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A REVIEW OF WEST HIMALAYAN NEPTINI (NYMPHALIDAE)

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ABSTRACT. Neptini reliably recorded from the Western Himalaya are listed. A new subspecies, *Neptis clinia praedicta* ssp. n. and two new combinations, *Neptis nata yerburii* Butler comb. n. and *Neptis capnodes pandoces* Eliot comb. n., are proposed, *Neptis capnodes* Fruhstorfer is raised to species rank and the distribution of several subspecies is extended.

Additional key words: *Neptis*, palatability, *Neptis clinia praedicta* ssp. n., *Neptis nata yerburii* Butler comb. n., *Neptis capnodes capnodes* Fruhstorfer **stat. n**.; *Neptis capnodes pandoces* Eliot **comb. n.**

Progressing from east to west, the Himalayan range west of Nepal is divided into the Kumaon Himalaya with Nainital as the principal town; the Garhwal Himalaya, with Mussoorie and Dehra Dun as the principal towns; Himachal Pradesh with Shimla and Kulu as the principal towns; Kashmir, with Jammu the principal town in the outer ranges, and the Pakistan Himalaya, with the hill station of Murree. This area is known as the Western Himalaya (fig. 3).

On a north to south axis, the Himalayan range can be divided into three parallel ranges, the foothills or Siwaliks rising in parts to nearly 3000 m elevation; the middle ranges, rising to a maximum of a little over 3000 m elevation in parts of Garhwal, and the main range, comprising forested hills and snow covered mountains rising to over 7000 m elevation.

Eliot (1969) reviewed the Asian Neptini, based mainly on material in the collection of the Natural History Museum, London. However, there was apparently little material from the Himalaya west of Nepal available to him at the time. Consequently, the distribution and taxonomy of some taxa were not satisfactorily established.

All the Neptini known from the western Himalaya are found in the foothills and some also occur in the main range. None have so far been recorded from the trans-Himalayan areas of Ladakh, Lahoul and Spiti.

Eastern and western Himalayan populations of several butterfly species have been divided into subspecies based on the shade of pigments and the extent of pale area on the wings. In the Neptini, where the wings have a pattern of pale and dark bands, the western Himalayan populations often have broader pale bands than their eastern Himalayan counterparts (Eliot 1969).

The present paper is the result of fieldwork in various parts of the Himalaya during the past quarter century as well as observations of earlier workers.

Two species, *Neptis manasa* Moore and *Neptis jumbah* Moore have been excluded, although they have been reported from the Kumaon Himalaya by Atkinson (1882). There are no extant specimens of either species from this area. However, some typically Eastern Himalayan butterfly species that had been reported by earlier workers but were not recorded for most of the 20th century have re-appeared during the last two decades. *Talicada nyseus* Guérin-Menéville (Lycaenidae) was originally reported by Atkinson (1882) and has recently been recorded by Singh (2005a) from Dehra Dun and has been quite common in Kumaon for the past seven years. *Delias acalis* Godart, which was originally reported from the western Himalaya by Evans (1932), was recently confirmed from the Kumaon Himalaya by Smetacek (2001). A few species appear to have extended their ranges westward recently, such as the lycaenids *Rapala pheretima* Hewitson (Smetacek 1995) and *Zesius chrysomallus* Hübner (Singh 2005b). Therefore, it is possible that the two Neptini mentioned above will appear in the eastern part of the study area in the years to come.

All the Neptini recorded occur in broadleaf evergreen forests. Above 1200 m elevation, such forests comprise mostly Himalayan Oak (*Quercus leucotrichophora; Q. glauca; Q. floribunda*) forests while below 600 m, the forests containing Neptini are dominated by Sal (*Shorea robusta*) trees. In between there is a belt of miscellaneous deciduous forest, which does not support many Neptini.

Within the forests of oak, there are altitudinal divisions, so that species such as *Neptis narayana* Moore and *Neptis mahendra* Moore do not occur below 1700 m, although most of the plant species do so.

Almost all *Neptis* species are frequent visitors to damp mud on hot days and some, such as *Neptis zaida* Westwood, have been most often recorded there. Only *N. mahendra* has not been reported puddling. Flowers

are not frequently visited, although *Buddleia* and Lantana flowers as well as Asteraceae, such as marigolds, are visited. *N. narayana, N. ananta* Moore and *N. sankara* Kollar occasionally visit horse chestnut (*Aesculus indica*) blossoms. Honey dew on citrus is a potent attractant, with tens of *N. soma* Moore, *N. nata* Moore and *N. clinia* Moore fluttering about an affected tree.

