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Srivari Illam, No. 61, Karthik Nagar, 10th Street, Saravanampatti, Coimbatore, Tamil Nadu 641035, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
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Cover: Illuminating the cruelty of Pangolin trade in India for the purpose of black magic, for the sanctity of protection. Using an animal's shell, ripping its armor against the world to protect oneself. When does one become the evil they are trying to ward off? — Acrylic on wood. © Maya Santhanakrishnan.



efforts, particularly in protected areas of Nepal like Dhorpatan Hunting Reserve.

Study area

Dhorpatan Valley is the part of Dhorpatan Hunting Reserve (DHR) located in Baglung District, Gandaki Province, western region of Nepal (28.490 °N, 83.027 °E) (Figure 1, Image 1). This reserve was established to protect a variety of Himalayan flora & fauna, represented by alpine, sub-alpine, and high temperate vegetation. According to the DHR (2019), the features include extensive highland pastures mostly above 3,800 m and east-west ridges that make north and south slopes suitable for summer and winter habitats. Forest covers different

vegetations like blue pine *Pinus wallichiana*, fir *Abies spectabilis*, rhododendron (*Rhododendron ferrugineum*, *R. campanulatum*), Hemlock *Tsuga dumosa*, Birch *Betula utilis*, Juniper *Juniperus indica*, Spruce *Picea smithiana*, and oak *Quercus semicarpifolia*. This is the only one hunting reserve of Nepal that supports sport hunting of Jharal *Hemitragus jemlahicus* and Blue Sheep *Pseudois nayaur*. The map of the study area was drawn using Arc GIS 10.5.1. The survey of butterfly was conducted in the Dhorpatan Valley of the Dhorpatan Hunting Reserve (DHR), where the altitude ranges 2,846–4,000 m. The diverse physiographic conditions of this valley, including seasonal meadows, various water bodies, and a wide range of shrubs & herbs, provide preferred habitats and

