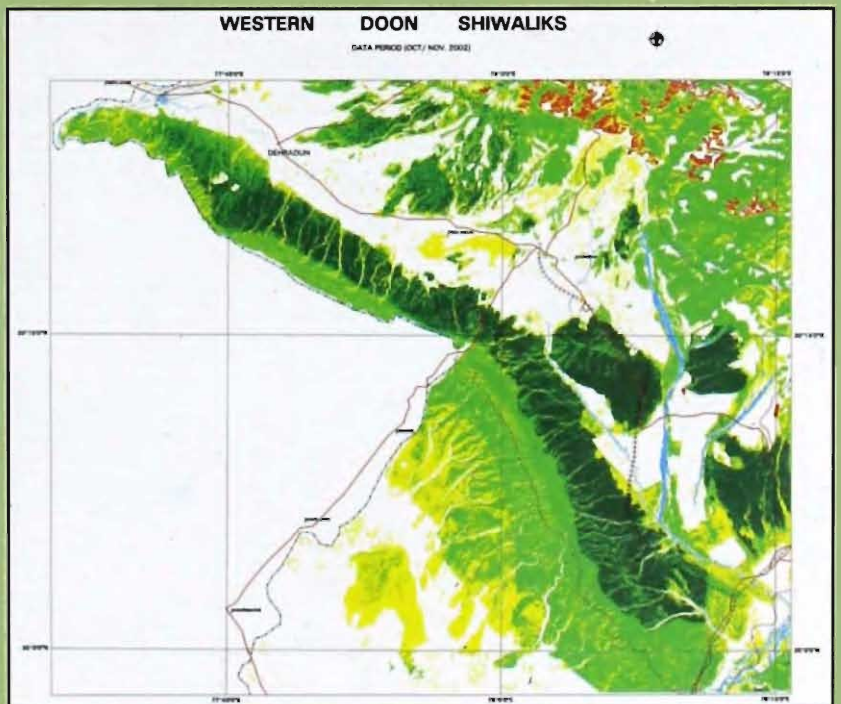


Special publication

Faunal Diversity Western Doon Shiwalik



ZOOLOGICAL SURVEY OF INDIA

Faunal Diversity Western Doon Shiwaliks

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Kolkata**

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**Dr. H.S. Mehta
Dr. S.K. Gupta
Coordinators**

Faunal Diversity Western Doon Shiwaliks

2007

1-113

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FAUNAL DIVERSITY WESTERN DOON SHIWALIKS- AN OVERVIEW

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**Northern Regional Station,*
Zoological Survey of India, Dehra Dun

The Western Doon Shiwaliks is a part of main Shiwalik hills running parallel to the Himalayan ranges, is an area ranging from Mohand forest in the east of Dehra Dun - Delhi high way and to the river Yamuna in the west. The Western Doon Shiwaliks (WDS) constitutes an area of about 80 sq. kms, with important hill ranges like Mohand Rao, KarvaPani, Shakumbri Devi, Badshaibagh and Timli. These hill ranges are within altitudinal ranges of 400-1200m. The Shiwalik hills once harbored a rich fauna in the geological past as evidenced by fossils of amphibians, reptiles and mammals like micrhylid burrowing frogs, dinosaurs and higher mammals like elephants. This region were once covered with by thick forests replete with rich and diverse biodiversity in the near past (before middle of eighteenth century) and were hunting grounds for Royal families. The unrestricted felling and overgrazing during the past two hundred years or so have played havoc with the natural vegetation and in turn with harboring fauna. These forests have been providing lively hood, timber requirements, fodder for the cattle and forest manures in the form of humus for enhancing the fertility in Terai region. There is a net work of perennial and seasonal streams, northern aspects drains into the river Ganga while southern aspects draining into main into the Yamuna river.

The northern aspects of the valley is with thick forests of Sal (*Shorea robusta*), Teak etc while southern aspects are comparatively dry with xerophytic vegetations i.e. Zizyphus, Shisham, Kikar, some species of Cactus, however recently teak plantations are also flourishing well with some plants in nature like, Mango, Jamun. in addition to some thick herbs and shrubs. These forests of Shiwalik are store house of medicinal plants. The net work of drainages support the primary fish fauna. These hills are a filtering zone for the migration of Oriental and Palaeartic fauna. In the eastern side of Western Doon Shiwaliks hill there is well marked protected area called Rajaji National Park falling in the districts of Haridwar (Uttarakhand) and a part in district Saharanpur (Uttar Pradesh), while in the western side along the river Yamuna in Yamuna Nagar district of Haryana there is a recently declared National Park called Kalesar National Park. The western part houses an important Asan wetland with a rich avian diversity in the winters. Thus the Western Doon Shiwaliks hills are

sandwiched between the two National Parks. The area has been considered important for housing several important mammalian and avian faunal components like deer, elephant, wild cat, jackal, bat, wild boars, pangolin and hill partridge. The distribution of elephant is restricted only up to this Western Doon Shiwaliks and not extending westwards.

In view of the many fold changes brought about by human activities like deforestation, mining activities i.e. extraction of sand and boulders from the river beds, construction of dams and barrages, conversion of undulating land into agriculture land, reducing the buffer zones, draining of silt has lead to the habitat loss and ecological changes for several species of invertebrates and vertebrates. Thus the studies like Fauna of Western Himalayas (1995) covering the present Uttarakhand and Uttar Pradesh, Fauna of Rajaji National Park (1995) Fauna of Asan Wetland (2003) were considered important. and nearly 2800 species pertaining to different faunal groups of invertebrates and vertebrates were recorded. In the present endeavor a small area representing diverse ecological niches were surveyed and explored for a period of three years (2002-2005) and a comparison of the occurrence of the species is also studied as some of the species of insects (Hymenoptera, Lepidoptera) centipedes and millipedes which are present in Rajaji National Park are absent in the present studies. In the present attempt 325 species belonging to invertebrates and vertebrates like like Lepidoptera (Butterflies), Hymenoptera (Bees Ants and Vasps), Scolopendra (Soil fauna), fishes, frogs, reptiles birds and mammals have been recorded. The following list shows a detailed inventory of different faunal groups:

| Phylum | Class | No. of species |
|---------------|--------------|-----------------------|
| Nematoda | | 14 |
| Arthropoda | Chilopoda | 8 |
| | Insecta | |
| | Lepidoptera | 43 |
| | Hymenoptera | 19 |
| | Vertebrata | Pisces |
| | Amphibia | 10 |
| | Reptilia | 17 |
| | Aves | 147 |
| | Mammalia | 33 |
| | | <hr/> |
| | | 325 |

Amongst these 325 species studied some are new records for the state and while some are endangered and threatened listed in the Red data book. The soil and plant nematodes which were only recorded for tea plantations have been extended for Teak and Sal plantations as well for an important crops of sugarcane. These studies will show additional light on zoogeographic distribution of animals.

PROFILE OF THE AREA

Location : The area is located 29- 57"-31-2" N latitude and 77-35-4- 78-28 E longitude, its south eastern side is District Haridwar (Uttarakhand) and Rajaji National Park, southwestern side districts of Saharanpur (Uttar Pradesh), western side, District Yamuna Nagar and northern side District Sirmour of Himachal Pradesh.

Topography :

Vegetation:

The majority of the area is under forest cover categorized as very dense forest, moderately dense forest, open forest, scrub forest etc., a detailed map of the forest cover illustrated with legends is given in figure 1.

Moist Sal Bearing Forests

The Sal forests have a facies of their own which is due to the undisputed predominance of the one gregarious species (*Shorea robusta*). Planned forest management has intensified its dominance in many areas by selective removal of other competing species. The following subtypes of these forests are recognized:

Moist Shiwalik Sal (*Shorea robusta*) Forests: and *Terminalia tomentosa* typical associates in the top canopy. Moist Bhabar Sal (*Shorea robusta*) Forests: Dehra Dun Forest Division in Uttarakhand with occasional occurrence of *Lagerstroemia parviflora*, *Adina cardifolia* and *Kydia calycina*.

Moist Mixed Deciduous Forests (Without Sal): They are closed forests of medium to good height including a number of dominant species intimately mixed and good many second storey trees including some evergreens. Climbers are heavy and the undergrowth is usually shrubby with a little or no grass, except during the monsoon when a luxuriant herbaceous growth appears. These forests are scattered freely through the hilly tracts In Shiwalik Hills in Saharanpur Division (Uttar Pradesh), they comprise a top canopy of *Albizia procera*, *Adina cardifolia*, *Terminalia tomentosa*, *terminalia bellerica*, *Cedrela toona* and *Garuga pinnata*.

Dry Shiwalik Sal Forests

They are found primary on shallow sandy and completely drained soil derived from the Shiwalik sand rock conglomerates. Bamboo occurs locally. Characteristic associates of *Shorea robusta* in these forests are *Anogeissus latifolia* and *Buchanania lanzan*. They are extensively distributed in Uttar Pradesh and Uttarakhand Saharanpur Shiwaliks (Uttar Pradesh with top

canopy trees comprising of *Anogeissus latifolia*, *Bachanania lanzan*, *Terminalia tomentosa*, *Bauhinia variegata*, *Acacia* spp. and *Pinus roxburghii*.

Dry Bamboo Brakes

Only one species, *Dendrocalamus strictus*, occurs and forms relatively low, but often, dense brakes, they are mainly found on dry hillsides.

Lower or Shiwalik Chir Pine Forests

The pine (*Pinus roxburghii*) stands occur singly or in-groups with a scattered lower deciduous tree storey, usually more numerous in depressions and cool aspects. There is usually a fairly continuous low scrub growth of xerophytic shrubs. they are found at appropriate altitudes through out the Shiwalik hills.

Subtropical Dry Evergreen Forests

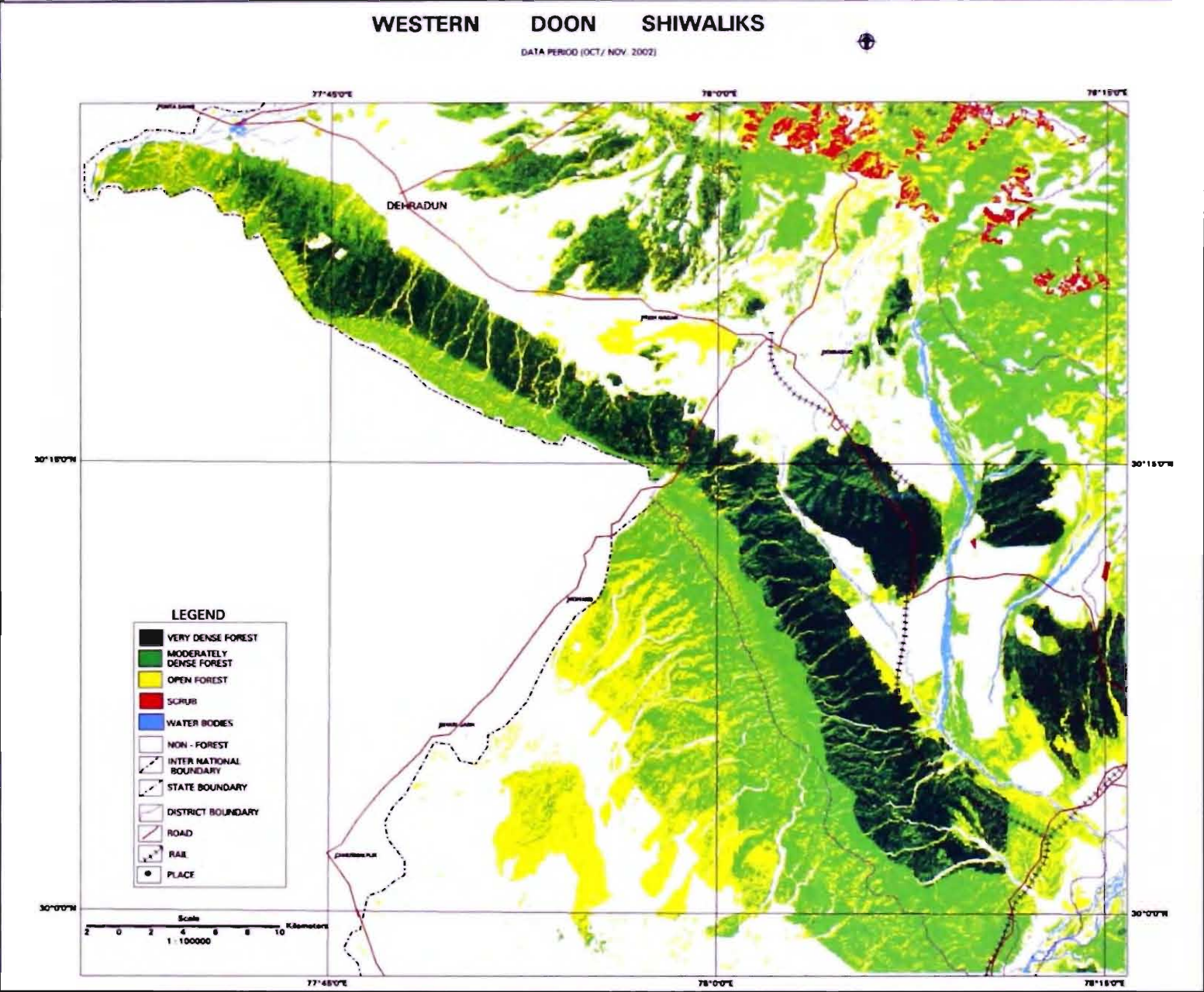
They comprise of low practically scrub forest of small-leaved evergreen trees and shrubs including thorny species; the latter become more prevalent on hot dry exposures and form a transition to northern thorn forest. Typical tree species in this type of forest are *Oleo cuspidate* and *Acacia modesta*. They occur throughout the Shiwaliks.

Aquatic Ecosystem

Rivers and Streams

The aquatic ecosystem of western Doon Shiwaliks with a network of perennial streams, draining into the river the Yamuna and the Ganga. Top loose and fragile fertile soil of Shiwalik hills is washed into these rivers during the rainy season. These rivers and hill streams harbor a variety of animals and plants.

Wetlands: Only one Asan wetland is there on northwestern side attracting 20000.



1. Forest cover map of western Doon Shiwaliks.

2. Views of mixed forests in western Doon Shiwaliks.



3. Views of mixed forests in western Doon Shiwaliks.

4. Views of mixed forests in western Doon Shiwaliks.





5. Views of mixed forests in western Doon Shiwaliks.



6. Views of forests with seasonal streams and, some xerophytes plants.



7. Views of forests with seasonal streams and, some xerophytes plants.



8. Views of forests with seasonal streams and, some xerophytes plants.



9. View of high poplar trees in northern aspects of Doon Shiwaliks.



10. Close view of Sal forests with scrubs and termite mounds.



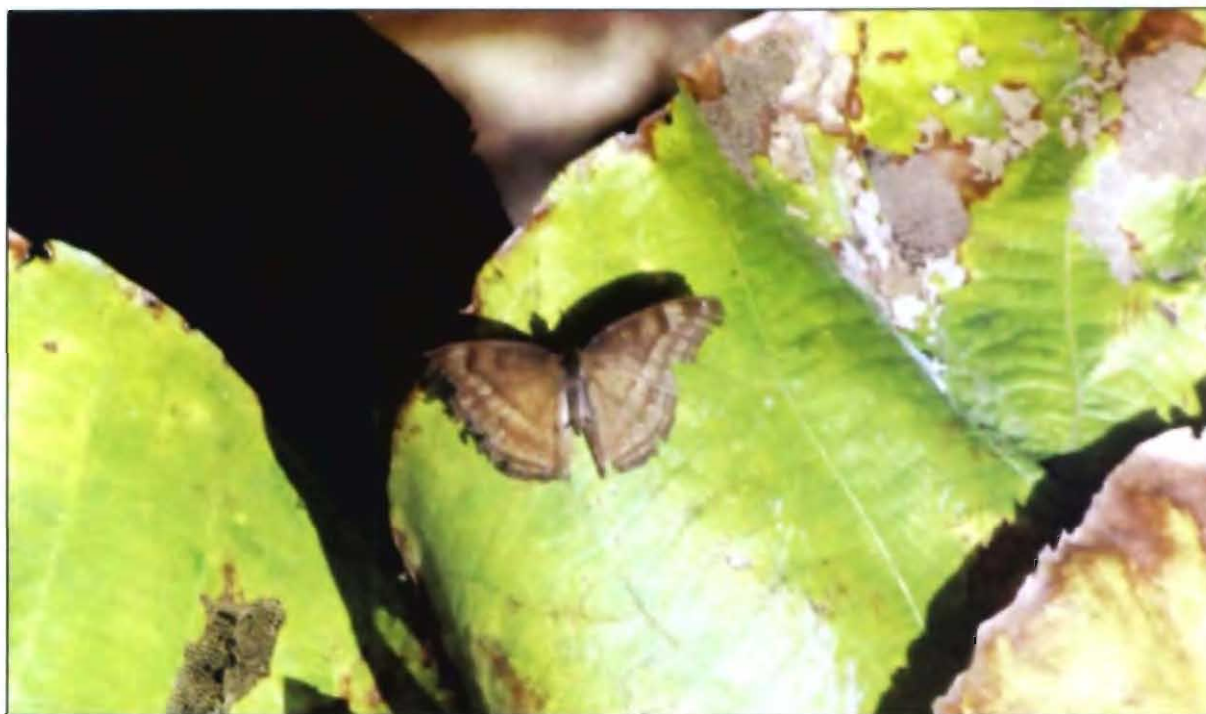
11. Close view of Sal forests with scrubs and termite mounds.



12. View of forests and open agriculture fields.



13. View of forests and open agriculture fields.



14. A view showing associations of butter fly and Teak leaf in Teak forest in southern part of Doon Shiwaliks.



15. Some of the perennial streams of the river Yamuna.



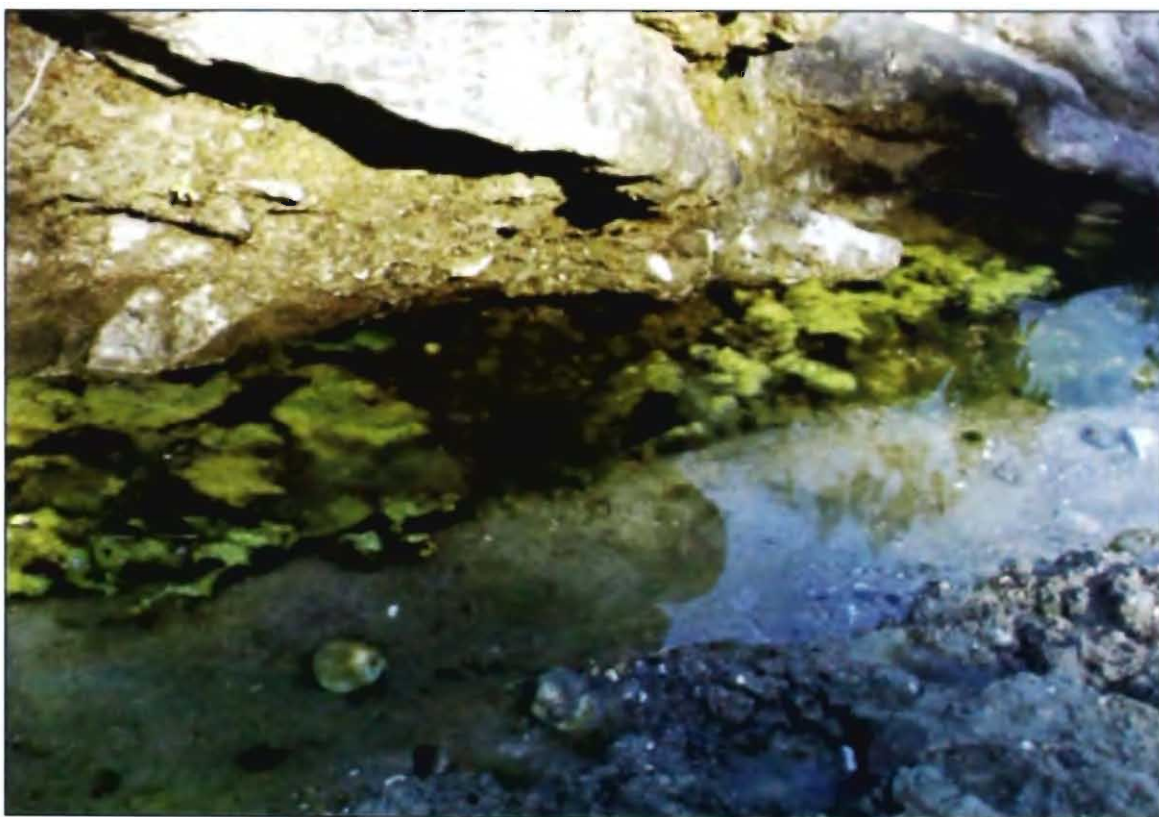
16. Some of the perennial streams of the river Yamuna.



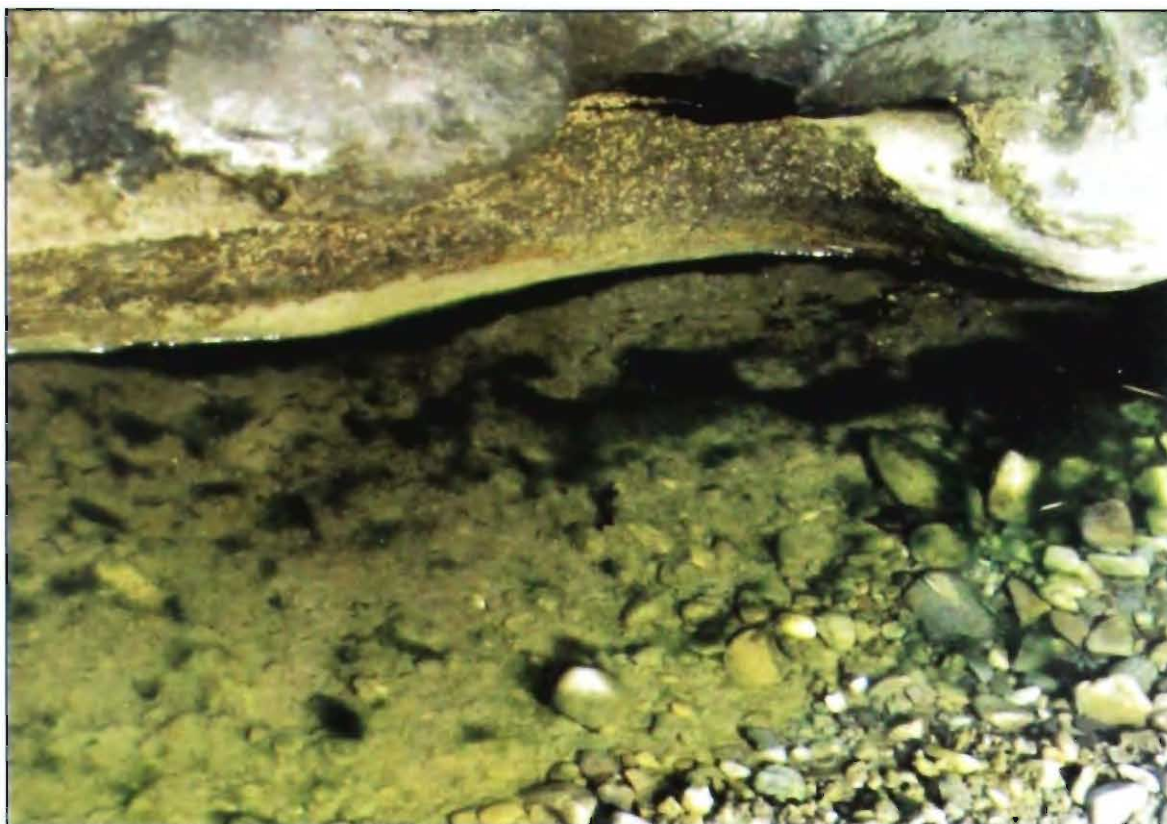
17. Some of the perennial streams of the river Yamuna.



18. Some of the perennial streams of the river Yamuna.



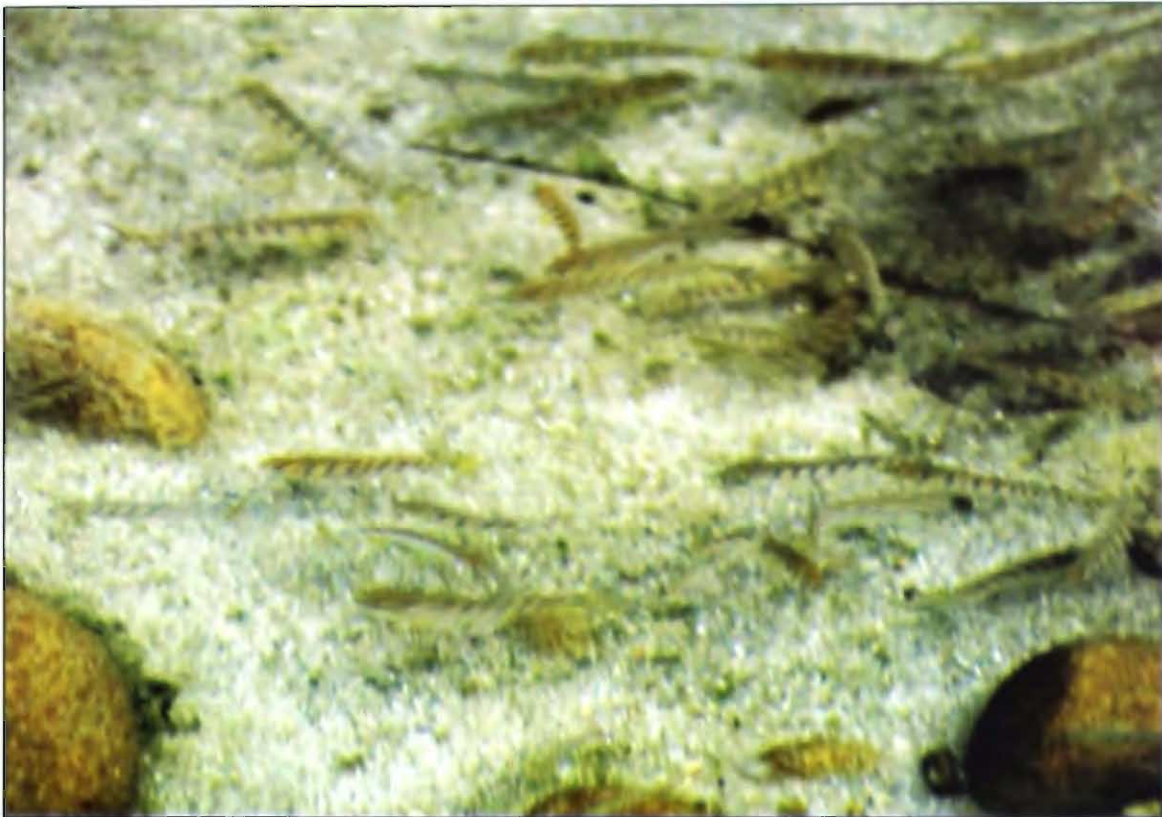
19. Some of the perennial streams in western Doon Shiwaliks, a source of fisheries resources.



