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OBSERVATIONS ON LYCAENID BUTTERFLIES FROM PANBARI RESERVE FOREST AND ADJOINING AREAS, KAZIRANGA, ASSAM, NORTHEASTERN INDIA

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Abstract: A checklist of 116 taxa of Lycaenidae (Blues) along with notes on important species in low elevation forest of Panbari Reserve, Kaziranga - West Karbi Hills, upper Assam is reported in this paper based on surveys conducted during 2007–2012 and some recent sightings till date. Important sightings include Blue Gem *Poritia erycinoides elsiei*, Square-band Brownie *Miletis nymphys porus*, Plain Plushblue *Flos apidanus ahamus*, Blue Royal *Ancema carmentalis*, Elwes Silverline *Spindasis elwesi*, *Artipe skinneri*, etc.

Keywords: Butterfly diversity, Kaziranga, Lycaenidae, northeastern India, Panbari Reserve.

made to document the Lycaenidae of Kaziranga-Karbi Hills

METHODS Study area

The Panbari Reserve Forest (26°36'N & 93°30'E) is protected under the Kaziranga National Park (KNP) as its fourth addition (Images 1a,b & 2). The average elevation of the forest is around 90m. The altitude however ranges from 70–300 m. The reserve is very close to National Highway 37 (NH37) on the Guwahati-Jorhat route. The reserve falls between Golaghat and Karbi Anglong (KA) districts of Assam. To the north of the reserve lies Dollamora proposed reserve in Karbi Anglong District and on the southern boundary is a human settlement. To its west lies NH47 and grasslands of KNP and to its east lies Karbi Village. Only 7km² of the area is under KNP and the rest is under KA. The reserve is one of the last remaining natural stretches of undisturbed semi-evergreen forest in the area. The northern part, Dollamora, is being degraded to some extent due to human interference.

Sampling of butterflies was carried throughout the year from 2007–2012. Species were identified on the basis of identification keys and photographs from Evans

The Lycaenidae (Blues) butterfly diversity in low elevation forests of Panbari Reserve, Kaziranga - West Karbi Hills, upper Assam is reported in this paper. Karbi Hills constitute a chain of hill ranges lying in middle Assam in the southern bank of the river Brahmaputra. Karbi Hills are totally data deficient as no previous work is known from this area as most of the earlier extensive work has been conducted in its neighbouring hills - Cachar Hills (Wood-Mason and De Niceville 1887), Khasi, Jaintia Hills (Cantlie 1952) and some from Margherita, Sivasagar, Jorhat and Nambor, Assam (Norman 1953). The area lacks altitudinal gradient and hence the diversity is likely to be less here. The area, however, is very rich in skippers (Gogoi 2013). In this study, an attempt has been

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Image 1a. Google map showing location of Panbari Forest in Assam

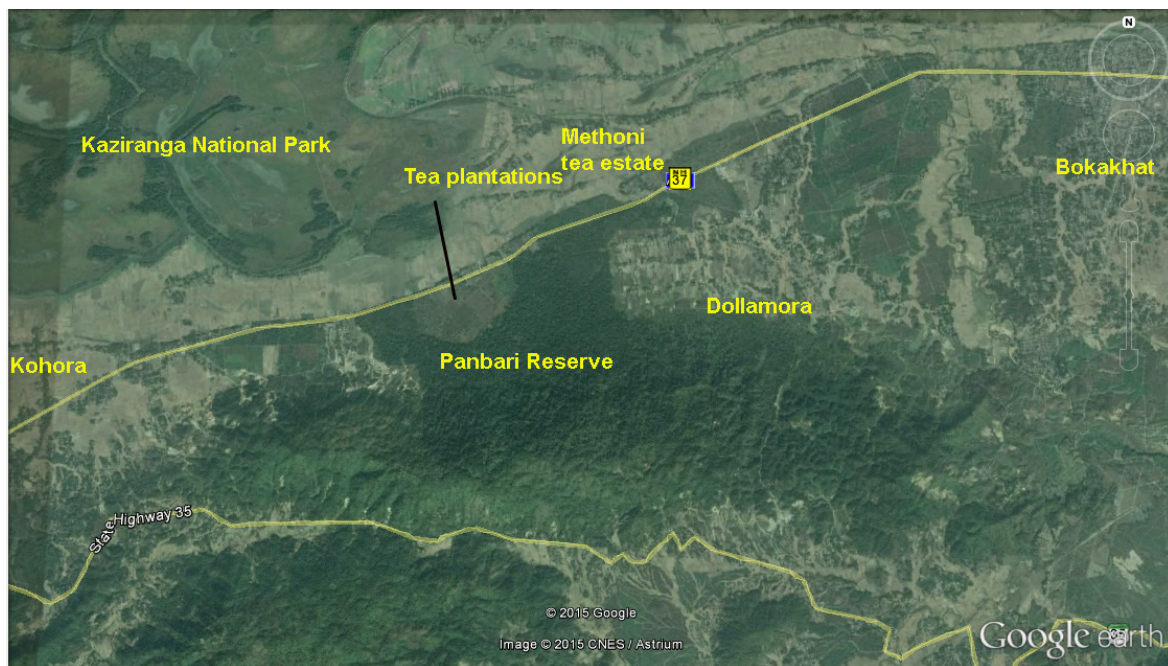


Image 1b. Google map with detail of the study area

(1932), Evans (1957), Haribal (1992), Kehimkar (2008) and a website on butterflies of Indo-China (<http://yutaka.it-n.jp/>).