Within the forest, different species have a preferred height at which they are most often found: *N. sankara* and *N. ananta*, if not descending to puddle, frequent the tree tops; *N. zaida* is usually found near the ground in glades, while *N. narayana* also frequents the tree tops, provided the trees are not very high. *Neptis sappho* Pallas, *N. hylas* Linnaeus and *N. soma* are found lower, usually up to 5 m above the ground. *N. clinia* descends readily to water, but in the forest frequents tree tops, as does *N. nata*. Similar vertical stratification of flight has been reported in some neotropical ithomiines (Medina et al. 1996; Papageogorgis 1975).

Males of *N. sankara*, *N. narayana*, *N. ananta*, *N. sappho*, *N. nata*, *N. clinia* and *N. soma* are occasionally territorial, especially at the edge of glades, where they will occupy a prominent perch and make sallies to investigate passing butterflies.

MATERIALS AND METHODS

Most parts of the Kumaon Himalaya were visited during the past 25 years. Consultation with the late Lt. Col. J.N. Eliot established the taxonomic revisions proposed in the systematic section, while Mr. Philip Ackery at the Natural History Museum, London (BMNH) kindly compared some of the present material with type material in the collection there. In addition, I examined the Neptini in the main and subsidiary collections of the University Museum, Oxford, U.K. as well as in the Forest Research Institute, Dehra Dun, India.

Genitalia of male specimens of *N. nata*; *N. soma* and *N. clinia* were examined by soaking the tip of the abdomen in 10% KOH overnight, separating the soft tissue and examining the valvae under a low power microscope. Subsequently, the genitalia were mounted on card papers under a drop of Canada Balsam and allowed to dry for a few months. Then these cards were pinned under their specimens. Alternatively, the genitalia of fresh specimens were extruded by pressing the penultimate abdominal segments with a pincer and the valvae examined using a 10x lens.

Palatability. Wynter-Blyth (1957) asserted that there was a Batesian mimicry relationship between *Athyma opalina* Kollar, the model and *Apatura* (*Mimathyma*) *chevana* (Moore), the mimic. In order to test this, over a period of three years at my address above, 10 specimens of *Neptis sappho astola* Moore, 20 specimens of *N. soma butleri* Eliot; 6 *N. hylas kamarupa* Moore; 6 *Pantoporia sandaka* (Butler); 10 each of *Athyma opalina, A. perius* (Linnaeus) and *A. cama* (Moore) were offered to wild, free ranging insectivorous birds (mainly family parties of White Crested and White Throated Laughing Thrushes). All except *N. hylas* were eagerly devoured. In the case of *hylas*, the tests were inconclusive and require further work. It is abundantly clear, however, that if either *A. opalina* or *N. soma* or both are deriving some advantage out of occurring together and looking and behaving similarly, the relationship is neither Batesian nor Müllerian. The same may be said for the relationship between *A. opalina* and *Apatura* (*Mimathyma*) *chevana*, since one may presume that the latter is palatable to predators. It might be a case of Self Detractive Mimicry (Smetacek 1987).

SYSTEMATIC SECTION

In the following account, the species appear in the same order as in Eliot (1969). Butterfly collections containing West Himalayan Neptini have been abbreviated as follows:

Coll. A.P. Singh: Dr. Arun Pratap Singh, Forest Research Institute, Dehra Dun, Uttarakhand, India.
Coll. BMNH: The Natural History Museum, London, U.K.
Coll. OUM: University Museum, Parks Road, Oxford, U.K.
Coll. FRI: Forest Research Institute, Dehra Dun, Uttarakhand, India.
Coll. Smetacek: Peter Smetacek, The Retreat, Jones Estate, Bhimtal, Nainital, Uttarakhand, India.

Pantoporia hordonia hordonia (Stoll)

Papilio hordonia Stoll, 1790:149, pl 33, figs. 4, 4D.
Pantoporia hordonia (Stoll); Eliot, 1969: 33.

Distribution: Dehra Dun eastwards along the foothills and on the adjoining plains, to Burma, Malaya and Vietnam. Peninsular Indian specimens appear to be intermediate between this and the Sri Lankan ssp. *sinuata* (Moore).

Remarks: Reported by Atkinson (1882) and all subsequent authors (Mackinnon & de Niceville (1899); Hannyngton (1910); Evans (1932); Peile (1937); Wynter Blyth (1957.)) from the Kumaon and Garhwal Himalaya but not by Eliot (1969).

