PAKISTAN BUTTERFLY SOCIETY

QUARTERLY BULLETIN

A NEWSLETTER OF
BUTTERFLIES OF PAKISTAN

ISSUE 03 - MONSOON 2024

TABLE OF CONTENTS

1. **Introduction to Monsoon Issue - English & Urdu** 2-3
   Editorial Team
2. **An Introduction To Major Butterfly Families** 4-7
   Waqas Ahmad
3. **Pakistan`s First Crimson Rose on Big Butterfly Month's Inaugural Day** 8-10
   Salman Baloch, Zafeer Shaikh, Sadiq Baloch, Zohain Ahmed
4. **The Butterflies of Palanchai: Meadows & Forests** 11-15
   Azan Karam and Abdur Rehman
5. **The Angel of Shandur: Discovery of a Leucistic Regal Apollo Parnassius charltonius** 16-17
   Nicolas Grimaldi
6. **Electric Wings: Charged for pollination** 17-18
   Kanwal Batool Awan
7. **A preliminary checklist of the butterflies of Soon-Sakesar valley** 19-22
   Akram Awan
8. **Our Natural Heritage: Chitral Purple Copper** 23-24
   Akram Awan
9. **Rarity Notes (June-September 2024)** 25-26
   Editorial Team
10. **Guidelines for Submissions - English & Urdu** 27-28
    Editorial Team

* Blue highlighted texts indicate Urdu articles & write-ups respectively *

Introduction to Monsoon Issue

Editorial Team

The Southwest monsoon system enters Pakistan in July, bringing with it heavy rains that predominantly impact the eastern half of the country. The rains are driven by moisture-rich winds from the Indian Ocean, showering the land in the East of the Indus River from the Himalayan foothills to the coastal regions. However, the mountainous regions of Gilgit-Baltistan and Khyber Pakhtunkhwa, such as Chitral and former FATA, usually do not experience monsoon rains, as the high mountains act as barriers for these winds to enter these areas.

Monsoon rains bring new life to the landscape, covering the region with abundant vegetation. Many Oriental butterfly species disperse, wandering to distant areas of Sindh and Punjab provinces, the Islamabad region, Hazara division below Galiyat, and similar altitudes in Khyber Pakhtunkhwa and Azad Kashmir. By the end of October, several Himalayan butterflies also undergo altitudinal migrations, moving to the foothills and adjacent plains as temperatures drop in the higher elevations. This period marks the second peak of butterfly activity in the region, following spring, and is referred to as the 'Post-Monsoon Butterfly Season'. In recognition of this, we have named the September issue the "Monsoon Issue."

The entire month of September is celebrated as "Big Butterfly Month (BBM)" in six nations across the Indian Subcontinent, including Pakistan, India, Nepal, Bhutan, Bangladesh, and Sri Lanka. This event promotes butterfly-watching as a form of citizen science, encouraging people to observe and record butterfly diversity and population data. These efforts play an important role in shaping future conservation measures. As Big Butterfly Month enters its second year in Pakistan, the Pakistan Butterfly Society (PBS) is proud to lead the initiative once again as the official country partner. Since this issue of the Pakistan Butterfly Society's Quarterly Bulletin (PBSQB) is being released in the midst of 'BBM', we will include most of the event updates, findings, and highlights in our next issue.

BACKGROUND: From Sherwan, Abbotabad (KP) by M. Akram Awan

مون سون شمارے کا تعارف

ادارتی ٹیم

جنوب مغربی مون سون سسٹم پاکستان میں جولائی کے مہینے میں شدید بارشوں کی صورت میں داخل ہوتا ہے جو زیادہ تر ملک کے مشرقی حصے کو متاثر کرتی ہیں۔ یہ بارشیں بحر ہند سے آنے والی نمی سے بھرپور ہواؤں کے باعث آتی ہیں اور دریائے سندھ کے مشرقی علاقے میں، ہمالیہ کے دامن سے لے کر ساحلی علاقوں تک برستی ہیں۔ تاہم، گلگت بلتستان اور خیبر پختونخوا کے پہاڑی علاقے جیسے چترال اور سابقہ فاٹا عام طور پر مون سون کی بارشوں کا سامنا نہیں کرتے، کیونکہ بلند پہاڑ ان ہواؤں کے لیے رکاوٹ کا کام کرتے ہیں اور یہ ان علاقوں میں داخل نہیں ہو پاتیں۔

مون سون کی بارشیں ہر طرف ہریالی پھیلا کر زمین کو ایک نئی زندگی بخشتی ہیں ۔ اس موسم میں بہت سی 'مشرقی' تتلیوں کی انواع دور دراز علاقوں کی طرف پھیل کر صوبہ سندھ ، پنجاب ، اسلام آباد، ہزارہ ڈویژن میں گلیات سے کم بلند علاقے، اور خیبر پختونخوا اور آزاد کشمیر کی زیریں پہاڑیوں تک پہنچ جاتی ہیں۔ اکتوبر کے آخر تک کئی ہمالیائی تتلیاں سردی کی وجہ سے بلندی سے نیچے اتر کر دامنی پہاڑیوں اور ملحقہ میدانی علاقوں کی طرف ہجرت کرتی ہیں۔ یہ دورانیہ خطے میں بہار کے بعد تتلیوں کی سرگرمی کا دوسرا عروج ہوتا ہے اور اسے ’پوسٹ مون سون بٹر فلائی سیزن‘ کے نام سے جانا جاتا ہے۔ اسی مناسبت سے، ہم نے ستمبر کے شمارے کا نام "مون سون شمارہ" رکھا ہے۔

ستمبر کا مہینہ برصغیر کے چھ ممالک، بشمول پاکستان، بھارت، نیپال، بھوٹان، بنگلہ دیش اور سری لنکا میں "بگ بٹر فلائی منتھ" کے طور پر منایا جاتا ہے۔ یہ ایونٹ شہری سائنس کے طور پر تتلیوں کے مشاہدے کو فروغ دیتا ہے اور لوگوں کو تتلیوں کی اقسام اور آبادی کے اعداد و شمار جمع کرنے کی ترغیب دیتا ہے۔ یہ کاوشیں تتلیوں کے تحفظ کی حکمت عملی ترتیب دینے میں اہم کردار ادا کرتی ہیں۔ ماہ رواں (ستمبر 2024ء) میں پاکستان بٹرفلائی سوسائٹی کے زیر انتظام پاکستان کا دوسرا 'بگ بٹرفلائی منتھ' منایا جا رہا ہے۔ چونکہ یہ شمارہ بگ بٹر فلائی منتھ کے عین وسط میں جاری ہو رہا ہے، اس لیے ہم ایونٹ کی زیادہ تر خبریں، معلومات اور نتائج 'پی بی ایس سہ ماہی بلیٹن' کے اگلے شمارے میں شامل کریں گے۔

BACKGROUND: From Karoonjhar hills, Tharparkar (SD) by Zafeer Shaikh

An Introduction to Major Butterfly Families

Waqas Ahmad

Butterflies are members of a diverse order of insects, 'Lepidoptera' (which also includes Moths). Due to their vibrant coloration, they are one of the prettiest and most recognizable groups of insects. Butterflies play multiple vital roles in ecosystems. They act as pollinators, serve as a food source for various animals, birds, and insects, function as environmental indicators of habitat health, and add aesthetic beauty to the world around us.