RESULTS

A total of 116 taxa were recorded in this study

(Table 1). Important sightings include Blue Gem *Poritia erycinoides elsiei* legally protected under Schedule II, Square-band Brownie *Miletis nymphyx porus* (previously Bigg's Brownie *Miletus biggsii*) protected under Schedule I, Malayan Bushblue *Arhopala ammonides* protected under Schedule I, Elwes Silverline *Spindasis elwesi*



Image 2. A forest trail of Panbari Forest, Kaziranga

legally protected under Schedule I, *Artipe skinneri*, Plain Plushblue *Flos apidanus ahamus*, Blue Royal *Ancema carmentalis* De Nicéville, 1892. and many other rare species. Peacock Oakblue *Arhopala horsfieldii* appears to be a new record for India. Females of *Artipe* sp. were always found near the host plant and males near the females and both camouflaged with green leaves. Brief notes on various species recorded in this study are given below.

Subfamily Poritiinae

Blue Gem *Poritia erycinoides elsiei* Evans, 1925: The taxon was recorded on many occasions in tea gardens of Panbari and once photographed on 29 December 2008 (Image 3). Several males and four females were reported in Sebong, Manipur and a single male in Saitu, Manipur Valley by Tytler (1915). The species was reported earlier from Khasi Hills as rare (Cantile 1952). It is a lesser-known species from northeastern India.

Subfamily Miletinae

Common Brownie *Miletus chinensis assamensis* Doherty, 1891: The taxon was seen a few times in Panbari, first photographed in 20 July 2008 (Image 4) and was reported from Dowki, Khasi Hills as rare (Cantile 1952). It is distributed from Sikkim to Arunachal and northeastern India from low to mid-elevations (Kehimkar 2008).

Common Brownie *Miletus boisduvali* Moore, 1857: One specimen was encountered on 24 July 2009 in Panbari forest. This could be a form of *M. chinensis* but can easily be distinguished from *M. chinensis assamensis* in having ground colour being white in place of pale grey. There is a lot of confusion regarding this species,

as *M. assamensis* was previously placed under *Miletus boisduvali*. The species is distributed from Sikkim to northeastern India (Evans 1932).

Squareband Brownie *Miletus nymphis porus* Eliot, 1961: Seen once at Panbari on 09 July 2009 (Image 6). The taxon was confirmed on the basis of a sub-terminal series of black dots and underside pale-brownish grey with a faint pinkish tinge (Swinhoe 1905–1910); reported from Chin Hills and Chin Lushai by Watson, and from Naga and Karen hills by Elwes (Swinhoe 1905–1910). The description of *M. biggsii* in Evans (1932) is of this taxon. *M. biggsii* is protected under schedule I, WL(P) A, 1972 although it actually occurs in Myanmar. *Miletus biggsii* in the Indian Wildlife Protection Act should be changed to *M. nymphis porus*.

Subfamily Lycaeninae

Pointed Pierrot *Tarucus theophrastus indica* Evans, 1932: A common taxon seen in grasslands of Kaziranga and Bokakhat and seen all year round, it shows seasonal variation of wing border and spots of upper side (Images 7–10). It was reported from Baluchistan, Punjab, Kathiawar, Rajputana by Evans (1932) but no report from northeastern India, however, it is common in and around the Brahmaputra River. The taxon was confirmed with Evans (1932), male, since its border of upper side forewing is over 1mm and termen straight towards tornus.

Tarucus sp: Seen twice in Panbari (Images 11, 12). These are possibly *T. callinara* Butler, 1886, female since female of *callinara* has a spotted white disc forewing (Evans 1932). I keep the species doubtful, examination of the male genitalia is needed for identification of the species, due to seasonal and geographic variability (Evans 1932).

White Cerulean *Jamides cleodus pura* Moore, 1886: A male was sighted once at Panbari on 25 November 2010 (Images 13, 14). In the male of the taxon the border of the upper side of the forewing is not dilated at the apex, which differentiates it from the male of the Common Cerulean *Jamides celeno celeno*. Females of both taxa are very similar and were not identified as they need dissection of genitalia. Cantile (1952) reported the taxon from the Sylhet side of Khasi Hills but never from the side facing Assam Valley. Cantile mentions both WSF and DSF of the taxon and the fact that in November the WSF disappears. Evans (1932) mentioned DSF, but the specimen I recorded was in the dry season and did not show any seasonal form, at the same time the Common Cerulean *Jamides celeno celeno* showed seasonal variations (Images 15, 18, 19). I have recorded this taxon

several times in Cachar Hills during winter (Images 16, 17).

Elwes Silverline *Spindasis elwesi* Evans, 1925: Encountered around 5–6 times in PF in an open hill stream on the edge of Panbari Forest, Kaziranga. Two photographs obtained on 15 and 22 May 2008 are probably of WSF (Image 25). Another specimen was encountered on 28 March 2008 in the same area as the previous ones where the background is somewhat creamy khaki, instead of white (Image 26). It was found sitting in a small stream, whereas in the former case it was seen above a bush.

