limited short-distance vision, it is unlikely that ghost crabs are able to avoid entanglement in fishing gears on the sand. Derelict nets can act as a barrier for movement not only of crabs, but also of sea turtles' hatchlings and nesting females and any surface-active species (Triessnig et al. 2012; Battisti et al. 2019). Therefore, ghost fishing can impose a further mortality source to fauna on sandy beaches.

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A record of Splendid Dartlet from Jhargram District, West Bengal, India

Agriocnemis splendidissima

Laidlaw, 1919 commonly known as Splendid Dartlet, is a small damselfly of Coenagrionidae family. This is one of the 11 species of genus *Agriocnemis* Selys, 1877 found in India (Kalkman et al. 2020). In India, it is recorded from the states of Assam, Tripura, West Bengal, Uttar Pradesh, Himachal Pradesh, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Odisha, Andhra Pradesh, Maharashtra, Karnataka, and Kerala (Subramanian 2018; Subramanian et al. 2018). Elsewhere, it has been reported from Pakistan (Khaliq & Siddique 1995; Kalkman et al. 2020). In the state of West Bengal, eight species of *Agriocnemis* are known to occur (Dawn 2021). Earlier in West Bengal, *A. splendidissima* was recorded from the districts of Hooghly, Howrah, Jalpaiguri, Cooch



***Agriocnemis splendidissima* adult male individual at Khandarani Lake, Jhargram District, West Bengal, India. 09 October 2019 © Tanmoy Bhowmick.**

Behar, and Bankura (Ram et al. 1982; Srivastava & Sinha 1993; Mitra 2002; Singhamahapatra 2020; Dawn 2021). In 1982, Ram et al. first reported the occurrence of *Agriocnemis splendidissima* in West Bengal from Devendrapur of Hooghly and Santragachi of Howrah Districts. Srivastava & Sinha (1993) remarked, this species frequently inhabits at bed of running water bodies, like streams, in

shallow zone with sprouting aquatic vegetation. It can also be found in stagnant water bodies and in rice fields (Khaliq & Siddique 1995; Subramanian 2018). According to Nair & Subramanian (2014), this species is distributed scattered in wet areas of India.

During an opportunistic survey on odonates in Khandarani lake (22.40°N,

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Edge of Khandarani Lake with vegetation, emerged from shallow water. 09 October 2019 © Tanmoy Bhowmick.

86.42°E), Jhargram District, West Bengal, India, on 09 October 2019, one adult male individual of *Agriocnemis splendidissima* at the edge of the lake was observed at 1244 h. This area is a part of Chota Nagpur Plateau physiographic region. Jhargram District covers an area of 3024.38 km² and has an average elevation of 81 m (<https://Jhargram.gov.in>). Khandarani lake is a freshwater lake of the district. There were some emergent vegetations along

Table 1. Compiled list of distributional records of *Agriocnemis splendidissima* from West Bengal State, India.

Number of individuals/Sex	Locality	Date	Reference
1 Female	Devendrapur, Hooghly District	24.iii.1976	Ram et al. 1982
1 Female	Santragachi, Howrah District	26.xii.1976	Ram et al. 1982
1 Male, 1 Female	Bijan Bari Forest, Raja Bhathkhawa, Jalpaiguri District	19.iii.1986	Srivastava & Sinha 1993
1 Male	Sonapur, Koch Bihar (Cooch Behar) District	01.v.1987	Srivastava & Sinha 1993
1 Male	Kanakshyaguri, Jalpaiguri District	07.v.1987	Srivastava & Sinha 1993
-	Hooghly district, Howrah District	-	Dawn 2021
1 Male	Khandarani Lake, Jhargram District	09.x.2019	Present Study
1 Male	Raygar, Bankura District	15.xi.2020	Singhamahapatra 2020 (iNaturalist.org)