20. Some of the perennial streams in western Doon Shiwaliks, a source of fisheries resources.



21. Some of the perennial streams in western Doon Shiwaliks, a source of fisheries resources.



22. Some of the perennial streams in western Doon Shiwaliks, a source of fisheries resources.



23. A hill stream fish *Barillus bendelesis* from the stream.



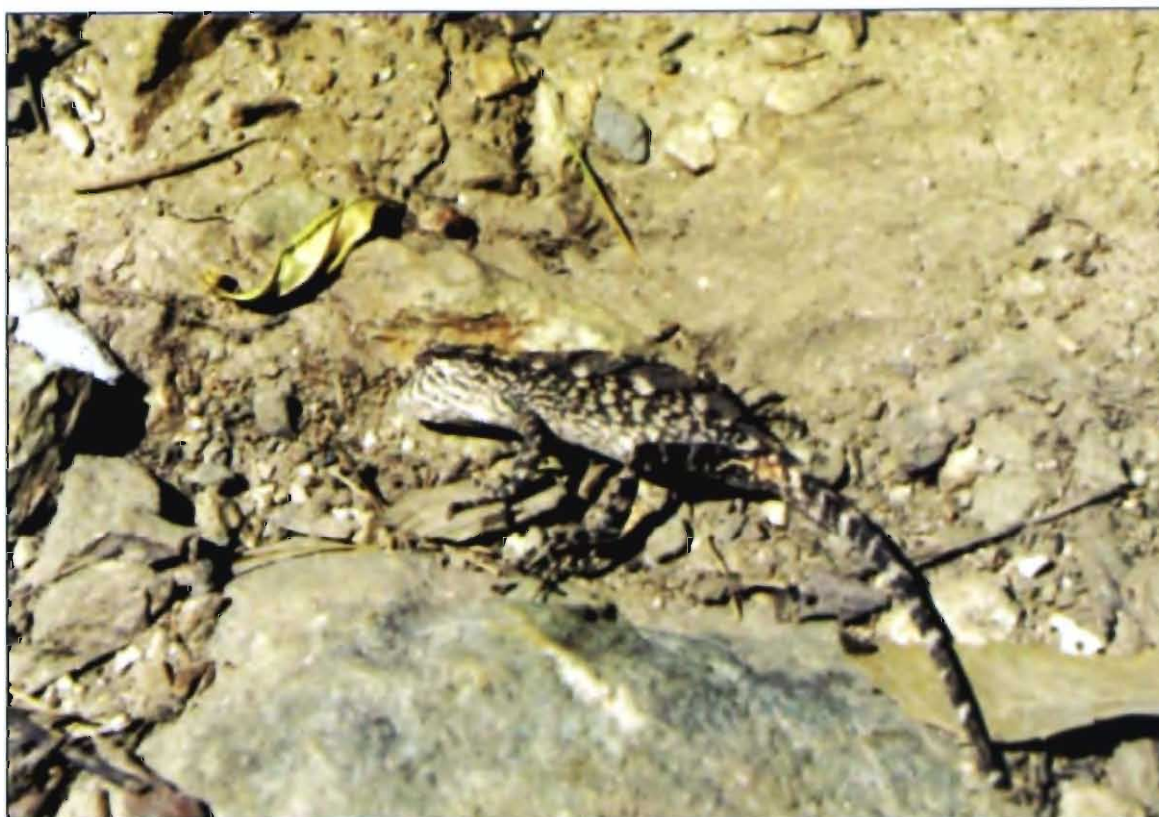
24. A crab (Crustacea) collected from the hill stream.



25. Views showing association of different species of butter flies with flowers of *Lantana* sp.



26. Views showing association of different species of butter flies with flowers of *Lantana* sp.



27. A view of lizard *Calotes versicolor*



28. A view of lizard *Laudia tuberculata*

NEMATODA : PLANT AND SOIL NEMATODES

ANJUM NASREEN RIZVI

Northern Regional Station, Zoological Survey of India, Dehra Dun

INTRODUCTION

Nematodes are highly diversified lower invertebrates, perhaps the most numerous multicellular animals on the earth. The soil inhabiting and plant parasitic nematodes play a significant role in soil productivity in agriculture and forestry. They also play a role in maintaining natural balance in the soil and are good indicator of soil pollution. On the other hand estimated loss due to plant parasitic nematodes amounts to nearly 15% (Baqri, 1991). The taxonomy of these worms is mostly based on external morphological characters but some of the important anatomical characters like feeding apparatus augment the taxonomic studies. Some of the important research contributions in the field of taxonomy of Plant and Soil Nematodes in India are by Siddiqi (1959), Das (1960), Sheshadri (1962), Jairajpuri (1964), Khan (1965), Khera (1965) and Baqri (1967) etc. but very little is known about the soil and plant parasitic nematodes of Dehradun except the works of Khera & Chaturvedi (1977) who reported 35 species of nematodes from Tea plantations of Dehra Dun (Vikasnagar, Harbanswala, East Hope Town, Mohkampur).

The present work is the first report on the nematodes of the forest soil (Teak and Sal) as well as the crop soil (Sugarcane) of the Western Doon Shiwalik region (WDS). Investigation of these nematodes revealed diversity in the shape and size as well as in the feeding habits and ranges from free-living feeding on bacteria and fungi, to phytophagous obtaining nourishment directly from the plants and predaceous obtaining food from other animals including nematodes. The nematodes collected were found to belong to 14 species under 14 genera, 10 families, 6 orders and 2 classes of the phylum Nematoda. All the species are recorded for the first time from this region (WDS) of Dehra Dun.

SYSTEMATIC ACCOUNT

- Phylum Nematoda
- 1. Class ADENOPHOREA
- 1. Order ENOPLIDA
- Family IRONIDAE
- Subfamily IRONINAE

1. *Ironus longicaudatus* de Man, 1884.

1884. *Ironus longicaudatus* de Man, *der niederlandischen Fauna*. 206 pp

Material examined : India, Uttarakhand, Dehradun Dist., Timli FRH, Timli, 3 ex.06.ix.2005; coll. A.N.Rizvi & Party; Sabbahwala, Timli range, 7 ex.30.xi.2005:coll. A.N.Rizvi & Party; Mohand Rao, 1 ex. 07.xii.2005; coll.H.S.Mehta & Party.

Distribution : India: Uttar Pradesh, Uttarakhand, Bihar, West Bengal and Sikkim.

Elsewhere : Germany, Hungary, Poland and Austria.

Remarks : This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

2. Order ALAIMIDA
Superfamily ALAIMOIDEA
Family ALAIMIDAE

2. *Alaimus jaulasali* Siddiqi & Husain, 1967

1967. *Alaimus jaulasali*, Siddiqi & Husain, *Proc. Helm. Soc. Wash.* 34: 158-167.

Material examined: India, Uttarakhand, Dehradun Dist., Timli FRH, Timli, 3 ex.06.ix.2005; coll. A.N.Rizvi & Party; Sabbahwala, Timli range, 2ex.30.xi.2005:coll. A.N.Rizvi & Party; Mohand Rao, 2 ex. 07.xii.2005; coll.H.S.Mehta & Party.

Distribution : India: Uttar Pradesh, Uttarakhand and Sikkim.

Elsewhere : U.S.A. and Europe.

Remarks: This species is recorded for the first time from WDS and Sugarcane is a new habitat record.

3. Order DORYLAIMIDA
Superfamily LONGIDOROIDEA
Family XIPHINEMATIDAE
Subfamily XIPHINEMATINAE

3. *Xiphinema americanum* Cobb, 1913

1913. *Xiphinema americanum* Cobb, *Jour. Wash. Acad. Sci.* 3: 432-444.

Material examined: India, Uttarakhand, Dehradun Dist., Timli FRH, Timli, 2 ex.06.ix.2005; coll. A.N.Rizvi & Party; Sabbahwala, Timli range, 5 ex.30.xi.2005:coll. A.N.Rizvi & Party.

Distribution India : Uttarakhand, Himachal Pradesh, Uttar Pradesh, Rajasthan and West Bengal.

Elsewhere : Poland, Portuguese and Ireland.

Remarks: This species is recorded for the first time from WDS

Superfamily DORYLAIMOIDEA
Family QUDSIANEMATIDAE
Subfamily DISCOLAIMINAE

4. *Discoliamus laksi* Khan & Laha, 1982

1982. *Discoliamus laksi* Khan & Laha, *Ind. J. Nematol.* **12**: 232-249.

Material examined: India, Uttarakhand, Dehradun Dist., Mohand Rao, 3 ex. 07.xii.2005; coll.H.S.Mehta & Party.

Distribution: India: Delhi and Uttarakhand.

Remarks: This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

Superfamily TYLENCHOLAIMOIDEA
Family TYLENCHOLAIMIDAE
Subfamily TYLENCHOLAIMINAE

5. *Tylencholaimus rumjumi* Khan & Laha, 1982

1982. *Tylencholaimus rumjumi* Khan & Laha, *Ind. J. Nematol.*, **12** (2) : 232-249.

Material examined India, Uttarakhand, Dehradun Dist., Mohand Rao, 4 ex. 07.xii.2005; coll.H.S.Mehta & Party.

Distribution India : Delhi and Uttarakhand.

Remarks: This species is recorded for the first time from WDS and Sugarcane is new habitat record.

4. Order MONONCHIDA
Superfamily MONONCHOIDEA
Family MYLONCHULIDAE
Subfamily MYLONCHULINAE

6. *Mylonchulus brachyuris* (Butschli, 1873) Altherr, 1954

1873. *Mononchus brachyuris* Butschli, *Nova. Acta. Acad. Nat. Curios.* **36**: 1-124.

1954. *Mylonchulus brachyuris* Altherr, *Bull. Soc. Vaud. Sci. Nat.*, **66**: 47-54.

Material examined: India, Uttarakhand, Dehradun Dist., Dharmawala, Timli range, 2 ex.30.xi.2005:coll. A.N.Rizvi & Party; Khajawar, 1 ex.07.xii.2005:coll. H.S. Mehta & Party.

Distribution: India: Uttar Pradesh, Uttarakhand, Kashmir, Himachal Pradesh and West Bengal.

Remarks: This species is recorded for the first time from WDS and Teak is a new habitat record.

| | |
|-------------|-----------------|
| II.Class | SECERNENTEA |
| 5. Order | RHABDITIDA |
| SubOrder | RHABDITINA |
| Superfamily | RHABDITOIDEA |
| Family | MESORHABDITIDAE |
| Subfamily | MESORHABDITINAE |

7. *Mesorhabditis cranganorensis* (Khera, 1968) Andrassy, 1983

1968. *Rhabditis (Uniovaria) cranganorensis* Khera, *J. Zool. Soc. India*, **20**: 38-41.

1983. *Mesorhabditis cranganorensis* Andrassy, *ORSTOM, Paris*, 241pp.

Material examined: India, Uttarakhand, Dehradun Dist., Timli FRH, Timli, 8 ex.06.ix.2005; coll. A.N.Rizvi & Party.

Distribution: India: Uttar Pradesh, Uttarakhand, Sikkim and Kerala.

Remarks: This species is recorded for the first time from WDS and Sal is a new habitat record.

| | |
|-------------|---------------|
| SubOrder | CEPHALOBINA |
| Superfamily | CEPHALOBOIDEA |
| Family | CEPHALOBIDAE |
| Subfamily | CEPHALOBINAE |

8. *Cephalobus persegnis* Bastian, 1865

1865. *Cephalobus persegnis* Bastian, *Linn. Soc. Lond. Trans.* **25**: 73-184.

Material examined: India, Uttarakhand, Dehradun Dist., Mohand Rao, 2 ex. 07.xii.2005; coll.H.S.Mehta & Party; Khajawar, 2 ex.07.xii.2005: coll. H.S.Mehta & Party.

Distribution: India: Uttar Pradesh, Uttarakhand, West Bengal and Sikkim.

Elsewhere : Poland, Germany, Italy, Sweden and Netherlands.

Remarks: This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

9. *Eucephalobus oxyuroides* (de Man, 1876) Steiner, 1936

1876. *Cephalobus oxyuroides* de Man, Tijds. Nederland. Dierk. Vereen. 2: 78-19.

1936. *Eucephalobus oxyuroides* Steiner, *Proc. Helminth. Soc. Wash.* 3(2): 74-80.

Material examined: India, Uttarakhand, Dehradun Dist., Timli FRH, Timli, 1 ex.06.ix.2005; coll. A.N.Rizvi & Party; Dharmawala, Timli range, 5 ex.30.xi.2005:coll. A.N.Rizvi & Party; Khajnawar, 2 ex.07.xii.2005: coll. H.S.Mehta & Party.

Distribution: India: Uttar Pradesh, Uttarakhand and Sikkim.

Elsewhere : Belgium Germany, Hungary Italy, Netherlands and USA.

Remarks: This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

Subfamily ACROBELINAE

10. *Acrobeles timmi* Chaturvedi & Khera, 1979

1979. *Acrobeles timmi* Chaturvedi & Khera, *Zool. Surv. India. Tech. Monogr.* 2: 1-105.

Material examined: India, Uttarakhand, Dehradun Dist., Timli FRH, Timli, 2 ex.06.ix.2005; coll. A.N.Rizvi & Party; Sabhawala, Timli range, 1ex.30.xi.2005:coll. A.N.Rizvi & Party; Dharmawala, Timli range, 3 ex.30.xi.2005:coll. A.N.Rizvi & Party; Mohand Rao, 12 ex.07.xii.2005:coll. H.S.Mehta & Party.

Distribution: India: Uttarakhand, West Bengal and Sikkim

Remarks: This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

11. *Acrobeloides buetschlii* (de Man, 1884) Steiner & Buhner, 1933

1884. *Cephalobus buetschlii*, de Man, *der niederlandischen Fauna.* 206 pp

1933. *Acrobeloides buetschlii* Steiner & Buhner, *Plant Dis. Repr.* 17: 172-173.

Material examined: India, Uttarakhand, Dehradun Dist., Sabhawala, Timli range, 1

ex.30.xi.2005: coll. A.N.Rizvi & Party; Mohand Rao, 5 ex.07.xii.2005: coll. H.S.Mehta & Party.

Distribution: India: Uttar Pradesh, Uttarakhand, Bihar and Sikkim.

Elsewhere : U.S.A.

Remarks: This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

12. *Chiloplacus subtenuis* Rashid & Heynes, 1990

1990. *Chiloplacus subtenuis* Rashid & Heynes, *Phytophylactica*. **22**: 189-199.

Material examined: India, Uttarakhand, Dehradun Dist., Sabbahwala, Timli range, 2 ex.30.xi.2005:coll. A.N.Rizvi & Party; Dharmawala, Timli range, 2 ex.30.xi.2005:coll. A.N.Rizvi & Party; Mohand Rao, 4 ex.07.xii.2005:coll. H.S.Mehta & Party.

Distribution: India: Uttar Pradesh, Uttarakhand and Gujarat.

Elsewhere : Namibia and Spain.

Remarks: This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

6. Order TYLENCHIDA
 Suborder TYLENCHINA
 Family BELANOLAIMIDA
 Subfamily TELOTYLENCHINAE

13. *Tylenchorhynchus annulatus* (Cassidy, 1930) Golden, 1971

1930. *Tylopharynx annulatus* Cassidy, *Hawaii Plant Rec.*, **34**: 379-387

1971. *Tylenchorhynchus annulatus* Golden, In: *Plant Parasitic Nematodes*, Vol.I.eds: Zuckerman, Mai. & Rohde. Academic press: 191-232

Material examined: India, Uttarakhand, Dehradun Dist., Sabbahwala, Timli range, 2 ex.30.xi.2005:coll. A.N.Rizvi & Party; Dharmawala, Timli range, 4ex.30.xi.2005:coll. A.N.Rizvi & Party; Mohand Rao, 5 ex.07.xii.2005:coll. H.S.Mehta & Party.

Distribution: India: Uttar Pradesh, Uttarakhand, Meghalaya, Assam and Tripura.

Elsewhere : U.S.A.

Remarks: This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

Family CRICONEMTIDAE
Subfamily CRICONEMATINAE
Genus *Hemicriconemoides*

14. *Hemicriconemoides mangifera* Siddiqi, 1961.

1961. *Hemicriconemoides mangifera* Siddiqi, *Proc. Helm. Soc. Wash.* **28**: 19-34.

Material examined: India, Uttarakhand, Dehradun Dist., Mohand Rao, 2 ex. 07.xii.2005; coll.H.S.Mehta & Party.

Distribution: India: Uttar Pradesh, Uttarakhand, West Bengal and Tripura.

Remarks: This species is being recorded for the first time from WDS and Sugarcane is a new habitat record for the species.

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REFERENCES

- Baqri, Q.H. and Jairajpuri, M.S. 1967. Revision of the genus *Thornenema* Andrassy, 1959 and proposal of *Willinema* n. gen. *Nematologica*, **13**: 353-366.
- Das, V.M. 1960. Studies on the nematode parasites of plants in Hyderabad (Andra Pradesh, India) *Z.ParasitKde*, **19**: 553-605.
- Jairajpuri, M.S. 1964. Intra-uterine egg development in *Aphelenchus avenae*. *Nematologica*, **10**: 183.
- Khan, A.M., Adhami, A. and Saxena, S.K. 1971. Population changes of some stylet bearing nematodes associated with mango (*Mangifera indica* L.) *Indian J. Nematol.*, 99-105.
- Khera, S. 1965. Nematodes from the banks of still and running waters. I *Tridonatus longicaudatus* n.g. n.sp. subfamily Diplogasterinae Micoletzky 1922. from India. *Nematologica*, **11**: 249-254.

- Khera, S. and Chaturvedi, Y. 1977. Nematodes from Tea Plantations of Dehra Dun, India. *Rec. Zool. Surv. India*, 72: 125-152.
- Siddiqi, M.R. 1959. Studies on Xiphinema spp. (Nematoda: Dorylaimoidea) from Aligarh (North India) with comments on the genus Longidorus Micoletzky, 1922. *Proc. Helminth. Soc. Wash.*, 26: 151-163.

ARTHROPODA: CENTIPEDES (CHILOPODA: SCOLOPENDROMORPHA)

VINOD KHANNA

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INTRODUCTION

Review of literature reveals that the Centipede Fauna of Western Himalaya, Uttarakhand, has been extensively studied by Khanna and Kumar (1984), Khanna (1987, 1994 a, b & c). Ten species, as listed below, occur in Dehra Dun district, six out of which marked with asterisks(*) have been reported from Rajaji National Park also, which is a contiguous and continuous part of the Shiwalik range in the eastern part of Dehra Dun and Haridwar Districts of Uttarakhand. In the present study area, which forms the Western part of Shiwaliks, in Dehra Dun and hence herein designated as western Doon Shiwaliks (WDS), has the representation of eight species of the Scolopendrid centipedes, of which the species *Cryptops doriae*, is a first record from Uttarakhand, collected from Western Doon Shiwaliks. While the species *Scolopendra morsitans* and *Scolopendra amazonica* are not available for study in the present lot their occurrence in the area is beyond doubt.

List of the species known from Dehra Dun (Khanna, 1987)

1. *Scolopendra morsitans* Linn. *
2. *Cormocephalus dentipes* Pocock*,
3. *Asanada indica* Jangi and Dass*,
4. *Rhysida monalii* Khanna and Kumar*,
5. *Rhysida lithobioides shiwalikensis* Khanna*,
6. *Rhysida longicarinulata* Khanna and Tripathi*,
7. *Rhysida nuda immarginata* (Porath),
8. *Otostigmus amballae* Chamberlin,
9. *Otostigmus nudus* Pocock and
10. *Otostigmus ceylonicus* Haase.

SYSTEMATIC ACCOUNT

| | |
|-----------|-------------------|
| Class | CHILOPODA |
| Order | SCOLOPENDROMORPHA |
| Family | SCOLOPENDRIDAE |
| Subfamily | SCOLOPENDRINAE |
| Tribe | SCOLOPENDRINI |

1. *Scolopendra morsitans* Linnaeus, 1758

1758. *Scolopendra morsitans* Linnaeus, *Syst. Nat.*, Ed. 10: 638.

1903. *Scolopendra morsitans*, Kraepelin, *Mitt. Mus.*, Hamburg, 20: 250.

1977. *Trachycormocephalus jodhpurensis*, Khanna, *Orient. Ins.*, 11(1): 151-156.

Type Locality : India

Remarks : Very common and a cosmopolitan species, though not available for study in the present lot, its occurrence cannot be doubted.

Distribution : India: Assam, Arunachal Pradesh, Andhra Pradesh, A & N Isl., Bihar, Bengal, Delhi, Gujarat, Himachal Pradesh, Haryana, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Sikkim, Uttar Pradesh and Uttarakhand.

Zoogeographical Distribution : In all tropical and temperate zones of the world.

2. *Scolopendra amazonica* (Bucherl), 1946

1946. *Scolopendra morsitans amazonica*, Bucherl, *Mem. Inst. Butantan*, 19: 135-137.

Type Locality : Amazona (Brazil)

Remarks : Very common and a cosmopolitan species, occurring sympatrically with its sibling *S. morsitans*, without hybridization, though not available for study in the present lot, its occurrence in this area cannot be doubted.

Distribution : India: A & N Isl., Delhi, Goa, Gujarat, Kerala, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamilnadu. Uttar Pradesh and Uttarakhand.

Elsewhere: Brazil, North and South America, Australia, Sudan.

3. *Cormocephalus dentipes* Pocock, 1891

1891. *Cormocephalus dentipes*, Pocock, *Ann. Nat. Hist.*, Ser. 6, 7: 66.

1984. *Cormocephalus pseudonudipes*, Jangi and Dass, *J. Scient. Indl. Res.*, 43(2): 37.

Type Locality : India: Bengal.

Material examined : Dehra Dun: WDS, Sakranala, Badshahibagh, 28.xi.2001, 1 ex., N.K.Sinha Coll.; 15.vi.2001, 2 exs. N.K.Sinha Coll.; Dhalipur, 28.iii.1997, 3 exs. P.C.Tak. Coll.; 9.viii.1983, Vinod Khanna Coll.

Remarks : A very common species.

Distribution : India: A & N Isls., Bihar, Delhi, Himachal Pradesh, Meghalaya, Mizoram, Madhya Pradesh, Orissa, West Bengal, Uttar Pradesh and Uttarakhand.

Subfamily OTOSTIGMINAE

Tribe OTOSTIGMINI

4. *Otostigmus ruficeps* Pocock, 1890

1890. *Otostigma ruficeps*, Pocock, *Ann. nat. Hist., Ser. 6, 5*: 247.

1930. *Otostigmus (Otostigmus) ruficeps*, Attems, *Das Tierr., Scolopendromorpha*, **54**(2): 141-142.

Type Locality : India: Madras (Tamil Nadu).

Material examined : Dehra Dun: WDS, Taluki, 15.vi.2001, 1 ex., Vinod Khanna Coll.

Remarks : Already a known species from Uttarakhand, this is further extension of range of the species.

Distribution : India: Meghalaya, Tamilnadu and Uttarakhand.

Elsewhere: Vietnam, Java, Sumatra, Krakatau, Borneo, Sulawesi New Guinea.

5. *Rhysida monalii* Khanna and Kumar, 1984

1984. *Rhysida monalii*, Khanna and Kumar, *Uttar Pradesh J. Zool.*, **4**(1): 93-95.

Type Locality : India: Pine Forest near Bageshwar, Almora (Uttarakhand).

Material examined : Dehra Dun: WDS, Sakranala, 23.i.2002, 4 exs., N.K.Sinha Coll.; 27.ii.2002, 4 exs., S.K.Gupta Coll.; 15.xii.2001, 6 exs., N.K.Sinha Coll.; 5.xii.2001, 6 exs., N.K.Sinha Coll.; 9.x.2001, 1 ex., Vinod Khanna Coll.; Panjana Nadi, 28.xi.2001, 6 exs., N.K.Sinha Coll.; 15.xii.2001, 6 exs., N.K.Sinha Coll.

Remarks A very common species in Uttarakhand.

Distribution : India: Himachal Pradesh, Jammu and Kashmir, Maharashtra, Uttarakhand, and Uttar Pradesh

6. *Rhysida lithobioides shivalikensis* Khanna, 1994

1994. *Rhysida lithobioides shivalikensis* Khanna, *Fauna of Conservation Area Series 5: Fauna of Rajaji National Park*, Zool. Surv. India, pp. 212-213.