This and the next species, *Pantoporia sandaka*, occur sympatrically in India. *P. hordonia* is not as common as *sandaka* in Kumaon. Both species are common in

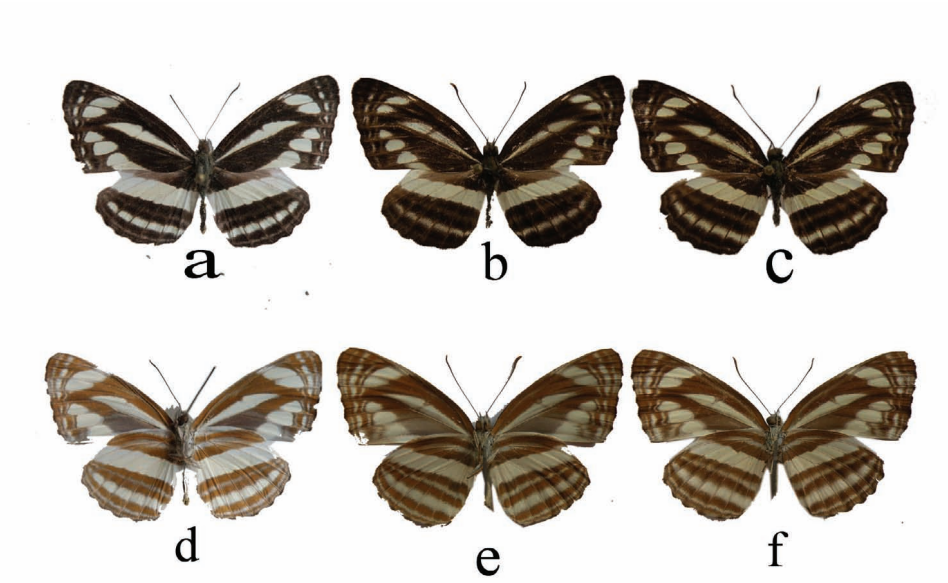

FIG. 1. **a**) *Neptis clinia praedicta* holotype Dry Season Form recto. **b**) *Neptis clinia praedicta* Wet Season Form recto. **c**) *Neptis nata yerburii* recto. **d**) *Neptis clinia praedicta* holotype Dry Season Form verso. **e**) *Neptis clinia praedicta* Wet Season Form verso. **f**) *Neptis nata yerburii* verso.

evergreen forest at the foot of the hills and on the adjoining plains. Both are less common at 1500 m, a few stragglers ascending to 2200 m in the outermost range.

There are specimens in the Coll. FRI from Dehra Dun (Roonwal et al. 1963).

Both species are on the wing from March to June and again from September to November.

FIG. 2. A female *Neptis mahendra* ovipositing on *Pyracantha crenulata*.

*Pantoporia sandaka davidson*i Eliot
Pantoporia sandaka davidsoni Eliot 1969: 35.

Distribution India, Burma, Siam and Hainan.

Remarks: More common than *P. hordonia* at low elevation in Kumaon. There are specimens from Dehra Dun in Coll. A.P. Singh. See under *P. hordonia*.

Neptis clinia praedicta ssp. n.
(Fig. 1a, b, d. e)

Material examined: Holotype: Male: Jones Estate, Bhimtal, Nainital, Kumaon, India. 1500 m; 8.iv.2007; Leg. P. Smetacek. Deposited in the Indian National Forest Insect Collection, Forest Research Institute, Dehra Dun, India. Accession number: NFIC-FRI 21811. Paratypes: 126 specimens taken from March to June and October and November 1986 to 2008 in Bhujiaghat, Nainital district, Kumaon, India 600 m and Jones Estate, Bhimtal, Nainital, Kumaon, India 1500 m, all Leg. P. Smetacek; all in Coll. Smetacek.

Diagnosis: (the following terminology follows Eliot 1969, Text fig. 1, p. 16): In both seasonal forms, the white bands, particularly the discal band on the hindwing, are 15% to 20% wider than in the corresponding seasonal forms of *N. clinia susruta* Moore. While the narrow banded Wet Season Form of *praedicta* has white bands that would fall within the range of variation of Dry Season Form *susruta*, the Dry Season Form of ssp. *praedicta* has perhaps the widest white bands of any known population of *N. clinia*.