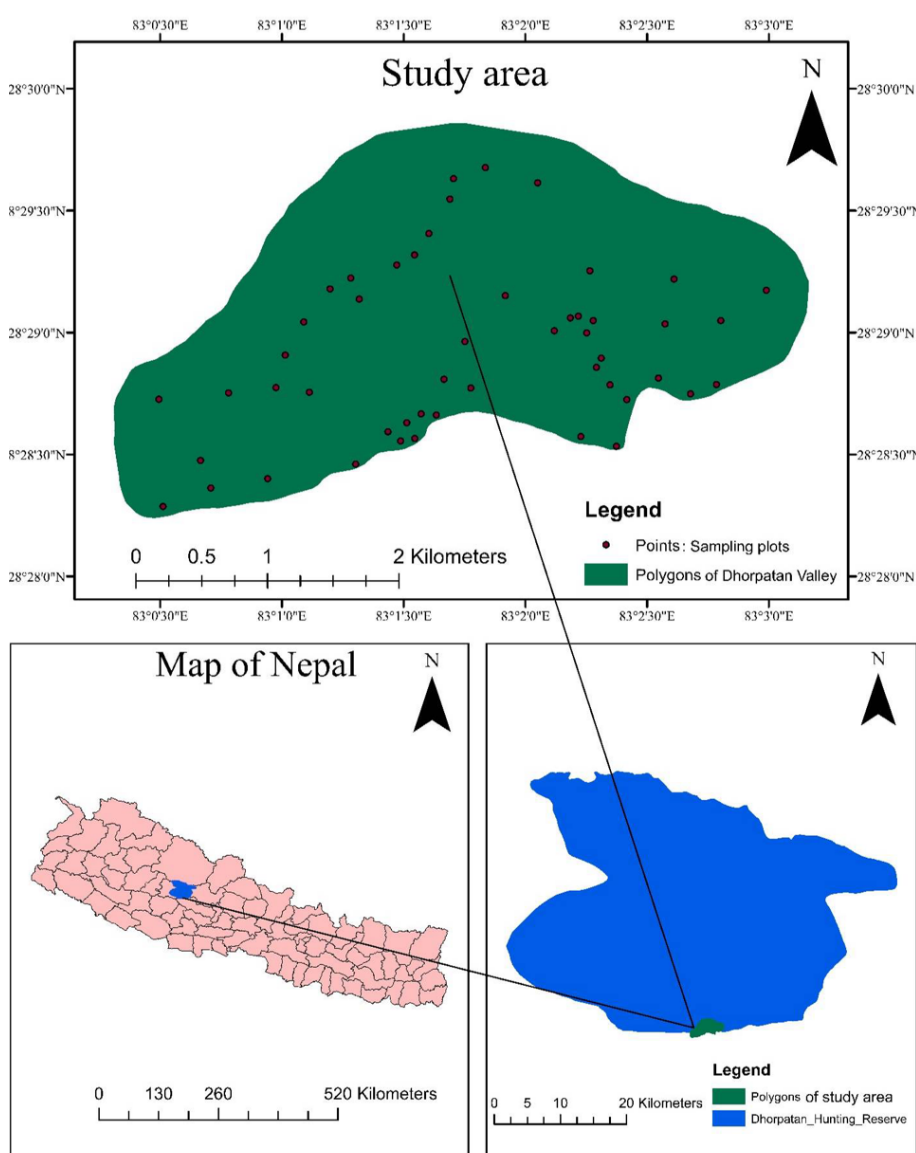


Figure 1. Map showing the study area of Dhorpatan Valley, Dhorpatan Hunting Reserve (DHR), Nepal.

food for butterflies & moths, supporting the pollination of floral species, and contributing to overall ecosystem health & biodiversity.

MATERIALS AND METHODS

Butterfly species were recorded from 50 plots with a plot size of 50 × 20 m² in the study area of Dhorpatan Valley. This research was conducted over two months during the pre-monsoon season (25 March–23 April, 2021) and the monsoon season (19 June–18 July, 2022). The Pollard (1977) method was followed, where

butterflies were surveyed between 1045 h and 1545 h on sunny days with temperatures (>17 °C, or 13–17 °C). The butterflies were observed and recorded from the sampling plots for five hours per day throughout the study period using purposive sampling. Most of the species were photographed using a Nikon D-7500 camera, and only a few confusing or unidentifiable species were collected. Different relevant literatures (Khanal & Smith 1997; Smith 2011) were consulted for identification.

Table 1. A preliminary checklist of butterfly species found in the Dhorpatan Valley of Dhorpatan Hunting Reserve, Nepal. The list includes family, names of the species, and their local status.