Type Locality : India: Motichur (North of Shiwaliks), Dehra Dun (Uttarakhand).

Paratype Locality : WDS: Dhakrani.

Material examined : WDS: Dehra Dun, Dhakrani, 9.ii.1978, 1 ex., Vinod Khanna Coll.

Remarks : Present record is based on the study of Paratype.

Distribution : Delhi and Uttarakhand.

7. *Rhysida nuda immarginata* (Porath) 1876

1876. *Branchiostoma immarginatum*, Porath, Bih. Svenska Ak., 4 (7): 24.

1926. *Rhysida nuda immarginata*, Attems, *Das Tierr., Scolopendromorpha*, 54(2): 190.

1985. *Rhysida immarginata*, Koch, *J. nat. Hist.*, 19: 205-214.

Type Locality : Manila, Philippines.

Material examined : WDS: Dehra Dun: Dhakrani, 10.x.1985, 4 exs., Vinod Khanna Coll., Asarori Forest, 24.ii.1969, 1 ex., M.K.Biswas Coll.

Distribution : Assam, A & N Isl., Delhi, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan, Uttarakhand, Uttar Pradesh and West Bengal.

Family CRYPTOPIIDAE

8. *Cryptops doriae* Pocock, 1891

1891. *Cryptops doriae* Pocock, *Ann. Mus., Genova*, 30: 421. 58.

1930. *Cryptops (Cryptops) doriae*, Attems, *Das Tierr., Scolopendromorpha*, 54(2): 214.

Type Locality : India: Siju caves (Assam)

Material examined : Dehra Dun: Mohand Rao, 4.i.2002, 1 ex., A.Husain Coll.; Dhalipur, 8.ii.1996, 1 ex., A.Husain Coll.

Remarks : Khanna (in press, 2005) has recorded the species from Lahaul Spiti Valley (H.P.). This is a first record of the species from Uttarakhand.

Distribution : India: Maharashtra, Himachal Pradesh and Uttarakhand.

Elsewhere: Indo-china, Java, Myanmar, Nepal, New Guinea (Indo-Malayan extending to Australia).

REFERENCES

- Khanna, V. 1987. Taxonomic and ecological studies on the centipedes (Chilopoda: Scolopendromorpha: Scolopendridae) from Western Himalaya, Uttar Pradesh. *D. Phil Thesis*, University of Garhwal, Srinagar, U.P., pp.1-243.
- Khanna, V. 1994a. Chilopoda: Scolopendridae. In: *Fauna of Conservation Area Series 5: Fauna of Rajaji National Park*, *Zool. Surv. India*, pp. 309-316.
- Khanna, V. 1994b. Chilopoda: Some ecological observations on the centipede *Cormocephalus* Pocock, with comments on "sexual dimorphism" in the species and on the status of *Cormocephalus pseudonudipes* Jangi and Dass, 1984. In: *Fauna of Conservation Area Series 5: Fauna of Rajaji National Park*, *Zool. Surv. India*, pp. 237-243.
- Khanna, V. 1994c. Chilopoda: Scolopendromorpha: Scolopendridae). In: Himalayan Ecosystem series. Pt.1: Uttar Pradesh. *Zool. Surv. India*, 111-113.
- Khanna, V. 2005 Centipedes of Pin Valley, Lahaul Spiti (H.P.) (Chilopoda: Scolopendromorpha). *Zool. Surv. India*, mss. pp.1-4.
- Khanna, V. and Kumar, A. 1984. Scolopendrid centipedes of Western Himalaya, U.P., with an annotated list of Indian species (Chilopoda: Scolopendromorpha: Scolopendridae). *Uttar Pradesh J. Zool.*, 4(1): 83-98.

INSECTA : LEPIDOPTERA: RHOPHALOCERA

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INTRODUCTION

The fauna of butterflies of Uttarakhand has been studied by Arora (1995) with a report of 223 species and 91 species from dist. Dehra Dun. The butterflies' fauna of Rajaji National park is represented by 68 species (Arora, 1995). The present study is based on the material collected from the Western Doon Shiwaliks areas by field task forces of this Regional Station in the year 2000 to 2002. The area under investigation suited best for the occurrence of various species of butterflies. The study revealed the occurrence of 43 species of Butterflies belonging to seven families viz. Papilionidae, Pieridae, Danaidae, Satyridae, Nymphalidae, Lycaenidae and Erycinidae. The systematic account of the species is also presented.

SYSTEMATIC ACCOUNT

The systematic account deals with 43 species of butterflies under seven families

Family PAPILIONIDAE

1. *Pachlioptera aristolochiae* (Fabricius)

Common Rose

Status: Very Common

Material examined: India: Uttarakhand, Dehra Dun, Mohand, a Nala near Dat Mandir, 1 ex., 24.viii.2001, coll. A. Husain & party; Kulhal, Kulhal Nala, 1 ex., 8.viii.2001, coll. A. Husain & party; Timli forest, 1 ex., 6.vii.2001, coll. Arun Kumar & party.

Distribution: India: Throughout.

Elsewhere: Myanmar, Sri Lanka, Bangladesh, Malaya, Thailand, Indonesia and China.

2. *Papilio polytes romulus* Cramer

Common Mormon

Status: Very common

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 1 ex., 27.vi.2000, coll. *J.P.Sati & party*; Jhima reddy vill. Asan river, 1 ex., 30.vi.2001, coll. *A. Husain & party*; Bhure Shah, 2 exs., 6.ix.2001, coll. *N.K. Sinha & party*; Karua pani, Asarori, 1 ex., 30.vi.2001; 1 ex., 22.xi.2001, coll. *J.P. Sati & party*; 1 ex., 28.vi.2001, coll. *A.Husain & party*; Mohand Rao, 1 ex., 1.ii.2001; 10 exs., 8.viii.2001; 1 ex., 24.viii.2001; 1 ex., 9.xi.2001, 1 ex., 19.x.2001, coll. *A.Husain & party*; Sabhawala, 1 ex., 29.vi.2000, coll. *J.P.Sati & party*; Timli forest, 2 exs., 6.vii.2001, coll. *Arun Kumar & party*; 8 exs., 10.viii.2001; 1 ex., 19.ix.2001; 2 exs., 27.xi.2001, coll. *J.P.Sati & party*; Sankra Nala on Badshahibagh road, 2 exs., 6.ix.2001 coll. *N.K.Sinha & party*.

Distribution: Throughout India.

Elsewhere: Nepal, Myanmar and Sri Lanka.

3. *Papilio demoleus demoleus* Linnaeus

Lime Butterfly

Status: Very common

Material examined: India: Uttarakhand, Dehra Dun dist., Kulhal, Kulhal Nala, 2 exs., 8.viii.2001, coll. *A.Husain & party*; Sankra Nala on Badshahibagh road, 1 ex., 30.v.2000, coll. *A. Husain & party*; Timli forest, 2 exs., 20.xi.2000, coll. *N.K.Sinha & party*.

Distribution: Throughout India.

Elsewhere: Sri Lanka, Pakistan, Iran, Bangladesh, Myanmar, Malaysia, Indonesia, South China, Australia and Taiwan.

4. *Chilasa clytia clytia* (Linnaeus)

Common Mime

Status: Not rare but local

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 1 ex., 29.v.2001, coll. *Vinod Khanna & party*.

Distribution: India: Kangra (H.P.) to Sikkim, Assam, Bombay, Madhya Pradesh, South India.

Elsewhere: Sri Lanka, Myanmar and entire Oriental Region.

5. *Graphium agamemnon* (Linnaeus)

Tailed Jay

Status: Common

Material examined: India: Uttarakhand, Dehra Dun dist., Mohand Rao, 1 ex., 18.v.2001 coll. *N.K.Sinha* & party.

Distribution: India: Kumaon to Assam.

Elsewhere: Sri Lanka, Myanmar.

Family PIERIDAE

6. *Metaporia leucodice* (Moore)

Himalayan Blackvein

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun dist. Karuva Pani, Asarori, 1 ex., 6.vii.2001, coll. *Arun Kumar* & party; Mohand Rao, 1 ex., 30.vi.2000, coll. *J.P. Sati* & party; 2exs., 19.x.2001, coll. *A.Husain* & party Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party.

Distribution: India: Kashmir to Kumaon.

Elsewhere: Baluchistan to Ladakh.

7. *Delias eucharis* (Drury)

Common Jezebel

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., 1 ex., 22.xi.2001, coll. *J.P.Sati* & party; Sankra Nala, Badshahibagh road, 1 ex., 12.ix.2000, coll. *A.Husian* & party.

Distribution: India: Throughout upto lower slops of Himalaya.

Elsewhere: Myanmar and Sri Lanka.

8. *Anaphaeis aurota aurota* (Fabricius)

Pioneer

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun dist., Karuva Pani, Asharori, 1 ex., 28.vi.2001, coll. *A.Husian* & party; Sankra Nala, Badshahibagh road, 1 ex., 15.vi. 2001, coll. *N.K.Sinha* & party.

Distribution: India: Throughout.

Elsewhere: Myanmar and Sri Lanka.

9. *Pieris canidia indica* (Evans)

Indian Cabbage White

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 6.ix.2001, coll. *N.K.Sinha* & party; Khajnowar Nala, Shakumbri road, 3 exs., 12.iv.2002 coll. *S.K.Gupta* & party ; Karuva Pani, Asarori, 4 exs., 27.xi.2001; 4 exs., 18.i.2002; 6 exs., 20.ii.2002; 5 exs., 5.iv.2002, coll. *J.P.Sati* & party; Kulhal, Kulhal Nala, 1 ex., 8.viii.2001, coll. *A.Husain* & party Sankra Nala, Badshahibagh road, 1 ex., 13.vii.2001, coll. *N.K.Sinha* & party; Sabhawala, 1 ex., 5.iv.2002, coll. *J.P.Sati* & party; Timli forest, 1 ex., 6.vii.2001, coll. *Arun Kumar* & party; 10 exs., 7.iii.2002, coll. *J.P.Sati* & party.

Distribution: India: Himalayas, Nilgiris, Kerala, Karnataka.

Elsewhere: Pakistan, Myanmar and Nepal.

10. *Valeria valeria hippia* (Fabricius)

Common Wanderer

Status: Common

Material examined: India: Uttarakhand, Dehra Dun dist., Karuva Pani, Asarori, 1 ex., 3.xi.2000; Mohand Rao, 1 ex., 9.xi.2001 coll. *A. Husain* & party.

Distribution: India: Throughout.

Elsewhere: Myanmar.

11. *Catopsilia pomana* (Fabricius)

Lemon Emigrant

Status: Very common

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 28.vi.2001, coll. *A.Husian* & party; 4 exs., 6.ix.2001, coll. *N.K.Sinha* & party; Mohand Rao, 1 ex.,

14.ix.2001, coll. *A.Husian* & party; Karuva Pani Asarori, 8 exs., 28.vi.2001, coll. *A.Husian* & party; 2 exs., 6.vii.2001, coll. *Arun Kumar* party; Kulhal, Kulhal Nala, 12 exs., Coll. *A.Husain* & party Kirtipur near Mohan Rao, 1 ex., 28.vii.2001, coll. *A.Husian* & party; Punjana nadi, Badshahibagh road, 1 ex., 28.xi.2001, coll. *N.K.Sinha* & party; Sankra Nala, 28.vi.2000; 2 exs., 4.x.2001, coll. *J.P.Sati* & party; 1 ex., 15.vi.2001; 2 exs., 18.vii.2000; 6 exs., 11.x.2001; 1 ex., 5.xii.2001, coll. *N.K.Sinha* & party 1 ex., 12.ix.2000, coll. *A.Husian* & party; 2 exs., 20.vii.2001, coll. *P.C.Tak* & party; Sodinagar, Shakumbhri road,, 1 ex., 24.vii.2001, coll. *A.Husian* & party; Timli forest, 1 ex., 20.xi.2000; 2 exs., 15.vi.2001, coll. *N.K.Sinha* & party; 2 exs, 6.vii.2001, coll. *Arun Kumar* & party; 1 ex., 10.viii.2001, coll. *J.P.Sati* & party.

Distribution: India: Throughout.

Elsewhere: Pakistan; South China to Australia and pacific; Myanmar and Sri Lanka.

12. *Pontia daplidice* (Rober)

Bath White

Status: Common at high altitudes.

Material examined; India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 2 exs., 3.v.2000, coll. *A.Husian* & party; Timli forest Darrari vill. 1 ex., 28.vi.2000; Karuva Pani, Asharori, 1 ex., 5.iv.2002, coll. *J.P.Sati* & party.

Distribution: India: Kashmir to Punjab, Western Himalaya.

Elsewhere: Nepal and Pakistan.

13. *Eurema hecabe fimbriata* (Wallace)

Common Grass Yellow

Status: Very common

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party; Bhure Shah, 2 exs., 10.viii.2001, coll. *J.P.Sati* & party; Mohand, Kaluwala, 1 ex., 30.vi.2000, coll. *J.P.Sati* & party; Karuva Pani, Asarori, 3 exs., 3.xi.2000, coll. *A.Husian* & party; Lalo Nala, Sodinagar vill. Shakumbri road, 1 ex., 22.ix.2000, coll. *A.Husian* & party; Mohand Rao, 3 exs., 3.xi.2000; 1 ex., 14.ix.2001, coll. *A.Husian* & party; Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party; Sankra Nala, Badshahibagh road, 2 exs., 18.vii.2000; 2 exs., 13.x.2000; 1 ex., 13.vii.2001; 2 exs., 11.x.2001, coll. *N.K.Sinha* & party; Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party; 1 ex., 20.xi.2000, coll. *N.K.Sinha* & party; 4 exs., 6.vii.2001, coll. *Arun Kumar* & party

Distribution: India: Throughout (Punjab to Kumaon, Assam).

Elsewhere: Pakistan, Myanmar, Sri Lanka; Northwards to Korea and Japan.

Remarks: The species is very common throughout the western Doon Shiwaliks areas; has very strong seasonal variation. The Wet season form having broad borders on fore wing, with strong excavation between 3 club; the dry season form having on their fore wing (upper side) a very narrow black border, under side spots clearly defined, larger and darker.

14. *Leptosia nina* (Fabricius)

Psyche

Status: Very common

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 1 ex., 27.vi.2000, coll. *J.P.Sati* & party; Kaluwala, Mohand, 1 ex., 30.vi.2000, *J.P.Sati* & party; Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party.

Distribution: India: Peninsular India to Mussoorie and Andaman Islands.

Elsewhere: Sri Lanka and Myanmar.

16. *Pieris brassicae* Doubleday

Large Cabbage White

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 27.vi.2000, coll. *J.P.Sati* & party; Sankra Nala, 18.vii.2001, coll. *N.K.Sinha* & party; Timli forest, 4 exs., 6.vii.2001, coll. *Arun Kumar* & party.

Distribution: India: Himalayas to Assam and Plains adjoining the Himalayas.

Elsewhere: Pakistan.

17. *Ceporia nerissa phryne* (Fabricius)

Common Gull

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Sankra Nala, Badshahibagh road, 1 ex., 12.ix.2000, coll. *A.Husian* & party.

Distribution: India: Peninsular India to Northwest India.

Elsewhere: Sri Lanka and Myanmar.

Family DANAIIDAE

18. *Danaus chrysippus* (Linnaeus)

Plain Tiger

Status: Very common

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 12.ix.2001, coll. *A.Husian* & party; Timli forest, 1 ex., 27.xi.2001; 1ex., 19.x.2002, coll. *J.P.Sati* & party.

Distribution: India: Throughout.

Elsewhere: Widespread in the Oriental, Palaeartic, Ethiopian and Australian region.

19. *Danaus genutia* (Cramer)

Common Tiger

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 20.iv.2001, coll. *Vinod Khanna* & party.

Distribution: India: Throughout.

Elsewhere: Nepal; Myanmar; Sri Lanka; Vietnam; Thailand; South China; Pakistan and Afghanistan.

20. *Parantica aglea* (Moore)

Glassy Tiger

Status: Fairly common.

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 28.vii.2001, coll. *A.Husian* & party; Karuva Pani, 3 exs., 6.vii.2001, coll. *Arun Kumar* & party; Sankra Nala, Badshahibagh road, 2 exs., 12.ix.2000, coll. *A.Husian* & party; 1 ex., 13.vii.2001; 1 ex., 6.ix.2001, coll. *N.K.Sinha* & party; Timli forest, 1 ex., 20.xi.2000, coll. *N.K.Sinha* & party; 1 ex., 10.viii.2001; 1 ex., 7.iii.2002, coll. *J.P.Sati* & party.

Distribution: India: Kashmir to Sikkim, Bengal and Assam.

Elsewhere: Myanmar.

21. *Euploea core core* (Cramer)

Common Indian Crow

Status: Very common

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 12.ix.2000, coll. *A.Husian & party*; Bhure Shah, 1 ex., 20.vii.2001, coll. *P.C.Tak & party*; Mohand, Mohand Rao, 1 ex., 14.ix.2001; 19.x.2001. coll. *A.Husian & party*; Khaj nawar Nala, Shakumbri road, 1 ex., 12.iv.2004, coll. *S.K.Gupta & party*; Kulhal, Kulhal Nala, 1 ex., 8.viii.2001, coll. *A. Husain & party*; Karuva Pani, 5 exs, 6.vii.2001, coll. *Arun Kumar & party*; 1 ex., 3.xi.2000, coll. *A.Husian & party*; Mohand, Kirtipur, 3 exs, 28.vii.2001, coll. *A.Husian & party*; Sankra Nala, 1 ex., 18.vii.2000, 3 exs., 13.x.2000; 1 ex., 15.xi.2000, coll. *N.K.Sinha & party*; 1 ex., 13.vii.2001; 4 exs., 12.ix.2000, coll. *A.Husian & party*; Timli forest, Darrari vill. 2 exs., 28.vi.2000, coll. *J.P.Sati & party*, Timli forest, 1 ex., 20.xi.2000, coll. *N.K.Sinha & party*; 23 exs., 10.viii.2001, coll. *J.P.Sati & party*.

Distribution: India: Throughout.

Elsewhere: Sri Lanka and Myanmar.

Family SATYRIDAE

22. *Mycalesis perseus* (Fabricius)

Common Bushbrown

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Mohand, a Nala near Dat Mandir, 1 ex., 24.viii.2001, coll. *A. Husain & party*; Badowala, Asan River, 1 ex., 27.vi.2000, coll. *J.P.Sati & party*; Timli forest, 1 ex., 6.vii.2001, coll. *Arun Kumar & party*.

Distribution: India: South India to Bengal, H.P., U.P. and Assam.

Elsewhere: Myanmar and Sri Lanka.

23. *Mycalesis mineus mineus* (Linnaeus)

Dark Brand Bush Brown

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 6.ix.2001, coll. *N.K.Sinha & party*; 1 ex., 10.viii.2001, coll. *J.P.Sati & party*; Timli, Timli forest, 3 exs., 19.ix.2001, coll. *J.P.Sati & party*.

Distribution: India: Peninsular India, South of Bombay, Madhya Pradesh and Bengal, Kulu to Assam.

Elsewhere: Myanmar and Sri Lanka.

24. *Ypthima ceylonica huebneri* (Kirby)

Common Four-ring

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 20.vii.2001, coll. P.C.Tak & party; Mohand Rao, 1 ex., 14.ix.2001, coll. A.Husian & party; Karuva Pani, 1 ex., 6.vii.2001, coll. Arun Kumar & party; Timli forest, 1 ex., 23.v.2001, coll. Vinod Khanna & party; 1 ex., 19.ix.2001, coll. J.P. Sati & party.

Distribution: India: Throughout Peninsular India to Assam, Bengal.

Elsewhere: Myanmar and Sri Lanka.

25. *Ypthima baldus baldus* (Fabricius)

Common Six-ring

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 27.vi.2000; Karuva Pani, 1 ex., 1.vii.2000, coll. J.P.Sati & party; Khajnavar Nala, 2 exs., 12.iv.2002, S.K.Gupta & party; Sabhawala, 1 ex., 4.v.2001, coll. Vinod Khanna & party.

Distribution: India: Northwest Himalaya from Chamba to Assam; Central Western and South India.

Elsewhere: Myanmar.

26. *Melanitis leda ismene* (Cramer)

Common Evening Brown

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Karuva Pani, Asarori, 1 ex., 22.xi.2001; 1 ex., 5.iv.2002, coll. J.P.Sati & party; Sankra Nala, Badshahibagh road, 1 ex., 11.x.2001, coll. N.K.Sinha & party; Timli Forest, 1 ex., 27.xi.2001, coll. J.P.Sati & party.

Distribution: India: Throughout.

Elsewhere: Sri Lanka; Malaya; Japan; Sumatra; Borneo and Myanmar.

27. *Elymnias hypermnestra undularis* (Drury)

Common Palmfly

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun, Karuva Pani, Asharori, 1 ex., 1.vii.200, coll. *J.P.Sati* & party; Mohand, a Nala near Dat Mandir, 1 ex., 24.viii.2001, coll. *A.Husian* & party; Timli forest, 1 ex., 27.xi.2001, coll. *J.P.Sati* & party.

Distribution: India: Dehra Dun to West Bengal; Madhya Pradesh; Assam.

Elsewhere: Myanmar.

Family NYMPHALIDAE

28. *Symbrenthia hippoclus* deNice ville

Common Jester

Status: Fairly common.

Material examined: India: Uttarakhand, Dehra Dun dist., Karva pani, 2 exs., 16.xi.2000; Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party.

Distribution: India: Kulu to hills of North-east; Eastern Ghat.

Elsewhere: Myanmar.

29. *Ariadne merione* (Cramer)

Common Castor

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun, Karuva Pani, Asharori, 3 exs., 8.vi.2001, coll. *J.P.Sati* & party; 3 exs., 28.vi.2001, coll. *A.Husian* & party.

Distribution: India: Kashmir, Uttar Pradesh, Orissa and Madhya Pradesh.

Elsewhere: Sri Lanka and Myanmar.

30. *Junonia iphita siccaitica* (Cramer)

Chocolate Pansy

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun dist., Mohand Rao, 3 exs., 9.xi.2001, coll. *A.Husian* & party; Karuva Pani, Asarori, 3 exs., 22.xi.2001; 1 ex., 27.xi.2001, coll. *J.P.Sati* & party; Khajnowar Nala, Shakumbri road, 1 ex., 12.4.2002, coll. *S.K.Gupta* & party; Punjana nadi, 4 exs., 28.xi.2001, coll. *N.K.Sinha* & party; Sankra Nala, Badshahibagh road, 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party.

Distribution: India: Kashmir to Kumaon.

Elsewhere: Sri Lanka and Myanmar.

31. *Junonia atlites* (Linnaeus)

Grey Pansy

Status: Locally common.

Material examined: India: Uttarakhand, Dehra Dun dist., Sankra Nala, Badshahibagh road, 1 ex., 13.x.2000, coll. *N.K. Sinha* & party; Timli forest, 1 ex., 6.vii.2001, coll. *Arun Kumar* & party.

Distribution: India: Common throughout plains of India.

Elsewhere: Sri Lanka and Myanmar.

32. *Junonia almana* (Linnaeus)

Peacock Pansy

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 28.vi.2001, coll. *A.Husian* & party; Badowala, Asan River, 1 ex., 12.ix.2000, coll. *A.Husian* & party; Mohand Rao, 1 ex., 2.ii.2001; Sodi nagar Nala, Shakumbri road, 1 ex., 24.vii.2001, coll. *A.Husian* & party; Sankra Nala, Badshahibagh road, 6 exs., 6.ix.2001, coll. *N.K.Sinha* & party; 2 exs., 4.x.2001, coll. *J.P.Sati* & party.

Distribution: India: Throughout.

Elsewhere: Sri Lanka and Myanmar.

33. *Junonia lemonias* (Linnaeus)

Lemon Pansy

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun dist., Bado wala, Asan River, 1 ex., 27.vi.2000, coll. *J.P.Sati* & party; Mohand Rao, 1 ex., 3.xi.2000; 1 ex., 20.iv.2001; 1 ex., 2.ii.2001, 1 ex., 8.viii.2001, coll. *A.Husian* & party; 3 exs., Karuva Pani, Asarori, 1 ex., 1.vii.2000; 5 exs., 8.vi.2001, coll. *J.P.Sati* & party; 3exs. 6.vii.2001, coll. *Arun Kumar* & party; Sankra Nala, Badshahibagh road, 2 exs., 28.vi.2000, coll. *J.P.Sati* & party; Timli forest, 1 ex., 22.ix.2000, coll. *A.Husian* & party; 3 exs., 6.vii.2001, coll. *Arun Kumar* & party; Tiparpur, Mohand, 1 ex., 19.ix.2001, coll. *J.P.Sati* & party; a Nala near Dat Mandir, Mohand, 2 exs., 24.viii,2001, coll. *A. Husian* & party; Timli, Darrari vill. 1 ex., 28.vi.2000, coll. *J.P.Sati* & party.

Distribution: India: Kashmir to Kumaon, Assam, Bengal.

Elsewhere: Sri Lanka and Myanmar.

34. *Junonia hierta* (Fabricius)

Yellow Pansy

Status: Very common.

Material examined: India: Uttarakhand, Dehra Dun dist., Sankra Nala, Badshahibagh road, 1 ex., 28.vi.2000, coll. *J.P.Sati & party*.

Distribution: India: Throughout.

Elsewhere: Sri Lanka and Myanmar.

35. *Neptis hylas* Moore

Common Sailer

Status: Very common

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 4.ix.2001; Sankra Nala, Badshahibagh road, 1 ex., 11.x.2001, coll. *N.K.Sinha & party*.