Around 20,000 species of butterflies have been identified globally, but this number continues to grow as interest in the field increases. Many species remain either misidentified or undiscovered. In Pakistan, approximately 440 species of butterflies have been recorded so far. Pakistani butterflies belong to following six major groups (families). The following is a brief introduction of these families:

1. Hesperiidae (Skippers, Swifts and Flats)

Structure: Skippers have small, stout bodies with relatively large, angled wings. Antennae with wider space at base and a spiny tip (known as apiculus).
Appearance: They are typically brown or orange with less vibrant coloration compared to other butterflies.
Examples: Common Grass Dart *Taractrocera maevius*, Indian Palm Bob *Suastus gremius.*

Common Grass Dart*Taractrocera maevius*

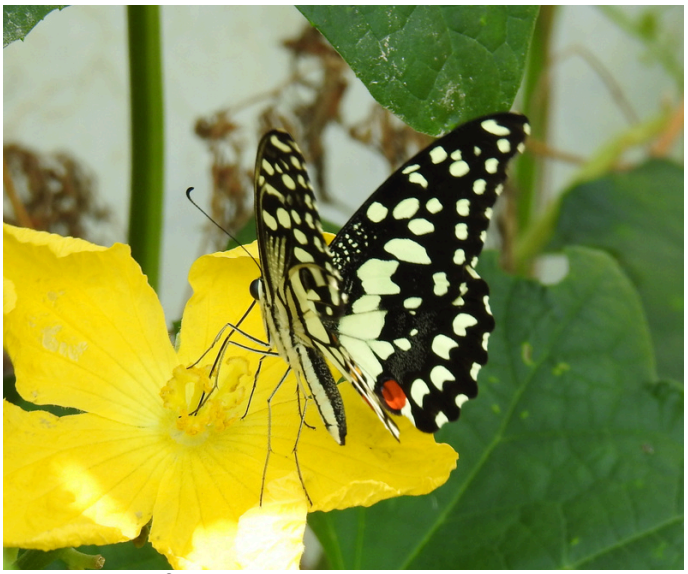
Indian Palm Bob *Suastus gremius*

2. Papilionidae (Swallowtails and Apollos)

Structure: Large butterflies with prominent tail-like extensions on the hindwings, resembling swallowtail feathers or streamers (exceptions exist).
Appearance: They often have bright, contrasting colors and eye-catching patterns.
Examples: Common Peacock *Papilio polyctor* and Lime Butterfly *Papilio demoleus.*


© Waqas Ahmad

Common Peacock *Papilio polyctor*


© Akram Awan

Lime Butterfly *Papilio demoleus*

3. Pieridae (Whites and Yellows)

Structure: All 6 legs fully-functional. Abdomen is hidden by wings when they perch.
Appearance: Generally, they have white, yellow, or orange wings with black markings.
Examples: Himalayan Bath White *Pontia endusa moorei* and Common Grass Yellow *Eurema hecabe.*


© Waqas Ahmad

Himalayan Bath White *Pontia endusa moorei*


© Akram Awan

Common Grass Yellow *Eurema hecabe*

4. Lycaenidae (Blues, Coppers and Hairstreaks)

Structure: Small butterflies with delicate, often iridescent wings, sometimes with thread-like tails.
Appearance: Their wings are frequently blue, purple, or brown above, and often have patterns of spots, dashes or streaks below.
Examples: Kashmir Meadow Blue *Polyommatus pseuderos* and Common Copper *Lycaena phlaeas.*


© Akram Awan

Common Copper *Lycaena phlaeas*


© Waqas Ahmad

Kashmir Meadow Blue *Polyommatus pseuderos*

5. Riodinidae (Metalmark Butterflies)

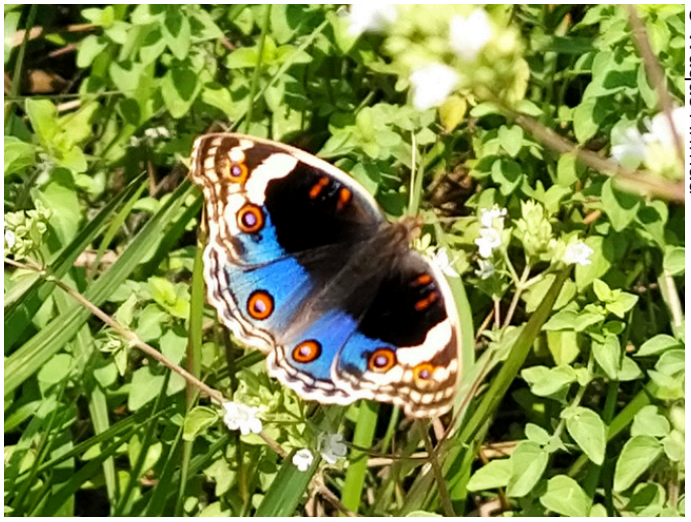
Structure: Forelegs in males are brush-like, reduced and not used for walking, females use forelegs for walking. A combination of Lycaenidae and Nymphalidae families.
Appearance: They display a range of colors from metallic gold and silver to vibrant oranges and browns.
Example: Common Punch *Dodona durga.*


© Saghir Hassan Khan

Common Punch *Dodona durga*

6. Nymphalidae (Brush-Footed Butterflies)

Structure: Members of this family have reduced forelegs that are often covered in tiny scales, giving them a "brush-footed" appearance.
Appearance: They exhibit a wide range of colors and patterns, often with intricate designs. It is the largest and the most diverse butterfly family.
Examples: Blue Pansy *Junonia orithya*, Painted Lady *Vanessa cardui* and Blue Tiger *Tirumala limniace.*



Blue Pansy *Junonia orithya*

Painted Lady *Vanessa cardui*

Blue Tiger *Tirumala limniace*

Pakistan's First Crimson Rose on Big Butterfly Month's Inaugural Day

Salman Baloch, Zafeer Shaikh, Sadiq Baloch, Zohaib Ahmed

Introduction:
The Crimson Rose butterfly *Pachliopta hector* is predominantly found in South Asia, including India, Sri Lanka, and Bangladesh. It prefers tropical and subtropical environments, often inhabiting gardens, coastal areas, and scrublands. This butterfly is easy to tell apart from its cousin species, Common Rose *Pachliopta aristolochiae*, by its red body and black wings adorned with white markings on the forewings and crimson-red spots on the hindwings.