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the shallow water at the edge of the lake. *Agriocnemis splendidissima* individual was perched on a grass leaf, and the grass was emerged from shallow water at the edge of the lake. The individual was photographed in the field using Nikon Coolpix B500 SLR camera and the species was identified from field observations and photographs, following Mitra (2002), Nair (2011) and Nair & Subramanian (2014). Three photographs of *A. splendidissima* individual were uploaded on Odonata

of India website, with media codes bs656, bs657, and bs658 (Anonymous 2021). This is the first report of *Agriocnemis splendidissima* from Jhargram District of West Bengal. Except this present record, there is only one other record of this species from Chota Nagpur Plateau region of West Bengal, that is, from Raygar in Bankura District (Singhamahapatra 2020). That location is about 33km away from the present study area. Six other species of odonates were also

observed at the same edge of Khandarani Lake from 1230 to 1250 h on that day. Those species were *Ictinogomphus rapax*, *Diplacodes nebulosa*, *Crocothemis servilia*, *Orthetrum sabina*, *Pseudagrion decorum*, and *Ceriagrion coromandelianum*. They were photographed and identified following Nair (2011). Distributional records of *Agriocnemis splendidissima* from West Bengal State are compiled in Table 1.



Khandarani Lake, Jhargram District, West Bengal, India. 09 October 2019 © Tanmoy Bhowmick.

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Occurrence of Brown Vine Snake in Pachamalai Hills, India



Roadkill of Brown Vine Snake found in Pachamalai, Tamil Nadu, India.

Tropical Asian vine snakes *Ahaetulla* spp. are widely distributed in the Asian mainland, peninsular India, parts of the Sundaic region and their surrounding islands (Mallik et al. 2020). They further reported that there are 17 lineages in *Ahaetulla* within its distribution range. Pachamalai Hills are located (11.303° N & 78.654° E) in

north-east of Tamil Nadu, India covering an area of 14,122 km² at an altitude ranging from 500–1,000 m.

On 25 January 2021, a dead snake was found on the road (11.303° N & 78.654° E around 680m) leading to Pachamalai Hills. It was assumed to have been killed by vehicular traffic and was identified as

Brown Vine Snake *Ahaetulla sahyadrensis* based on the morphological characters given by Mallik et al. (2020).

As the Western Ghats population of *A. pulverulenta sensu lato* is diagnosed to be distinct at species rank from the Sri Lankan population, Mallik et al (2020) recently provided a new replacement



name *Ahaetulla sahyadrensis*. Thus, *A. pulverulenta* is considered endemic to Sri Lanka. The length of the snake was 138 cm. The dorsal side of the body was light brown in colour with dark brownish anteriorly converging bars from nape to midbody. The head had dark brownish rhomboid markings with a deep eye-stripe from the nostril to nape. Venkatraman et al. (1997) reported this species in Siruvani foot hills of Western Ghats, Tamil Nadu. However, it was not included in the list published by Daniels (1994) for the Eastern Ghats of Tamil Nadu. Hence, it is a new addition to Pachamalai Hills.

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Further additions to the checklist of reptiles of Kerala, India

For the state of Kerala, the last updated checklist for the reptiles was published during 2015 by Palot (2015) with 173 species classified under 24 families under three orders. Since then, many new species of reptiles were recorded from the geographical boundaries of Kerala and some taxonomic revisions also occurred in a few groups of reptiles from the region.

In the present communication, another 32 species are included for the state reptilian checklist including 13 species of geckos, 12 species of snakes, four species of agamid lizards, and three species of skinks. Most of the species included in the state list were described during the last five-year period (2015–2020) and some of the species are confirmed through the collections of recent field surveys or the taxonomic revisions happened during the last five years. All the available records till 20 December 2020 have been considered for this publication.

Recently, the genus *Dravidogecko* of the region has been reviewed with an addition of six new species from Western Ghats, including three new species for the State (Chaithanya et al. 2019). Similarly, the genus *Ahaetulla* underwent a thorough revision by adding many new changes from the region (Mallick et al. 2020). Certain taxonomic revisions also invalidated the

existence of species such as Brook's House Gecko *Hemidactylus brookii*, Spotted Leaf-toed Gecko *H. maculatus*, Fan-throated Lizard *Sitana ponticeriana*, and Green Vine Snake *Ahaetulla nasuta*, Brown-speckled Whipsnake *A. pulverulenta* from the state list. The historic records of Estuarine crocodile *Crocodylus palustris* and Earless Skink *Chalcides pentadactyla* were removed from the current list. With this updation, the total number of confirmed species of reptile from the State has become 199 species classified under 24 families belonging to three orders.