Hill Hedge Blue *Celastrina agriolus sikkima* Moore, 1883: DSF was observed in the month of December (Image 30). The taxon is very like *C. jynteana* but underside markings become obscure in DSF of *sikkima*, whereas DSF markings are clear in *jynteana* (Evans 1932).

White-banded Hedge Blue *Lycaenopsis transpectus* Moore, 1879: The species is very variable in northeastern India, but always has a spot near base 1b (Evans 1932), which is absent in *C. argiolus sikkima* and *jynteana* (Image 31). The male of this species recorded in Panbari were bright, shining blue with a border of 2mm mentioned in Evans (1932), but I found that sometimes the border is narrow in Cachar races (Image 32). In females, the hind wing is white in DSF (Image 33).

Plain Plushblue *Flos apidanus ahamus* Doherty, 1891: Encountered once in PF on 24 October 2010 (Image 36). The species is smaller in size than other Plushblues. The subspecies first described from upper Assam is known from Assam, Chittagong, Bhamo, Karens, Atran, Tavoy, Siam, Sumatra (Evans 1957).

Bifid Plushblue *Flos diardi diardi* Hewitson, 1862: Encountered four times in PF (Image 37). One male twice in the same area and two females were encountered. The taxon was also sighted once from Kohora range in KNP. The subspecies is distributed from Sikkim-Assam-northern Myanmar to Mergui (Evans 1957). The taxon is known from six males and a female and a pair in the low hills between Cherra and Dowki and was rare (Cantile 1952).

Malayan Bushblue *Arhopala ammonides elira* Corbet, 1941: Sighted once in PF. The taxon was sighted a few times in nearby Dollamora PRF (Image 38). One specimen was also encountered by Gaurab Nandi Das (pers. comm. 2012) in Bokakhat Town. I personally encountered the taxon many times in Cachar Hills during February–March 2012–2015 (unpublished data 2015). The Khasi Hills specimens having a white patch in space seven of the underside hind wing by Corbet was given

a new name *A. ammonides elira* instead of *A. ammon ariel* described from Margherita, upper Assam, lacking the white patch (Cantile 1952). It appears that the taxon is restricted to Meghalaya-Karbi-Cachar complex of northeastern India.

Sylhet Oakblue *Arhopala silhetensis* Hewitson, 1862: Two specimens that were encountered were very large in comparison to the specimen encountered in Jeypore Reserve and Cachar Hills (Image 30). However, small specimens were also seen. The species is seen in wing in extreme summer when other *Arhopala* gradually disappear in low elevations. The species was reported from Naga Hills and Sebong, Manipur as rare (Tytler 1915b).

Green Oakblue sp. *Arhopala hellenore hellenore* Doherty, 1889: Seen twice in a hill stream of Panbari on 25 March 2009, this is a rare Oakblue (Image 40). It was, however, reported common at Imphal, Sebong and Cachar road, Manipur (Tytler 1915b). The taxon is reported from Assam, Chittagong, Burma, Cambodia, Siam, Hainan, Java (Evans 1957).

Peacock Oakblue *Arhopala horsfieldii eurysthenes* Fruhstorfer, 1914: The taxon has a green upper side, first sighted in 22 September 2007, and is not rare at Panbari (Image 41). The subspecies is reported from Tenasserim, Karens, Ataran, Mergui, Victoria Point, Peninsular Siam, Langkawai Island (Evans 1957). It appears that the taxon is not reported from India earlier, hence making this the first record for the country.

Vinous Oakblue *Arhopala athada apha* De Nicéville 1895: The taxon was sighted once in Panbari in April 2009, however, it could be seen a few times in the woodlands of Bokakhat Anadapur tea estate and I succeeded in photographing it in July 2009 (Image 42). The subspecies is reported from Martaban of Burma, Assam, Northern Shan States, Ataran, Tavoy, Mergui, Victoria Point, southern Burma (Evans 1957).

Arhopala sp.: This resembles *Arhopala nicevillei* (Bethune-Baker 1903) as in the forewing the discal band is broken or sinuous at v4 (Evans 1957). However, in the specimen, the spot in space 6 is not larger than in 5 for *Arhopala nicevillei* (Evans 1957). Sighted on 12 July 2009.

Arhopala sp.: The taxon is probably *Arhopala zambra zambra* (Swinhoe 1910) as it matches the description of Evans (1957). It was seen once on 02 March 2009 (Image 43). The tornus is very elongated (more than *A. silhetensis*). The size is very large in comparison to other Oakblues.

Spotless Oakblue *Arhopala fulla ignara* Riley & Godfrey, 1921: It was commonly observed in Panbari

from 09 June 2008 to 28 September 2008 and in subsequent years seen from 10 April 2010 (Image 44). The taxon was however treated rare in distribution from Sikkim to Myanmar (Evans 1932).

Silky Oakblue *Arhopala alax* Evans, 1932: The species was seen twice in Panbari, once on 18 June 2008 (Image 45) and again on 29 April 2010. It was seen on both occasions in the starting patches of the forest near NH37. The species has been reported from Manipur, northern Myanmar, Northern Shan States, Southern Shan States, Karens, Ataran and western Siam but not so far from upper Assam. This is the first record of the species in Assam (Evans 1957).