The host plants for the Crimson Rose caterpillar primarily belong to *Aristolochia* genus (Birthworts or Dutchman`s Pipes). The habits of the Crimson Rose butterfly include being an active, fast-flying species often found feeding on nectar from flowers. It is known for its migration behavior, particularly along the Indian coast, where large groups migrate in the post-monsoon season (with some vagrants even reaching Andaman Islands).

Details and Discussion:
On 1st September 2024, We (Salman Baloch, Sadiq Baloch, Zohaib Ahmed and Zafeer Shaikh) set out for the Western Coast of Karachi district, Sindh province. Our goal was to take advantage of the prevailing cyclonic conditions: downpour and strong winds. We visited many areas of the Keamari district including Lal Bakhar dam, Allah Banu, Sonehri Harbour, Manjar goth and Mubarak Goth. These locations exhibit the typical semi-arid scrub habitat setting from Karachi region, however, also present are low coastal cliffs and one such area, Manjar offers excellent views of the adjoining waterways from atop the coastal cliffs which are rare to find in Sindh Province and are much common just across the Hub river estuary and Westwards in coastal Balochistan. In drier times, Karachi's coastal ecosystems don't support much butterfly life due to scarce vegetation. Just over a month of monsoon rains, however, converted this region into lush green zone, where we found variety of wildflowers, grasses and tree and shrub with ideal condition for resident and migrant butterflies.

At 1020 hours just after arriving in the village, we started scouring the rocky outcrops of the hills immediately adjoining this fishing village. Our total time spent here was about an hour that involved sightings of Plain Tiger *Danaus chrysippus*, Blue Tiger *Tirumala limniace*, Mottled Emigrant *Catopsilia pyranthe*, Little Orange-tip *Colotis etrida*, Blue-spotted Arab *Colotis protractus*, Large Salmon Arab *Colotis fausta*, White Arab *Colotis phisadia vestalis,* Small Salmon Arab *Colotis amata*, Tiny Grass Blue *Zizula hylax*, Dark Grass Blue *Zizeeria karsandra* and Oriental Grass Jewels *Freyeria putli.*

We decided to head back using the narrow path on the base of the hills after spending about 130 minutes in the area. This is when Sadiq Baloch and Zafeer Shaikh spotted a large Black and Red butterfly pass by us at speed. The butterfly was almost on a mission, but this short encounter allowed us to get a detailed view of its fore-wings which had large white spots. The butterfly caught our attention while in-situ and luckily, Salman Baloch was able to get some clear photos of it as well.

After checking back on the photos later on, it proved to be a Crimson Rose, a first for the country which was expected for a long time. We would like to mention the possibility of a probable unconfirmed sighting from Karoonjhar hills, Tharparkar district as well (Pers. Comm. Yasir Pechuho) but this sighting could not be confirmed due to the unavailability of a photograph.

Crimson Rose *Pachliopta hector* from Manjar Goth, Soneri beach, Karachi.

Conclusion:

This important sighting was recorded on the first day of the citizen science initiative, Big Butterfly Month being managed by Pakistan Butterfly Society (PBS) in the country and this was a big push for our venture on that date. This record highlights the importance of such events that motivate individuals to go out and explore their surroundings which can result in such important scientific data.

References:

1. Thomas Jones Roberts (2001). The Butterflies of Pakistan. Oxford University Press, Karachi (Pakistan).
2. Vadim Tshikolovets, & Jérôme Pagès. (2016). The Butterflies of Palaearctic Asia. XII. The Butterflies of Pakistan. Vadim Tshikolovets publisher, Pardubice (Czechia).

A view of the team in action at Manjar Goth. © Zohaib Ahmed

The Butterflies of Palanchai: Meadows & Forests

Azan Karam and Abdur Rehman

Meadows are open ecosystems of herbaceous, non-woody plants, such as wild grasses, wildflowers and herbs. They can be natural (also called perpetual meadows) or altered by humans (agricultural meadows or pasturelands) for different purposes, such as livestock grazing areas or hay collection. They are places where wildlife and human communities interact and depend on various ecosystem services, such as pollination, grazing, nesting, display sites for birds, and shelter for subterranean mammals. Butterflies are also an integral ecological component of meadows and forests, where they synchronize their life cycles according to vegetation growth and floral bloom timing. They not only play a major role in pollinating plants but they also provide a protein-rich diet to birds, particularly in breeding season. Most of the natural meadow systems in the uplands of the Hindukush-Himalayan Range have heterogeneous microhabitats where different stages of butterflies (caterpillars and adults) complete their life cycle through niche partitioning. These specialized habitats include open-canopy forests, sunlit forest trails, unaltered forest edges, sunny glades, and open meadows, providing opportunities for each species' life-cycle-dependent requirements.

Note the less diversity of plants in more open and higher areas of the meadow system. Palanchai Meadow, Bahrain, Upper Swat.

In this article, a series of natural meadows, called Palanchai and its associated forest in the Tehsil Bahrain, Upper Swat Valley will be discussed in the context of lepidopteran fauna.

Forest:
Palanchai's forests are mostly dry temperate, and to reach them from Bahrain Bazar, one must hike moderately and turn left towards Telba Village. A trail through densely forested mixed-deciduous and coniferous forest opens up to a broad expanse of rolling meadows after about five hours. There are few human settlements in between, with cultivated patches of corn, beans and wild-grown weed stripes, providing habitat to common species, such as Pea Blue *Lampides boeticus*, Eastern Bath White *Pontia edusa*, Common Grass Yellow *Eurema hecabe*, Common Copper *Lycaena phlaeas* and Sorrel Sapphire *Heliophorus sena*.