Now the updated list consists of one species of crocodile, 12 species of turtles and tortoises, 72 species of lizards and 112 species of snakes. The detailed list of additional species of reptiles recorded during the period is given below with their taxonomic details, distribution, conservation status and the recorded localities from Kerala (Table 1).

Class Reptilia

Order Squamata

Suborder Sauria

Family Agamidae

1. *Microauris aurantolabium* Krishnan, 2008

Orange-lipped Forest Lizard

Distribution: Endemic to southernmost

region of Western Ghats in Agasthyamalai part of Kerala and Tamil Nadu.

Remarks: Reported from the higher reaches of Peppara Wildlife Sanctuary, Thiruvananthapuram District.

2. *Monilesaurus acanthocephalus* Pal, Vijayakumar, Shanker, Jayarajan & Deepak, 2018

Spiny-headed Forest Lizard

Distribution: Endemic to Western Ghats. Known only from the type locality, higher reaches of Periyar Tiger Reserve, Idukki District, Kerala and Meghamalai Hills of Tamil Nadu.

Remarks: A high montane shola forest species. Recorded from the shola forests of Eramangalar, Vellimala and Upper Manalar areas in Periyar Tiger Reserve, Idukki District.

3. *Monilesaurus montanus* Pal, Vijayakumar, Shanker, Jayarajan & Deepak, 2018

Montane Forest Lizard

Distribution: Endemic to Western Ghats. Known only from the high elevation evergreen or shola forests of southern Western Ghats from Kudremukh NP to Nilgiris.

Remarks: Recorded from the foothills of Vellarimala in Wayanad District.

4. *Sitana attenboroughii* Sadashivan, Ramesh, Palot, Ambedkar & Mirza, 2018
Attenborough's Fan-throated Lizard

Distribution: Known only from the type locality in the southernmost beaches of Thiruvananthapuram District.

Family Gekkonidae

1. *Cnemaspis maculicollis* Cyriac, Johny, Umesh & Palot, 2018

Agasthyamalai Day Gecko

Distribution: Endemic to Western Ghats. Known only from a type locality in Shendurney WS, Kollam District, Kerala.

Remarks: Recorded from the type locality in Pandimotta area of Shendurney Wildlife Sanctuary, Kollam District.

2. *Cnemaspis anamudiensis* Cyriac, Johny, Umesh & Palot, 2018.

Anamudi Day Gecko

Distribution: Endemic to Western Ghats. Known only from a type locality in Munnar Hills, Idukki District, Kerala.

Remarks: Recently reported from Mannavanshola area of Anaimudishola National Park, Idukki District.

3. *Cnemaspis aaronbaueri* Sayyed, Grismer, Campbell & Dileepkumar, 2019
Aaronbauer's Day Gecko

Distribution: Endemic to Western Ghats. Known only from a type locality in Agasthyamalai part of Kerala and Tamil Nadu.

Remarks: Fairly common in the Shendurney WS and Thenmala areas of Kollam District.

4. *Cnemaspis chengodumalensis* Cyriac, Palot, Deuti & Umesh, 2020
Chengodumala Day Gecko

Distribution: Known from the Kozhikode District of Kerala.

Remarks: Recorded from the midlands of Chengodumala and the foot hills of Malabar WS, Kozhikode District, Kerala.

5. *Cnemaspis zacharyi* Cyriac, Palot, Deuti & Umesh, 2020

Zacharia's Day Gecko

Distribution: Known only from the southernmost part of the Wayanad Hills.

Remarks: Recorded from Lakkidi, Thollayiram areas of southern part of Wayanad Forest Division, Wayanad District, Kerala.