Powdered Oakblue *Arhopala bazalus teesta* de Nicéville, 1886: The taxon was seen more than 10 times at Panbari from 22 May 2009 to 24 July 2009; one female and the rest males (Images 46, 47). The female lacks the powdered glaze of the male. It was not rare (Evans 1932).

Branded Yamfly *Yasoda tripunctata* Hewitson, 1863: The species was sighted first in Panbari in May 2010 (Image 49). I saw the species 30 times after this during April–May. Locally very common in Panbari, however, it was never sighted in 2008 and 2009 and hence, the sudden increase in population was really surprising. The species was rare in Meghalaya, one sighting from Dowki by Cantile in July after a long search by him and one record by Swinhoe from Khasi Hills (Cantile 1952).

Common Onyx *Horaga onyx onyx* Moore, 1857: Seen a few times in winter during 30 December 2007 and 01 January 2008 at Panbari forest, Kaziranga (Image 50). Females are yellower in colour and were recorded in October 2009. Most of the time I encountered males, while a female was recorded only once.

Suffused Flash *Rapala suffusa* Moore, 1878: The species was sighted only once sitting on a leaf in Panbari on 13 July 2009 (Image 51). It was reported as common in Manipur (Tyler 1915b). Its similar to *Rapala tara* but the former is smaller in size and appears to occur in lower elevations than the latter.

Green Flash *Artipe eryx* Linnaeus, 1771: Seen a few times, in Panbari Reserve, both male and female during 08 August 2008 and 20 May 2009, and in Numaligarh Reserve on 21 November 2007 (Images 53, 54). The species is always seen near green leaves and females are always found near the host plant (*Catunaregum* sp. of Rubiaceae). The females were recorded laying eggs on seeds. The species was not uncommon in Manipur Valley (Tytler 1915b). It was very rare in Meghalaya and only one female was reported from Cherra (Cantile 1952).

Cachar Flash *Artipe skinneri* De Nicéville, 1887: One

individual was encountered in Dollamora forest adjoining Panbari on 18 April 2010 (Image 55). The species was reported from Cachar (the type locality) (Wood-Mason & De Niceville 1886) and from Imphal, Manipur (Tytler 1915b). Tytler (1915b) presumed it to be a DSF of *A. eryx* and hence Evans (1932) treated it as a variation of *eryx*. The species, however, was encountered in mid-April and hence cannot be a DSF.

Malayan Red Flash *Rapala damona* Swinhoe, 1890: The species was seen commonly in degraded patches of Panbari on 31 October 2008 (Images 56–58). The species could also be seen sometimes in the villages and town of Bokakhat and degraded patches of Dollamora. One individual was photographed at my home, at Bokakhat on 27 August 2007. Interestingly, the species has not been reported from the northern bank of the Brahmaputra.

Witch *Araotes lapithis* Moore 1857: Not rare in Panbari during May and found locally, common in some locations of Dollamora during November (Image 62). However, the species was treated as rare (Evans 1932). The species was known from a single male at Nichuguard, Naga Hills and another at Sebong, Manipur (Tytler 1915).

Narrow Spark *Sinthusia nasaka amba* Kirby, 1878: Seen many times in Panbari it is not rare in Panbari in some seasons (Image 61). Six males and seven females were collected from western Manipur Hills and from Sebong (Tytler 1915). The species was reported as being very rare in Khasi hills (Cantile 1952). It appears that the species is more common in lower elevations.

Blue Royal *Ancema carmentalis* De Nicéville, 1892: Encountered once at PF on 29 May 2009, the species was described from Khasi Hills (Image 64). Earlier placed under *A. icetoides* (Karens, southern Burma) it occurs in Assam and was not rare (Evans 1932).

Subfamily Curetinae

Burmese Sunbeam *Curetis saronis gloriosa* Moore, 1883: One individual was seen in the Kohora range of Kaziranga in April 17, 2008 and a female in September 2009 (Images 67, 68). The taxon was reported from the plains below Cherra and Dowki, Meghalaya and Nowgong Town, Central Assam (Cantile 1952). It was also reported from Cachar (Wood-Mason & De Niceville 1886). The species is also reported from Tongla, western Assam (D. Moholia pers. comm. 2010).

DISCUSSION AND CONCLUSION

Forested areas in the lower elevations of upper Assam especially western Karbi Hills are undergoing

Table 1. A preliminary checklist of Lycaenidae recorded in Panbari forest of Kaziranga and neighbouring areas of Karbi Hills (2008–2012)