Distribution: India: Throughout.

Elsewhere: Sri Lanka and Myanmar.

36. *Neptis yerburyi* (Butler)

Yerbur's Sailer

Status: Not rare.

Material examined: India: Uttarakhand, Dehra Dun, Sankra Nala, Badshahibagh road, 1 ex., 3.xi.2000, coll. *A.Husian & party*; Timli forest, 1 ex., 20.xi.2000, coll. *N.K.Sinha & party*; 1 ex., 6.vii.2001, coll. *Arun Kumar & party*.

Distribution: India: Kashmir to Assam, Kumaon.

Elsewhere: Myanmar.

37. *Hypolimnias bolina* (Linnaeus)

Great Egg-fly

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun, Mohand, Lalo Nala, Shakumbri road, 1 ex., 22.ix.2000, coll. *A.Husian* & party; Mohand Rao, 2 exs., 8.viii.2001; Sankra Nala, Badshahibagh road, 1 ex., 12.ix.2000, coll. *A.Husian* & party; 5 exs., 6.ix.2001, coll. *N.K.Sinha* & party; 1 ex., 4.x.2001, coll. *J.P.Sati* & party.

Distribution: India: Throughout.

Elsewhere: Sri Lanka and Myanmar.

38. *Phalanta phalantha* (Drury)

Common Leopard

Status: Common.

Material examined: India: Uttarakhand Dehra Dun dist., Karuva Pani, Asarori, 2 exs., 28.vi.2001, coll. *A.Husian* & party; 4 exs., 22.xi.2001, coll. *J.P.Sati* & party; Mohand Rao, 1 ex., 29.v.2001; 1 ex., 8.viii.2001, coll. *A.Husian* & party; Sabhawala, 1 ex., 20.xii.2001, coll. *J.P.Sati* & party; Sankra Nala, Badshahibagh road, 1 ex., 18.vii.2000; 1 ex., 18.xii.2001, coll. *N.K.Sinha* & party; Timli forest, 1 ex., 20.xi.2000, coll. *N.K.Sinha* & party; 1 ex., 6.vii.2001, coll. *Arun Kumar* & party; 5 exs., 27.xi.2001, coll. *J.P.Sati* & party.

Distribution: India: Throughout.

Elsewhere: Sri Lanka and Myanmar.

39. *Vanessa indica* (Herbst)

Indian Red Admiral

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun dist., Timli forest, 1 ex., 27.xi.2001, coll. *J.P.Sati* & party.

Distribution: India: Himalaya (Kashmir to Eastward).

Elsewhere: Nepal; Myanmar; China; Thailand and Myanmar.

40. *Kallima inachus* (Boisduval)

Orange Oakleaf

Status: Not rare

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 20.vii.2001, coll. *P.C.Tak* & party; Sankra Nala, Badshahibagh road, 1 ex., 18.vii.2000, coll. *N.K.Sinha* & party.

Distribution: India: North-West Himalaya from Mussoorie to Sikkim and Assam; Orissa and Maharashtra; Southern India (Eastern ghat) and Bihar.

Elsewhere: Nepal and Myanmar

41. *Cupha erymanthis* (Drury)

Rustic

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun dist., Sankra Nala, Badshahibagh road, 2 exs., 12.ix.2000, coll. *A. Husian & party.*

Distribution: India: Mussoorie to Assam, South India.

Elsewhere: Sri Lanka.

Family LYCAENIDAE

42. *Amblypodia silhetensis* Moore

Sylhet Oakblue

Status: Rare.

Material examined: India: Uttarakhand, Dehra Dun dist., Karuva Pani, Asha rori, 2 exs., 6.vii.2001, coll. *Arun Kumar & party;* Punjna nadi, 1 ex., 28.xi.2001; Timli forest, 1 ex., 23.v.2001, coll. *Vinod Khanna & party.*

Distribution: India: Sikkim, Assam.

Elsewhere: Myanmar.

Family ERYCINIDAE

43. *Libythea leptia* (Moore)

Common Beak

Status: Common.

Material examined: India: Uttarakhand, Dehra Dun dist., Timli forest, 1 ex., 15.xi. 2000, coll. *D. P. Uniyal & party.*

Distribution: India: Kashmir to Assam.

Elsewhere: Myanmar and Sri Lanka.

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REFERENCES

- Arora, G.S. 1994. Lepidoptera: Butterflies. In *Fauna of Rajaji National Park, Fauna of Cons. Area Ser. 5: Zool. Surv. India* pp. 245-300.
- Arora, G.S. 1995. Lepidoptera: Rhopalocera. In *Fauna of Western Himalaya, Zool. Surv. India, Himalayan Ecosystem Series, 1: 61-73*.
- Arora, G.S. 1997. Lepidoptera: Rhopalocera. In *Fauna of Nanda Devi Biosphere Reserve (Uttarakhand), Zool. Surv. India, Fauna of Conservation Areas Series, 9: 67-88* pp.
- Carter, D.J. 1992. *Handbook- Butterflies and Moths*, 302 pp.
- D' Abrera, B. 1982-1985. *Butterflies of Oriental Region*, 3 vols. (Hill House, Melbourne).
- Evans, W.H. 1932. *The Identification of Indian Butterflies*, 2nd Revised edition, 454 pp., 32 pls. *J. Bombay Natural History Society*, Bombay.
- Haribal, M. 1988. *Butterflies of Sikkim: Himalayas and their Natural History. J. Bombay nat. Hist. Soc. 85: 271-280* pp.
- Haribal, M. 1992. *The Butterflies of Sikkim: Himalaya and their Natural History*, Sikkim Nature Conservation Foundation, Gangtok, 217 pp+60 pls.
- Kumar, Parmod and Gupta, S.K. 2004. Lepidoptera: Rhopalocera. In some selected fauna of *Govind Pasu Vihar, Zool. Surv. India, Fauna of Conservation Areas Series, 18: 9-20* pp.
- Kunte, K.J. 2000. *Butterflies of Peninsular India*. 1-254 pp.+31 pls.
- Mani, M.S. and Singh, S. 1962. *Entomological Survey of Himalayas*. xxvi. *J. Bombay nat. Hist. Soc. 59(1): 77-99* pp.
- Mackinon, P.W. and De Niceville L. (1899). *List of Butterflies of Mussoorie in Western Himalaya and neighbouring regions. J. Bombay nat. Hist. Soc., 11: 205-221, 368-385, 585-605* pp.
- Niceville, L.de. 1886. *The Butterflies of India, Burma and Ceylon*, 2: iv + 332 pp., pls. Xviii-xxiv.

- Shields, O. 1984. *Oriental Lycaenidae, Riodinidae and Hesperidae from the Central Nepal Himalaya*. *J. Bombay nat. Hist. Soc.*, **81**(3): 546-550 pp.
- Talbot, G. 1939. *The Fauna of British India, Butterflies*, **1**: XXIX+600 pp., 3 pls.
- Talbot, G. 1947. *The Fauna of British India, Butterflies*, **2**: XV+506 pp., 2 pls.
- Varshney, R.K. 1977. *Index Rhopalocera Indica: An idea of local list of butterflies from India and neighbouring countries*. *Rec. Zool. Surv. India* **73**: 159-178 pp.
- Varshney, R.K. 1993. *Index Rhopalocera Indica Pt. III, Genera of Butterflies from India and neighbouring countries*. *Oriental Ins.*, **27**: 347-372 pp.
- Varshney, R.K. 1994. *Index Raphalocera Indica Pt III, Genera of Butterflies from India and neighbouring countries*. *Oriental Ins.*, **28**: 151-198 pp.
- Varshney, R.K. 1997. *Index Rhopalocera Indica Pt.III. Genera of Butterflies from India and neighbouring countries*. *Oriental Ins.*, **31**: 83-138 pp.
- Wynter-Blyth, M.A. 1957. *Butterflies of Indian Region*. *The J. Bombay Nat. Hist. Soc.*, Bombay; xx + 523 pp., 72 pls.

INSECTA : HYMENOPTERA: ACULEATA

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INTRODUCTION

Bingham (1897) was the first to publish a consolidated account of aculeate Hymenoptera (Wasps and Bees) of India, including Burma and Ceylon. So far as the records of aculeate Hymenoptera from Shiwaliks are concerned a systematic account of 14 species belonging to two families (Scoliidae and Tiphidae) was published by Gupta (1994), for the first time, based on the identification of collections from Rajaji National Park. The present systematic account, based on the identification of the material of aculeate Hymenoptera collected from Western Doon Shiwaliks, deals with 19 species belonging to five families (Scoliidae, Vespidae, Eumenidae, Pompilidae and Sphecidae) as given below.

Family SCOLIIDAE

Campsameriella collaris collaris (Fabricius)

Material examined INDIA: Uttar Pradesh; Saharanpur dist., Mohand, Lalpul, 2f, 26.iv.2001, A. Husain & Party.

Distribution: INDIA: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Delhi, Goa, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.

Elsewhere Nepal and Sri Lanka.

Campsameriella annulata annulata (Fabricius)

Material examined : Uttarakhand, Dehradun dist., Karuapani & around, 1m, Lvii.2000, J.P. Sati & party.

Distribution : INDIA: Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Sikkim, Tripura, Uttarakhand and West Bengal.

Elsewhere : China, Indonesia- Japan, Korea, Malaysia, Myanmar, Nepal and Taiwan.

***Phalerimeris phalerata phalerata* (Saussure)**

Material examined : Uttar Pradesh, Saharanpur dist., Sankra nala, Badshaibagh road, 5m, 5.xii.2001, N.K.Sinha & party; Uttarakhand, Dehradun dist., Timli forest & around, 1f, 1m, 9.ix.2001, 1m, 27.xi.2001, Karuapani & around, 2m, Lvii.2000, J.P.Sati & party.

Distribution : INDIA: Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Meghalaya, Sikkim, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.

Elsewhere : China, Indonesia, Malaysia, Myanmar, Nepal, Taiwan and Thailand.

***Scalia (Discalia) bilunata* Saussure**

Material examined : Uttarakhand, Dehradun dist., Sabhawala, 1m, 29.vi.2000, Karuapani & around, 2m, 1.vii.2000, J.P.Sati & party.

Distribution : INDIA: Bihar, Delhi, Karnataka, Maharashtra, Manipur, Orissa, Punjab, Uttar Pradesh, Uttarakhand and Tamil Nadu.

Elsewhere : Nepal and Sri Lanka.

Family VESPIDAE

***Ropalidia marginata marginata* (Lepeletier)**

Material examined : Uttarakhand, Dehradun dist. Timli - Asarori road, ca 8 kms. from Asarori, 1 f, 12. vi.2000, Karuapani & around, 1 f, 1. vii.2000, Sabhawala, 2f, 29.vi.2000, J.P.Sati & party; Uttar Pradesh; Saharanpur dist. Mohand Rao, 1f, 24.viii.2001, Sankra nala, 1f, 6.ix.2001. N.K.Sinha & party.

Distribution : INDIA: Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and Uttarakhand.

Elsewhere : Pakistan and Sri Lanka.

***Polistes stigma tamula* (Fabricius)**

Material examined : Uttarakhand, Dehradun dist., Sabhawala, 2f, 29.vi.2000, Karuapani & around, 1f, 1.vi.2000, J.P.Sati & party.

Distribution : INDIA: Bihar, Delhi, Himachal Pradesh, Karnataka, Maharashtra, Orissa, Sikkim, Uttarakhand and West Bengal.

Elsewhere : Sri Lanka.

Vespa velutina auraria Smith

Material examined : Uttar Pradesh, Saharanpur dist. Sankra nala, If, 28.xi.2001, N.K.Sinha & party.

Distribution : INDIA: Assam, Himachal Pradesh, Jammu & Kashmir, Meghalaya, Uttar Pradesh, Uttarakhand and West Bengal.

Elsewhere : Myanmar and Nepal.

Vespa basilis Smith

Material examined : Uttar Pradesh, Saharanpur dist., Mohand Rao, If, 24.viii.2001, A. Husain & party.

Distribution : INDIA : Assam, Himachal Pradesh, Meghalaya, Sikkim, Uttar Pradesh, Uttarakhand and West Bengal.

Elsewhere : Myanmar, China, Nepal, Vietnam, Sumatra.

Vespa affinis affinis (Linnaeus)

Material examined : Uttarakhand, Dehradun dist., Kulhal nala near Kulhal, 1 f, 8.viii.2001, A. Husain & party; Uttar Pradesh, Sankra nala, If, 18.vii.2000. N.K. Sinha & party.

Distribution : INDIA: Bihar, Himachal Pradesh, Maharashtra, Uttar Pradesh, Uttarakhand and West Bengal.

Elsewhere : Myanmar, Nepal and Sri Lanka.

Family EUMENIDAE

Muntezumja burmanica Bingham

Material examined : Uttarakhand, Dehradun dist., Sabhawala, 1 f, -1 m, IP .Sati & party.

Distribution : INDIA: Uttarakhand.

Elsewhere : Myanmar.

Delta arcuata (Fabricius)

Material examined : Uttarakhand, Dehradun dist., Tiparpur, 1 f, 19.ix.2001., J.P.Sati & party.

Distribution : Throughout India.

Elsewhere : Myanmar, Sri Lanka and Indonesia.

***Rhynchium argentatum* (Fabricius)**

Material examined : Uttarakhand, Dehradun dist., Sabhawala, 4m, 29.vi.2000, Karuapani & around, 1m, 1.vi.2000, J.P.Sati & party.

Distribution : INDIA: Kerala, Tamil Nadu, Uttarakhand and Uttar Pradesh.

***Rhynchium brunneum* (Fabricius)**

Material examined : Uttarakhand, Dehradun dist., Sabhawala, 1m, 29.vi.2000, J.P.Sati & party.

Distribution : Throughout India.

Elsewhere : Afghanistan, Iraq, Indonesia, Pakistan, Myanmar and Sri Lanka.

***Rhynchium nitidulum* (Fabricius)**

Material examined : Uttarakhand, Dehradun dist., Karuapani & around, 1 m, 1. vii.2000, J.P.Sati & party.

Distribution : INDIA: Bihar, Uttarakhand and West Bengal.

Elsewhere : Myanmar.

***Odynerus sichelii* Saussure**

Material examined : Uttarakhand, Dehradun dist. Sabhawala, 3f, 1m, 29.vi.2000, J.P.Sati & party.

Distribution : INDIA: Uttarakhand.

Elsewhere : Myanmar.

Remarks : This is a new record from Uttarakhand.

Family POMPILIDAE

***Salius flavus* (Fabricius)**

Material examined : Uttarakhand, Dehradun dist., Kulhal nala near Kulhal, 1 f, 1m, 8.viii.2001, A.Husain & party.

Distribution : Throughout India.

Elsewhere : Myanmar, Malaysia and Sri Lanka.

Family SPHECIDAE

Ammophila atripes Smith

Material examined : Uttar Pradesh, Saharanpur dist., Mohand Rao, 1m, 14.ix.2001., 1.f, 9.xi.2001, A.Husain & party, Darari, ca 10 kms. on Timli-Badshahibagh road, 2m, 28.vi.2000, Timli-Asarori road, ca 8 Kms. from Asarori, 2m, 12.vi.2000, J.P.Sati & party; Uttarakhand, Dehradun dist., Karuapani & around, 1m, 1.vii.2000, J.P.Sati & party.

Distribution : Throughout India.

Elsewhere : Myanmar and Sri Lanka.

Chalybion bengelense (Dahlbom)

Material examined : Uttar Pradesh, Saharanpur dist., Darari, ca 10 kms. on Timli-Badshahibagh road, 1f, 28.vi.2000, J.P.Sati & party.

Distribution : INDIA: Throughout India.

Elsewhere : Australia, China, Gilberts, Hawaii, Indonesia, Japan, Johnson, Malaysia, Mauritius, Marianas, Mozambique, Philippines, Phoenix Island, Socotra, Seychelles and Sri Lanka.

Liris subtsellata (Smith)

Material examined : Uttar Pradesh, Saharanpur dist. Sankra nala, 1 f, 28.xi.2001, 2f, 5.xii.2001, N.K.Sinha & party, Mohand, Khajawar nadi, 1f, 27.ii.2001, A. Husain & party.

Distribution : INDIA: Throughout mainland.

Elsewhere : Fiji, Hawaii, Marshals, Mediterranean region (eastern), Ryukyus, South-West Asia.

REFERENCES

- Bingham, C.T. 1897. *The Fauna of British India, including Ceylon and Burma, Hym.*, 1(Wasps and Bees) : 579 pages, 4 plates (Taylor and Frances, London).
- Gupta, S.K. 1994. Hymenoptera (Insecta), *In Fauna of Rajaji National Park. Fauna Conser. Area*, 5: 301-307 (Pub. ZSI, Kolkata).

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INTRODUCTION

Doon valley is bestowed with rich network of perennial rivers/hillstreams, ponds and reservoirs, which provides an ideal habitat for the diversified fish fauna to flourish. Geographically Doon valley is divided into Eastern and Western Doon valley. As per the review of literature the research work on fishes was carried out mostly on Eastern Doon valley (Ganga drainage) the important contributors are Hora and Mukerjee (1936), Lal and Chatterjee (1962), Singh (1964), Grover (1969, 1970), Mishra and Joshi (1970), Tilak and Husain (1973, 1976, 1977, 1978, 1990), Husain (1985, 1987, 1995), Prakash and Grover (1983), Grover and Tripathi (1985), Husain and Tilak (1995), Grover *et al.* (1994), Rauthan *et al.* (2000). Where as Western Doon valley (Yamuna drainage) remains less explored due to tough terrain and poor accessibility of road. Singh (1964) for the first time surveyed the Western Doon valley later Singh and Gupta (1979), Husain (1985, 1987, 1995,) worked on selected parts. Recently Uniyal *et al.* (2001a, 2001b, 2002, 2003a, 2003b, 2004, 2005), Bahuguna *et al.* (2001), Uniyal (2002), Uniyal and Kumar (2002, 2006) conducted the extensive survey of Western Doon valley and worked on the taxonomy, ecology, food and feeding, breeding habitat, hydro-biology, fishing methods, GIS and Remote sensing application and conservation and management approach related to the fish and fishery of the area.

In Western Doon valley the Shiwalik ecosystem plays a vital role and supports diversified fish fauna, but no serious attempts has been made to explore the fish fauna of this fragile ecosystem in detail. In order to fill the gap of knowledge. The Northern Regional Station, Zoological Survey of India, Dehradun has undertaken the study of Western Doon Shiwaliks. The area has been thoroughly surveyed for the period of 3 years (2000-2003). Fish specimens were collected from rivers, ponds, reservoirs and channels by applying various Fishing methods i.e. cast net, rod net, angling, patti net and hand picking. A total of 34 species of fishes belonging 20 genera, 11 families and 4 orders have been reported.

In present paper the common /english names and local names of the fish has been mentioned besides this the status of the fish has also been given as assigned in CAMP (1997) on the guideline of IUCN (1991), for better understanding. Classification given by Nelson

(1984) is followed with slight modification that of Talwar and Jhingran (1994) and Jayaram (1999).

SYSTEMATIC ACCOUNT

Order CYPRINIFORMES
Family CYPRINIDAE

1. *Barilius barna* (Hamilton- Buchanan)

Barna Baril

Local name: Childi

Status: Low Risk- near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Asan river, vill. Jhiva –Redi, Shimla road, 10ex.,30.v.2000. coll. *A.Husain & party*; Sakra nala, Timli- Badshaibagh road 40 ex., 30.v.2000, coll. *A.Husain & party*; Sankra nala, Timli-Badshaibagh road, 15 ex.,12.ix.2000, coll. *A.Husain & party*; Asan river, Badowala, Shimla road, 1 ex. *A.Husain & party*; Lalonala, vill. Sodi Nagar, Mohand-Shakumbra devi road, 60 ex. *A.Husain & party*; Sankra nala, Timli-Badshaibagh road, 100 ex.,13.x.2000, *N.K.Sinha & party*; Sankra nala, Timli-Badshaibagh road, 110 ex., 20.x.2000, *A.Husain & party*.

Distribution: India (Assam, Bengal, Bihar, Orissa, Uttarakhand).

Elsewhere : Pakistan.

2. *Barilius bendelisis* (Hamilton- Buchanan)

Hamilton's Barila

Local name: Sunara or Chedra

Status: Low Risk- near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 24 ex., 27.vi.2000, coll. *J.P.Sati & party*; Jhima reddy vill. Asan river, 35 ex., 30.vi.2001, coll. *A.Husain & party*; Bhure Shah, 26 exs., 6.ix.2001, coll. *N.K.Sinha & party*; Karva pani, Asharori, 101 ex., 30.vi.2001; 1 ex., 22.xi.2001, coll. *J.P. Sati & party*; 45 ex., 28.vi.2001, coll. *A.Husain & party*; Mohand Rao; 67 ex., 1.ii.2001; 10 exs., 8.viii.2001; 11 ex., 24.viii.2001; 21 ex., 9.xi.2001,40 ex., 19.x.2001, coll. *A.Husain & party*; Sabhawala, 19 ex., 29.vi.2000, coll. *J.P.Sati & party*; Timli forest, 29 exs., 6.vii.2001, coll. *Arun Kumar & party*; 82 exs., 10.viii.2001; 41 ex., 19.ix.2001; 12 exs., 27.xi.2001, coll. *J.P.Sati & party*; Sankra nala on Badshaibagh road, 42 exs., 6.ix.2001 coll. *N.K.Sinha & party*.

Distribution : Throughout India except Kerala.

Elsewhere : Nepal, Myanmar and Sri Lanka.

3. *Barilius vagra* (Hamilton- Buchanan)

Vagra Baril

Local name: Childi

Status: Vulnerable (VU)

Material examined : India: Uttarakhand, Dehra Dun dist., Kulhal nala, 28 exs., 8.viii.2001, coll. *A.Husain & party*, Sankra nala on Badshaibagh road, 14 ex., 30.v.2000, coll. *A. Husain & party*; Timli forest, 28 exs., 20.xi.2000 coll. *N.K.Sinha & party*.

Distribution : Northern India (Brahamaputra, Ganga, Indus and Yamuna system).

Elsewhere : Sri Lanka, Pakistan and Nepal.

4. *Brachydanio rerio* (Hamilton- Buchanan)

Zebra Danio

Local name: Dharidar Salari

Status : : Low Risk- near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Khajnawar nala, Shakumbhri road, 3 exs., 12.iv.2002 coll. *S.K.Gupta & party*; Karva pani, Asharori, 14 exs., 27.xi.2001; 4 exs., 18.i.2002; 6 exs., 20.ii.2002; 15 exs., 5.iv.2002, coll. *J.P.Sati & party*; Kulahal, Kulhal nala, 1ex.,8.viii.2001,coll. *A.Husain & party* Sankra nala, Badshaibagh road, 1 ex., 13.vii.2001, coll. *N.K.Sinha & party*; Sabhawala, 11 ex., 5.iv.2002, coll. *J.P.Sati & party*;Timli forest, 2 ex., 6.vii.2001, coll. *Arun Kumar & party*; 10 exs., 7.iii.2002, coll. *J.P.Sati & party*.

Distribution: India (West Bengal to Krishna river system in the south and Uttarakhand in North).

Elsewhere : Bangladesh, Nepal and Pakistan.

5. *Danio devario* (Hamilton- Buchanan)

Devario Danio

Local name: Chand

Status : Low Risk- near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Sabhawala, Asan river, 4 ex., 14-xi-2000, coll. *D.P.Uniyal & party*; Mohand Rao, 1 ex., 18.v.2001 coll. *N.K. Sinha & party*.

Distribution: India (Northern India).

Elsewhere : Bangladesh, Nepal and Pakistan.

6. *Esomus danricus* (Hamilton- Buchanan)

Flying Barb

Local name: Chal

Status: Low Risk- least concern (LRic)

Material examined: India: Uttarakhand, Dehra Dun dist. Karva pani, Asha rori, 1 ex., 6.vii.2001, coll. *Arun Kumar & party*; Mohand Rao, 1 ex., 30.vi.2000, coll. *J.P. Sati & party*; 2 exs., 19.x.2001, coll. *A.Husain & party* Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna & party*.

Distribution: Throughtout India.

Elsewhere : Bangladesh, Nepal, Mayanmar, Sri Lanka and Pakistan.

7. *Parluciosoma daniconius* (Hamilton- Buchanan)

Striped Rasbora

Local name: Bhuri or Bhurata

Status: Low Risk- near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., 1 ex., 22.xi.2001, coll. *J.P.Sati & party*; Sankra nala, Badshaibagh road, 1 ex., 12.ix.2000, coll. *A.Husian & party*.

Distribution: Throughout India.

Elsewhere : Myanmar Sri Lanka and Pakistan.

8. *Raiamas bola* (Hamilton- Buchanan)

Indian Trout

Local name: Bola or Balala

Status: Vulnerable (VU), now it is listed under the category of Endangered.

Material examined: India: Uttarakhand, Dehra Dun dist., Sankra nala, Badshaibagh road, 1 15.vi. 2001, coll. *N.K.Sinha & party*.

Distribution : Northern India upto Orissa.

Elsewhere : Bangladesh, Myanmar and Nepal.

9. *Chagunius chagunio* (Hamilton- Buchanan)

Local name : Patana or chib

Status : Not Evaluated (NE)

Material examined : India: Uttarakhand, Dehra Dun dist., Sankra nala, Badshaibagh road, 4 ex., 13.vii.2001, coll. *N.K.Sinha & party*; Khajnowar nala, Mohand-Badshaibagh road, 1 ex., 5.iv.2002, coll. *A. Husain & party*.

Distribution : India (Northern portion along base of Himalayas).