Any terrestrial habitat rich in native flora has the potential to support abundant and rich biodiversity. Many species of butterflies inhabit forests, where they usually depend on open trails and glades where sunlight can penetrate the canopy (trails) or reach directly (glades), warming habitat areas and promoting vegetation growth. The mix-coniferous open-canopy forests of Palanchai are one such example, where notable trees, such as the West Himalayan Fir *Abies pindrow*, Deodar Cedar *Cedrus deodara*, West Himalayan Spruce *Picea smithiana*, Blue Pine *Pinus wallichiana* and groves of old and twisted, the Endangered Himalayan Yew *Taxus wallichiana* grows. There are also mixed deciduous trees, and a layer of understory consisting of shrubberies and diverse herbaceous plants in the forest route, directly co-related to diverse and abundant lepidopteran fauna in the area. Some of these plants include; Himalayan Bird Cherry *Prunus cornuta*, Alder Buckthorn *Frangula alnus*, Beranj *Parrotiopsis jacquemontiana*, Brown Oak *Quercus semecarpifolia*, Baloot Oak *Q. baloot* and several others.

Presence of full-bloom wildflowers, such as Columbines *Aquilegia sp.,* Purple-vein Geranium *Geranium wallichianum*, Nepal Geranium *G. nepalense*, Short-petal Myriactis *Myriactis wallichii*, Wild Mint *Clinopodium sp*., Himalayan Avens *Geum roylei,* Alpine Enchanter's Nightshade *Circae alpina*, Himalayan Wulfenia *Wulfeniiopsis amherstiana*, Purple Himalayan Sage *Phlomoides bracteosa* and several others were less frequented by adult butterflies throughout the forest track while the damp puddling areas and scattered mammalian scats exclusively attracted multiple species soaking up essential minerals nutrients required for functioning and to increase chances of finding mates at puddling sites. Around 25 Western Courtier *Sephisa dichroa* were counted, a species with a contrasting black and yellow pattern. Further deep at two points, groups of Indian Cabbage White *Pieris candida* and a few Scarce Mountain Argus *Paralasa kalinda* were sharing puddle sites.

A forest trail has more sunlight coming to the floor than the rest of the forest, where over a hundred Scarce Mountain Argus *Paralasa kalinda* and Common Argus *Callerebia nirmala materta* were estimated fluttering around. A surprising number of previously rare species for Pakistan, the European Red Admiral *Vanessa atalanta* were seven strong (see Rarity Notes). The species was just recently reported from Bahrain, Upper Swat indicating a locally established population in the upper valleys of the district. Surprisngly, fewer in number than their European relative, there were two additional admirals: the Indian Red Admiral *Vanessa indica*, basking in the open, while the Blue Admiral *Kaniska canace* stayed in the semi-sunny areas of the forest.

Kashmir Yellow Wall *Kirinia eversmanni cashmirensis* were observed almost always clinging to tree barks at considerable height, with occasional descents to shorter vegetation. As the name suggests, Large Silverstripe *Argynnis childreni* were visibly larger than any species in the area. At least 7 were observed, primarily occupying the sunny, leafy sections of deciduous trees with intermittent dips to mud puddles, shared with Western Courtiers. Fluttering along the sunlit trail were a few Himalayan Sailer *Neptis mahendra*, approximately five in number, and at least 15 Moore's Fivering *Ypthima nikaea* puddling in the mud. Nearly invisible on the forest floor due to their exceptional close-wing camouflage resembling dried pine needles on the forest floor from a distance, our disturbance made them retreat to ferns and grasses growing at the sloping edges of the forest - a microhabitat particularly preferred by species in this genera. If at all, they rarely leave forest cover. The most interesting behaviour noted by the authors was of Common Satyr *Aulocera swaha*. Instead of mud, they preferred mammalian scats (including human faeces) to replenish their nutrient requirements.

Western Courtier *Sephisa dichroa*

Blue Admiral *Kaniska canace*

Large Silverstripe *Argynnis childreni*

Common Satyr *Aulocera swaha*

Meadows and Glades:

Palanchai Meadow (locally called Palanshai Banda) is a natural meadow among many others situated in the uplands of Upper Swat, above tree-line at 10,200 feet altitude. It is situated in the eastern limits of Hindukush Range at the edges of a natural forest of predominantly oaks and conifers between the southern and northern aspects. Most

notable meadows in Swat are unexplored in the context of lepidopteran diversity, particularly butterflies, as apparent from the lack of scientific literature on the topic. Limited unpublished data has been collected in recent years from a few of these meadows and upland pastures (including, Desan, Janshai, Jarogo Banda, Chukail and Larkiya'n Banda), either digital documentation by enthusiasts or specimen collections by researchers.

Palanchai Meadows is an umbrella term for various sub-meadows and forest glades. The first in this series is called Shunju; it is, in fact, an open forest glade with a patch of diversified and abundant wildflowers in proximity to coniferous forests on almost all sides. A glade is an open space surrounded by woods. This glade is part of the transition zone where species abundance was higher than open meadows. Common Wall *Lassiomata schakra*, Indian Tortoiseshell *Aglais caschmirensis*, Painted Lady *Vanessa cardui*, Green Copper *Lycaena kasyapa,* Pea Blue *Lampides boeticus*, Common Satyr *Aulocera swaha* and Large White *Pieris brassicae* – most of them in healthy number were foraging in the warm glade with abundant nectar resources. An interesting species among them was a range extension of Cheena or Branded Meadowbrown *Hyponephele cheena* (See Rarity Notes). This glade leads to the continuous Jabba and Palanchai meadows, which feature a forest on their northern aspect. Although there is less diversity, the transition zone near the forest edges has an even higher population of butterflies and a richer flora.

Patches of wild plants, including Common Selfheal *Prunella vulgaris*, Oregano *Origanum vulgare*, Quill-spur Balsam *Impatiens thomsonii,* Nepal Dock *Rumex nepalensis*, *Cynoglossum sp., Decalepidanthus moltkiodes*, Great Stinging Nettle *Urtica dioica*, and Great Willowherb *Epilopbium hirsutum*, merge the edges of these meadows with the forest. The Highbrown Silverspot *Argynnis jainadeva* was estimated to be at a record high of 300–500 in these oregano-dominated regions, especially near the intact forest boundaries yet also straying to open meadows. The similar-looking, Common Silverspot *A. kamala*, on the other hand, was uncommon. Himalayan Brimestone *Gonepteryx nepalensis*, Dark Clouded Yellow *Colias fieldii* and Painted Lady *Vanessa cardui*, like the Silverspots, were tending to wildflower patches as well.