	Common name	Scientific name	WLPA 1972	Comments
1	Blue Gem	<i>Poritia erycinoides elsiei</i> Evans, 1925	Schedule II	Seen in tea gardens of Panbari
2	Common Gem	<i>Poritia hewitsoni</i> Moore, 1865	Schedule II	Seen in Panbari
3	Common Brownie	<i>Miletus chinensis assamensis</i> Doherty, 1891		Seen few times trails by the forest edges
4	Common Brownie	<i>Miletus boisduvali</i> Moore, 1857		Seen a few times at Panbari
5	Square-band Brownie	<i>Miletus nymphis</i> Fruhstorfer, 1913	Schedule I	Seen once in a trail by forest edge
6	Elbowed Pierrot	<i>Pycnophallium elna</i> Hewitson, 1876		Seen commonly in hill streams
7	Banded-blue Pierrot	<i>Discolampa ethion</i> Westwood, 1851		Seen only once
8	Common Pierrot	<i>Castalius rosimon</i> Fabricius, 1775		Abundant everywhere
9	Pointed Pierrot	<i>Tarucus theophrastus indica</i> Evans, 1932		Seen in degraded and open areas
10	Spotted Pierrot	<i>Tarucus callinara</i> Butler, 1886 ?		Seen a few times in the open spaces of foothills. The identity of the species is doubtful and the genitalia needed to be examined.
11	Zebra Blue	<i>Leptotes plinius</i> Fabricius, 1793		Common species
12	Forest Quaker	<i>Pithecopis hylax</i> Horsfield, 1828		Seen many times inside Panbari
13	Forest Quaker	<i>Pithecopis corvus</i> Fruhstorfer, 1919		Seen many times inside Panbari
14	Quaker	<i>Neopithecopis zalmora</i> Butler, 1870		Very often seen mud-puddling in damp patches
15	Malayan	<i>Megisba malaya</i> Horsfield, 1828		Common in panbari, seen very often in streams
16	Common Hedge Blue	<i>Acytolepis puspa</i> Horsfield, 1828		Seen everywhere
17	White-banded Hedge Blue	<i>Lycaenopsis transpectus</i> Moore, 1879		Seen in winter
18	Plain Hedge blue	<i>Celastrina lavendularis limbata</i> Moore, 1879		Seen in summer, winter
19	Pale Hedge Blue	<i>Udara dilecta</i> Moore, 1879		Seen in winter
20	Hill Hedge Blue	<i>Celasteina argiolus sikkima</i> Moore, 1883		DSF observed in winter
21	Lime Blue	<i>Chilades laius</i> Cramer, 1782		Seen everywhere
22	Pale Grass Blue	<i>Pseudozizeeria maha</i> Kollar, 1848		Seen everywhere
23	Lesser Grass Blue	<i>Zizeeria otis</i> Fabricius, 1787		Seen everywhere
24	Dark Grass Blue	<i>Zizeeria karsandra</i> Moore, 1865		Common everywhere
25	Indian Cupid	<i>Everes lacturnus assamica</i> Tytler, 1915		Seen once by Gaurab Nandi Das in Bokakhat
26	Gram Blue	<i>Euchrysops cnejus</i> Fabricius, 1798		Common in Kaziranga
27	Ciliate Blue	<i>Anthene emolus</i> Godart, 1823		Very often seen forest edges
28	Pointed Ciliate Blue	<i>Anthene lycaenina</i> C. Felder, 1868	Schedule II	Seen commonly at forest edges
29	Forget me not	<i>Catachrysops strabo</i> Fabricius, 1793		Seen in open spaces by forest
30	Silver Forgetmenot	<i>Catachrysops lithargyria</i> Doherty, 1891		Uncommon in Panbari
31	Peablue	<i>Lampides boeticus</i> Linnaeus, 1767	Schedule II	Seen in open places and degraded areas in winter
32	Glistening Cerulean	<i>Jamides elpis</i> Godart, 1824		Common
33	Dark Cerulean	<i>Lampides bochus</i> Cramer, 1782		Seen in human habitats too
34	Common Cerulean	<i>Jamides celeno</i> Cramer, 1775		Common
35	White Cerulean	<i>Jamides cleodus pura</i> Moore, 1886	Schedule II	Seen twice in the hill streams of Panbari
36	Metallic Cerulean	<i>Jamides alecto</i> Felder, 1860		Common
37	Royal Cerulean	<i>Jamides caerulea</i> Druce, 1873		Rare, seen at Panbari
38	Large 4 Lineblue	<i>Nacaduba pactolus continentalis</i> Fruhstorfer, 1916	Schedule II	Not rare
39	Pale Four-line Blue	<i>Nacaduba hermus</i> Felder, 1860	Schedule II	Seen many times
40	Violet 4 Lineblue	<i>Nacaduba pavana vajuva</i> Fruhstorfer, 1916		Seen a few times
41	Small 4 Lineblue	<i>Nacaduba pavana pavana</i> Horsfield, 1828		Seen a few times
42	Pointed Lineblue	<i>Ionolyce helicon merguiana</i> Moore, 1884	Schedule II	Seen few times