Elsewhere : Nepal, Bangladesh, Myanmar and Thailand.

10. *Puntius chola* (Hamilton- Buchanan)

Swamp Carp

Local name: Phunti or Phunata

Status: Vulnerable (VU)

Material examined : India: Uttarakhand, Dehra Dun dist., Karva pani, Asharori, 1 ex., 3.xi.2000; Mohan Rao, 1 ex., 9.xi.2001 coll. *A. Husain & party*, Punjana nadi, Badshahibagh road, 1 ex., 28.xi.2001, coll. *N.K.Sinha & party*; Sankra nala, 28.vi.2000; 2 exs., 4.x.2001, coll. *J.P. Sati & party*; 1 ex., Sankra nala, Badshaibagh road, 4 ex., 13.vii.2001, coll. *N.K.Sinha & party*; 5.xii.2001, coll. *N.K.Sinha & party*; 1 ex., 12.ix.2000, coll. *A.Husain & party*; 2 exs., 20.vii.2001, coll. *P.C.Tak & party*; Sankra nala, Badshaibagh road, 4 ex., 13.vii.2001, coll. *N.K.Sinha & party*; 2000; 2 exs., 15.vi.2001, coll. *N.K.Sinha & party*; 2 exs, 6.vii.2001, coll. *Arun Kumar & party*; 1 ex., 10.viii.2001, coll. *J.P.Sati & party*.

Distribution : Throughout India.

Elsewhere : Bangladesh, Pakistan, Nepal, Sri Lanka and Myanmar.

11. *Puntius conchoni* (Hamilton- Buchanan)

Red Barb

Local name: Phuti

Status: Vulnerable (VU)

Material examined: India: Uttarakhand, Dehra Dun dist., Bhure Shah, 1 ex., 28.vi.2001, coll. *A.Husian & party*; 4 exs., 6.ix.2001, coll. *N.K.Sinha & party*; Mohand Rao, 1 ex., 14.ix.2001, coll. *A.Husian & party*; Karva pani Asharori, 8 exs., 28.vi.2001, coll. *A.Husian & party*; 2 exs., 6.vii.2001, coll. *Arun Kumar party*; Kulhal, Kulhal nala, 12 exs., coll. *A.Husain & party*; Kirtipur near Mohand Rao, 1 ex., 28.vii.2001, coll. *A.Husian & party*; Punjana nadi, Badshahibagh road, 1 ex., 28.xi.2001, coll. *N.K.Sinha & party*; Sankra nala, 28.vi.2000; 2 exs., 4.x.2001, coll. *J.P.Sati & party*; 1 ex., 15.vi.2001; 2 exs., 18.vii.2000; 6 exs., 11.x.2001; 1 ex., 5.xii.2001, coll. *N.K.Sinha & party*; 1 ex., 12.ix.2000, coll. *A.Husian & party*; 2 exs., 20.vii.2001, coll. *P.C.Tak & party*; Sodinagar, Shakumbhri road, 1 ex., 24.vii.2001, coll. *A.Husian & party*; Timli forest, 1 ex., 20.xi.2000; 2 exs., 15.vi.2001, coll. *N.K.Sinha & party*; 2 exs., 6.vii.2001, coll. *Arun Kumar & party*; 1 ex., 10.viii.2001, coll. *J.P.Sati & party*.

Distribution: India (Bharamaputra, Ganga, Mahai river system of Assam, Bihar, Uttar Pradesh, Uttarakhand, Orissa and W.Bengal).

Elsewhere : Bangladesh and Pakistan.

12. *Puntius sarana* (Hamilton- Buchanan)

Olive Barb

Local name: Phuta

Status: Vulnerable (VU)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 2 exs., 3.v.2000, coll. *A.Husian & party*; Timli forest Darrari vill. 1 ex., 28.vi.2000; Karva pani, Asharori, 1 ex., 5.iv.2002, coll. *J.P.Sati & party*.

Distribution: Throughout India (except South of Krishna river).

Elsewhere : Nepal, Bangladesh and Myanmar.

13. *Puntius sophore* (Hamilton- Buchanan)

Soft-fin Barb

Local name: Phunti

Status: Low Risk- near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 4.v.2001, coll. *Vinod Khanna & party*; Bhure Shah, 2 exs., 10.viii.2001, coll. *J.P.Sati & party*; Mohand, Kaluwala, 1 ex., 30.vi.2000, coll. *J.P. Sati & party*; Karva pani, Asharori, 3 exs., 3.xi.2000, coll. *A.Husian & party*; Lalo nala, Sodinagar vill. Shakumbhri road, 1 ex., 22.ix.2000, coll. *A.Husian & party*; Mohand Rao, 3 exs., 3.xi.2000; 1 ex., 14.ix.2001, coll.

A. Husian & party; Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party; Sankra nala, Badshahibagh road, 2 exs., 18.vii.2000; 2 exs., 13.x.2000; 1 ex., 13.vii.2001; 2 exs., 11.x.2001, coll. *N.K.Sinha* & party; Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party; 1 ex., 20.xi.2000, coll. *N.K. Sinha* & party; 4 exs., 6.vii.2001, coll. *Arun Kumar* & party.

Distribution : Throughout India.

Elsewhere : Myanmar, Bangladesh and China.

14. *Putius ticto* Hamilton- Buchanan Fire-fin Barb, Two-spot Barb

Local name: Phunti

Status: Low Risk- near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 1 ex., 27.vi.2000, coll. *J.P.Sati* & party; Kaluwala, Mohand, 1 ex., 30.vi.2000, *J.P.Sati* & party; Karva pani, Asharori, 3 exs., 3.xi.2000, coll. *A.Husian* & party; Lalo nala, Sodinagar vill. Shakumbhri road, 1 ex., 22.ix.2000, coll. *A.Husian* & party; Mohand Rao, 3 exs., 3.xi.2000; 1 ex., 14.ix.2001, coll. *A.Husian* & party; Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party; Sankra nala, Badshahibagh road, 2 exs., 18.vii.2000; 2 exs., 13.x.2000; 1 ex., 13.vii.2001; 2 exs., 11.x.2001, coll. *N.K.Sinha* & party; Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party; 1 ex., 20.xi.2000 Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party.

Distribution: Throughout India.

Elsewhere : Nepal, Pakistan, Sri Lanka, Bangladesh and Myanmar.

15. *Tor tor* (Hamilton- Buchanan) Red-finned Mahseer

Local name: Lal Mahseer, Makhni

Status: Endangered (EN)

Material examined : India: Uttarakhand, Dehra Dun dist., Mohand Rao, D.Dun-Delhi road, 2 ex. 18.vii.2001, Bhure Shah nala, 1 ex., 16.ix.2001, coll. *N.K.Sinha* & party

Distribution: India (Foothills of Himalaya, Assam, Bihar, Madhya Pradesh).

Elsewhere : Bangladesh and Pakistan.

Remark : The species of *Tor* genus is listed in endangered category and they carry high table value due to which these fishes were killed indiscriminately and these fishes are also

called as angler's delight. Especially program is launched by various NGO's and Govt. department to save these fishes.

16. *Crossocheilus latius* (Hamilton- Buchanan)

Gangetic Latia

Local name: Dhanaura

Status: Data deficient (DD)

Material examined: India: Uttarakhand, Dehra Dun dist., Sankra nala, Badshahibagh road, 1 ex., 12.ix.2000, Mohand Rao, D.Dun-Delhi road, 2 ex., 14.ix.2001 coll. *A.Husian & party*, Mohand Rao, D.Dun-Delhi road, 4 ex., 14.iv.2001 coll. *N.K.Sinha & party*.

Distribution: India (Bharamaputra, Ganga river system, Deolali and Maharashtra).

Elsewhere : Bangladesh, Nepal and Pakistan.

17. *Garra gotyla gotyla* (Gray)

Stone Fish

Local name: Gotla, Chipi

Status: Vulnerable (VU)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 7 ex., 27.vi.2000, coll. *J.P.Sati & party*; Kaluwala, Mohand, 1 ex., 30.vi.2000, *J.P.Sati & party*; Karva pani, Asharori, 11 exs., 3.xi.2000, coll. *A.Husian & party*; Lalo nala, Sodinagar vill. Shakumbhri road, 1 ex., 22.ix.2000, coll. *A.Husian & party*; Mohand Rao, 3 exs., 3.xi.2000; 13 ex., 14.ix.2001, coll. *A.Husian & party*; Asan river, Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna & party*; Sankra nala, Badshahibagh road, 32 exs., 18.vii.2000; 2 exs., 13.x.2000; 1 ex., 13.vii.2001; 24 exs., 11.x.2001, coll. *N.K.Sinha & party*; stream nr. Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal & party*; Badowal, Asan River, 18 ex., 12.ix.2001, coll. *A.Husian & party*; Timli forest, 11 ex., 27.xi.2001; 10 ex., 19.x.2002, coll. *J.P.Sati & party*.

Distribution: India (All along the Himalaya).

Elsewhere : Nepal, Bangladesh, Pakistan and Sri Lanka.

Family BALITORIDAE (Loaches)

18. *Nemacheilus bavani* Gunter

Beavan's Loach

Local name: Childi

Status: Not Evaluated (NE)

Material examined: India: Uttarakhand, Dehra Dun dist., Asan river, Sabhawala, 10 ex., 4.v.2001, coll. *Vinod Khanna & party*; Sankra nala, Badshahibagh road, 32 exs., 18.vii.2000; 2 exs., 13.x.2000; 11 ex., 13.vii.2001; 24 exs., 11.x.2001, coll. *N.K.Sinha & party*; stream nr. Timli forest, 7 ex., 15.xi.2000, coll. *D.P.Uniyal & party*; Badowala, Asan River, 21 ex., 20.iv.2001, coll. *Vinod Khanna & party*.

Distribution: Northern India.

Elsewhere : Sri Lanka.

19. *Nemacheilus botia* (Hamilton- Buchanan)

Botia Loach

Local name Gadera, Nauri

Status : Common.

Material examined : India: Uttarakhand, Dehra Dun dist., Asan river, Sabhawala, 10 ex., 4.v.2001, coll. *Vinod Khanna & party*; Sankra nala, Badshahibagh road, 32 exs., 18.vii.2000; 2 exs., 13.x.2000; 11 ex., 13.vii.2001; 24 exs., 11.x.2001, coll. *N.K.Sinha & party*; stream nr. Timli forest, 7 ex., 15.xi.2000, coll. *D.P.Uniyal & party*; Badowala, Asan River, 21 ex., 20.iv.2001, coll. *Vinod Khanna & party*. Stream nr. Timli FRH, 1 ex., 20.xi.2000, coll. *N.K.Sinha & party*.

Distribution India (Assam, Bihar, Uttar Pradesh and Uttarakhand).

Elsewhere : Sri Lanka.

20. *Nemacheilus montanus* (McClelland)

Mountain Loach

Local name: Childi

Status: Endangered (EN)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 12.ix.2000, coll. *A.Husian & party*; Bhure Shah Rao 1 ex., 20.vii.2001, coll. *P.C.Tak & party*; Mohand Rao, 2 ex., 14.ix.2001; 19.x.2001. coll. *A.Husian & party*.

Distribution: India (Bihar, Himachal Pradesh and Uttarakhand).

Elsewhere : Nepal and Bangladesh.

21. *Nemacheilus rupecola* (McClelland)**Rupecola Loach**

Local name: Ghidiyala, Gadera

Status: Low Risk-near threatened (LRnt)

Material examined: India : Uttarakhand, Dehra Dun dist., Mohand, A nala near Daat mandir, 21 ex., 24.viii.2001, coll. *A. Husain & party*; Badowala, Asan River, 7 ex., 27.vi.2000, coll. *J.P.Sati & party*; Timli forest, 1 ex., 6.vii.2001, coll. *Arun Kumar & party*; stream nr. Timli forest, 7 ex., 15.xi.2000, coll. *D.P.Uniyal & party*; Badowala, Asan River, 21 ex., 20.iv.2001, coll. *Vinod Khanna & party*; stream nr. Timli FRH, 1 ex., 20.xi.2000, coll. *N.K.Sinha & party*.

Distribution: India (Jammu & Kashmir, Himachal Pradesh, part of Uttar Pradesh and Uttarakhand).

Elsewhere : Pakistan.

22. *Nemacheilus savona* (Hamilton-Buchanan)**Savon Loach**

Local name : Gadara

Status : Not Evaluated (NE)

Material examined : India: Uttarakhand, Dehra Dun dist., Bhure Shah Rao, 4 ex., 6.ix.2001, coll. *N.K.Sinha & party*; 2 ex., 10.viii.2001, coll. *J.P.Sati & party*; Timli forest, 1 ex., 19.ix.2001, coll. *J.P.Sati & party*.

Distribution : Northern India.

Elsewhere : Myanmar.

Family COBITIDAE

23. *Lepidocephalus guntea* (Hamilton- Buchanan)**Guntea Loach**

Local name: Gwani, Nauni

Status: Not Evaluated (NE)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 7 ex., 27.vi.2000, coll. *J.P.Sati & party*; Kaluwala, Mohand, 11 ex., 30.vi.2000, *J.P.Sati & party*;

Karva pani, Asharori, 11 exs., 3.xi.2000, coll. *A.Husian & party*; Lalo nala, Sodinagar vill. Shakumbhri road, 1 ex., 22.ix.2000, coll. *A.Husian & party*; Mohand Rao, 3 exs., 3.xi.2000; 13 ex., 14.ix.2001, coll. *A.Husian & party*; Asan river, Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna & party*; Sankra nala, Badshahibagh road, 32 exs., 18.vii.2000; 2 exs., 13.x.2000; 1 ex., 13.vii.2001; 24 exs., 11.x.2001, coll. *N.K.Sinha & party*; stream nr. Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal & party*; Badowal, Asan River, 18 ex., 12.ix.2001, coll. *A.Husian & party*; Bhure Shah, 1 ex., 20.vii.2001, coll. *P.C.Tak & party*; Mohand Rao, 1 ex., 14.ix.2001, coll. *A.Husian & party*; Karva pani, 1 ex., 6.vii.2001, coll. *Arun Kumar & party*; Timli forest, 1 ex., 23.v.2001, coll. *Vinod Khanna & party*; 1 ex., 19.ix.2001, coll. *J.P. Sati & party*.

Distribution: Throughout Northern India.

Elsewhere : Nepal and Bangladesh.

Order SILURIFORMES

Family BAGRIDAE

24. *Mystus bleekeri* (Day)

Day's *Mystus*

Local name: Kater, Trikanda

Status: Vulnerable (VU)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowal, Asan River, 1 ex., 27.vi.2000; Karva pani, 1 ex., 1.vii,2000, coll. *J.P.Sati & party*; Kajnawar nala, 2 exs., 12.iv.2002, *S.K.Gupta & party*; Sabhawala, Asan river, 1 ex., 4.v.2001, coll. *Vinod Khanna & party*.

Distribution: Throughout India.

Elsewhere: Bangladesh, Nepal and Sri Lanka.

25. *Mystus vittatus* (Bloch)

Fiddler Fish

Local name: Tengra, Trikhanda

Status: Vulnerable (VU)

Material examined : India: Uttarakhand, Dehra Dun dist., Kavapani, 2 exs., 16.xi.2000; stream nr.Timli FRH 1 ex., 15.xi.2000, coll. *D.P.Uniyal & party*; Kajnawar nala, 2 exs., 12.iv.2002, *S.K.Gupta & party*.

Distribution: Throughout India.

Elsewhere: Pakistan, Bangladesh, Nepal, Sri Lanka, Thailand and Myanmar.

Family AMBLYCIPITIDAE

26. *Amblyceps mangois* (Hamilton-Buchanan)

Indian Torrent Catfish

Local name: Chhoti singhi

Status: Low Risk near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Badowala, Asan river, 7 ex., 27.vi.2000, coll. *J.P.Sati* & party; Kaluwala, Mohand, 11 ex., 30.vi.2000, *J.P.Sati* & party; Karva pani, Asharori, 11 exs., 3.xi.2000, coll. *A.Husian* & party; Lalo nala, Sodinagar vill. Shakumbhri road, 1 ex., 22.ix.2000, coll. *A.Husian* & party; Mohand Rao, 3 exs., 3.xi.2000; 13 ex., 14.ix.2001, coll. *A.Husian* & party; Asan river, Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party; Sankra nala, Badshahibagh road, 32 exs., 18.vii.2000; 2 exs., 13.x.2000; 1 ex., 13.vii.2001; 24 exs., 11.x.2001, coll. *N.K.Sinha* & party; stream nr. Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party; Badowal, Asan River, 18 ex., 12.ix.2001, coll. *A.Husian* & party; Bhure Shah, 1 ex., 20.vii.2001, coll. *P.C.Tak* & party; Mohand Rao, 1 ex., 14.ix.2001, coll. *A.Husian* & party; Karva pani, 1 ex., 6.vii.2001, coll. *Arun Kumar* & party; Karva pani, Asharori, 1 ex., 22.xi.2001; 1 ex., 5.iv.2002, coll. *J.P.Sati* & party; Sankra nala, Badshahibagh road, 1 ex., 11.x.2001, coll. *N.K.Sinha* & party; Timli Forest, 1 ex., 27.xi.2001, coll. *J.P.Sati* & party.

Distribution: India (Along the foothills of Himalayas from Kangra valley to Assam).

Elsewhere: Myanmar, Nepal, Pakistan and Thailand.

Family SISORIDAE

27. *Glyptothorax pectinopterus* (McClland)

Sucker Catfish

Local name: Pathar-chatti, Chatan machali

Status: Low Risk near threatened (LRnt)

Material examined : India: Uttarakhand, Dehra Dun, Mohand Rao, 11 ex., 30.vi.2000, *J.P.Sati* & party; Karva pani, Asharori, 11 exs., 3.xi.2000, coll. *A.Husian* & party; Lalo nala, Sodinagar vill. Shakumbhri road, 1 ex., 22.ix.2000, coll. *A.Husian* & party; Mohand Rao, 3

exs., 3.xi.2000; 13 ex., 14.ix.2001, coll. *A.Husian* & party, Asan river, Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna* & party; Sankra nala, Badshahibagh road, 32 exs., 18.vii.2000; 2 exs., 13.x.2000; 1 ex., 13.vii.2001; 24 exs., 11.x.2001, coll. *N.K.Sinha* & party; stream nr. Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party; Badowal, Asan River, 18 ex., 12.ix.2001, coll. *A.Husian* & party; Bhure Shah, 1 ex., 20.vii.2001, coll. *P.C.Tak* & party; Mohand Rao, 1 ex., 14.ix.2001, coll. *A.Husian* & party; Karva pani, 1 ex., 6.vii.2001, coll. *Arun Kumar* & party; Timli forest, 1 ex., 23.v.2001, coll. *Vinod Khanna* & party; Karva pani, Asharori, 1 ex., 1.vii.2000, coll. *J.P.Sati* & party; Mohand, a nala near Daat Mandir, 1 ex., 24.viii.2001, coll. *A.Husian* & party.

Distribution : India (Punjab, Himachal Pradesh, Uttar Pradesh, Bihar and Uttarakhand).

Elsewhere : Pakistan and Nepal.

Family HETERONOPEUSTIDAE

28. *Heteropneustes fossilis* (Bloch)

Scorpion Fish

Local name: Singhi, Billi macchi

Status : Vulnerable (VU)

Material examined : India: Uttarakhand, Dehra Dun, Karva pani, Asharori, 3 exs., 8.vi.2001, coll. *J.P.Sati* & party; 1 ex., 28.vi.2001, coll. *A.Husian* & party.

Distribution : India (Punjab, Bihar, Uttar Pradesh, Uttarakhand, W.Bengal, Orissa and Madhya Pradesh).

Elsewhere : Pakistan, Nepal, Sri Lanka, Bangladesh and Thailand.

Order BELONIFORMES

Family Belonidae

29. *Xenentodon cancila* (Hamilton-Buchanan)

Needle Fish, Freshwater Grafish

Local name: Sua, Chamti Machhi

Status: Low Risk near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Mohand Rao, 3 exs., 9.xi.2001, coll. *A.Husian* & party; karva pani, Asharori, 3 exs., 22.xi.2001; 1 ex., 27.xi.2001, coll. *J.P.Sati*

& party; Kajnawar nala, Shakumbhri road, 1 ex., 12.4.2002, coll. *S.K.Gupta & party*; Punjana nadi, 4 exs., 28.xi.2001, coll. *N.K.Sinha & party*; Sankra nala, Badshahibagh road, 1 ex., 15.xi.2000, coll. *D.P.Uniyal & party*.

Distribution: Throughout India.

Elsewhere : Bangladesh, Nepal, Pakistan and Myanmar.

Order PERCIFORMES

Family NANIDAE

30. *Badis badis* (Hamilton-Buchanan)

Dwarf Chameleon Fish

Local name: Sapari, Chiri

Status: Not Evaluated (NE).

Material examined: India: Uttarakhand, Dehra Dun dist., Mohand Rao, 3 exs., 9.xi.2001, coll. *A.Husian & party*; Karva pani, Asharori, 3 exs., 22.xi.2001; 1 ex., 27.xi.2001, coll. *J.P.Sati & party*; Kajnawar nala, Shakumbhri road, 1 ex., 12.4.2002, coll. *S.K.Gupta & party*; Punjana nadi, 4 exs., 28.xi.2001, coll. *N.K.Sinha & party*; Sankra nala, Badshahibagh road, 1 ex., 15.xi.2000, coll. *D.P.Uniyal & party*; Sankra nala, Badshahibagh road, 1 ex., 13.x.2000, coll. *N.K.Sinha & party*; Timli forest, 1 ex., 6.vii.2001, coll. *Arun Kumar & party*.

Distribution: Throughout India.

Elsewhere : Bangladesh, Pakistan and Thailand.

Remark: This species is used in aquarium and carry no table value.

Family CHANNIDAE

31. *Channa gachua* Hamilton-Buchanan

Asiatic Snakeheaded

Local name: Saap Machhi, Dawla, Doli

Status : Not Evaluated (NE)

Material examined : India: Uttarakhand, Dehra Dun dist., Mohand Rao, 3 exs., 3.xi.2000; 13 ex., 14.ix.2001, coll. *A.Husian & party*, Asan river, Sabhawala, 1 ex., 4.v.2001, coll. *Vinod Khanna & party*; Sankra nala, Badshahibagh road, 32 exs., 18.vii.2000; 2 exs., 13.x.2000; 1

ex., 13.vii.2001; 24 exs., 11.x.2001, coll. *N.K.Sinha* & party; stream nr. Timli forest, 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party; Badowal, Asan River, 18 ex., 12.ix.2001, coll. *A.Husian* & party; *Bhure* Shah, 1 ex., 20.vii.2001, coll. *P.C.Tak* & party; Mohand Rao, 1 ex., 14.ix.2001, coll. *A.Husian* & party; Karva pani, 1 ex., 6.vii.2001, coll. *Arun Kumar* & party; Timli forest, 1 ex., 23.v.2001, coll. *Vinod Khanna* & party.

Distribution : Throughout India.

Elsewhere : Afganistan, Bangladesh, Nepal, Paikastan, Sri Lanka, Thailand and Myanmar.

32. *Channa punctatus* (Bloch)

Spotted Snakeheaded

Local name: Saap Machhi, Sauli, Doli

Status: Low Risk near threatened (LRnt)

Material examined: India: Uttarakhand, Dehra Dun dist., Bado wala, Asan River, 1 ex., 27.vi.2000, coll. *J.P.Sati* & party; Mohand Rao, 1 ex., 3.xi.2000; 1 ex., 20.iv.2001; 1 ex., 2.ii.2001, 1 ex., 8.viii.2001, coll. *A.Husian* & party; 3 exs., Karva pani, Asharori, 1 ex., 1.vii.2000; 5 exs., 8.vi.2001, coll. *J.P.Sati* & party; 3 exs., 6.vii.2001, coll. *Arun Kumar* & party; Sankra nala, Badshahibagh road, 2 exs., 28.vi.2000, coll. *J.P.Sati* & party; Timli forest, 1 ex., 22.ix.2000, coll. *A.Husian* & party; 3 exs., 6.vii.2001, coll. *Arun Kumar* & party; Tiparpur, Mohand, 1 ex., 19.ix.2001, coll. *J.P.Sati* & party; A nala near Daat Mandir, Mohand, 2 exs., 24.viii,2001, coll. *A.Husian* & party; stream nr Timli, Darrari vill. 1 ex., 28.vi.2000, coll. *J.P.Sati* & party.

Distribution: Throughout India.

Elsewhere : Pakistan and Nepal.

Family MASTACEMBLIDAE

33. *Mastecembalus armatus* (Lacepede)

Tire-track Spiny-eel

Local name : Baam

Status : Not Evaluated (NE)

Material examined : India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 27.vi.2000, coll. *J.P.Sati* & party, stream nr. Timli FRH., 1 ex., 15.xi.2000, coll. *D.P.Uniyal* & party; a nala near Daat Mandir, Mohand, 2 exs., 24.viii,2001, coll. *A.Husian* & party.

Distribution : Throughout India.

Elsewhere : Bangladesh, China, Nepal, Pakistan, Sri Lanka and Myanmar.

**34. *Macrogonathus pancalus* Hamilton-Buchanan
Freshwater eel**

Local name : Baam

Status : Low Risk near threatened (LRnt)

Material examined : India: Uttarakhand, Dehra Dun dist., Badowala, Asan River, 1 ex., 27.vi.2000, coll. *J.P.Sati* & party; stream nr. Timli FRH., 4 ex., 15.xi.2000, coll. *D.P.Uniyal* & party.

Distribution : Throughout India.

Elsewhere : Pakistan, Nepal, China and Myanmar.