6. *Cnemaspis mysoriensis* (Jerdon, 1854)

Mysore Day Gecko

Distribution: Mainly distributed in Tamil Nadu, Karnataka. Recently introduced to Pune, Maharashtra (Khandekar et al. 2020).

Remarks: A single specimen was collected from the Muthanga area of Wayanad Wildlife Sanctuary.

7. *Cnemaspis palakkadensis* Sayyed, Cyriac & Dileepkumar, 2020

Palakkad Day Gecko

Distribution: Known only from the type locality in Palakkad Hills, Kerala.

Remarks: The species was discovered from the type locality Anakkal, Palakkad District, Kerala.

8. *Dravidogecko septentrionalis* Chaithanya, Giri, Deepak, Roy, Murthy & Karanth, 2019.

Wayanad Dravidogecko.

Distribution: Known from the type locality in Wayanad, Kerala.

Remarks: Widely distributed at the foothills of Chembra Peak and surrounding hill ranges in southern Wayanad.

9. *Dravidogecko smithi* Chaithanya, Giri, Deepak, Roy, Murthy & Karanth, 2019.

Smith's Dravidogecko.

Distribution: Known from the type locality, in Ponmudi Hills, Thiruvananthapuram District, Kerala.

Remarks: Known only from the Ponmudi Hills, Thiruvananthapuram District.

10. *Dravidogecko janakiae* Chaithanya, Giri, Deepak, Roy, Murthy & Karanth, 2019.

Janaki's Dravidogecko

Distribution: Known from the type locality, Munnar town, and surrounding hills, Idukki District.

Remarks: A common species in and around Munnar Hills, observed from Kanthallur town, Anaimudishola NP and Pambadumshola NP of Idukki District.

11. *Hemidactylus parvimaculatus* Deraniyagala, 1953

Common Spotted Gecko

Distribution: India: Kerala; elsewhere: Sri Lanka, Reunion, Mauritius and Rodrigues, Moheli (Comoro Islands), Maldives, Mascarene Islands.

Remarks: Probably an introduced species. Many recent reports from the coastal tracts of the southern part of the State.

12. *Hemidactylus paaragowli* Srikanthan, Swamy, Mohan & Pal, 2018

Travancore Rock Gecko

Distribution: Recently described from the Agasthyamalai Hill part of Kollam District, Kerala.

Table 1. Additions to the checklist of reptiles of Kerala.

	Family	English Name	Species Name	Authority	Vernacular name	IUCN	EN	WLPA
Order Squamata								
1	Agamidae (lizards)	Montane Forest Lizard	<i>Monilisaurus montanus</i>	Pal, Vijayakumar, Shanker, Jayarajan & Deepak, 2018	Mala Ōnt	NE	WG	
2		Spiny-headed Forest Lizard	<i>Monilisaurus acanthocephalus</i>	Pal, Vijayakumar, Shanker, Jayarajan & Deepak, 2018	Mullont	NE	WG	
3		Orange-lipped Forest Lizard	<i>Microauris aurantolabium</i>	Krishnan, 2008	Chenchundanonth	NE	WG	
4		Attenborough's Fan-throated Lizard	<i>Sitana attenboroughii</i>	Sadashivan, Ramesh, Palot, Ambedkar, & Mirza, 2018	Attenboroughyude Changanont	NE		
5	Gekkonidae (geckoes)	Aaronbauer's Day Gecko	<i>Cnemaspis aaronbaueri</i>	Sayed, Grismer, Campbell & Dileepkumar, 2019	Aaronbauerinte Marapalli	NE	WG	
6		Anamudi Day Gecko	<i>Cnemaspis anamudiensis</i>	Cyriac, Johnny, Umesh & Palot, 2018	Anamudi Marapalli	NE	WG	
7		Chengodumala Day Gecko	<i>Cnemaspis chengodumalensis</i>	Cyriac, Palot, Deuti & Umesh, 2020	Chengodumala Marapalli	NE		
8		Agasthyamalai Day Gecko	<i>Cnemaspis maculicollis</i>	Cyriac, Johnny, Umesh & Palot, 2018	Agasthyamala Marapalli	NE	WG	
9		Mysore Day Gecko	<i>Cnemaspis mysoriensis</i>	(Jerdon, 1854)	Maisūr Marappalli	LC	WG	
10		Palakkad Day Gecko	<i>Cnemaspis palakkadensis</i>	Sayed, Cyriac & Dileepkumar, 2020	Palakkadan Marapalli	NE		
11		Zacharia's Day Gecko	<i>Cnemaspis zacharyi</i>	Cyriac, Palot, Deuti & Umesh, 2020	Zachariyayude Marapalli	NE	WG	
12		Janaki's Dravidogecko	<i>Dravidogecko janakiae</i>	Chaitanya, Giri, Deepak, Roy, Murthy & Karanth, 2019	Janakiyude Malapalli	NE	WG	
13		Smith's Dravidogecko	<i>Dravidogecko smithi</i>	Chaitanya, Giri, Deepak, Roy, Murthy & Karanth, 2019	Smithinte Malapalli	NE	WG	
14		Wayanad Dravidogecko	<i>Dravidogecko septentrionalis</i>	Chaitanya, Giri, Deepak, Roy, Murthy & Karanth, 2019	Waynadan Malapalli	NE	WG	
15		Murray's Day Gecko	<i>Hemidactylus murrayi</i>	Gleadow, 1887	Murrayi Palli	NE		
16		Common Spotted Gecko	<i>Hemidactylus parvimaculatus</i>	Deraniyagala, 1953	Srilankan Pulli Palli	NE		
17		Travancore Rock Gecko	<i>Hemidactylus paaragowli</i>	Srikanthan, Swamy, Mohan & Pal, 2018	Travancore Palli	NE	WG	