Family	Scientific name	Common name	Local status
1. Pieridae	1. <i>Catopsilia pyranthe</i> Linnaeus, 1758	Mottled Emigrant	C
	2. <i>Colias erate</i> Esper, 1805	Eastern Pale Clouded Yellow	C
	3. <i>Colias fieldii</i> Ménétériés, 1855	Dark Clouded Yellow	C
	4. <i>Delias belladonna</i> Fabricius, 1793	Hill Jezebel	C
	5. <i>Eurema hecabe</i> Linnaeus, 1758	Oriental Common Grass Yellow	C
	6. <i>Gonepteryx nepalensis</i> Linnaeus, 1758	Common Brimstone	C
	7. <i>Pieris brassicae</i> Linnaeus, 1758	Large Cabbage White	C
	8. <i>Pieris canidia</i> Sparrman, 1768	Indian Cabbage White	C
2. Nymphalidae	9. <i>Aglaia cashmirensis</i> Kollar, 1844	Indian Tortoiseshell	FC
	10. <i>Argynnis kamala</i> Moore, 1857	Common Silverstripe	FC
	11. <i>Aulocera brahminus</i> Blanchard, 1853	Narrow-banded Satyr	UC
	12. <i>Lethe sidonis</i> Hewitson, 1863	Common Woodbrown	C
	13. <i>Issoria issaea</i> Doherty, 1886	Queen of Spain Fritillary	C
	14. <i>Junonia orithya</i> Linnaeus, 1758	Blue Pansy	C
	15. <i>Lasiommata schakra</i> Kollar, 1844	Common Wall	C
	16. <i>Melitaea arcesia</i> Bremer, 1861	Blackvein Fritillary	C
	17. <i>Neptis hylas</i> Linnaeus, 1758	Common Sailor	VC
	18. <i>Parantica sita</i> Kollar, 1844	Chestnut Tiger	LC
	19. <i>Junonia iphita</i> Cramer, 1779	Chocolate Pansy	C
	20. <i>Rhaphicera moorei</i> Butler, 1867	Small Tawny Wall	C
	21. <i>Vanessa cardui</i> Linnaeus, 1758	Painted Lady	C
	22. <i>Vanessa indica</i> Herbst, 1794	Indian Red Admiral	VC
3. Lycaenidae	23. <i>Celastrina argiolus</i> Linnaeus, 1758	Hill Hedge Blue	C
	24. <i>Celastrina gigas</i> Hemming, 1928	Silvery Hedge Blue	C
	25. <i>Everes lacturnus</i> Godart, 1824	Indian Cupid	FC
	26. <i>Everes argiades</i> Pallas, 1771	Tailed Cupid	C
	27. <i>Heliophorus epicles</i> Godart, 1824	Purple Sapphire	C
	28. <i>Heliophorus sena</i> Kollar, 1844	Sorrel Sapphire	UC
	29. <i>Lampides boeticus</i> Linnaeus, 1767	Pea Blue	C
	30. <i>Leptotes plinius</i> Fabricius, 1793	Zebra Blue	UC
	31. <i>Lycaena panava</i> Westwood, 1852	White-bordered Copper	LC
	32. <i>Lycaena phlaeas</i> Linnaeus, 1761	Common Copper	C
4. Papilionidae	33. <i>Polyommatus icarus</i> Rottemburg, 1775	Common Blue	UC
	34. <i>Polyommatus nepalensis</i> Forster, 1961	Nepal Meadow Blue	E
	35. <i>Polyommatus stoliczkanus</i> C. & R. Felder, 1865	Himalayan Meadow Blue	R
	36. <i>Pseudozizeeria maha</i> Kollar, 1844	Pale Grass Blue	FC
	37. <i>Udara albocaerulea</i> Moore, 1879	Himalayan Alboerulean	C
	38. <i>Graphium cloanthus</i> Westwood, 1841	Glassy Bluebottle	UC
	39. <i>Papilio machaon</i> Linnaeus, 1758	Common Yellow Swallowtail	C
5. Hesperidae	40. <i>Papilio protenor</i> Cramer, 1775	Spangle	C
	41. <i>Parnassius hardwickii</i> Gray, 1831	Common Blue Apollo	UC
	42. <i>Pelopidas mathias</i> Fabricius, 1798	Small Branded Swift	C
	43. <i>Caloris cohiba austeni</i> (Moore, 1883)	Colon swift	C

C—Common | UC—Uncommon | LC—Locally Common | FC—Fairly Common | R—Rare | E—Endemic.



Image 1. This photo displays a portion of the Dhorpatan Valley within the Dhorpatan Hunting Reserve (DHR), Nepal.

RESULTS AND DISCUSSION

This study records 43 species of butterflies (Images 2–47), categorization based on their availability relative to the total number of individuals recorded in this region. All the recorded species belong to 32 genera and five families, which include Lycaenidae (15 species), Pieridae (8 species), Nymphalidae (14 species), Papilionidae (4 species), and Hesperidae (2 species). Single individuals of *Parnassius hardwickii*, *Papilio protenor*, *Everes lacturnus*, *Parantica sita*, *Argynnis kamala*, and *Neptis hylas* were recorded above 3,000 m in the Dhorpatan Valley. Inomata (1998) published an account of *Parnassius* of Nepal which includes 12 species from the Himalayan region. Only few studies provide information on the population status of Apollo species and their habitat preferences in different geographical regions of the world (Ali et al. 2019). *Aglais cashmirensis* was noted with the highest abundance records during the whole period of survey. This is one of the most common species, found in a wide range of habitats in India (Haribal 1990). *Polyommatus nepalensis*, an endemic species, and *Polyommatus stoliczkanus*, a rare species, were generally recorded as common in this geographic region.

We observed that the monsoon season, typically from June to July, is an optimal time for monitoring butterfly diversity in high-altitude regions like Dhorpatan Valley. The pre-monsoon season is typically dry so, few individuals of species like *Polyommatus icarus*, *Polyommatus nepalensis*, *Polyommatus stoliczkanus*, *Vanessa indica*, *Junonia iphita*, *Parnassius hardwickii*, *Everes argiades*, and *Udara albocaerulea* were mostly

seen. Within this protected area, most butterfly species were recorded at lower elevations. The diverse habitats of this reserve support a wide variety of flora, fauna, and invertebrates, including butterflies, moths, and bees. As pollinators, butterflies & bees play a crucial role in maintaining floral diversity and enhancing the overall health of the ecosystem (Potts et al. 2010). This preliminary study fills a significant knowledge gap by providing the first comprehensive assessment of butterfly species in this region. The baseline data generated by this research will be instrumental in guiding future studies and conservation initiatives.