	Common name	Scientific name	WLPA 1972	Comments
43	Transparent Six-line Blue	<i>Nacaduba kurava</i> Moore, 1857		Common in some patches
44	Opague 6 Lineblue	<i>Nacaduba beroe gythion</i> Fruhstorfer, 1916		Seen in woodlands of Bokakhat
45	Common Lineblue	<i>Prosotas nora ardates</i> Moore, 1874		Common
46	Banded Lineblue	<i>Prosotas lutea</i> Martin, 1895		Rare
47	Tailless Lineblue	<i>Prosotas dubiosa indica</i> Evans, 1925		Common
48	Dingy Lineblue	<i>Petrelaea dana</i> de Nicéville, 1883		Common
49	Purple Sapphire	<i>Heliophorus epicles indicus</i> Fruhstorfer, 1908		Common
50	Angled Sunbeam	<i>Curetis dentata dentata</i> Moore, 1879		Common
51	Bright Sunbeam	<i>Curetis bulis</i> Westwood, 1851		One seen at Panbari
52	Burmese Sunbeam	<i>Curetis saronis gloriosa</i> Moore, 1883		One seen at Kohora
53	Silverstreak Blue	<i>Iraota timoleon</i> Stoll, 1790		One seen at Bokakhat
54	Sylhet Oakble	<i>Arhopala silhetensis</i> Hewitson, 1862	Schedule II	Seen few times
55	Zambra Oakblue	<i>Arhopala zambra zambra</i> Swinhoe 1910?		Seen once at Panbari
56	Indian Oakblue	<i>Arhopala atrax</i> Hewitson, 1862		Seen many times in winter
57	Silky Oakblue	<i>Arhopala alax</i> Evans, 1932		Seen in the starting forest patches of Panbari
58	Vinous Oakblue	<i>Arhopala athada apha</i> De Nicéville, 1895		Seen at Bokakhat, Panbari
59	Large-spotted Oakblue	<i>Arhopala nicevillei</i> Bethune-Baker, 1903?		Seen once in a hill stream of Panbari
60	Powdered Oakblue	<i>Arhopala bazalus teesta</i> De Niceville, 1886		Seen more than 10 times at Panbari
61	Tamil Oakblue	<i>Arhopala bazaloides</i> Hewitson, 1878	Schedule II	One seen by Bitupon Das in Kohora (pers. Comm. 2012)
62	Green Oakblue	<i>Arhopala eumolphus</i> Cramer, 1782		Seen at Panbari
63	Peacock Oakblue	<i>Arhopala horsfieldi eurysthenes</i> Fruhstorfer, 1914		Seen at Panbari
64	Green Oakblue	<i>Arhopala hellenore</i> Doherty, 1889		Seen a few times in the hill streams of Panbari
65	Centaur Oakblue	<i>Arhopala centaurus pirthous</i> Moore, 1883		Most common Oakblue species, also seen in woodlands of Bokakhat
66	Spotless Oakblue	<i>Arhopala fulla ignara</i> Riley & Godfrey, 1921	Schedule II	Common in Panbari
67	Yellowdisc Tailless Oakblue	<i>Arhopala perimuta</i> Moore, 1857		Common in Panbari, Dollamora
68	Hooked Oakblue	<i>Arhopala paramuta</i> de Nicéville, 1883		Not rare
69	Malayan Bushblue	<i>Arhopala ammonides elira</i> Corbet, 1941	Schedule I	Seen at Panbari, Dollamora
70	Aberrant Oakblue	<i>Arhopala abseus indicus</i> Riley, 1923		Seen once at Panbari
71	Bifid Pushblue	<i>Flos diardi diardi</i> Hewitson, 1862		Seen few times at Panbari, also seen by Bitupon Borua at Kohora
72	Plain Plushblue	<i>Flos apidanus ahamus</i> Doherty, 1891		Seen once at Panbari
73	Common Acacia Blue	<i>Surendra quercetorum</i> Moore, 1857		Common
74	Yamfly	<i>Loxura atymnus</i> Cramer, 1782		Common
75	Branded Yamfly	<i>Yasoda tripunctata</i> Hewitson, 1863	Schedule II	Common
76	Scarse-shot Silverline	<i>Aphnaeus elima</i> Moore, 1877		Seen at tea gardens of Panbari
77	Elwes' Silverline	<i>Spindasis elwesi</i> Evans, 1925	Schedule I	Seen few times at Panbari
78	Long-banded Silverline	<i>Aphnaeus lohita himalayanus</i> Moore, 1884	Schedule II	Not rare ,seen everywhere
79	Club Silverline	<i>Aphnaeus syama</i> Horsfield, 1829		Seen at Dollamora
80	Double-tufted Royal	<i>Dacalana vidura pencilligera</i> De Nicéville, 1890		Seen once at Dollamora
81	White-banded Royal	<i>Dacalana cotys</i> Hewitson, 1865		Seen a few times by Bitupon Borua near Kohora
82	Blue Royal	<i>Ancema carmentalis</i> De Nicéville, 1892		Seen only once at Panbari
83	Silver Royal	<i>Ancema blanka</i> de Nicéville, 1885	Schedule II	Seen in Numaligarh by me and in Kohora by Bitupon Borua
84	Broadtail Royal	<i>Creon cleobis</i> Godart, 1824		Sighted by Bitupon Borua at Kohora
85	Banded Royal	<i>Rachana jalindra indra</i> Moore, 1883	Schedule II	Sighted in woodlands of Bokakhat and Panbari