	Family	English Name	Species Name	Authority	Vernacular name	IUCN	EN	WLP
18	Scincidae (skinks)	Allapalli Grass Skink	<i>Eutropis allapallensis</i>	(Schmidt, 1926)	Allapalli Arana	LC		
19		Gunther's Grass Skink	<i>Eutropis brevis</i>	(Gunther, 1875)	Guntherinte Arana	NE	WG	
20		Dawson's Grass Skink	<i>Eutropis dawsoni</i>	(Annandale, 1909)	Dawsonte Arana	NE	WG	
21	Uropeltidae (shieldtails)	Lakkidi Shieldtail	<i>Rhinophis melanoleucus</i>	Cyriac, Narayanan, Sampaio, Umesh & Gower, 2020	Lakkidi Manpamp	NE	WG	Sch. IV
22		Karinthandan Shieldtail	<i>Rhinophis karinthatandani</i>	Sampaio, Narayanan, Cyriac, Venu & Gower, 2020	Karinthandan Manpamp	NE	WG	Sch. IV
23		Colombo Wolf Snake	<i>Lycodon anamallensis</i>	Gunther, 1864	Poo Velliaryan	NE		Sch. IV
24		Yellow Green Cat Snake	<i>Boiga flaviviridis</i>	Vogel & Ganesh, 2013	Manha Pachha Poochakannipamp	NE		Sch. IV
25		Long-nosed Vine Snake	<i>Ahaetulla oxyrhyncha</i>	(Bell, 1825)	Mookkan Pacchola Pamp	NE		Sch. IV
26	Colubridae (colubrid snakes)	Brown Vine Snake (Brown-speckled Vine Snake)	<i>Ahaetulla sahyadrensis</i>	Mallik, Srikanthan, Pal, D'Souza, Shanker & Ganesh, 2020	Tavittola Pamp	LC	WG	Sch. IV
27		Isabelline/ Wall's Vine Snake	<i>Ahaetulla isabellina</i>	Wall, 1910	Pacchola Pamp	NE	WG	Sch. IV
28		Malabar Vine Snake	<i>Ahaetulla malabarica</i>	Mallik, Srikanthan, Pal, D'Souza, Shanker & Ganesh, 2020	Vadackan Pacchola Pamp	NE	WG	Sch. IV
29		Travancore Vine Snake	<i>Ahaetulla travancorica</i>	Mallik, Srikanthan, Pal, D'Souza, Shanker & Ganesh, 2020	Theekan Pacchola Pamp	NE	WG	Sch. IV
30		Antique Vine Snake	<i>Proahaetulla antiqua</i>	Mallik, Achyuthan, Ganesh, Pal, Vijayak & Shanker, 2019	Agasthyamala Pachhola Pamp	NE	WG	Sch. IV
31	Pareidae (narrow-headed snakes)	Anamalai Wood Snake	<i>Xylophis mosaicus</i>	Deepak, Narayanan, Das, Rajkumar, Easa, Sreejith & Gower, 2020	Anamala Kunhithalyan Pamp	NE	WG	Sch. IV
32	Elapidae (elapid snakes)	Yellow Sea Snake	<i>Hydrophis spiralis</i>	(Shaw, 1802)	Mannha Kadal Pamp	LC		Sch. IV
IUCN: Red List categories. LC – Least Concern; NE – Not Evaluated EN: Endemic Status. WG – Endemic to Western Ghats WLP: Sch. Schedules as per the Indian Wildlife (Protection) Act 1972.								