Description: Forewing length: 18–29 mm. Expanse: 48 mm. Dry Season Form: Head, thorax and abdomen unmarked fuscous, iridescent under artificial light; antennae with tip of nudum brown. *Recto* surface of wings with ground colour black. Forewing cell streak clear white, discocellular bar faint, streak beyond cell wider than cell streak at discocellular bar; upper postdiscal band consists of 4 spots, the 2 costal spots reduced to small streaks; lower postdiscal band complete; postdiscal fascia obscure; submarginal series on an

even arc; submarginal fascia obscure; cilia chequered black and white. Hindwing with broad discal band of even width; discal fascia obscure, postdiscal band with spot in space 6 obscure; submarginal fascia faintly marked. Outer margin crenulate, the cilia darker along the convexities. *Verso* ground colour ochreous. Forewing: spots on upper postdiscal band coalesced; lower postdiscal band with spots not clearly separated; postdiscal fascia clearly marked; submarginal series and submarginal fascia complete. Hindwing with basal streak prominent; subbasal streak reaching discal band at vein 7; discal band broad, extending as a tooth along wing margin at vein 7, where it meets discal fascia, postdiscal band and submarginal fascia; marginal fascia clearly marked.

Extreme Wet Season Form: differs from Dry Season Form on the forewing *recto* in the narrower cell streak, which is sometimes suffused with dark scales; discocellular bar dark and prominent; upper postdiscal band with spots smaller, spot in space 8 reduced to a speck; postdiscal fascia and submarginal series not reaching above vein 7; submarginal fascia obscure; marginal fascia obsolete. Hindwing *recto* discal band narrower, not extending along margin to vein 7; discal fascia and submarginal fascia obscure; postdiscal band reduced to a series of lunules; marginal fascia obsolete. *Verso* ground colour darker than Dry Season Form. Cell streak not suffused with dark scales; postdiscal band with spots separated; markings on distal half of wing obscure above vein 7. Hindwing subbasal streak disintegrates before reaching discal band, which is narrower than in DSF; markings on distal half of wing do not meet discal band at margin above vein 7; discal fascia, postdiscal band, submarginal fascia clearly marked; marginal fascia obscure.

Distribution Western Himalaya (Dehra Dun to Kumaon); also recorded in Delhi (Larsen 2002).

Remarks: In the above description, two extreme forms have been described and referred to as Dry Season Form and Wet Season Form. It should be noted that both forms as well as intermediates occur together during the dry season and the terms used are merely in keeping with common usage with reference to some other species in the genus, whose narrow and wide banded forms are usually referred to as seasonal forms.

Recorded by Atkinson (1882) as *Neptis nandina* (Moore) from the Kumaon Terai and outer ranges. Moore (1896–1899), who described *Neptis clinia susruta* in 1872, gave a range from Kumaon to Malaya for *susruta*. Mackinnon & de Nicéville (1899) recorded a single specimen from Mussoorie. Eliot (1969) noted a single specimen from Dehra Dun in the BMNH collection, adding that it probably represented a distinct subspecies. When he examined further material from Kumaon, he confirmed to me (in litt.) that it was indeed a new subspecies. Larsen (2002) recorded a specimen from Delhi.

It is quite common at low elevation in Kumaon, ascending to 1500 m. It is on the wing from March to June and again in October and November. The earlier brood has the narrow banded "wet season form" and the wider banded "dry season form" on the wing together, especially during May and June.

Both sexes come to water and are quite common in damp, forested ravines. Honey dew secreted by scale insects on citrus trees is a powerful attractant.

It occurs with *Neptis nata* and, since the facies of the two are often quite similar, it is best to examine the valvae in the field to separate the two species, which saves dissecting them later.

Etymology: The name *praedicta* refers to the fact that Eliot (1969) noted that the single specimen from Dehra Dun examined by him probably represented a different subspecies, an observation that was subsequently borne out when further material was examined.

Neptis sappho astola Moore

Neptis astola Moore, 1872: 560.
Neptis sappho astola Moore; Eliot, 1969: 60.

Distribution Pakistan, throughout the Himalaya and N.E. India, to Thailand, Vietnam and South China.

Remarks: A ubiquitous insect that is found from 2500 m in the main Himalayan range down to the plains adjoining the foothills, where it is common up to 40 km south of the nearest hills.

It is on the wing throughout the year at 1500 m elevation. The Wet Season Form is on the wing during July to September.

Neptis hylas kamarupa Moore

Neptis kamarupa Moore, 1874: 570.
Neptis hylas kamarupa Moore, Eliot, 1969: 61.