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REFERENCES

- Bahuguna, S.N., Uniyal, D.P, Kumar, Arun and Bahuguna, Manisha 2001. Fishing methods and related problem in tribal area of Jaunsar-Bawar (Uttaranchal), Western Himalaya, India. *Ann. For.* 9(1): 152-162.
- C.A.M.P. 1997. *Freshwater fishes CAMP workshop*. Pp.1-10. Organized by N.B.F.G.R and ZOO/CBSG, Lucknow, India.
- Grover, S.P. 1969. Fishing notes from the Doon, *Cheetal*. 11 (2): 23-24.
- Grover, S.P. 1970. On the collection of fishes of Song river in Doon Valley Uttar Pradesh. *G.K. Vishwa. J. Sci. Res.* 2: 115-118.
- Grover, S.P. 1979a. Field observations on the biology of *Puntius ticto* (Ham.) in Doon Valley. *Geobios.* 6(1): 17-18.

- Grover, S.P. 1979b. Taxonomic account and field observation on the biology of *Noemachilus rupicola* (McClelland) in Doon Valley. *Cheetal*. **21**(1): 27-28.
- Grover, S.P., Agarwal, B.S. and Rauthan, J.V.S. 1994. Ichthyofauna of Doon Valley. *Him. J. Env. Zool*. **38**(2): 133-136.
- Grover, S.P. and Tripathi, S. 1985. A study of sexual dimorphism in *Barilius bendelisis* (Hamilton) (Cyprinidae, Cyperiniformes), *Cheetal*. **26**(3-4): 49-53.
- Hora, S.L. and Mukerji, D.D. 1936. Fish of Eastern Doon, United Provinces. *Rec. Indian Mus. Fig. 1-5*. **38**(2): 133-146.
- Husain, A. 1985. On hill stream loach, *Nemacheilus rupecola* (McClelland) with bifurcated rostral barbel and deformed caudal fin. *Bull. Zool. Surv. India*. **7**(2-3): 337-339.
- Husain, A. 1987. *Studies on the fish fauna of some streams of Dehradun with notes on systematic, ecology and zoogeography*. Vol. I & II, pls 76. pp.1212. (D. Phil, Thesis submitted to H.N.B. Garhwal University, Srinagar, Unpublished).
- Husain, A. 1995. Pisces: In *Fauna of Western Himalaya (U.P.) Zool. Surv. of India Him. Eco. Series. (Part-1)*: 117-150.
- Husain, A. and Tilak, R. 1995. Fishes (Pisces). Fauna of conservation area 5: Rajaji National Park. 115-193, *Zoological Survey of India Publication*, Calcutta.
- IUCN. 1994. *IUCN Red list of threatened animals* compiled by World Conservation Monitoring Centre, Published by IUCN, Glad, Switzerland. p. 1-192.
- Jayaram, K.C. 1999. *The freshwater fishes of the Indian region*. p. 1-551. Narander Publication House, Delhi.
- Lal, M.B. and Chatterjee, P. 1962. Survey of Eastern Doon Fishes with certain notes on their biology. *J. zool. Soc. India*, **14** (2): 230-243.
- Mishra, D.N. and Joshi, D.P. 1970. Working plan for the West and East Dehra Dun forest division, Uttar Pradesh. Part.I:1-55
- Nelson, J.S. 1984. *Fishes of the world*. 2nd ed. John Wiley and Sons, New York: XV + 523.
- Prakash, K.O. and Grover, S.P. 1983. Factors responsible for the dwindling fish fauna of Doon Valley. *4th All India Seminar Ichthyol*, Dehradun. (Abstract 61).
- Rauthan J.V.S., Rawat, S., Rawat, G., Joshi, V. and Grover S.P. 2000. Taxonomy account and field observation on the biology of hill trout, *Barilius vagra vagra* (Ham.) in Doon valley. *Cheetal*. **39**(3-4): 62-66.

- Singh, K.N. and Gupta, P.N. 1979. Working plan for the West Dehra Dun forest division, Uttar Pradesh (1979-80 to 1988-89). Nainital. Vol. I: 64.
- Singh, P.P. 1964. Fishes of the Doon Valley. *Ichthyologica*, 3 (1-2): 86-92.
- Talwar, P.K. and Jhingran, A.G. 1991. *Inland fishes of India and adjacent countries*. Vols. 1 & 2; p. 1-1158, Oxford publication, New Delhi.
- Tilak, R. and Husain, A. 1973. Notes on fishes of Doon Valley, Uttar Pradesh 1. Distributional and morphological studies on some *Glyptothoracoid* fishes (Sisoridae). *Rec. Zool. Surv. India*, 67(1-4): 391-399.
- Tilak, R. and Husain, A. 1976. Description of a new species of the genus *Glyptothorax Blyth* from the river Yamuna, India (Pisces, Siluriformes: Sisoridae). *Ann. Zool. Warszawa* 33(14): 229-234. Fig. 1-8.
- Tilak, R. and Husain, A. 1977. Description of a new species of genus *Nemacheilus* from district Dehradun (U.P.) *Sci. & Cult.* Fig.1a-c. 43(3): 133-135.
- Uniyal, D.P., Bahuguna, S.N., Kumar Arun and Bahuguna Manisha 2001a. Bleaching powder meance for fish fauna of Amlawa river of Western Doon Valley. *Cheetal*. 40(3&4): 67-68.
- Uniyal, D.P., Bahuguna, S.N. and Kumar Arun 2001b. Conservation of fish diversity in Doon Valley. In: *Nat. Symp. on status of India's faunistic diversity & Env. and 12th All India Congress Zoology*, Haridwar. (Abstract No. 81. P. 36).
- Uniyal, D.P. 2002. *Eco-Taxonomical studies of Ichthyofauna of the Amlawa and Asan rivers of Western Doon Valley*. Pp.1- 248 + 43 pls. (D. Phil, Thesis submitted to H.N.B. Garhwal University, Srinagar, Garhwal, Uttaranchal, Unpublished).
- Uniyal, D.P. and Kumar, Arun 2002. Strategy for conservation and management of fish diversity of Uttaranchal. Pp.74-76 In: *National Strategy on Biodiversity Conservation and Action Plan (NBSAP)*, Uttaranchal-India.
- Uniyal, D.P., Uniyal, Manisha, Singh, V.V. and Kumar Arun 2002. Fishes as common property resources (CPR) in undeveloped Jaunsar-Bawar tribal area of Western Himalayas: A case study of Tons river, Uttaranchal, India. Pp. 1-10 + 2 Pls. In: *Proceeding of seminar on Bio-cultural profile of central and Western Himalayas*, Anthropological Survey of India, Dehra Dun.
- Uniyal, D.P., Bahuguna, S.N. and Kumar Arun. 2003a. Fishery Potential in Doon Valley. Pp.59-70 + 4 Pls. In: *Proceeding Natural Wealth of Uttaranchal, Seminar organized by Lucknow University Alumni Association, Dehra Dun* (ed. N.K.Verma), Technology Publication, Dehradun.

- Uniyal, D.P., Bahuguna, S.N. and Kumar Arun 2003b. Conservation and management of Ichthyo-diversity of Asan Wetland (District: Dehradun), Uttaranchal, India. In: *National Symposium on the ecology and biodiversity of aquatic environments (SEBAE)*, University of Allahabad, Allahabad (Abstract No.108).
- Uniyal, D.P. and Kumar Arun 2006. Fish diversity in the selected streams of Chakrata and Shiwalik hills (District: Dehradun, Uttaranchal), India. *Rec. Zool. Surv. India, Occ. Paper No. 253*: 1-120.
- Uniyal, D.P., Bahuguna, S.N., Uniyal, Manisha and Kumar, Arun 2006. Further note on fishing methods and their impact on fish resources of Jaunsar-Bawar tribal area (Chakrata hills, District: Dehradun, Uttaranchal), Western Himalayas, India. *Ann. For.* 14(2): 340-349.

AMPHIBIA

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INTRODUCTION

Ray (1995) reported 15 species of amphibians from district Dehra Dun belonging to four families and 7 genera, Subsequently Tilak & Ray (1995) studied 10 species from Rajaji National Park and Ray (1999) recorded 16 species from district Dehra Dun. In the present work ten species belonging to four families and five genera have been recorded from a small and restricted area of the so called Doon Shiwaliks. To species marked with asterisks viz., *Rana crassa* and *Polypedates maculates* have been added from the literature. The latest classification of Frost (2006) has been followed except genus *Bufo*.

SYSTEMATIC ACCOUNT

Class AMPHIBIA
Order ANURA
Family DICROGLOSSIDAE
Sub Family DICROGLOSSINAE

Genus *Euphlyctis* Schneider, 1799

1. *Euphlyctis cyanophlyctis* (Schneider, 1799)

Material examined: India: Uttarakhand, Dehra Dun Dist., Asan river, vill. Jhiva –Redi, Shimla road, 10 ex., 06.v.2000. coll. *A.Husian* & party Karuvapani, 6 ex, 12.ix.2000; coll. *V.K.Khanna* & Party, Mohand Rao, - Lalpul, Sharanpur Road, 6 ex., 09.xi.2001; coll. *J.P. Sati* & party, Sankra nala, 4 ex, 27.xi.2002; coll. *S.K.Gupta* & party.

Distribution: India: Widely distributed in whole of India.

Elsewhere: Sri Lanka, South Arabia, Baluchistan, Nepal, South China.

Status: Very Common.

2. *Fejervarya limnocharis* (Boie & Wiegman)

Material examined: India: Uttarakhand, Dehra Dun Dist., Asan river, vill. Jhiva –Redi, Shimla road, 10 ex., 30.v.2000; coll. *A.Husian & party* Asan barrage, 1 ex, 01.vii.2002; coll. *J.P.Sati & Party*, Bhure Shah Nala, Timli, 4 exs. 28.vi.2001; coll. V.K. Khanna. Sankranala, 1 ex, 27.xi.2002; coll. *S.K.Gupta & party*.

Distribution : India: Widely distributed in whole of India. In Himalayas upto 2000m.

Elsewhere : East Asia from Japan and China to Pakistan, Sri Lanka, Malayan Peninsula.

Status : Uncommon but only expert eyes can locate under stones.

3. *Hoplobatrachus tigerinus* (Daudin)

Material examined: India: Uttarakhand, Dehra Dun Dist., coll. *Arun Kumar & party*; 12 exs., 10.viii.2001; Asan River, 1 ex, 27.vi.2002; coll. *J.P.Sati & Party*, Sankar nala, Badshaibagh 2ex, 28 .vi.2002; coll. *S.K.Gupta & party*.

Distribution: India : found from base of Himalayas to south India.

Elsewhere: Nepal, Sri Lanka, Thailand, south China and Taiwan.

Status: Very Common.

4. *Sphaerotheca breviceps* (Schneider, 1799)

Material examined: India: Uttarakhand, Dehra Dun Dist., 18.v.2001 coll. *N.K.Sinha & party*, 028 exs., 8.viii.2001s Karuvapani, 1 ex, 01.vii.2002; coll. *J.P.Sati & Party*, Mohand Rao, Lalpul, Sharanpur Road, 6 ex., 03.xi.2000; coll. *Akfaq Husain & party*, Sankranala, 1ex, 27.xi.2002; coll. *S.K.Gupta & party*.

Distribution: India: Widely distributed in whole of India, Andhra Pradesh, Gujrat, Kerala, Karnatka, Maharashtra, Tamil Nadu, Uttar Pradesh, Himachal Pradesh.

Elsewhere: Sri Lanka, Pakistan, Upper Burma, South China.

Status: Not very common, burrows out only in rainy season.

5. **Hoplobatrachus crassus* (Jerdon, 1854)

Material not examined recorded from literature

Locality: Uttarakhand, Dehra Dun Dist., Lachhiwala, Motichur

Distribution: India: Widely distributed in whole of India.

Elsewhere: Sri Lanka, Borneo, Pakistan Burma, South China, West Indies, Tropical Asia & Northern half of Africa.

Status: Uncommon.

Family BUFONIDAE

6. *Bufo melanostictus* (Schneider, 1799)

Material examined: India: Uttarakhand, Dehra Dun Dist., 30.vi.2000, coll. J.P. Sati & party; 2 exs., 1, Badshaibagh road, 15.vi. 2001, coll. *N.K.Sinha* & party; Mohand Rao, Lalpul, Sharanpur Road, 6 ex., 03.xi.2000; coll. *Akfaq Husain* & party, Sankranala, 1ex, 27.xi.2002; coll. *S.K.Gupta* & party.

Distribution: India: Widely distributed in India.

Elsewhere: Nepal, Sikkim, Pakistan.

Status: Very common.

7. *Bufo stomaticus* Lutken

Material Examined: India: Uttarakhand, Dehra Dun Dist., Sankra nala, Badshaibagh road, 4 ex., 13.vii.2001, coll. *N.K.Sinha* & party; Sankra nala, Badshaibagh road, 4 ex., 13.vii.2001, coll. *N.K.Sinha* & party;

Distribution: India; widely distributed.

Elsewhere: Sri Lanka, Nepal, Pakistan, Arabia.

Status: Very common.

Family RHACOPHORIDAE

*8. *Polypedates maculatus* (Gray, 1833)

Material not examined recorded from literature.

Locality: Motichur forests.

Distribution : All over India except Haryana, Punjab and Rajasthan.

Elsewhere: Sri Lanka.

Status: Very rare in the study area.

Family MICROHYLIDAE

9. *Microhyla ornata* (Duméril and Bibron, 1841)

Material examined: India: Uttarakhand, Dehra Dun Dist., Sankra nala, Badshaibagh road, 4 ex., 13.vii.2001, coll. *N.K.Sinha & party*.

Distribution: India: Widely distributed.

Elsewhere: China, Formosa, Nepal, Malaya Peninsula

Status: Very Common in rainy season but uncommon for new collector..

10. *Uperodon systoma* (Schneider, 1799)

Material examined: India: Uttarakhand, Dehra Dun Dist., 18.vii.2000; 2 exs., 13.x.2000; 1 ex., 13.vii.2001; 2 exs., 11.x.2001, coll. *N.K.Sinha & party*

Distribution: India: Widely distributed in India:

Elsewhere: Sri Lanka.

Status: Not very common, only in foot hills that too.

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REFERENCES

- Frost, Darrel R. 2006. Amphibian Species of the World: an Online Reference. Version 4 (17 August 2006). Electronic Database accessible at [1]. American Museum of Natural History, New York, USA.
- Tilak, R. and Ray, P. 1995. *Fauna of Western Himalaya (Uttar Pradesh)* Zoological Survey of India, special publication :151-157.
- Ray, P. and Tilak, R. 1995. *Fauna of Raja Jee National Park, special publication.* Zoological Survey of India, 54-75.
- Ray, P. 1999. Systematic studies on the amphibian fauna of District Dehra Dun Uttar Pradesh, *Memoirs of the Zoological Survey of India*, 18 (3): 1-102.

REPTILIA

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INTRODUCTION

Mani (1974) while discussing the bio-geography of Himalaya has shown the presence of distinct geographical distributional pattern in the fauna of Himalaya. He has indicated that the fauna of Western Himalaya in which Siwalik range falls, is composed partly of Oriental fauna, which has spread westwards from Eastern Himalaya, largely of Palaearctic forms and to some extent the Mediterranean and Ethiopian element.

The Pliocene Siwalik deposits of Himalayan foothills prove that the recent saurian fauna of tropical southern Africa and western Asia has a close similarity with it and might have descended from the same ancestral stock, which inhabited the Penisular India once upon a time. The occurrence of the Siwalik fauna of Himalayas in the mountains of southern India and Myanmar and even further south up to Sri Lanka gives adequate proof to this theory. Further it has been observed that there are no records indicating the presence of unaltered or allied Siwalik species in the intervening areas of peninsula. Such a type of migration of temperate Himalayan reptiles to the hilly areas of southern India and the presence of Burmese and Malayan reptiles in the present reptile fauna of peninsular India provides an explanation for the origin of ancestral reptiles from the western part of the Indian peninsula (Sharma, 2002).

Probably the original home of the lizards now inhabiting South Africa, Madagascar and Western Asia was the tropical India and the ancestral groups migrated there during the Mesozoic and the early Cenozoic eras, when the Indian peninsula had a land connection with the geographical areas mentioned (Sharma, 2002).

It has been proved that the ancestors of the snakes were certain burrowing and aquatic saurian (lizard - like) creatures. Modern lizards and snakes have evolved from a common ancestral diapsid reptile-stock inhabiting the planet Earth roughly 155 million years ago during the middle of the Jurassic period of Mesozoic era. The squammatan reptile fossils are known before the Jurassic period and the lizard remains are not common until the late cretaceous period (110 to 115 million years ago) (Sharma, 2003). Of the 2,700 species of snakes known,

only 240 occur in India. Of these, some 50 species including 20 kinds living in the sea are venomous (Alfred *et al.* 1998). In size Indian lizards vary from a 25 millimeter skink to 2.5-meter long water monitor (Murthy, 1995).

The present study is based on the material collected from the Western Doon Shiwaliks ranges of Dehra Dun by the Scientists of Northern Regional Station, Zoological Survey of India, Dehra Dun during the years 2000 - 2002. Waltner (1974) gave geographical and altitudinal distributional pattern of reptiles in Himalaya in general. Husain and Ray (1995) listed seven species of lizards and snakes found in Western Himalaya.

A total of 17 species of reptiles belonging to the families Gekkonidae, Agamidae, Scincidae, Lacertidae, Varanidae, Colubridae, Viperidae, Typhlopidae, Bataguridae and Trionychidae have been identified and reported in the paper. The family Scincidae of the Suborder: Sauria includes the terrestrial lizards, which are cosmopolitan in distribution generally inhabiting the warmer parts of the world. The maximum number of species occur in Asia, Africa and Australia. They feed mainly on small invertebrates and vegetable matter like the tender leaves, fruits and fungi. The species discussed here have earlier been reported (Husain, 2004).

The species of snakes under discussion belong to the family Typhlopidae. They are almost worm like in general appearance. As one could expect of them, they subsist on insects and are oviparous. In spite of the presence of speck like eyes, these creatures are blind for all practical purposes. Two genera, namely Typhlops and Ramphotyphlops, including 14 species, occur in India. All the species of worm/ blind snakes under discussion have been reported from the Rajaji National Park (Chopra, 1994) and the Western Doon Range (Husain and Ray, 1995).

SYSTEMATIC ACCOUNT

| | |
|----------|------------|
| Class | REPTILIA |
| Order | SQUAMATA |
| Suborder | SAURIA |
| Family | GEKKONIDAE |

1. *Hemidactylus brooki* Gray Spotted Indian House Gecko

Material examined: India: Uttarakhand, Dehra Dun Dist., Karuvapani, 1 ex, 01.vii.2002, coll. J.P.Sati & Party; Mohand Rao, Lalpul, Sharanpur Road, 6 ex., 03.xi.2000, coll. Aklaq Husain & party; Sankranala, 1 ex, 27.xi.2002, coll. S.K.Gupta & party.

Distribution: India: Widely distributed in whole of India.

Elsewhere: Sri Lanka, Borneo, Pakistan Burma, South China, West Indies, Tropical Asia and Northern Half of Africa.

Status: Very common.

2. *Hemidactylus flaviviridis* Ruppell
Yellow-bellied House Gecko

Material examined: India: Uttarakhand, Dehra Dun Dist., Mohand Range, 1ex., 01.vii.2000, coll. *J.P.Sati & party*.

Distribution: India: Whole of India in general but widely distributed in North India.

Elsewhere: Arabia, Pakistan, Iran and shores of the Red Sea.

Status: Most common.

***3. *Hemidactylus leschenaulti* Dumeril & Birborn**
Bark Gecko

Distribution: India : Peninsular India; Rajasthan, West Bengal.

Elsewhere: Sri Lanka, Pakistan.

Status: Common.

Family AGAMIDAE

4. *Calotes versicolor* Smith
Indian Garden Lizard

Material examined: India: Uttarakhand, Dehra Dun Dist., Singhniwala vill. around Asan River, 1ex., 4.v.2001, coll. *Vinod Khanna & party*; Sankranala, Badshahibagh Road, 1ex., 4.x.2001, coll. *J.P.Sati & party*; Khajnarwala, 1ex., 12.iv.2002, coll. *S.K.Gupta & party*.

Distribution: India: Whole of India.

Elsewhere: Sumatra to South China, Sri Lanka, Pakistan and Afghanistan.

Status: Most common throughout its range.

5. *Laudakia tuberculata* Hardwicke & Gray
Common Rock Lizard

Material examined: India: Uttarakhand, Dehra Dun Dist., Mohand Rao, 2exs., 09xi.2001,

coll. *Akhlaq Husain & party*; Sankranala, Bhadshahibagh Road, 1ex., 28.xi.2001, coll. *N.K.Sinha & party*.

Distribution: India: Jammu & Kashmir, Himachal Pradesh, Uttarakhand.

Elsewhere: Pakistan, Nepal and Afghanistan.

Status: Fairly common throughout its range

6. **Japalura kumaonensis* (Annandale)

Kumaon Mountain Lizard

Distribution: India: Western Himalayas (Almora, Nainital, Kumaon).

Status: Indeterminate.

7. **Japalura major* (Jerdon)

Garhwal Lizard

Distribution: India: Western Himalayas (Simla, Garhwal, Chamba).

Status: Indeterminate.

Family SCINCIDAE

8. *Scincella himalayanum* (Gunther)

Himalayan Skink

Material examined: India: Uttarakhand, Dehradun Dist., Siwalik range, Sabhawala, 1ex., 20.xii.2001, Dehradun dist. Siwalik range, 6 exs., 20.ii.2002, coll. *J.P. Sati & party*.

Distribution: India: Kashmir, Himachal Pradesh (Simla), Uttar Pradesh (Garhwal, Allahabad, Mussoorie, Nainital).

Elsewhere: Pakistan, Nepal, S. Turkistan.

Status: Very common in certain areas of its range.

Family LACERTIDAE

9. **Ophisops jerdoni* Blyth

Striped Race-runner

Distribution: India: Andhra Pradesh, Maharashtra, Gujarat (Cutch), Madhya Pradesh (Sarai, Rewa), Rajasthan, Tamil Nadu.

Elsewhere: Pakistan.

Status: Commonly available in various localities of its range.

Family VARANIDAE

10.* *Varanus bengalensis* (Daudin)

Monitor Lizard

Distribution: Whole of India.

Elsewhere: Myanmar; Sri Lanka; Pakistan (Wazziristan and most of other parts), Nepal and Uzbekistan.

Status: Endangered. IPWA 1972 : Schedule I

Note: The species marked with asterisk were not collected but they were frequently sighted in the study area (particularly in areas Mohand, Beribara & Ranipur of Western Doon Shiwalik and Rajaji National Park).

Suborder SERPENTES

Family COLUBRIDAE

11 **Amphiesma stolata* (Linnaeus)

Buff-Striped Keelback

Distribution: India: Whole of India including the Andaman Islands.

Elsewhere: Pakistan; Myanmar; South China; Indo China; Thailand.

Status: Fairly common.

Family VIPERIDAE

12. *Agkistrodon himalayanus* (Gunther)

Himalayan Pit Viper

Material examined: India: Uttarakhand, Dehra Dun Dist., Mohand Rao, 1ex., 29.vii.2001, coll. Aklaq Husain & party.

Distribution: India: The Western Himalayas from Chirtral (Pakistant) to Sikkim; Kashmir; Eastern Himalayas; Assam (Khasi Hills in Meghalaya).

Elsewhere: Pakistan, Nepal and Afghanistan.

Status: Very common in its Western range.

Family TYPHLOPIDAE

13. *Ramphotyphlops braminus* (Daudin)

Common blind snake or worm snake

Material examined: India: Uttarakhand, Dehradun Dist., Siwalik, Kaluwala Mohand 1 ex., 30.vi.2000, coll. J.P.Sati & Party.

Distribution: Whole of South Asia. Introduced worldwide.

Status: Common.

**Order CHELONIA

Family BATAGURIDAE (**Asian pond turtle**)

14. *Pangshura tectum* (= *Kachuga tecta* Gray)

North Indian Roofed Turtle

Distribution: India: Ganga and Brahmaputra river systems.

Elsewhere: Pakistan: Sind river system.

Fossils have been recorded from the Pleistocene deposits of the Shiwalik Hills (Sharma, 1998).

Status: Nominally protected by legislation. The detailed ecological investigation of this species will help in ascertaining the approximate numbers, distribution pattern and ecological preference with a view to design suitable conservation and management plans. IPWA 1972: Schedule I, IUCN status: Not available.

15. *Melanochelys tricarinata* (Blyth)

Three-keeled Turtle

Distribution: India: Bihar (Chotanagpur), West Bengal (Jalpaiguri district) and Assam (Dafla Hills and Bisnath Plain).

Status: The main threats to the species include large-scale exploitation of eggs and adults for food by the local tribals. The habitat destruction is another major threat to the survival of the species. Vulnerable. IUCN: VU B1+2c, CITES I, IWPA 1972: Schedule IV.

Family TRIONYCHIDAE (Soft shell turtles)

16. *Chitra indica* (Gray)**Narrow-necked soft shell turtle**

Distribution: India: Uttar Pradesh, Bihar and West Bengal.

Elsewhere: Nepal, Pakistan, Malaysia and Thailand.

Status: IUCN : EN A1cd+2cd, CITES II.

17. *Aspideretes gangeticus* (= *Trionyx gangeticus* (Cuvier))**Indian soft shell turtle**

Distribution: India: Ganga, Sind and Mahanadi river systems.

Elsewhere: N.W. Pakistan, Bangladesh and Nepal foothills.

Status: IUCN (VU A1d+2d), IPWA 1972: Schedule I, CITES I.