Remarks: Known only from the type locality in Ambanad tea estate, Thenmala Hills, Kollam District.

13. *Hemidactylus murrayi* Gleadow, 1887 Murray's House Gecko

Distribution: Known from Western part of India, Myanmar, Peninsular Malaysia (and Borneo).

Remarks: Recently reported from Palakkad District (Lajmi et al. 2016).

Family Scincidae (skinks)

1. *Eutropis allapallensis* (Schmidt, 1926) Allapalli Grass Skink

Distribution: India (Kerala, Tamil Nadu, Karnataka, Goa, Maharashtra, Gujarat, Andhra Pradesh, Madhya Pradesh, Jharkhand, Chhattisgarh, Odisha and West Bengal).

Remarks: Many reports from Kerala. Collected from Peruvannamuzhi area of Malabar WS, Kozhikode District, Kerala. Also reported from a few localities in the forested tracts of the State (Thomas et al. 1998).

2. *Eutropis brevis* (Gunther, 1875)

Gunther's Grass Skink

Distribution: Endemic to Western Ghats from the southernmost range of Ashambu Hills to Parambikulam Hills in Palakkad District (Deuti et al. 2020).

3. *Eutropis dawsoni* (Annandale, 1909)

Dawson's Grass Skink

Distribution: Endemic to southernmost part of Western Ghats.

Remarks: Reported from Peppara WS,

Thiruvananthapuram District; Shendurney WS, Kollam District; Pamba, Pathanamthitta District; Parambikulam Tiger Reserve and Kanjirapuzha areas of Palakkad District; Olagara, Thrissur District; Karimpuzha WS, Malappuram District; Kannavam RF, Kannur District of Kerala State (Deuti et al. 2020).

Suborder Serpentes

Family Uropeltidae

1. *Rhinophis melanoleucus* Cyriac, Narayanan, Sampaio, Umesh & Gower, 2020

Lakkidi Shieldtail

Distribution: Recorded only from the Wayanad region of Kerala.

Remarks: The species is known only from the vicinity of Lakkidi region of Wayanad District (Cyriac et al. 2020).

2. *Rhinophis karinthandani* Sampaio, Narayanan, Cyriac, Venu & Gower, 2020 Karinthandan Shieldtail

Distribution: Known only from the Wayanad region of Kerala.

Remarks: Recorded from Lakkidi, Vythiri, Mananthavady, Chandanthode areas of the Wayanad District (Sampaio et al. 2020).

Family Colubridae

3. *Lycodon anamallensis* Gunther, 1864 Colombo Wolf Snake

Distribution: Peninsular India, Sri Lanka.

Remarks: Commonly found in and around human inhabitation. Ganesh & Vogel (2018) revalidated the species in their recent work.

4. *Boiga flaviviridis* Vogel & Ganesh, 2013
Yellow-Green Cat Snake

Distribution: India (Maharashtra, Kerala, Karnataka, Andhra Pradesh, West Bengal, Orissa).