	Common name	Scientific name	WLPA 1972	Comments
86	Mandarin Blue	<i>Charana mandarinus</i> Hewitson, 1863		Sighted in woodlands of Bokakhat
87	Common Imperial	<i>Cheritra freja</i> Fabricius, 1793		Seen in the hill streams of Panbari
88	Blue Imperial	<i>Ticherra acte</i> Moore, 1857		Seen in the hill streams of Panbari
89	Common Onyx	<i>Horaga onyx onyx</i> Moore, 1857	Schedule II	Male seen twice in winter at Panbari and a female seen once
90	Common Tinsel	<i>Catapoecilma elegans</i> Druce, 1873		One seen in Panbari
91	Orchid Tit	<i>Chliaria othona</i> Hewitson, 1865	Schedule I	Common in the streams
92	Common Tit	<i>Hypolycaena erylus</i> Godart, 1823		Found everywhere
93	Fluffy Tit	<i>Zeltus etolus</i> Fabricius, 1787		Seen many times in Panbari
94	Green Flash	<i>Artipe eryx</i> Linnaeus, 1771	Schedule II	Seen a few times at Panbari and once at Numaligarh
95	Cachar Flash	<i>Artipe skinneri</i> De Nicéville, 1887		Seen once at Dollamora
96	Cornelians	<i>Deudorix epijarbas amatius</i> Fruhstorfer, 1912		Not rare in Panbari
97	Indigo Flash	<i>Rapala varuna orseis</i> Hewitson, 1863	Schedule II	Seen many times at Panbari
98	Common Guava Blue	<i>Virachola isocrates</i> Fabricius, 1793		Seen once by Gaurab Nandi Das from Bokakhat
99	Large Guava Blue	<i>Virachola perse perse</i> Hewitson, 1863		Seen once at Panbari in winter in forest edge
100	Malayan Red Flash	<i>Rapala damona</i> Swinhoe, 1890		Common at Panbari, Dollmaora and Bokakhat in degraded patches
101	Suffused Flash	<i>Rapala suffusa</i> Moore, 1878		Seen once at Panbari
102	Brilliant Flash	<i>Rapala rhoecus</i> de Nicéville, 1895		Common
103	Scarse Slate Flash	<i>Rapala scintilla</i> de Nicéville, 1890	Schedule II	Common
104	Slate Flash	<i>Rapala manea schistacea</i> Moore, 1879		Common
105	Copper Flash	<i>Vadebra pheritimus petosiris</i> Hewitson, 1863		Common
106	Scarlet Flash	<i>Rapala dienece</i> Hewitson, 1878		Not rare in Panbari
107	Narrow Spark	<i>Sinthusa nasaka amba</i> Kirby, 1878	Schedule II	Common
107	Broad Spark	<i>Sinthusa chandara grotei</i> Moore, 1884		Seen a few times at Dollamora
107	Plane	<i>Bindahara phocides</i> Fabricius, 1793	Schedule II	Not rare in Panbari
110	Witch	<i>Araotes lapithis</i> Moore, 1857	Schedule II	Seen few times at Panbari, commonly seen in a patch of Dollamora.
111	Apefly	<i>Spalgis epius</i> Westwood, 1851		Not rare, also occurs in out side forest
112	Great Darkie	<i>Allotinus drumila</i> Moore, 1865		The identity of th species is not confirmed as the specimen was quite worn out. Could also be a <i>Logania distanti</i> . One sighted by Raju Kasambe in December 2015.
113	Punchinello	<i>Zemerus flegyas indicus</i> Fruhstorfer, 1898		Common
114	Plum Judy	<i>Abisara echerius prunosa</i> Moore, 1897		Common
115	Double-banded Judy	<i>Abisara bifasciata suffusa</i> Moore, 1882		One seen on Panbari by Bitupon Borua
116	Tailed Judy	<i>Abisara neophron</i> Hewitson, 1860		Seen in Dollamora and Kohora

rapid deforestation. Panbari Reserve is one of the last remaining natural forest tracts left in the area, protected under KNP. There is not much woodland left in the area and the species reported in the area shows the importance of woodlands in an area where conservation priority is given to the protection of mega fauna that exists in the grasslands of KNP. There should have been more emphasis on the conservation of woodlands in the area but unfortunately the area has

lost most of the woodlands within a span of 60 years or so. Even now there are places like the Dollamora proposed Reserve Forest, which should have been upgraded to Reserve Forest for better protection, but no step has been taken till date to save the area and as a result continuous exploitation of the forest for fuel wood continues unabated. Sighting of extremely rare *Artipe skinneri* from unprotected Dollamora shows the importance of the area. But, unfortunately conservation



Image 3. Blue Gem *Poritia erycinoides elsiei*



Image 4. Common Brownie *Miletus chinensis assamensis*



Image 5. Common Brownie *Miletus boisduvali??*



Image 6. Squareband Brownie *Miletus nymphis porus*



Image 7. Pointed Pierrot *Tarucus theophrastus indica*, male



Image 8. Pointed Pierrot *Tarucus theophrastus indica*, male



Image 9. Pointed Pierrot *Tarucus theophrastus indica*, female



Image 10. Pointed Pierrot *Tarucus theophrastus indica*, female



Image 11. *Tarucus* sp.



Image 12. *Tarucus* sp.