Until Bakro, a meadow with strewn white igneous rocks (locally called "bakara," hence named as such), which is situated on the border of a dense Brown Oak woodland at the southern aspect, this sequence of meadows was further investigated. The butterfly diversity gradually diminished as more open areas with fewer diversified plant communities were present. The meadows' floral profile gradually changed, with some species found at higher elevations and in more open areas. These species included Himalayan Thimbleweed *Anemonastrum obtusilobum*, Black Medick *Medicago lupulina*, Himalayan Spurge *Euphorbia wallichi*, High Avens *Geum elatum*, *Lomatogonium caeruleum*, Field Chickweed *Cerastium arvense*, *Senecio chrysanthemoides*, and Nepal Cinquefoil *Potentilla nepalensis.*

Stronger winds and reduced foliage cover for sheltering were probably the causes of the record low butterfly variety and abundance in these areas. Only a few mating pairs of Highbrown Silverspots *Argynnis jainadeva* were noted.

This series continues to Karr, Daral, and concludes at Daral Lake, where it remains unexplored. The dense and abundant wild vegetation that makes up the forest borders creates a small but crucial transition zone between the open meadows and forests. With comparatively higher abundance and maybe greater diversity in both open meadows and forests combined, they are especially interesting for future lepidopteran exploration and diversity studies. Prioritising these transition zones in particular would help us get better insights, as the meadow systems of the Swat Valley are relatively understudied in biodiversity research. The authors also recommend that long-term comparative studies of lepidopteran diversity be conducted on the borders of oak and coniferous forests, both natural and modified, as they transition into open meadows.

The unaltered forest edge showing a diverse floral community. Palanchai Meadows, Swat

The Angel of Shandur: Discovery of a Leucistic Regal Apollo *Parnassius charltonius*

Nicolas Grimaldi

The Regal Apollo *Parnassius charltonius* is a striking and large species distributed through Central Asia in the Himalayas and Pamir, in different parts of China, Tibet, western Nepal, northern India, northern Pakistan, Afghanistan and Kyrgyzstan. It is a high-altitude species found between 2500m (for the lowest subspecies) to 5000m or slightly above. In Pakistan, it is widely distributed and quite common in some places, making it a species easy to spot and observe. In Pakistan during our travel with my friend Akram, we found this species in several localities: Shandur Pass, flying around 4200m and above; Sost and Khunjerab (Hunza) around 3300m; Babusar Pass at 4000m and Deosai plains at 4200mand above. We have also observed that different populations had different hostplants, three in total.

During our stay in Shandur Pass, we discovered 2 different populations after several days of prospection. In one of the valleys, we found a very healthy population flying along a steep rocky slope at 4200m in the vicinity of a stream. The hostplant; a *Corydalis*, was largely present between the rocks and all along the river. Another species of *Parnassius*; Chitral Banded Apollo *P. staudingeri chitralica* was sharing the same biotope and hostplant. We spent 3 consecutive days in this valley and on the last day while my two other colleagues decided to take a break to enjoy some tea further down, next to a little stream, I decided to stay on top of the mountain. It will later prove to be one of the best decisions I made for the discovery I was about to make.

The wind was blowing strongly at noon, which corresponds usually to the end of a calmer window for *Parnassius* as they are mating. Females had emerged late in the morning and males, which were flying franticly since 0830/0900 am when the sun is bright, had found the virgin ones immediately. The female will only mate once as the male will produce a sphragis, a mating plug to ensure its genetic material is passed on. While waiting on top of the slope, I suddenly saw an unusual butterfly pushed by the wind toward me. I just had the time to strike precisely with my net to catch it.

It was a freshly emerged virgin female, completely leucistic! The black and blue pigments were completely absent. I just sat on a rock stunned by this discovery while my friends were calling me with insistence to join them for tea, not being conscious of what had just happened. According to a study published on August 30, 2024, in the Proceedings of the National Academy of Sciences, scientists have demonstrated that an RNA molecule is responsible for the formation of black pigments on wings. We can assume a mutation of this RNA molecule has appeared in this wild Regal Apollo *Parnassius charltonius*. It is an extraordinary discovery for both collectors and scientists around the world as well as a very unique one.

© Nicolas Grimaldi

Albino Regal Apollo *Parnassius charltonius*

Butterfly Insights

Electric Wings: Charged for pollination

Kanwal Batool Awan

It turns out that butterflies need more than just wings to be effective pollinators—they also need a bit of electricity. A fascinating study published this year in the 'Journal of the Royal Society Interface' reveals that butterflies and moths utilize static electric charge to enhance their pollination capabilities.

Researchers from the University of Bristol discovered that the amount of static charge accumulated by these insects varies significantly across species. These variations are influenced by factors such as flight duration, habitat, time of flight, and morphological differences. The ability to carry an electric charge appears to be an evolutionary adaptation tailored to the specific needs and environments of each species.

For instance, the study found that the Peacock butterfly *Aglais io* (unrecorded in Pakistan) carried a net electrostatic charge of +15.41 picoamperes, allowing it to attract pollen from a distance of several millimeters. Using a computational model, the researchers demonstrated that when a charged butterfly approaches a grounded flower,

significant electric fields are generated, especially near the flower's anthers. These fields are strong enough to lift pollen grains to 6 millimetres, with 100 pollen grains attaching to the butterfly within one second during simulations.

One of the most interesting findings is that despite having a lower wing-beat frequency than other insects, butterflies still manage to maintain a relatively high electrostatic charge. However, this charge comes with a trade-off: the accumulation of pollen on their bodies can reduce flight efficiency. The *Heliconius* butterflies (not found in Pakistan), for example, have evolved a clever solution to this problem. Instead of allowing pollen to accumulate all over their bodies, they collect it primarily on their proboscis, which helps them maintain a lower overall charge.

This research not only sheds light on the previously unknown mechanisms behind how butterflies and moths pollinate but also raises new questions. The study was conducted in controlled environments and did not account for the wide variety of ecological settings, such as tropical regions. It would be interesting to see future research that examines how these electric charges and their effects vary across different environmental conditions. The researchers themselves suggest that pollinators with lower charges should be studied more closely, particularly focusing on the specific body parts where pollen is collected.