** The freshwater turtles mentioned in the paper have been reported by the Scientists of NRS/ZSI (Husain, 1995; Chopra 1994). However, their records are infrequent probably because of the fluctuations in the water levels of the rivers, they inhabit and because of some other seasonal changes.

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REFERENCES

- Alfred, J.R.B., Das, A.K. and Sanyal, A.K. 1998. Faunal diversity in India ENVIS center, Zoological Survey of India : 1-497.
- Chopra, R.N. 1994. Fauna of Rajaji National Park. In : *Fauna of Conservation Area*, Zool. Surv. India 5: 87-89.
- Husain, A. and Ray, P. 1995. Reptiles. In : *Fauna of Western Himalaya, Part 1, Uttar Pradesh: Himalayan ecosystem series* (Ed. Director, Zoological Survey of India, Kolkata, Project coordinators: Arora, G.S. and Kumar, A.) Pub: Zoological Survey of India, I: 159-167.

- Husain, A. 2004. Reptilia, In: *Some selected fauna of Gobind Pashu Vihar, Conservation area series*, 18: 37-40.
- Mani, M.S. 1974. Biogeography of the Himalaya. In : *Ecology and Biogeography in India* (ed. M.S. Mani) Dr. W. Junk b.v. publishers the Hague. 664-681.
- Murthy, T.S.N. 1995. Illustrated Encyclopedia of the Reptiles of India, B.R. Publishing Corporation, Delhi, India, 1-113.
- Sharma, R.C. 1998. Fauna of India, Reptilia Testudines and Crocodylians, 1 (16), 192 (Pub: Director, ZSI, Calcutta).
- Sharma, R.C. 2003. Handbook Indian Snakes: (Pub: Director, Zool. Surv. India, Kolkata), 1-282.
- Sharma, R.C. 2002. The fauna of India and the adjacent countries- Reptilia (Sauria) 2: 1-430 (Pub: Director, Zool. Surv. India, Kolkata).
- Waltner, R.C. 1974. Geographical and altitudinal distribution of amphibians and reptiles in the Himalaya. *Cheetal*, 16 (1): 17-25.
- Waltner, R.C. 1974. Geographical and altitudinal distribution of amphibians and reptiles in the Himalaya. *Cheetal*, 16 (2): 28-36.
- Waltner, R.C. 1974. Geographical and altitudinal distribution of amphibians and reptiles in the Himalaya. *Cheetal*, 16 (3): 14-19.
- Waltner, R.C. 1974. Geographical and altitudinal distribution of amphibians and reptiles in the Himalaya. *Cheetal*, 16 (4): 12-17.

AVES

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INTRODUCTION

A reconnoiter of existing ornithological literature pertaining to zoogeography of birds reveals that Shiwalik hills of the newly created state of Uttarakhand provides habitat for more than 300 species. From conservation point of view, the area is very important for Uttarakhand state, because at its eastern half it has one 'Conservation Area' (Rajaji National Park) and at its northwestern edges it has country's the first ever recently declared 'Conservation Reserve' (Asan Conservation Reserve).

For convenience, based on the available ornithological information, the Shiwaliks of Dehra Dun is divided in to two almost equal segments, viz., 1. The area ranging from Dehra Dun Delhi High Way to river Yamuna in the west- Western Doon Shiwaliks (WDS), and 2. The area ranging from Dehra Dun – Delhi High Way to river Ganga in the east- Eastern Doon Shiwaliks (EDS). The-WDS area is about 40 km long and 10-20 km wide. Its elevation ranges from 900 to 1200m. Although there are several publications dealing with birds of the EDS as well as the Asan area, barring Singh (2000), there is no other publication dealing exclusively with the avifauna of WDS area. Hence, the present communication inventorying 147 species of birds has been prepared.

METHODOLOGY

From birds' point of view, more than 10 intensive surveys of one-day each were undertaken in WDS area between May 2000 and April 2002. Birds were observed with the aid of 10x50 power field binoculars and identified with the help of various field guides (Ali & Ripley 1983a, Grimmett *et al.* 1999, Krys 2000). The nomenclature followed here is after Manakadan & Pittie (2001). Number(s) within bracket following common name of bird species is the serial number of that species given in the *Handbook of the Birds of India and Pakistan* (Ali & Ripley 1983b).

Based on field observations, including those (Singh 2000), a Systematic Account along with the status and locality-wise distribution of 147 bird species from WDS area has been

prepared. *Residential status* is strictly in context with the study area. *Commonness of occurrence* has been assessed on an arbitrary scale of the number of localities and their environs wherein the bird species occurs. For example, uncommon- observed at one locality, common- recorded in two/ three localities, very common- recorded in four/ five localities, and ubiquitous- sighted throughout the study area (WDS).

OBSERVATIONS AND RESULTS

A total of 147 species of birds belonging to 100 genera and 42 families have been recorded herewith from the study area. Of these 147 species, 83 are passerines (perching birds) and the remaining 64 non-passerines. A family wise analysis indicated that the family Muscicapidae- the most crowded family of the passerines, dominates with 34 species (Turdinae: 9, Timaliinae: 5, Sylviinae: 8, Muscicapinae: 8, Monarchinae: 1, and Rhipidurinae: 3); followed by Cuculidae 9; Campephagidae 8; Accipitridae and Picidae (7 each); Columbidae, Sturnidae and Ploceidae (6 each); Psittacidae, Capitonidae, Corvidae and Motacillidae (4 each) ...and so on.

Status: Residential status: The various subcategories of residential status of 147 bird species are as follows:

| | |
|----------------------------------------|------------|
| Resident | 71 |
| Resident with local movements | 29 |
| Resident with altitudinal movement | 15 |
| Resident with winter influx | 2 |
| Altitudinal migrant | 11 |
| Altitudinal migrant with winter influx | 1 |
| Winter visitor | 3 |
| Summer visitor | 14 |
| Passage migrant | 1 |
| Total | 147 |

Conservation status: Three *Globally Threatened* species, namely, Indian White-backed Vulture- *Critical*, Pallas's Fish-Eagle- *Vulnerable* and Red-headed Vulture *Near Threatened*, as categorized by the BirdLife International (2001), were observed during the study.

Commonness of occurrence has been worked out on an arbitrary scale of the number of place(s) and its environs where the bird species was recorded. This indicates that 67 species are uncommon- recorded at one locality, 42 common- observed at two or three places, 15 very common- sighted at four or five localities, while the remaining 23 ubiquitous- seen throughout the study area.

Locality-wise Distribution: The number of species recorded from Mohand and its environs was the highest (83), followed by Karuwapani (76), Timli (75), Badshahibagh (59), Sabhawala (52), Shakumbri Devi (26).

SYSTEMATIC ACCOUNT

I. PHALACROCORACIDAE

(Cormorants)

1. *Phalacrocorax niger* (Vieillot, 1817)

Little Cormorant (28)

Status and Distribution: Resident undertakes local movements. Uncommon. Observed towards the river at Badshahibagh.

2. *Phalacrocorax carbo* (Linnaeus, 1758)

Great Cormorant (26)

Status and Distribution: Resident with local movements. Uncommon. Sighted towards the river at Badshahibagh.

II. ARDEIDAE

(Egrets, Herons, etc.)

3. *Egretta garzetta* (Linnaeus, 1766)

Little Egret (49)

Status and Distribution: Resident depicts local movements. Common. Usually recorded near water at Karuwapani and Badshahibagh.

4. *Bubulcus ibis* (Linnaeus, 1758)

Cattle Egret (44)

Status and Distribution: Resident with local movements. Ubiquitous. Occurs throughout the study area.

5. *Ardeola grayii* (Sykes, 1832)

Indian Pond-Heron (42-42a)

Status and Distribution: Resident shows local movements. Common. Mostly lone bird was seen at Badshahibagh and Shakumbri Devi.

III. ACCIPITRIDAE

(Kites, Vultures, etc.)

6. *Milvus migrans* (Boddaert, 1783)**Black Kite (132-134)**

Status and Distribution: Resident. Common. Usually encountered near human habitations at Karuwapani and Badshahibagh.

7. *Haliaeetus leucoryphus* (Pallas, 1771)**Pallas's Fish-Eagle (174)**

Status and Distribution: Resident- *Globally Threatened- Vulnerable*. Common. Observed twice: once a single bird soaring at Karuwapani on 20th February 2002, and one adult & one juvenile on the other occasion also hovering at Karuwapani on 05th February 2002.

8. *Neophron percnopterus* (Linnaeus, 1758)**Egyptian Vulture (186-187)**

Status and Distribution: Resident with local movements. Very common. Sighted at Karuwapani, Sabhawala, Badshahibagh and Mohand.

9. *Gyps bengalensis* (Gmelin, 1788)**Indian White-backed Vulture (185)**

Status and Distribution: Resident- *Globally Threatened- Critical*. Common. Sighted thrice
i) Two birds were seen hovering overhead near Timli on Sabhawala road on 12th June 2000.
ii) As many as 30 birds were seen feeding along with one Egyptian Vulture on carcasses in a dry sot about five kilometers east of Sabhawala on Karuwapani road on 20th July 2001. iii) A solitary bird was observed sailing in Sakra nalla near Badshahibagh on 27th February 2002.

10. *Sarcogyps calvus* (Scopoli, 1786)**Red-headed Vulture (178)**

Status and Distribution: Resident- *Near Threatened*. Common. An isolated bird sitting in a dry sot was noticed at Bargaon near Sabhawala on 18th January 2002.

11. *Circaetus gallicus* (Gmelin, 1788)**Short-toed Snake-Eagle (195)**

Status and Distribution: Resident. Uncommon. Observed at Badshahibagh.

12. *Accipiter badius* (Gmelin, 1788)**Shikra** (137-140)

Status and Distribution: Resident. Common. Recorded at northern edges of the moist deciduous Sal dominated forests at Karuwapani and Timli forest ranges.

IV. FALCONIDAE

(Falcons)

13. *Falco tinnunculus* Linnaeus, 1758**Common Kestrel** (222-224)

Status and Distribution: Resident and winter visitor. Uncommon. Sighted at Badshahibagh.

V. PHASIANIDAE

(Pheasants, Partridges, Quails)

14. *Fracolinus francolinus* (Linnaeus, 1766)**Black Francolin** (237-239)

Status and Distribution: Resident. Uncommon. More often heard than seen at Sabhawala.

15. *Fracolinus pondicerianus* (Gmelin, 1789)**Grey Francolin** (244-246)

Status and Distribution: Resident. Uncommon. Observed in dry deciduous forests at Mohand.

*16. *Perdicula asiatica* (Latham, 1790)**Jungle Bush-Quail** (255-258)

Status and Distribution: Resident. Uncommon. Recorded at Mohand locality.

17. *Gallus gallus* (Linnaeus, 1758)**Red Junglefowl** (299-300)

Status and Distribution: Resident. Common. Often heard and sighted at Sabhawala, Badshahibagh and Mohand.

18. *Lophura leucomelanos* (Latham, 1790)**Kaleej Pheasant** (293-298)

Status and Distribution: Resident with altitudinal movements. Uncommon. Sighted in dry deciduous forests at Mohand.

19. *Pavo cristatus* Linnaeus, 1758**Indian Peafowl (311)**

Status and Distribution: Resident. Very common. Observed at Karuwapani, Sabhawala, Badshahibagh, Shakumbri Devi and Mohand.

VI. RALLIDAE

(Rails, Moorhens, etc.)

20. *Amaurornis phoenicurus* (Pennant, 1769)**White-breasted Waterhen (343-345)**

Status and Distribution: Resident. Uncommon. Mostly recorded at Karuwapani.

21. *Gallinula chloropus* (Linnaeus, 1758)**Common Moorhen (347-347a)**

Status and Distribution: Resident. Uncommon. Sighted at Badshahibagh.

VII. CHARADRIIDAE

(Lapwings, Plovers, etc.)

22. *Vanellus indicus* (Boddaert, 1783)**Red-wattled Lapwing (366-368)**

Status and Distribution: Resident. Ubiquitous. Observed throughout the study area.

VIII. RECURVIROSTRIDAE

(Stilts, etc.)

23. *Himantopus himantopus* (Linnaeus, 1758)**Black-winged Stilt (430-431)**

Status and Distribution: Resident. Uncommon. Recorded at Badshahibagh.

IX. COLUMBIDAE

(Pigeons & Doves)

24. *Columba livia* Gmelin, 1789**Blue Rock Pigeon (516-517)**

Status and Distribution: Resident. Ubiquitous. Found throughout the study area.

25. *Streptopelia orientalis* (Latham, 1790)**Oriental Turtle-Dove (530-533)**

Status and Distribution: Resident. Common. Observed at Sabhawala, Timli and Badshahibagh.

26. *Streptopelia senegalensis* (Linnaeus, 1766)**Little Brown Dove (541)**

Status and Distribution: Resident with local movements. Uncommon. Sighted at Mohand.

27. *Streptopelia chinensis* (Scopoli, 1786)**Spotted Dove (537-540)**

Status and Distribution: Resident undertakes altitudinal movements. Very common. Recorded at Karuwapani, Sabhawala, Timli, Badshahibagh and Mohand.

28. *Streptopelia decaocto* (Frisch, 1838)**Eurasian Collared-Dove (534)**

Status and Distribution: Resident depicts local movements. Very common. Observed at Karuwapani, Sabhawala, Timli, Badshahibagh and Mohand.

29. *Chalcophaps indica* (Linnaeus, 1758)**Emerald Dove (542-544a)**

Status and Distribution: Resident. Common. Observed confining to the mixed moist deciduous forested areas at Karuwapani and Sabhawala.

X. PSITTACIDAE**(Parakeets)**30. *Psittacula eupatria* (Linnaeus, 1766)**Alexandrine Parakeet (545-548)**

Status and Distribution: Resident undertakes local movements. Common. Recorded at Karuwapani and Mohand.

31. *Psittacula krameri* (Scopoli, 1769)**Rose-ringed Parakeet (549-550)**

Status and Distribution: Resident. Ubiquitous. Sighted throughout the WDS area.

32. *Psittacula himalayana* (Lesson, 1832)**Slaty-headed Parakeet (562)**

Status and Distribution: Resident with altitudinal movements. Common. Recorded in moist deciduous forests at Karuwapani and Timli.

33. *Psittacula cyanocephala* (Linnaeus, 1766)**Plum-headed Parakeet (557-558)**

Status and Distribution: Resident. Ubiquitous. Sighted throughout the study area.

XI. CUCULIDAE

(Cuckoos, Coucals, etc.)

34. *Clamator jacobinus* (Boddaert, 1783)**Pied Crested Cuckoo (570-571)**

Status and Distribution: Summer visitor. Common. Observed at Karuwapani, Badshahibagh and Mohand.

35. *Hierococcyx varius* (Vahl, 1797)**Brainfever Bird (573-574)**

Status and Distribution: Resident undertakes local movements. Ubiquitous. More often heard than seen throughout the study area.

36. *Cuculus micropterus* Gould, 1838**Indian Cuckoo (576)**

Status and Distribution: Resident with local movements. Uncommon. Heard at Mohand.

*37. *Cuculus canorus* Linnaeus, 1758**Common Cuckoo (577-579)**

Status and Distribution: Summer visitor. Uncommon. Recorded at Timli.

*38. *Surniculus lugubris* (Horsfield, 1821)**Drongo Cuckoo (588-589)**

Status and Distribution: Summer visitor. Uncommon. Recorded at Mohand.

39. *Eudynamys scolopacea* (Linnaeus, 1758)
Asian Koel (590-592)

Status and Distribution: Resident undertakes local movements. Ubiquitous. More often heard than seen throughout the study area.

*40. *Phaenicophaeus tristis* (Lesson, 1830)
Large Green-billed Malkoha (593-594)

Status and Distribution: Resident. Uncommon. Recorded at Mohand.

*41. *Centropus sinensis* (Stephens, 1815)
Greater Coucal (600-602)

Status and Distribution: Resident. Uncommon. Recorded at Mohand.

*42. *Centropus bengalensis* (Gmelin, 1788)
Lesser Coucal (605)

Status and Distribution: Summer visitor. Uncommon. Recorded at Mohand.

XII. STRIGIDAE
(Owls)

43. *Athene brama* (Temminck, 1821)
Spotted Owlet (650-652)

Status and Distribution: Resident. Common. Observed at Sabhawala and Mohand.

XIII. APODIDAE
(Swifts)

*44. *Collocalia brevirostris* (Horsfield, 1840)
Himalayan Swiftlet (683-684)

Status and Distribution: Resident. Uncommon. Recorded at Karuwapani.

XIV. HEMIPROCNIIDAE
(Tree-Swifts)

*45. *Hemiprocne coronata* (Tickell, 1833)
Crested Tree-Swift (709)

Status and Distribution: Resident with local movements. Uncommon. Recorded at Karuwapani.

XV. ALCEDINIDAE

(Kingfishers)

46. *Alcedo atthis* (Linnaeus, 1758)**Small Blue Kingfisher (722-724)***Status and Distribution:* Resident. Uncommon observed restricting to Karuwapani.47. *Halcyon smyrnensis* (Linnaeus, 1758)**White-breasted Kingfisher (735-738)***Status and Distribution:* Resident with local movements. Ubiquitous sighted throughout the study area.**XVI. MEROPIIDAE**

(Bee-eaters)

48. *Merops orientalis* Latham, 1801**Small Bee-eater (749-752)***Status and Distribution:* Resident. Ubiquitous. Observed throughout the WDS.49. *Merops philippinus* Linnaeus, 1766**Blue-tailed Bee-eater (748)***Status and Distribution:* Summer visitor. Common. Sighted at Sabhawala, Timli and Badshahibagh.50. *Merops leschenaulti* Vieillot, 1817**Chestnut-headed Bee-eater (744-745)***Status and Distribution:* Resident with local movements. Uncommon. Recorded at Timli.**XVII. CORACIIDAE**

(Rollers)

51. *Coracias benghalensis* (Linnaeus, 1758)**Indian Roller (755-757)***Status and Distribution:* Resident depicts local movements. Common. Observed at Karuwapani, Badshahibagh and Mohand.

XVIII. UPUPIDAE

(Hoopoes)

52. *Upupa epops* Linnaeus, 1758**Common Hoopoe (763-766)**

Status and Distribution: Resident. Very common. Often seen at Sabhawala, Timli, Badshahibagh and Mohand.

XIX. BUCEROTIDAE

(Hornbills)

53. *Ocyrceros birostris* (Scopoli, 1786)**Indian Grey Hornbill (767)**

Status and Distribution: Resident shows local movements. Ubiquitous. Sighted throughout the study area.

XX. CAPITONIDAE

(Barbets)

54. *Megalaima virens* (Boddaert, 1783)**Great Barbet (777-779)**

Status and Distribution: Altitudinal migrant. Common. Sighted at Karuwapani, Sabhawala and Timli.

55. *Megalaima zeylanica* (Gmelin, 1788)**Brown-headed Barbet (780-782)**

Status and Distribution: Resident. Ubiquitous. Observed throughout the study area.

*56. *Megalaima asiatica* (Latham, 1790)**Blue-throated Barbet (788)**

Status and Distribution: Resident. Uncommon. Recorded at Timli.

57. *Megalaima haemacephala* (P.L.S. Müller, 1776)**Coppersmith Barbet (792)**

Status and Distribution: Resident. Common. Sighted at Karuwapani and Mohand.

XXI. PICIDAE
(Woodpeckers)

58. *Dendrocopos canicapillus (Blyth, 1845)
Grey-capped Pygmy Woodpecker (848-850)

Status and Distribution: Resident. Uncommon. Recorded at Timli.

59. *Dendrocopos macei (Vieillot, 1818)
Fulvous-breasted Pied Woodpecker (845-846)

Status and Distribution: Resident. Uncommon. Sighted at Timli.

60. *Picus chlorolophus Vieillot, 1818
Small Yellow-naped Woodpecker (814-817)

Status and Distribution: Resident. Uncommon. Seen at Timli.

61. *Picus squamatus Vigors, 1831
Large Scaly-bellied Green Woodpecker (806-807)

Status and Distribution: Resident. Uncommon. Observed at Karuwapani.

62. *Picus canus Gmelin, 1788
Black-naped Green Woodpecker (809-811)

Status and Distribution: Resident. Uncommon. Recorded at Karuwapani.

63. *Dinopium shorii (Vigors, 1832)
Himalayan Golden-backed Woodpecker (824)

Status and Distribution: Resident. Uncommon. Sighted at Karuwapani.

64. *Dinopium benghalense (Linnaeus, 1758)
Lesser Golden-backed Woodpecker (818-823)

Status and Distribution: Resident. Ubiquitous. Observed throughout the study area.

XXII. PITTIDAE
(Pittas)

65. *Pitta brachyura (Linnaeus, 1766)
Indian Pitta (867)

Status and Distribution: Summer visitor. Common. Recorded at Timli and Mohand.

XXIII. HIRUNDINIDAE
(Swallows & Martins)

- *66. *Hirundo rustica* Linnaeus, 1758
Common Swallow (916-918)

Status and Distribution: Resident as well as winter visitor. Uncommon. Sighted at Badshahibagh.

XXIV. MOTACILLIDAE
(Wagtails & Pipits)

67. *Motacilla alba* Linnaeus, 1758
White Wagtail (1885-1890)

Status and Distribution: Winter visitor. Common. Observed at Karuwapani, Timli and Shakumbri Devi.

68. *Motacilla maderaspatensis* Gmelin, 1789
Large Pied Wagtail (1891)

Status and Distribution: Resident. Uncommon. Seen at Badshahibagh.

69. *Motacilla cinerea* Tunstall, 1771
Grey Wagtail (1884)

Status and Distribution: Winter visitor. Uncommon. Recorded at Badshahibagh.

- *70. *Anthus hodgsoni* Richmond, 1907
Oriental Tree Pipit (1852-1853)

Status and Distribution: Winter visitor. Uncommon. Sighted at Karuwapani.

XXV. CAMPEPHAGIDAE
(Cuckoo-Shrikes, Flycatcher-Shrikes, Woodshrikes & Minivets)

71. *Coracina macei* (Lesson, 1830)
Large Cuckoo-Shrike (1072-1075)

Status and Distribution: Resident. Uncommon. Observed at Timli.

- *72. *Coracina melaschistos* (Hodgson, 1836)
Black-winged Cuckoo-Shrike (1077)

Status and Distribution: Resident. Uncommon. Recorded at Timli.

*73. *Coracina melanoptera* (Rüppell, 1839)**Black-headed Cuckoo-Shrike (1078-1079)**

Status and Distribution: Summer visitor. Uncommon. Sighted at Timli.

74. *Pericrocotus cinnamomeus* (Linnaeus, 1766)**Small Minivet (1090-1095)**

Status and Distribution: Resident. Common. Observed at Karuwapani, Timli and Mohand.

75. *Pericrocotus ethologus* Bangs & Phillips, 1914**Long-tailed Minivet (1085-1087)**

Status and Distribution: Resident with altitudinal movements. Uncommon. Seen at Karuwapani.

76. *Pericrocotus flammeus* (Forster, 1781)**Scarlet Minivet (1080-1083)**

Status and Distribution: Resident with altitudinal movements. Uncommon. Sighted at Karuwapani.

*77. *Hemipus picatus* (Sykes, 1832)**Pied Flycatcher-Shrike (1064-1066)**

Status and Distribution: Resident with altitudinal movements. Common. Observed at Karuwapani and Mohand.

*78. *Tephrodornis pondicerianus* (Gmelin, 1789)**Common Woodshrike (1069-1071)**

Status and Distribution: Resident. Common. Recorded at Karuwapani and Timli.

XXVI. PYCNONOTIDAE

(Bulbuls, etc.)

79. *Pycnonotus leucogenys* (Gray, 1835)**Himalayan Bulbul (1125)**

Status and Distribution: Resident shows local movements. Very common. Sighted at Karuwapani Sabhawala, Timli and Mohand (Singh 2000).

80. *Pycnonotus cafer* (Linnaeus, 1766)
Red-vented Bulbul (1126-1132)

Status and Distribution: Resident. Ubiquitous. Occurs throughout the study area.

XXVII. IRENIDAE
 (Ioras, Chloropsis/Leafbird, etc.)

- *81. *Aegithina tiphia* (Linnaeus, 1758)
Common Iora (1097-1101)

Status and Distribution: Resident undertakes local movements. Ubiquitous. Occurs throughout the study area.

82. *Chloropsis aurifrons* (Temminck, 1829)
Gold-fronted Chloropsis (1103-1105)

Status and Distribution: Resident with local movements. Uncommon. Sighted at Timli.

XXVIII. LANIIDAE
 (Shrikes)

83. *Lanius schach* Linnaeus, 1758
Rufous-backed Shrike (946-948)

Status and Distribution: Resident. Common. Observed at Sabhawala, Badshahibagh and Shakumbri Devi.

84. *Lanius tephronotus* (Vigors, 1831)
Grey-backed Shrike (944-945)

Status and Distribution: Resident and altitudinal migrant. Common. Observed at Karuwapani and Badshahibagh.

85. *Lanius meridionalis* Temminck, 1820
Southern Grey Shrike (933-935)

Status and Distribution: Resident. Uncommon. Sighted at Mohand.

XXIX. CINCLIDAE (Dippers)

- *86. *Cinclus pallasii* Temminck, 1820
Brown Dipper (1775-1776)

Status and Distribution: Altitudinal migrant. Uncommon. Recorded at Timli.

XXX. MUSCICAPIDAE**XXX (a). TURDINAE (Thrushes, Robins, etc.)****87. *Myiophonus caeruleus* (Scopoli, 1786)****Blue Whistling-Thrush (1729-1930)**

Status and Distribution: Altitudinal migrant. Uncommon. Observed at Mohand.