Image 13. White Cerulean *Jamides cleodus pura* (Kaziranga)



Image 14. White Cerulean *Jamides cleodus pura* (Kaziranga) upperside



Image 15. Common Cerulean, *Jamides celeno* (Kaziranga)



Image 16. White Cerulean, *Jamides celodus pura* (Cachar Hills)



Image 17. White Cerulean *Jamides cleodus pura* (Cachar Hills)



Image 18. Common Cerulean *Jamides celeno* (Cachar Hills)



Image 19. Common Cerulean *Jamides celeno* (Cachar Hills)



Image 20. Common Cerulean *Jamides celeno* (Kaziranga) female



Image 21. Common Cerulean *Jamides celeno* (Kaziranga) female

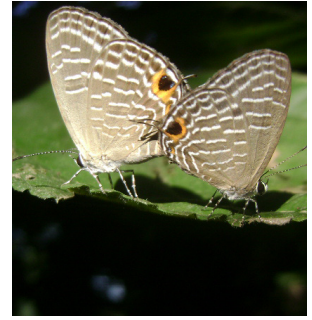


Image 22. Metallic Cerulean *Jamides alecto*



Image 23. Royal Cerulean *Jamides caerulea*



Image 24. Glistening Cerulean *Lampides kankena*



Image 25. Elwes Silverline *Spindasis elwesi*



Image 26. Elwes Silverline *Spindasis elwesi*



Image 27. Scarce Shot Silverline *Aphnaeus elima*



Image 28. Long-banded Silverline *Aphnaeus lohita himalayanus*



Image 29. Club Silverline, *Aphnaeus syama*



Image 30. Hill Hedge Blue *Celastrina agriolus sikkima*



Image 30. Hill Hedge Blue *Celastrina agriolus sikkima*



Image 32. White-banded Hedge Blue *Lycaenopsis transpectus*, male



Image 33. White-banded Hedge Blue *Lycaenopsis transpectus*, female



Image 34. Plain Hedge Blue *Celastrina lavendularis limbata*



Image 35. Yellow-disc Tailless Oakblue *Arhopala perimuta*



Image 36. Plain Plushblue *Flos apidanus ahamus*



Image 37. Bifid Plushblue *Flos diardi diardi*



Image 38. Malayan Bushblue *Arhopala ammonides elira*



Image 39. Sylhet Oakblue *Arhopala silhetensis*



Image 40. Green Oakblue sp. *Arhopala hellenore hellenore*



Image 41. Peacock Oakblue *Arhopala horsfieldii eurysthenes*



Image 42. Vinous Oakblue *Arhopala athada apha*



Image 43. *Arhopala* sp.



Image 44. Spotless Oakblue *Arhopala fulla ignara*



Image 45. Silky Oakblue *Arhopala alax*



Image 46. Powdered Oakblue *Arhopala bazalus teesta*, male



Image 47. Powdered Oakblue *Arhopala bazalus teesta*, female



Image 48. Hooked Oakblue *Arhopala paramuta*



Image 49. Branded Yamfly *Yasoda tripunctata*



Image 50. Common Onyx *Horaga onyx onyx*



Image 51. Suffused Flash
Rapala suffusa



Image 52. Scarlet Flash
Rapala dienece



Image 53. Green Flash
Artipe eryx, female



Image 54. Green Flash
Artipe eryx, male



Image 55. Cachar Flash *Artipe skinneri*



Image 56. Malayan Red Flash
Rapala damona, male



Image 57. Malayan Red Flash
Rapala damona, male, UP



Image 58. Malayan Red Flash
Rapala damona, female



Image 59. Indigo Flash
Rapala varuna orseis



Image 60. Indigo Flash
Rapala varuna orseis



Image 61. Narrow Spark
Sinthusa nasaka amba



Image 62. Witch *Araotes lapithis*



Image 63. Double tufted Royal
Dacalana vidura pencilligera



Image 64. Blue Royal *Ancema carmentalis*



Image 65. Mandarin Blue
Charana mandarinus



Image 66. Banded Royal
Charana jalindra indra

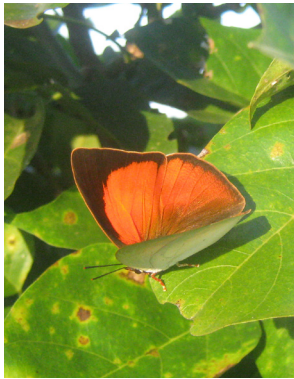


Image 67. Burmese Sunbeam
Curetis saronis gloriosa, male



Image 68. Burmese Sunbeam
Curetis saronis gloriosa, female



Image 69. Blue Imperial *Ticherra acte*



Image 70. Plane *Bindahara phocides*



Image 71. Plum Judy *Abisara echerius prunosa*



Image 72. Tailed Judy *Abisara neophron*



Image 73. Large Guava Blue
Virachola perse perse

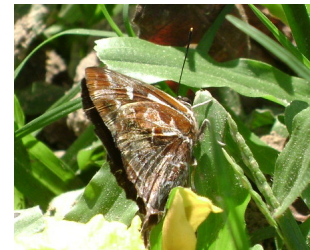


Image 74. Silverstreak Blue
Iraota timoleon



Image 75. Cornelian *Deudorix epijarbas amatius*



Image 76. Broad Spark
Sinthusa chandara grotei

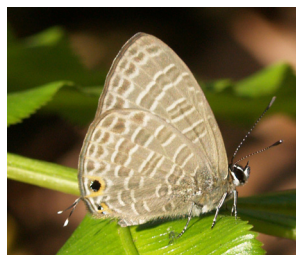


Image 77. Transparent 6 Lineblue
Nacaduba kurava



Image 78. Opaque 6 Lineblue
Nacaduba beroe gythion

priority of woodland has been neglected in Kaziranga-Karbi Anglong Landscape and hence only a very small fragment of forest still remains natural.

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