A Regal Apollo *Parnassius charltonius* nectaring with its proboscis

In conclusion, this study adds a new dimension to our understanding of the role of Lepidoptera (butterflies and moths) in ecosystems. The discovery that this group of insects use static electricity as a tool for pollination opens up exciting possibilities for further research, particularly in diverse environmental settings. As we continue to uncover the intricacies of these pollinators, we gain not only scientific insight but also a deeper appreciation for the complex interactions that sustain our natural world.

Reference:

Sam J. England† and Daniel Robert (2024). Electrostatic pollination by butterflies and moths. Journal of The Royal Society Interface 21: 20240156. https://doi.org/10.1098/rsif.2024.0156

Area Checklist

A preliminary checklist of the Butterflies of Soon-Sakesar valley

Akram Awan

Introduction:
Khushab is a unique district of the Punjab province in terms of its diverse landscapes, from desert (Tehsil Nurpur Thal) and riparian plains (Tehsil Khushab) to lakes, valleys and hills which occasionally receive snowfall (Tehsil Naushera). The hilly tehsil (named after the biggest town: Naushera), widely known as "Soon-Sakesar" or just "Soon valley", is part of the Punjab Salt Range. The average altitude of the valley is about 700m, Sakesar peak (1522m), the highest point of the Salt Range, is also situated in Soon valley.

The summer monsoon delivers rain in the area from mid-July to September, while winter rains occur from January to March. The hottest month is June, while January is the coldest month of the year when temperature sometimes drops below 0°C. The valley receives an average of 853 mm of rainfall annually. The vegetation of the Salt Range has been placed under the division of sub-tropical dry evergreen forests.

I have been working on the distribution of Pakistani butterflies for over a decade, hailing from Dhadhar village in Soon Sakesar, near Khabeki Lake. My visits to the village, however, have been sporadic, sometimes with gaps of years in between, which has limited my ability to observe butterflies throughout the entire year. The majority of the data came from my own observations (mostly between September-November) in my village and its immediate surroundings, with a few contributions from other villages by some friends. This report contains a list of 38 species observed between October 2014 and February 2024. While this is only a preliminary checklist, I believe the number of species could greatly increase with more focused research conducted year-round across the valley.

Yellow Orange-Tip *Colotis danae*

Desert Bath White *Pontia glauconome*

Table 1. Checklist of Butterfly species recorded from Soon-Sakesar Valley

No.	English Name	Scientific Name	Months of Observation
1	Straight Swift	*Parnara sp.*	September
2	Dark Branded Swift	*Pelopidas mathias*	September
3	White Branded Swift	*Pelopidas thrax*	September
X	Branded Swift	*Pelopidas sp.*	February-March October
4	Dart	*Potanthus sp.*	October
5	Common Mormon	*Papilio polytes*	September
6	Lime Butterfly	*Papilio demoleus*	September
7	Common Grass Yellow	*Eurema hecabe*	September
8	Common Brimstone	*Gonepteryx rhamni*	Data lost
9	Dark Clouded Yellow	*Colias fieldii*	October-November
10	Pale Clouded Yellow	*Colias erate*	March, September-November
11	Indian Cabbage White	*Pieris canidia*	February-March, September
12	Large Cabbage White	*Pieris brassicae*	March
13	Desert Bath White	*Pontia glauconome*	November
14	Pioneer White	*Belenois aurota*	November
15	Yellow Orangetip	*Ixias pyrene*	September-November
16	Large Salmon Arab	*Colotis fausta*	November
17	Dull Babul Blue	*Azanus uranus*	September-October
18	Indian Pierrot	*Tarucus indica*	September
19	Balkan Pierrot	*Tarucus balkanicus*	September
20	Zebra Blue	*Leptotes plinius*	October
21	Oriental Grass Jewel	*Freyeria putli*	September-November
22	Pale Grass Blue	*Pseudozizeeria maha*	September-November
23	Dark Grass Blue	*Zizeeria karsandra*	September
24	Lesser Grass Blue	*Zizina otis*	September-October
25	Gram Blue	*Euchrysops cnejus*	September-October
26	Forget-me-not	*Catochrysops Strabo*	September
27	Common Silverline	*Spindasis vulcanus*	September

28	Common Shot Silverline	*Spindasis ictis*	March, September
29	Indian Red Flash	*Rapala iarbus*	October
30	Common Three-ring	*Ypthima asterope*	March, September
31	Jewel Fivering	*Ypthima avanta*	April, September
32	Common Castor	*Ariadne merione*	September
33	Plain Tiger	*Danaus chrysippus*	September
34	Blue Pansy	*Junonia orithya*	September-November
35	Yellow Pansy	*Junonia hierta*	September
36	Peacock Pansy	*Junonia almana*	November
37	Painted Lady	*Vanessa cardui*	February-March, September-December
38	Tropical Fritillary	*Argynnis hyperbius*	February-March, September-November

Common Silverline *Spindasis vulcanus*

Indian Red Flash *Rapala iarbus*

Indian Pierrot *Tarucus indica*

Gram Blue *Euchrysops cnejus*

© Akram Awan

Forget-me-not *Catochrysops strabo*

© Akram Awan

Oriental Grass Jewel *Freyeria putli*

© Akram Awan

Painted Lady *Vanessa cardui*

© Akram Awan

Jewel Fivering *Ypthima avanta*

© Akram Awan

A view of Dhadhar village, near Khabeki lake, Soon-Sakesar valley

ہمارا قدرتی ورثہ

اکرم اعوان

Chitral Purple Copper *Hyrcanana evansi*
چترالی جامنی شفق

شفق تتلیوں کو یہ اردو نام انکے پنکھوں کے سرخی مائل رنگ کی وجہ سے دیا گیا ہے جو کم و بیش تمام نسلوں میں پایا جاتا ہے۔ پاکستان میں شفقوں کی کل 9 انواع پائی جاتی ہیں۔ انگلش میں انکو "کاپرز" کہا جاتا ہے۔

Chitral Purple Copper *Hyrcanana evansi*

چترالی جامنی شفق 1902 ء میں انڈین میوزیم کلکتہ کے برٹش نگران لیونیل ڈی نائسول نے برٹش آرمی کے (اس وقت کے) لیفٹیننٹ ولیم ہیری ایونز کے دروش (چترال) سے جمع کیے گئے نمونے کی بنیاد پر دریافت کی۔ ولیم ہیری ایونز کے حوالے سے اس تتلی کا سائنسی نام "ایونزی" رکھا گیا ہے۔ ایونز برگیڈئیر کے عہدے سے برٹش آرمی سے ریٹائر ہوئے اور انہوں نے اپنی پوری زندگی تتلیوں کی تحقیق میں وقف کر دی۔ 1932ء میں ایونز کی شہرہ آفاق کتاب "ہندوستانی تتلیوں کی پہچان" کے نام سے شائع ہوئی جو آج بھی اس خطے کی تتلیوں پر ایک مستند کتاب سمجھی جاتی ہے۔