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Image 2. *Catopsilia pyranthe*. © Kiran Rayamajhi



Image 3. *Colias erate* (female). © Kiran Rayamajhi



Image 4. *Colias fieldii* (male). © Kiran Rayamajhi



Image 5. *Colias fieldii* (female). © Kiran Rayamajhi

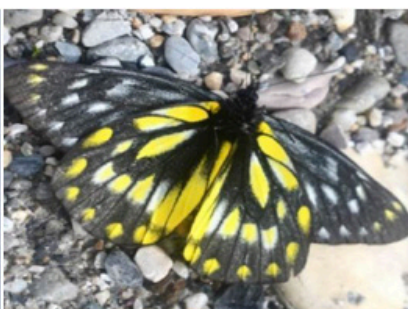


Image 6. *Delias belladonna*. © Kiran Rayamajhi



Image 7. *Eurema hecabe*. © Kiran Rayamajhi

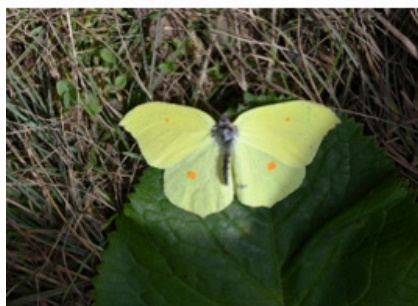


Image 8. *Gonepteryx nepalensis*. © Kiran Rayamajhi



Image 9. *Pieris brassicae*. © Kiran Rayamajhi

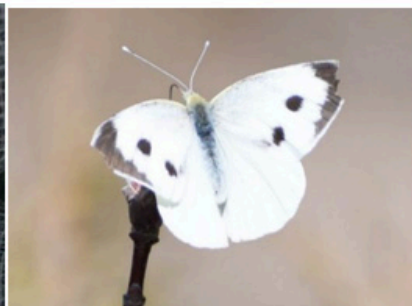


Image 10. *Pieris canidia*. © Kiran Rayamajhi



Image 11. *Aglais cashmirensis*. © Kiran Rayamajhi



Image 12. *Argynnis kamala*. © Kiran Rayamajhi



Image 13. *Aulocera brahminus*. © Kiran Rayamajhi

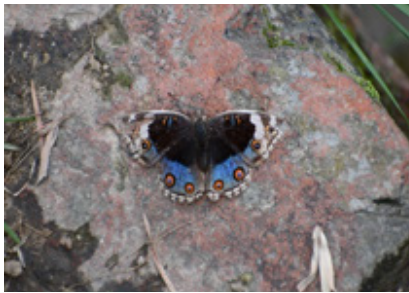
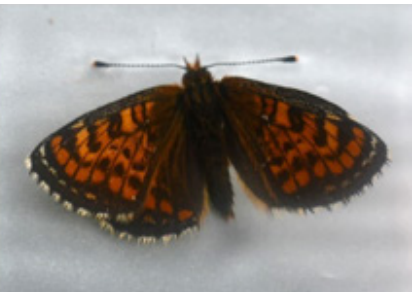
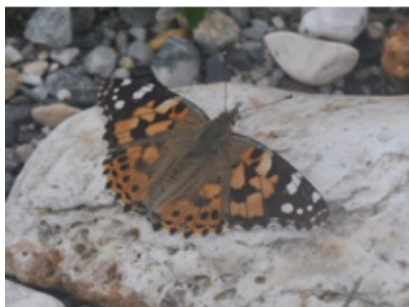
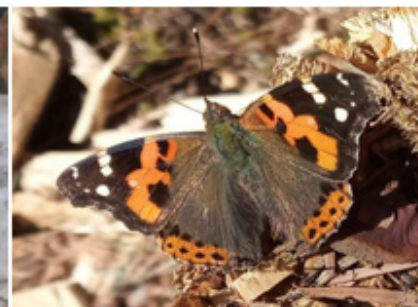
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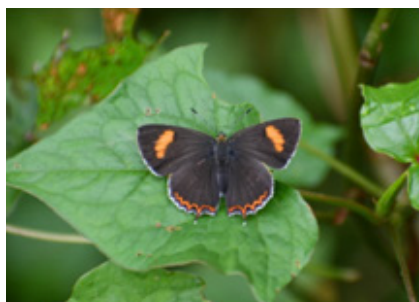