Distribution: Along the Himalaya from Mussoorie in Garhwal to N.E. India, Thailand, Vietnam and S. China.

Remarks: Not as common as *N. sappho astola*. Stragglers ascend to 2400 m. The subspecies is apparently restricted to the outermost range and the adjoining plains where it is common up to 40 km south of the foothills.

It is on the wing from March to June, and again from September to November. The Wet Season Form has been recorded in September.

Neptis soma butleri Eliot

Neptis soma butleri Eliot 1969: 70.

Distribution: Pakistan (Chitral) to Western Nepal.

Remarks: A common insect in the belt between 1000 m and 2800 m wherever its larval hostplants, species of *Celtis*, grow. There is considerable individual variation, in addition to seasonal variation. Although I have recorded both seasonal forms together after a spell of wet weather in Bhimtal in April, the WSF is usually on the wing in September and October. This butterfly is on the wing from March to June and from September to November.

Neptis nata yerburii Butler **comb. nov.**
(Fig. 1c, f)
Neptis yerburii Butler 1886: 360.
Neptis nata peilei Eliot 1969: 74, **syn. nov.**

Material examined: 30 specimens taken from March to June and October and November 1991 to 2009 in Bhujiaghat, Nainital district, Kumaon, India 600 m and Jones Estate, Bhimtal, Nainital, Kumaon, India 1500 m, all Leg. P. Smetacek; all in Coll. Smetacek.
Forewing Length: 25–30 mm.

Distribution: Pakistan (Murree) to the Kumaon Himalaya.

Remarks: *Neptis yerburii* was described on the basis of a "male" (*recte* female *vide* Eliot 1969) from Murree in Pakistan in the collection BMNH. The unique type is in poor condition, with the cilia almost entirely worn away and the antennae broken. Eliot (1969), who examined and figured the type, had expressed doubt about the true affinities of Butler's type specimen in the following words, "There is nothing else like it in BMNH, and until its male is found some doubt must remain as to its true affinities. It resembles [*N.*] *capnodes* and [*N.*] *pandoces* better than any other forms, differing from them, as would be expected in a *Neptis* from the N.W. Himalayas, in having wider white markings and a paler under surface ground colour. It is definitely not the species which all subsequent authors, including Butler himself (1888), have treated as *N. yerburii* (usually emended to *yerburyi*) and which must henceforth be known as *N. soma* Moore…..".

Eliot (1969) described *N. nata peilei* on the basis of 2 males and 5 females, consisting of a male from Kumaon and the remainder from Mussoorie in Garhwal. I have 3 female *N. nata* specimens from April and May that are similar to Butler's holotype of *N. yerburii* (Eliot 1969, plate 2, fig. 13) and 2 males identical to Eliot's type of *N. nata peilei* (Eliot 1969, Plate 1, fig. 2), as well as several intermediate examples. After examining several specimens of both sexes of *Neptis nata* from Kumaon, Eliot was of the opinion (in litt.) that the type specimen of *yerburii* is, in fact, an extreme Dry Season Form of *nata*. Since the name *N. nata* Moore 1857 antedates *yerburii*, *yerburii* becomes a subspecies of *nata* and *Neptis nata peilei* Eliot 1969 from the western Himalaya must be synonymised with the new combination of *Neptis nata yerburii*, which is the older available name.

The right clasper of the male genitalia of *N. nata yerburii* is identical to the right clasper of *N. nata hampsoni* Moore figured by Eliot (1969, fig. 36). Since *N. yerburii pandoces* Fruhstorfer 1913 and *N. yerburii capnodes* Eliot 1969 are distinct from *N. nata*, for they are separable on features of the male genitalia (Eliot 1969, figs.30 (*N. yerburii capnodes*) and 36 (*N. nata hampsoni*)), *N. yerburii capnodes* Fruhstorfer and *N. yerburii pandoces* Eliot must now be known as *Neptis capnodes capnodes* Fruhstorfer **stat. nov.** and *Neptis capnodes pandoces* Eliot **comb. nov.**, respectively.

Neptis nata yerburii is on the wing from March to June, August and October in Kumaon. It has been recorded from low elevation to 1600 m and is nowhere common. There is a specimen from Bhowali (1700 m) in Nainital district, Kumaon, in the Coll. OUM. This was probably a straggler. Adults are attracted to flowers of *Toona ciliata* as well as honey dew ejected by scale insects on citrus trees.