یہ تتلی دنیا بھر میں صرف پاکستان میں چترال کے دونوں اضلاع (بالائی و زیریں) اور گلگت بلتستان کے ضلع غذر میں تیرو کے علاقے میں پائی جاتی ہے۔ اسی وجہ سے اسکو "چترالی جامنی شفق" کہا جاتا ہے۔ چترال میں یہ تتلی تریچ وادی، شیشی کوہ، اتزن، تربن، مداگلاشت، برموگلاشت، سوسوم، چاغبینی اور شندور کے علاقوں میں پائی جاتی ہے۔ اس کی ایک ذیلی نسل جسکو "ہندو کشینسز" کا نام دیا گیا ہے وادی کیلاش میں بمبوریت اور وادی تریچ میں زنی پاس، اتک اور شگروم کے علاقوں سے ملی ہے۔

چترالی جامنی شفق جون سے اگست کے مہینوں میں فعال رہتی ہے اور اپنے علاقوں میں عام ہے۔ اس کا مسکن 2700 سے 3500 میٹر کی بلندی پر واقع ڈھلوانیں اور خشک پتھریلی گھاٹیاں ہیں۔ ذیلی نسل 'ہندو کشینسز ' 4000 میٹر کی بلندی تک ملتی ہے۔

چترالی شفق کے اگلے پنکھ سرخی مائل اور پچھلے پنکھ خاکستری مائل چاندی رنگ کے ہوتے ہیں جن کے اوپر نمایاں سیاہ نقطے اور پچھلے کنارے پر ایک سرخی مائل رنگ کی پٹی موجود ہوتی ہے۔ جب یہ تتلی اپنے پنکھ کھولتی ہے تو اسکے اوپری پنکھوں کا رنگ جامنی مائل بھورا ہوتا ہے جبکہ انکی اندرونی دو تہائی سطح چمکدار جامنی رنگ کی ہوتی ہے۔ ذیلی نسل ' ہندو کشینسز ' نسبتا" ہلکے رنگ کی ہوتی ہے۔ شمالی بلوچستان میں اس سے ملتی جلتی ایک اور تتلی پائی جاتی ہے جس کو 'بلوچی جامنی شفق' کہا جاتا ہے۔ اسکے پچھلے پنکھ پر ایک لمبی دم موجود ہوتی ہے، جبکہ چترالی جامنی شفق بے دم ہوتی ہے۔

پاکستان میں تتلیوں کی 13 انواع دنیا کے کسی اور ملک میں نہیں پائی جاتیں۔ ان انواع کو 'اینڈیمک سپیشز' کہا جاتا ہے۔ چترالی جامنی شفق انہی میں سے ایک نوع (یا نسل یا سپیشز) ہے۔ اینڈیمک سپیشز ہمارا قدرتی ورثہ ہیں۔ ہمیں چاہیے کہ ہم انکی قدر کریں اور انکے تحفظ کو یقینی بنائیں۔


© Akram Awan

Habitat of Chitral Purple Copper *Hyrcanana evansi* (Shagrom valley, Upper Chitral, KP)

Rarity Notes

Significant butterfly sightings in Pakistan from 15th June to 14th September 2024

Editorial Team

- On 22nd June 2024, Common Flash *Rapala nissa* was documented from Nowshera district (KPK) for the first time by Zulfiqar Ali Sanbhal. The westernmost record of this butterfly is from Buner district and it is common in the Himalayas from Margalla hills to Mansehra and AJK.

- The first Branded Meadowbrown *Hyponephele cheena* from Swat was recorded by Azan Karam and Abdur Rehman at Palanchai meadow (Upper Swat) on 26th July 2024. This 'meadowbrown' is represented in Pakistan by 2 subspecies, *iskander* (Chitral to Astor) and *baltistana* (Baltistan).

Common Flash *Rapala nissa*

Branded Meadowbrown *Hyponephele cheena*

- Azan Karam and Abdurrehman recorded 7 individuals of European Red Admiral *Vanessa atalanta* from Palanchai forest (Upper Swat) on 26th July 2024. This is overall 7th national record of this species from Pakistan and 2nd from Swat. The presence of 7 individuals indicates that this butterfly is now established in the area and no longer a rarity.

- Saghir Hassan Khan photographed first Yellow-spotted Angle *Caprona alida* of Abbotabad district from Sherwan on 6th September 2024, which extended its global range about 45km towards Northwest. This 'flat' is uncommon in Pakistan with records only from Fateh Jang (Attock) Margalla hills (Islamabad) and Khanpur (Haripur).

- First Veined Scrub Hopper *Aeromachus stigmatus* of Swat district was recorded at Marghuzar at 6th September 2024 by Azan Karam and Abdur Rehman. This record also is a global range extension record of 102 km west.


© Azan Karam

European Red Admiral *Vanessa atalanta*


© Abdulr Rehman

Veined Scrub Hopper *Aeromachus stigmatus*


© Saghir Hassan Khan

Yellow-spotted Angle *Caprona alida*

- On September 8, 2024, Saghir Hassan Khan captured the second national sighting of the Hill Jezebel *Delias belladonna* at Nathiagali (KPK). This is also the first photographic record in Pakistan. The species was first reported by Roberts in the Murree Hills, without any details of the observer and date/year.