Remarks: Recently reported from Chinnar WS, Idukki District.

5. *Ahaetulla oxyrhyncha* (Bell, 1825)
Long-nosed Vine Snake

Distribution: It is distributed throughout Peninsular India excluding the wet forest habitats of the Western Ghats.

6. *Ahaetulla sahyadrensis* Mallik, Srikanthan, Pal, D'Souza, Shanker & Ganesh, 2020

Brown Vine Snake (Brown-speckled Vine Snake)

Distribution: It is recorded from the central Western Ghats. However, the actual distribution range will stretch across the Western Ghats.

Remarks: Neoparatypes are collected from the Nelliampathy Hills, Palakkad District, Kerala. Many reports from other parts of Kerala.

7. *Ahaetulla isabellina* Wall, 1910
Isabelline/Wall's Vine Snake

Distribution: It is recorded from southern Western Ghats, south of the Palghat Gap, from an elevation of 550m to 1475m.

Remarks: Reported from Orukomban, Parambikulam Tiger Reserve, Goodrikkal Range of Periyar Tiger Reserve, Achankovil Forests of Agasthyamalai Hills, and also from Idukki WS.

8. *Ahaetulla malabarica* Mallik, Srikanthan, Pal, D'Souza, Shanker & Ganesh, 2020
Malabar Vine Snake

Distribution: Distributed to the north of Palakkad Gap to Tadiyendamol in Karnataka, in mid-elevation evergreen forests from ~650–1400 msl.

Remarks: Widely distributed in Wayanad Hills and Silent Valley National Park, Palakkad District.

9. *Ahaetulla travancorica* Mallik, Srikanthan, Pal, D'Souza, Shanker & Ganesh, 2020

Travancore Vine Snake

Distribution: Known only from the Agasthyamalai Hills south of Shencotta gap.

Remarks: At present, this species is known from only a single locality in the Agasthyamalai Hills of the southern Western Ghats. It was recorded from high elevation montane shola forests (above 1000 msl) near Chemunji in Peppara Wildlife Sanctuary, Thiruvananthapuram District.

10. *Proahaetulla antiqua* Mallik, Achyuthan, Ganesh, Pal, Vijayakumar & Shanker, 2019

Antique Vine Snake

Distribution: Known only from the type localities in Agasthyamalai Hills of Kerala and Tamil Nadu.

Remarks: Recorded from the Pandimotta area of Shendurney Wildlife Sanctuary, Kollam District.

Family Pareidae

11. *Xylophis mosaicus* Deepak, Narayanan,

Das, Rajkumar, Easa, Sreejith & Gower, 2020

Anamalai Wood Snake

Distribution: Known only from the type localities in Anamalai Hills of Kerala (From Eravikulam National Park and Meesapulimala Hills of Idukki District)

Remarks: Fairly well distributed in the higher reaches of Eravikulam National Park and adjoining habitats.

Family Elapidae

12. *Hydrophis spiralis* (Shaw, 1802)

Yellow Sea Snake

Distribution: Indian Ocean, Persian Gulf and Arabian Peninsula, New Caledonia/ Loyalty Islands, southeast Asia. In India, it is distributed along both the coasts, but not common on the west coast

Remarks: A Yellow Sea Snake *Hydrophis spiralis* was caught as bycatch in the fish trawl operated at 33.3m depth off Kochi Ernakulam District on 20.10.2015 (Jeyabaskaran et al. 2015).

Of the 32 species, 15 species were described as new species from the Western Ghats areas of the State. Most of them were snakes or gekkonid lizards and confined to the higher reaches of Western Ghats. Among them, six species were from Agasthyamalai Hills, five from Wayanad Hills, three species from the montane shola grassland ecosystems of Anamalai Hills, and a single species from the higher reaches of Periyar Tiger Reserve (Highway mountains). The discovery of new species of lizards and snakes exemplify the need for continued systematic field work and

the conservation of the forest ecosystems of Western Ghats, especially higher reaches of this endangered mountain system.

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