Neptis mahendra mahendra Moore
Neptis mahendra Moore, 1872: 560, pl. 32, fig. 3.

Distribution: Pakistan (Chitral) to western Nepal.

Remarks: This species occurs between 1700 m and 2700 m in the main as well as outer ranges. It is found sporadically along sunny paths and in glades, where the flight is slow and leisurely, generally less than 3 m above the ground.

On May 18, I photographed a female which settled briefly on a solitary bush of *Pyracantha crenulata* (Rosaceae) (fig.2). Upon examining the photographs, it turned out that she was ovipositing, although from the time she settled and her agitated activity, it did not appear so. Of the four ova she laid, one each on the tip of a new leaf, one ovum was located but the larva that emerged did not feed upon the fresh shoots offered and died.

It is on the wing from April to October. Peile (1937) noted that it does not come to water. He also noted that there was a remarkable difference between the seasonal forms. I have not had the good fortune to obtain examples of the narrow banded wet season form of this species.

Neptis pseudovikasi (Moore)
Bimbisara pseudovikasi Moore, 1899: 7, pl. 291, figs. 1–10.
Neptis pseudovikasi Moore; Eliot, 1969: 86.

Distribution: Kumaon to northern Myanmar, Tonkin.

Remarks: Atkinson (1882) recorded this species from the outer ranges as "*vikasi* Moore". Hannyngton (1910) recorded it in August and September from wooded ravines between 914m and 1219 m. Apparently, there were several records from different localities, both in the main as well as the outer range.

I have neither taken it nor seen a specimen from Kumaon.