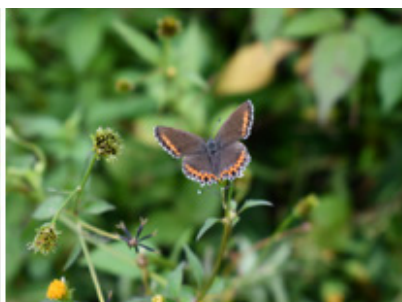
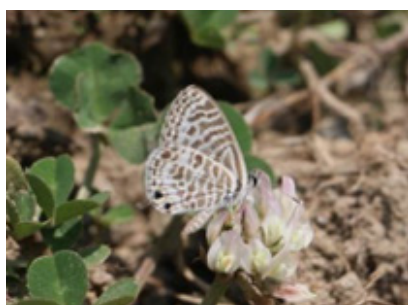
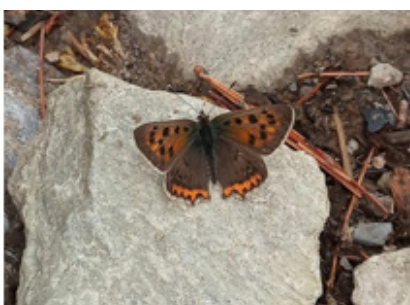
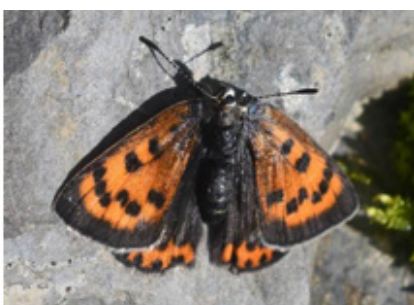
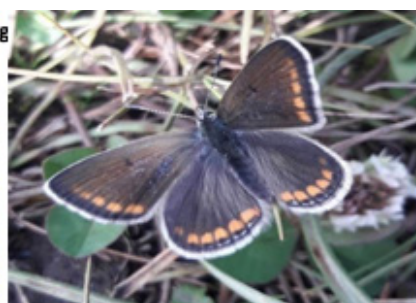
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Image 38. *Polyommatus stoliczkanus*. © Kiran Rayamajhi



Image 39. *Pseudozizeeria maha*. © Kiran Rayamajhi



Image 40. *Udara albocaerulea*. © Kiran Rayamajhi



Image 41. *Graphium cloanthus*. © Kiran Rayamajhi

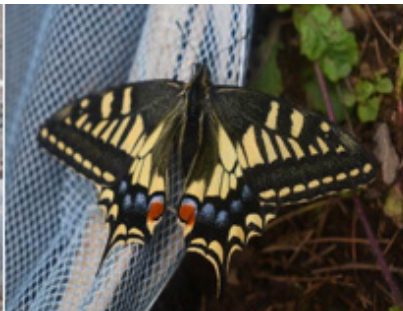


Image 42. *Papilio machaon*. © Kiran Rayamajhi



Image 43. *Papilio protenor*. © Kiran Rayamajhi

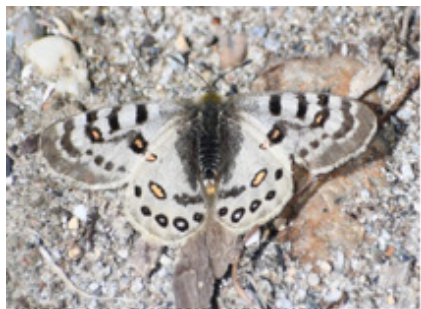


Image 44. *Parnassius hardwickii* (female). © Kiran Rayamajhi



Image 45. *Parnassius hardwickii* (male). © Kiran Rayamajhi



Image 46. *Pelopidas mathias*. © Kiran Rayamajhi



Image 47. *Caltoris cahira austeni*. © Kiran Rayamajhi



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ravi@threatenedtaxa.org & ravi@zooreach.org

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