© Saghir Hassan Khan

Hill Jezebel *Delias belladonna*

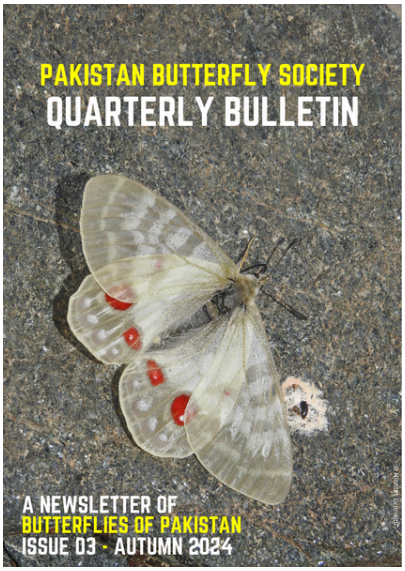
Pakistan Butterflies Society - Quarterly Bulletin (PBSQB)

Guidelines for Submissions

Pakistan Butterfly Society Quarterly Bulletin (PBSQB) is a platform dedicated to celebrating and creating awareness about the rhopalocerous diversity of Pakistan. We invite submissions from all butterfly enthusiasts, entomology students, researchers, nature lovers and writers who wish to share their insights, observations, and experiences related to butterflies and butterfly-watching in Pakistan. Here are some basic guidelines for submitting your work:

1. **Scope:** PBSQB accepts any writing related to butterflies and butterfly-watching in Pakistan.
2. **Language:** We encourage submissions in both English and Urdu to spread our message of butterfly conservation to a wider audience. One write-up in each issue in any of the provincial (or regional) languages may also be included.
3. **Format:** Email submissions to *pakbutterflysociety@gmail.com* with Submission: [Title] in the subject line. Attach your submission as a Word document and send in relevant figures and photographs separately.
4. **Review Process:** Our editorial team will review submissions for quality and adherence to guidelines.
5. **Publication:** Accepted submissions will be featured in PBSQB. Contributors will be credited.
6. **Copyright:** Contributors retain the copyright to their work but permit us to publish it.

BACKGROUND: From Shagrom Valley (Upper Chitral) by Akram Awan



FRONT COVER:

Featuring a rare leucistic Regal Apollo *Parnassius charltonius,* captured by Nicolas Grimaldi at Shandur, Upper Chitral (KP).

BACK COVER:

Featuring Green Copper *Lycaena kasyapa* and Common Copper *L. phlaeas* captured by Akram Awan from Deosai, Astor (GB).

پاکستان بٹر فلائی سوسائٹی کے سہ ماہی جریدے میں تحاریر جمع کرانے کیلئے ہدایات

پاکستان بٹر فلائی سوسائٹی کا سہ ماہی جریدہ پاکستان کی تتلیوں کے بارے میں شعور بیدار کرنے کے لئے وقف ایک پلیٹ فارم ہے۔ ہم تتلیوں سے محبت کرنے والوں، علم حشرات کے طلباء، محققین اور فطرت کے دلدادہ خواتین و حضرات سے درخواست کرتے ہیں کہ وہ پاکستانی تتلیوں سے متعلق اپنے خیالات، مشاہدات، اور تجربات پی بی ایس کے سہ ماہی جریدے کے توسط سے دنیا کے ساتھ شئیر کریں۔ اس جریدے میں تحاریر جمع کرانے کے لئے کچھ بنیادی ہدایات درج ذیل ہیں:

دائرہ کار: اس جریدے میں پاکستان کی تتلیوں سے متعلق ہر قسم کی تحاریر شامل کی جاتی ہیں۔

زبان: پاکستان کی تتلیوں کے تنوع اور تحفظ کے بارے میں شعور و آگاہی وسیع پیمانے پر پہنچانے کے لئے ہمارے جریدے میں اردو اور انگریزی دونوں زبانوں میں تحاریر شامل کی جاتی ہیں۔ گذشتہ اشاعت (گرما 2024) سے ہم نے علاقائی زبانوں میں تحاریر کا سلسلہ بھی شروع کر دیا ہے۔ ہر شمارے میں صوبائی زبانوں میں لکھی صرف ایک تحریر شامل ہو سکتی ہے جو کہ مقامی لوگوں تک ہمارا پیغام پہنچانے میں معاون ثابت ہو گی۔

فارمیٹ: اپنی تحاریر کو مائیکرو سافٹ ورڈ ڈاکومنٹ میں لکھیں اور متعلقہ مواد (تصاویر وغیرہ) علیحدہ فائل کی صورت میں منسلک کر کے مندرجہ ذیل ایڈریس پر ای میل کریں (میل کے سبجیکٹ باکس میں تحریر کا عنوان ضرور لکھیں):
pakbutterflysociety@gmail.com

جائزہ کا عمل: ہماری ادارتی ٹیم موصول شدہ تحاریر کے جائزہ اور ان میں مناسب ترامیم تجویز کرنے کے بعد انکی اشاعت کا فیصلہ کرتی ہے۔

اشاعت: ادارتی ٹیم کی جانب سے قبول شدہ تحاریر سہ ماہی جریدے میں مصنفین کے ناموں کے ہمراہ شائع کی جاتی ہیں اور ان میں شامل کردہ ہر تصویر کیساتھ فوٹوگرافر کا نام بھی دیا جاتا ہے۔

حقوق اشاعت: پی بی ایس کے سہ ماہی جریدے میں شامل شدہ ہر تحریر اور تصویر کے جملہ حقوق اسکے مصنف اور فوٹوگرافر کے پاس رہتے ہیں اور ہم انکی اجازت سے انکو اس جریدے میں شائع کرتے ہیں۔

BACKGROUND: Lesser Bath White *Pontia chloridice* by Akram Awan

© Akram Awan

Dark Hermit *Chazara enervata* from Zani top, Upper Chitral.

New to Butterfly-watching?

Start Here!

Below are some relevant Links for you if you are interested in learning more about the Butterflies of Pakistan and PBS activities:

Facebook:
(Group): https://web.facebook.com/groups/1317184337700946
(Page): https://web.facebook.com/butterfliesofpakistan

Linkedin:
https://www.linkedin.com/company/pakistan-butterfly-society/posts/?feedView=all

Twitter:
https://twitter.com/PakButterflySoc

iNaturalist:
https://www.inaturalist.org/observations?project_id=28750

Email:
pakistanbutterflies@gmail.com
pakbutterflysociety@gmail.com

Website:
Pakistan Butterfly Society: https://pakbutterflysociety.com
Rewilding Indus Library: https://rewildinginduslibrary.org

Pakistan Butterfly Society Quarterly Bulletin Schedule

Spring Issue: 15th March
Summer Issue: 15th June
Monsoon Issue: 15th September
Winter Issue: 15th December

BACKGROUND: From Astor-Rama valley road (GB) by M. Akram Awan

REWILDING INDUS

Rewilding Indus (RI) is a body of like minded individuals concerned with the crippling loss of biodiversity in Pakistan. This young initiative is a collective effort towards making a dent in Wildlife Research and Conservation in Pakistan. This Bulletin has been made possible through RI's technical support.