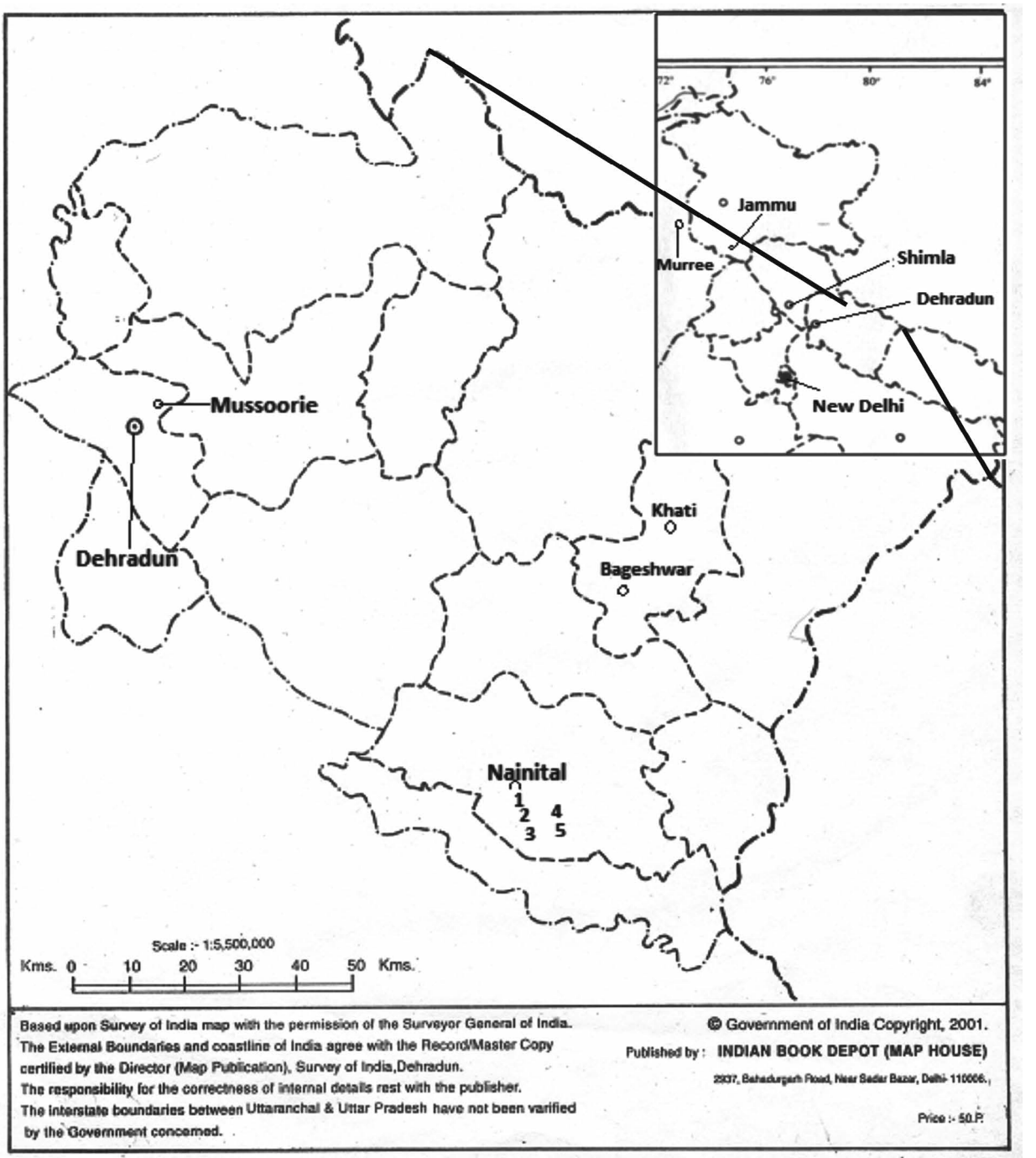

FIG. 3. Uttarakhand State, India. 1: Nalena; 2: Bhujiaghat; 3: Haldwani; 4: Bhowali; 5: Bhimtal. Inset: The west Himalayan states of India.

Neptis miah varshneyi Smetacek

Neptis miah varshneyi Smetacek, 2004: 269–270.

Distribution: Kumaon Himalaya.

Remarks: This appears to have been confused with *Lasippa viraja* (Moore) by earlier authors, eg. Hannyngton (1910), Evans (1932), etc.. *L. viraja* does not seem to occur west of Nepal (Smetacek 2004).

There is no seasonal variation in the two recorded broods, from March to June and from October to mid-November. It is not rare from 600 m to 1500 m in the outermost range. Prefers damp, sunlit ravines in dense broadleaf forest, where it occurs in the company of the

two *Pantoporia* species. Comes readily to water. It has not been noted visiting flowers.

Neptis sankara sankara (Kollar)
Limenitis sankara Kollar, 1844: 428.
Neptis sankara sankara (Kollar); Stichel, 1909: 177.

Distribution Kashmir to Kumaon.

Remarks: A hill insect, common in dense forest of Himalayan Oak between 1200 m and 2500 m in the main as well as outer ranges. Both the wide banded "Dry Season Form" *amboides* Moore 1882 and the narrow banded "Wet Season Form" *sankara* are found in Kumaon. I have only found *sankara* in company with *amboides* during the dry season, i.e. from April to June. There is a single male of the species taken in August in Jones Estate, at the height of the wet season. It is of the wide banded *amboides* form.

Peilie (1937) suggested that this species might be mimicked by *Apatura* (*Mimathyma*) *ambica* Kollar in Garhwal.

Recorded from April through August and October.

Neptis cartica cartica Moore
Neptis cartica Moore 1872: 562.

Distribution: Garhwal Himalaya to northern Myanmar, Tonkin.

Remarks: Subsequent to my report of the species from Kumaon (Smetacek 1993), I discovered that Atkinson (1882) had reported it from the outer ranges and that there is a specimen from Mussoorie in the collection of the Forest Research Institute in Dehra Dun. Hannyngton (1910) did not record it.

There seems to be a single brood in May, which occurs in the company of *N. sankara* and *N. zaida*. Recorded between 1200 m and 1800 m elevation.

Neptis ananta ananta Moore
Neptis ananta Moore, 1857: 166.

Distribution: Garhwal (Chamba) to Kumaon Himalaya.

Remarks: Mr. Philip Ackery kindly compared material from Kumaon with the series in the BMNH collection and concluded that it belonged to the nominate subspecies. Eliot (1969) recorded this subspecies from Chamba to Mussoorie in Garhwal. The present records extend the known distribution of this taxon eastwards to the Bhimtal valley and Maheshkhan Reserve Forest, both in Nainital district.

The subspecies *ochracea* Evans occurs in Nepal (T. Katayama in litt.).

A rather rare insect, I have found it in the belt between 1200 m and 2600 m, although Hannyngton (1910) reported it from 900 m elevation in Kumaon. The flight is powerful. There are two broods, the first during May and June and the second from August to October. No seasonal variation has been noticed.

Neptis zaida zaida Westwood
Neptis zaida Westwood 1850: 272, pl. 35, fig. 3.

Distribution: Garhwal (Mussoorie area) to the Kumaon Himalaya.

Remarks: Occurs in the main as well as outer ranges between 1000 m and 2500 m elevation from May to June in the outer range and in July in the main range.

Mr. Ackery kindly compared photos of specimens from Kumaon with specimens in the BMNH. According to Eliot (1969), the nominate subspecies occurs only in the Mussoorie area of the N.W. Himalaya. The present report extends the known distribution of this subspecies eastwards to the Sattal valley in Nainital district and Khati village in Bageshwar district in Kumaon.

Neptis radha radha Moore
Neptis radha Moore, 1857: 165, pl. 4a, fig. 2.

Distribution: Kumaon Himalaya to N.E. Myanmar.

Remarks: Recorded by Hannyngton (1910) in May from Nalena (1370 m)(Nainital district) in the outer range and Bageshwar (975 m)(Bageshwar district) in the middle range in October. I have visited Nalena in May and June but not found the butterfly. There does not seem to be any suitable habitat for this species around Bageshwar at present, although there might have been some a century ago when Hannyngton surveyed the area.

I have neither taken this species nor seen a specimen from Kumaon.

Neptis narayana narayana Moore
Neptis narayana Moore 1858: 6, pl. 49, fig. 3.

Distribution: N.W. Himalaya (Kulu to Kumaon).

Remarks: Recorded in the main range in July and in the outer ranges in May and June. Peile (1937) excerpted Hannyngton's (1910) list and added September: whether this is a mistake is uncertain, since the next butterfly on Hannyngton's (1910) list, *N. vikasi pseudovikasi*, is reported in August and September in the original list but only in August in Peile (1937). I have not seen a specimen recorded in September.

Around the tops of trees, the flight is strong like *Neptis ananta* and *N. sankara*, but near the ground it

affects a very weak flight, as reported by Wynter-Blyth (1957). In suitable localities, it is quite common and swarms during the second half of May in some years, when it is by far the commonest Neptini, if not the commonest nymphalid.

Phaedyma columella ophiana (Moore)
Neptis ophiana Moore, 1872: 561.
Phaedyma columella ophiana (Moore); Eliot, 1969: 120.

Distribution: Dehra Dun, Garhwal to northern Myanmar.

Remarks: Eliot (1969) gave a range from N.E. India to north Burma. There are 7 specimens from Dehra Dun in the Coll. FRI (Roonwal et al.1963). It is also common in Kumaon, especially near water in April and May in the plains adjoining the foothills. Stragglers ascend to 1500 m.

Recorded from April to July (*mihi*) and again during December and January in Kumaon (Hannyngton 1910).

DISCUSSION

In terms of species, the West Himalayan Neptini form a significant part of the total nymphalid representation in the area. Most of the species are quite common, so they form a large part of most butterfly assemblages in the foothills. Along with similarly patterned genera like *Athyma* and *Symbrenthia*, they often dominate the nymphalid component of Himalayan Oak forest butterfly assemblages above 2000 m elevation and Sal forest assemblages below 600 m during May and June. In general, the West Himalayan Neptini appear to have broader pale bands as compared to the East Himalayan populations. In several species, the Wet Season Form is distinguished by narrower pale bands and darker groundcolour, especially on the *verso* surface.

In the West Himalaya, during the dry summer months from mid-March to mid-June, relative humidity is generally less than 40% and often less than 10%. From mid-June to mid-September, during the South West Monsoon, humidity is often near 100%. However, broad banded and narrow banded "seasonal forms" of *Neptis clinia* and *N. sankara* occur together during the dry season, suggesting that humidity is not the only factor determining the width of the pale bands.

A comparison with species recorded a century ago (Hannyngton 1910) suggests that two species, *N. pseudovikasi* and *N. radha* have been "lost". Both of these are forest insects and while the forest cover in one of the places where they were recorded, i.e. Nalena, a village on the road between Haldwani and Nainital, leaves nothing to be desired even today, the same cannot be said of other places where they were recorded, i.e., Kapkot (Bageshwar district) and Bageshwar. Therefore, while forest degradation might be a reason for their absence in the latter two localities, the same cannot be said for their absence at present from Nalena.

Concerning *N. narayana*, it is certainly not "Very rare" anymore. Whether the species has actually established larger populations during the last century or Hannyngton just did not visit the right places at the right times will never be known.

On the whole, the community of Neptini in Kumaon seems to be quite stable and given that there are many Reserve Forests and other protected areas with healthy populations, the future outlook for this group of butterflies in the area is certainly not cause for worry.

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