88. *Zoothera citrina* (Latham, 1790)**Orange-headed Thrush (1733-1736)**

Status and Distribution: Summer visitor. Uncommon. Seen at Mohand.

89. *Luscinia pectoralis* (Gould, 1837)**Himalayan Rubythroat (1647-1649)**

Status and Distribution: Altitudinal migrant. Uncommon. Sighted at Mohand.

90. *Luscinia svecica* (Linnaeus, 1758)**Bluethroat (1644-1646a)**

Status and Distribution: Altitudinal migrant as well as winter visitor. Common. Recorded at Karuwapani and Timli.

91. *Copsychus saularis* (Linnaeus, 1758)**Oriental Magpie-Robin (1661-1664)**

Status and Distribution: Resident. Very common. Observed at Sabhawala, Timli, Badshahibagh and Mohand.

92. *Copsychus malabaricus* (Scopoli, 1786)*White-rumped Shama (1665-1668)**

Status and Distribution: Resident. Uncommon. Recorded at Mohand.

93. *Saxicoloides fulicata* (Linnaeus, 1776)**Indian Robin (1717-1721)**

Status and Distribution: Resident. Uncommon. Observed at Mohand.

94. *Phoenicurus ochruros* (Gmelin, 1774)**Black Redstart (1671-1672)**

Status and Distribution: Altitudinal migrant. Uncommon. Seen at Karuwapani.

95. *Saxicola caprata* (Linnaeus, 1766)**Pied Bushchat (1700-1703)**

Status and Distribution: Resident as well as altitudinal migrant. Uncommon. Sighted at Badshahibagh.

XXX (b). TIMALIINAE (Babblers, etc.)

96. *Garrulax leucolophus* (Hardwicke, 1815)**White-crested Laughingthrush (1283-1284)**

Status and Distribution: Resident. Uncommon. Observed at Karuwapani.

*97. *Pellorneum ruficeps* Swainson, 1832**Spotted Babbler (1152-1159)**

Status and Distribution: Resident. Common. Recorded at Karuwapani, Timli and Mohand.

98. *Stachyris pyrrhops* Blyth, 1844**Black-chinned Babbler (1211)**

Status and Distribution: Resident. Common sighted at Karuwapani, Timli and Mohand.

99. *Chrysomma sinense* (Gmelin, 1789)**Yellow-eyed Babbler (1230-1232)**

Status and Distribution: Resident. Common. Observed at Karuwapani, Sabhawala and Timli.

100. *Turdoides striatus* (Dumont, 1823)**Jungle Babbler (1261-1265)**

Status and Distribution: Resident. Ubiquitous. Occurs throughout the study area.

XXX (c). SYLVIINAE (Prinias, Warblers, etc.)

*101. *Cisticola juncidis* (Rafinesque, 1810)**Streaked Fantail-Warbler (1498-1500a)**

Status and Distribution: Resident. Uncommon. Recorded at Mohand.

102. *Prinia hodgsonii* Blyth, 1844
Franklin's Prinia (1502-1505)

Status and Distribution: Resident with local movements. Common. Sighted at Karuwapani, Timli and Mohand.

103. *Prinia sylvatica* Jerdon, 1840
Jungle Prinia (1519-1523)

Status and Distribution: Resident. Uncommon. Observed at Mohand.

104. *Prinia socialis* Sykes, 1832
Ashy Prinia (1515-1518)

Status and Distribution: Resident. Common. Observed at Karuwapani and Mohand.

105. *Acrocephalus dumetorum* Blyth, 1849
Blyth's Reed-Warbler (1556)

Status and Distribution: Passage migrant. Uncommon recorded at Mohand.

106. *Orthotomus sutorius* (Pennant, 1769)
Common Tailorbird (1535-1539)

Status and Distribution: Resident. Very common. Sighted at Karuwapani, Sabhawala, Timli, Badshahibagh and Mohand.

*107. *Phylloscopus chlorinators* (G.R. Gray & J.E. Gray, 1846)
Lemon-rumped Warbler (1594-1596)

Status and Distribution: Altitudinal migrant. Common. Recorded at Karuwapani and Timli.

108. *Seicercus xanthoschistos* (G.R. Gray & J.E. Gray, 1846)
Grey-headed Flycatcher-Warbler (1616-1619)

Status and Distribution: Altitudinal migrant. Common. Observed at Timli and Mohand.

XXX (d). **MUSCICAPINAE**
(Flycatchers)

*109. *Muscicapa sibirica* Gmelin, 1789
Sooty Flycatcher (1405-1406)

Status and Distribution: Summer visitor. Uncommon. Seen at Karuwapani.

110. *Muscicapa dauurica* Pallas, 1811

Asian Brown Flycatcher (1407)

Status and Distribution: Summer visitor. Uncommon. Sighted at Timli.

111. *Ficedula tricolor* (Hodgson, 1845)

Slaty-blue Flycatcher (1423-1425)

Status and Distribution: Altitudinal migrant. Uncommon observed at Karuwapani.

112. *Niltava macgrigoriae* (Burton, 1836)

Small Niltava (1429-1430)

Status and Distribution: Altitudinal migrant. Uncommon. Sighted at Karuwapani.

113. *Niltava sundara* (Hodgson, 1837)

Rufous-bellied Niltava (1431-1432)

Status and Distribution: Resident and altitudinal migrant. Uncommon. Recorded at Karuwapani.

114. *Cyornis rubeculoides* (Vigors, 1831)

Blue-throated Flycatcher (1440)

Status and Distribution: Summer visitor. Uncommon. Observed at Timli.

115. *Cyornis tickelliae* Blyth, 1843

Tickell's Blue-Flycatcher (1442-1443)

Status and Distribution: Resident. Uncommon. Observed at Mohand.

*116. *Culicicapa ceylonensis* (Swainson, 1820)

Grey-headed Flycatcher (1448-1449)

Status and Distribution: Altitudinal migrant. Common. Recorded at Timli and Mohand.

XXX (e). **MONARCHINAE** (Paradise-Flycatchers)

117. *Terpsiphone paradisi* (Linnaeus, 1758)

Asian Paradise-Flycatcher (1460-1464)

Status and Distribution: Summer visitor. Common. Sighted at Sabhawala, Timli and Mohand.

XXX (f). RHIPIDURINAE (Fantail-Flycatchers)

118. *Rhipidura hypoxantha* Blyth, 1843
Yellow-bellied Fantail-Flycatcher (1450)

Status and Distribution: Resident and altitudinal migrant. Common. Observed at Timli and Mohand.

119. *Rhipidura albicollis* (Vieillot, 1818)
White-throated Fantail-Flycatcher (1454-1459)

Status and Distribution: Resident and altitudinal migrant. Very common. Recorded at Karuwapani, Sabhawala, Badshahibagh and Mohand.

120. *Rhipidura aureola* Lesson, 1830
White-browed Fantail-Flycatcher (1451-1453)

Status and Distribution: Resident with local migrant. Very common. Seen at Karuwapani, Sabhawala, Timli and Mohand.

XXXI. PARIDAE (Tits)

121. *Parus major* Linnaeus, 1758
Great Tit (1790-1797)

Status and Distribution: Resident. Ubiquitous. Occurs throughout the study area.

XXXII. SITTIDAE
 (Nuthatches, Wallcreeper)

122. *Sitta frontalis* Swainson, 1820
Velvet-fronted Nuthatch (1838)

Status and Distribution: Resident. Common. Observed at Karuwapani and Sabhawala.

XXXIII. DICAIEIDAE (Flowerpeckers)

- *123. *Dicaeum agile* (Tickell, 1833)
Thick-billed Flowerpecker (1892-1894)

Status and Distribution: Resident and altitudinal migrant. Common. Recorded at Timli and Mohand.

XXXIV. NECTARINIIDAE (Sunbirds, etc.)124. *Nectarinia asiatica* (Latham, 1790)**Purple Sunbird (1916-1918)***Status and Distribution:* Resident. Ubiquitous. Found throughout the study area.125. *Aethopyga siparaja* (Raffles, 1822)**Crimson Sunbird (1927-1929a)***Status and Distribution:* Resident and altitudinal migrant. Uncommon. Observed at Karuwapani.**XXXV. ZOSTEROPIDAE (White-eyes)**126. *Zosterops palpebrosus* (Temminck, 1824)**Oriental White-eye (1933-1936)***Status and Distribution:* Resident shows local movements. Ubiquitous. Found throughout the study area.**XXXVI. FRINGILLIDAE (Finches)***127. *Carpodacus erythrinus* (Pallas, 1770)**Common Rosefinch (2010-2013)***Status and Distribution:* Altitudinal migrant. Uncommon. Recorded at Karuwapani.**XXXVII. ESTRILDIDAE (Munias, etc.)**128. *Lonchura punctulata* (Linnaeus, 1758)**Spotted Munia (1974-1975)***Status and Distribution:* Resident. Common. Sighted at Timli and Mohand.**XXXVIII. PLOCEIDAE****XXXVIII (a). PASSERINAE****(Sparrows & Snowfinches)**129. *Passer domesticus* (Linnaeus, 1758)**House Sparrow (1938-1939a)***Status and Distribution:* Resident. Very common. Sighted at Karuwapani, Sabhawala, Timli, Badshahibagh and Mohand.

- *130. *Petronia xanthocollis* (Burton, 1838)
Yellow-throated Sparrow (1948-1949)

Status and Distribution: Resident. Uncommon. Recorded at Mohand.

XXXVIII (b). PLOCEINAE (Weavers)

131. *Ploceus manyar* (Horsfield, 1821)
Streaked Weaver (1962-1963)

Status and Distribution: Resident. Uncommon. Observed at Mohand.

132. *Ploceus philippinus* (Linnaeus, 1766)
Baya Weaver (1957-1959)

Status and Distribution: Resident. Very common. Sighted at Karuwapani, Timli, Badshahibagh and Mohand.

XXXIX. STURNIDAE (Starlings & Mynas)

- *133. *Sturnus malabaricus* (Gmelin, 1789)
Grey-headed Starling (987-989)

Status and Distribution: Summer visitor. Uncommon. Recorded at Timli.

134. *Sturnus pagodarum* (Gmelin, 1789)
Brahminy Starling (994)

Status and Distribution: Resident. Common. Seen at Sabhawala, Timli and Mohand.

135. *Sturnus contra* Linnaeus, 1758
Asian Pied Starling (1002-1004)

Status and Distribution: Resident shows local movements. Ubiquitous. Occurs throughout the study area.

136. *Acridotheres tristis* (Linnaeus, 1766)
Common Myna (1006-1007)

Status and Distribution: Resident. Ubiquitous. Occurs throughout the study area.

137. *Acridotheres ginginianus* (Latham, 1790)**Bank Myna (1008)**

Status and Distribution: Resident shows local movements. Uncommon. Sighted in Badshahibagh area.

138. *Acridotheres fuscus* (Wagler, 1827)**Jungle Myna (1009-1011)**

Status and Distribution: Resident shows local movements. Very common. Observed at Karuwapani, Sabhawala, Timli, Badshahibagh and Mohand.

XXXX. ORIOLIDAE (Orioles)139. *Oriolus oriolus* (Linnaeus, 1758)**Eurasian Golden Oriole (952-953)**

Status and Distribution: Summer visitor. Very common. Sighted at Karuwapani, Sabhawala, Timli and Mohand.

140. *Oriolus xanthornus* (Linnaeus, 1758)**Black-headed Oriole (958-960a)**

Status and Distribution: Resident with local movements. Common. Observed at Karuwapani, Timli and Mohand.

XXXI. DICRURIDAE (Drongos)141. *Dicrurus macrocercus* Vieillot, 1817**Black Drongo (962-964)**

Status and Distribution: Resident undertakes altitudinal movements. Very common. Recorded at Karuwapani, Sabhawala, Timli, Badshahibagh and Mohand.

142. *Dicrurus leucophaeus* Vieillot, 1817**Ashy Drongo (965-966b)**

Status and Distribution: Summer visitor. Uncommon. Sighted at Karuwapani.

143. *Dicrurus hottentottus* (Linnaeus, 1766)**Spangled Drongo (973)**

Status and Distribution: Resident depicts local movements. Common. Seen at Karuwapani, Sabhawala and Timli.

XXXXII. CORVIDAE (Crows, Treepies, etc.)

144. *Dendrocitta vagabunda* (Latham, 1790)
Indian Treepie (1030a-1034)

Status and Distribution: Resident. Ubiquitous. Found throughout the study area.

- *145. *Dendrocitta formosae* Swinhoe, 1863
Grey Treepie (1037-1039)

Status and Distribution: Resident with altitudinal movements. Uncommon. Observed at Karuwapani.

146. *Corvus splendens* Vieillot, 1817
House Crow (1048-1051)

Status and Distribution: Resident. Ubiquitous. Observed throughout the study area.

147. *Corvus macrorhynchos* Wagler, 1827
Jungle Crow (1054-1057)

Status and Distribution: Resident. Ubiquitous. Sighted throughout the study area.

Note: Species marked with (*) have been included here from Singh (2000).

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REFERENCES

- Ali, S. and Ripley, S.D. 1983a. *A Pictorial Guide to the Birds of Indian Subcontinent*. Oxford University Press, New Delhi.
- Ali, S. and Ripley, S.D. 1983b. *Handbook of the Birds of India and Pakistan (Compact Edition)*. Oxford University Press, New Delhi.
- BirdLife International. 2001. *Threatened Birds of Asia: The BirdLife International Red Data Book, Vols. I & II*. Cambridge, U.K.

- Grimmett, R., Inskipp, C. and Inskipp, T. 1999. *Pocket Guide to the Birds of the Indian Subcontinent*. Oxford University Press, New Delhi.
- Krys, Kazmierczak. 2000. *A Field Guide to the Birds of India, Sri Lanka, Pakistan, Nepal, Bhutan, Bangladesh and the Maldives*. Om Book Service, New Delhi.
- Manakadan, R. and Pittie, A. 2001. Standardised common and scientific names of the birds of the Indian subcontinent. *Buceros*, 6 (1): i-ix + 1-37.
- Singh, A.P. 2000. Birds of lower Garhwal Himalayas: Dehra Dun valley and neighbouring hills. *Forktail*, 16: 101-123.

MAMMALIA

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INTRODUCTION

Our knowledge on Indian mammals is largely contributed by Jerdon (1867), Pocock (1939 & 1941), Ellerman and Morrison-Scott (1951), Ellerman (1961) and Prater (1971). Recently, Alfred *et al.* (2002) have provided a checklist of Indian mammals and Menon (2003) a field guide to Indian mammals both covering about 400 species.

Nothing comprehensive is known about the mammals of Western Doon Shiwaliks (WDS) except its adjoining eastern boundary, the 'Rajaji National Park' from where nearly 49 species have been reported by Sinha (1995). In addition, Sati and Sinha (2003) have reported 20 species of mammals from Asan Wetland and its environs, which are also bordering the northwestern part of Western Doon Shiwaliks.

During present studies, the authors have recorded 33 species belonging to 29 genera of 18 families under 9 orders of mammalia through direct sighting and/ or from the reports based on the local information.

Besides systematic account, the article includes first reference, type locality, distribution (both in India and elsewhere), remarks and status (under various conservation categories) for each species observed. The classification followed is after Wilson and Reeder (1993) and Alfred *et al.* (*l.c.*). The status presented here for each species is after Alfred *et al.* (2006).

SYSTEMATIC ACCOUNT

Order INSECTIVORA
Family SORICIDAE

1. *Suncus murinus* (Linnaeus, 1766)

House Shrew

1766. *Sorex murinus* Linnaeus, *Syst. Nat.*, 12th ed., 1: 74.

Type locality: Java, Indonesia.

Distribution: India, Throughout.

Elsewhere: Afghanistan, Bhutan, China, Japan, Myanmar, Nepal, Sri Lanka.

Remarks: Sighted twice: once near Timli and on the other occasion at Badshahibagh.

Status: CAMP: LRlc (Nationally); DD (Globally).

Order CHIROPTERA
Family PTEROPODIDAE

2. *Pteropus giganteus* (Brunnich, 1782)
Indian Flying Fox

1782. *Pteropus giganteus* Brunnich, *Dyrenes Historie*. 1: 45.

Type locality: West Bengal, India.

Distribution: India: Throughout including Andaman Islands.

Elsewhere: China, Maldives, Myanmar, Nepal, Sri Lanka, Thailand.

Remarks: Only one colony comprising 70-80 individuals was seen near Timli.

Status: CAMP: LRnt, CITES: Appendix II.

3. *Rousettus leschnaulti* (Desmarest, 1820)
Fruit Bat

1820. *Pteropus leschnaulti* Desmarest, *Mammalogie, in Encycl. Meth.*, 1: 110.

Type locality: Pondicherry, India.

Distribution: India: Throughout.

Elsewhere: China, Indonesia, Myanmar, Nepal, Pakistan, Thailand, Vietnam.

Remarks: Two colonies: one with 28 and the other with 42 individuals were seen near Mohand and Sakra Nalla respectively.

Status: CAMP: LRlc (Nationally); DD (Globally).

Family VESPERTILIONIDAE

4. *Pipistrellus coromandra* (Gray, 1838)
Indian Pipistrelle

1838. *Scotophilus coromandra* Gray, *Mag. Zool. Bot.*, 2: 498.

Type locality: Pondicherry, India.

Distribution: India: Throughout.

Elsewhere: Afghanistan, Bangladesh, Bhutan, China, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam.

Remarks: Colonies were seen throughout from Asarori to Timli and Mohand to Badshahibagh area.

Status: CAMP: LRnt (Nationally); DD (Globally).

Order PRIMATES
Family CERCOPITHECIDAE

5. *Macaca mulatta* (Zimmermann, 1780)

Rhesus Macaque

1780. *Cercopithecus mulatta* Zimmermann, *Geogr. Gesch. Mensch. Vierf. Thiere*, 2: 195.

Type locality: Nepal Terai (=U.P. Terai), India.

Distribution: India: Whole of North and Northeast India to south up to 15° 46' N Latitude near Bay of Bengal.

Elsewhere: Afghanistan, Nepal, Pakistan, Bhutan to Thailand including China.

Remarks: A total of 21 troops consisting of 541 individuals of Rhesus Macaque were sighted in the study area. The troop size varied considerably from 6 to 80 individuals. Locality wise sorting of field data revealed that the highest average group size was observed at Shakumbri Devi and its environs with 45.0 individuals, followed by Asarori (40.5 individuals), Sabhawala (27.5), Mohand (23.6), Timli (14.6) and Badshahibagh (14.4).

Status: IWPA: Schedule II; CAMP : LRlc (Nationally); DD (Globally); CITES: Appendix II.

6. *Semnopithecus entellus* (Dufresne, 1797)

Hanuman Langur

1797. *Simia entellus* Dufresne, *Bull. Sci. Soc. Philom. Paris, ser. 1*: 7: 49.

Type locality: West Bengal, India.

Distribution: India: Throughout except NE India and western part of Gujarat.

Elsewhere: Nepal, Pakistan, Sri Lanka and China.

Remarks: A total of nine groups consisting of 118 individuals of Hanuman Langur were seen in the study area. The group size ranged from 3 to 24 individuals per group with an average group size of 13.1. Locality-wise sorting of field data revealed that the highest average group size was encountered at Shakumbri Devi and its environs with 20 individuals, followed by Mohand (19.5), Sabhawala (12), Badshahibagh (11), Asarori (10) and Timli (7.5).

Status: IWPA: Schedule II; CAMP: LR1c (Nationally); DD (Globally); CITES: Appendix I.

Order CARNIVORA
Family CANIDAE

7. *Canis lupus* Linnaeus, 1758

Wolf

1758. *Canis lupus* Linnaeus, *Syst. Nat.*, 10th ed., 1: 39.

Type locality: “*Europa sylvis, etiam frigidioribus*”, restricted by Thomas (1911) to Sweden.

Distribution: India: Practically all over the country except extreme south.

Elsewhere: Throughout the northern hemisphere, North America south to 20° N, in Oaxaca (Mexico), Europe, Asia, including the Arabian peninsula and Japan excluding Indo-China.

Remarks: Not common but reported occasionally by the jungle dwellers.

Status: IWPA: Schedule I, Part I; RDB: VU; CITES: Appendix I; CAMP: LRnt (Nationally); DD (Globally).

8. *Canis aureus* Linnaeus, 1758

Asiatic Jackal

1758. *Canis aureus* Linnaeus, *Syst. Nat.*, 10th ed., 1: 40.

Type locality: “*Oriente*” restricted by Thomas (1911) to “*Bema Mountains*”, Laristan, South Persia (Iran).

Distribution: India: Almost throughout the country.

Elsewhere: Afghanistan, Central South western and South Asia, North and East Africa, Southeastern Europe, Iran, Nigeria, Tanzania, Thailand, Transcaucasia, Sri Lanka.

Remarks: Very common near the villages and adjoining forest area of WDS.

Status: IWPA: Schedule II, Part II; CAMP: LR1c (Nationally); CITES: Appendix III.

9. *Vulpes bengalensis* (Shaw, 1800)**Bengal Fox**

1800. *Canis bengalensis*, Shaw, *Gen. Zool. Syst. Nat. Hist.*, 1(2): Mammalia, p. 330.

Type locality: Bengal, India.

Distribution: India: Throughout.

Elsewhere: Nepal, Pakistan.

Remarks: Not sighted during the survey but reported occasionally by the Forest officials on the northern slopes of WDS.

Status: IWPA: Schedule II, Part II; CITIES: Appendix III; CAMP: LRnt (Nationally); DD (Globally).

Family FELIDAE

10. *Felis chaus* Schreber, 1777**Jungle Cat**

1777. *Felis chaus* Schreber, *Die Säugethiere*, 2 (13) : pl. 110. B (1777): text, 3(24): 414(1777).

Type locality: Terek river, North of Caucasus, Dugestan, C.I.S. country.

Distribution: India: South of Krishna river in South India, Gujarat, Jammu and Kashmir, Madhya Pradesh, Rajasthan, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere: Afghanistan, Algeria, Arabia, Benin, China, Egypt, Iran, Iraq, Israel, Kenya, Malawi, Morocco, Mozambique, Myanmar, Nepal, Pakistan, Sri Lanka, Syria, Thailand, Vietnam, Yemen, Zambia, Zimbabwe.

Remarks: Occasionally reported around Karuwapani by the local people.

Status: IWPA : Schedule II, Part II; CITES : Appendix II; CAMP : LRnt (Nationally); DD (Globally).

11. *Prionailurus bengalensis* (Kerr, 1792)**Leopard Cat**

1792. *Felis bengalensis* Kerr, *In Linnaeus, Anim. Kingdom*, 1: 151.

Type locality: Bengal (West Bengal), India.

Distribution: India: North-western, central and north eastern States.

Elsewhere: Afghanistan, Bangladesh, China, Cambodia, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Taiwan, Thailand, CIS Countries and Vietnam.

Remarks: Rare, with few sightings in the area by the local people.

Status: IWPA : Schedule I, Part I; RDB : VU; CITES : Appendix I; CAMP : LRnt (Nationally); DD (Globally).

12. *Panthera pardus* (Linnaeus, 1758)

Leopard

1758. *Felis pardus* Linnaeus, *Syst. Nat.* 10th Ed., 1: 41.

Type locality: "Indiis", fixed by Thomas (1911) as "Egypt"

Distribution: India: Throughout India in suitable pockets.

Elsewhere: Afghanistan, Algeria, Angola, Arabia, Botswana, Cameroon, Central African Republic, Congo, Chad, China, CIS Countries, Egypt, Ethiopia, Gabon, Guinea-Bissau, Indonesia, Iran, Iraq, Kenya, Korea, Liberia, Laos, Malawi, Malaysia, Mauritania, Morocco, Mozambique, Myanmar, Namibia, Nepal, Niger, Nigeria, Pakistan, Senegal, Sierra Leone, Somalia, South Africa, Sri Lanka, Sudan, Tanzania, Thailand, Tunisia, Turkey, Uganda, Vietnam, Zaire, Zambia, Zimbabwe.

Remarks: Common. Often sighted in the study area. Zoological Survey of India, Dehra Dun has received one dead specimen of leopard through the state forest department possibly killed during the process of ill-legal trapping.

Status: IWPA : Schedule I, Part I; RDB : VU; CITES : Appendix I; CAMP : VU (Nationally); DD (Globally).

13. *Panthera tigris* (Linnaeus, 1758)

Tiger

1758. *Felis tigris* Linnaeus, *Syst. Nat.* 10th ed., 1: 41.

Type locality: "Asia", Thomas (1911) fixed as "Bengal", India.

Distribution: India: Throughout India in suitable pockets except desert region.

Elsewhere: Bangladesh, Bhutan, China, CIS Countries, Laos, Indonesia, Korea, Malaysia, Myanmar, Nepal, Thailand, Vietnam.

Remarks: Uncommon. Often sighted by the local people.

Status: IWPA: Schedule I, Part I; RDB: VU; CITES: Appendix I; CAMP: EN (Nationally); DD (Globally).

Family URSIDAE

14. *Melursus ursinus* (Shaw, 1791)**Sloth Bear**

1791. *Bradypus ursinus* Shaw, *Nat. Misc.*, 2 (unpaged), pl. 18.

Type locality: “Abinteriore Bengala” restricted by Pocock (1941) as Patna, north of the Ganges, Bihar, India.

Distribution: India: Throughout in suitable habitats.

Elsewhere: Sri Lanka.

Remarks: Not common but seen on very few occasions by the bear charmers on north as well as southern slopes of WDS.

Status: IWPA: Schedule I, Part I; CITES: Appendix I; CAMP: VU (Nationally); DD (Globally).

Family VIVERRIDAE

15. *Viverricula indica* (Desmarest, 1804)**Small Indian Civet**

1804. *Viverra indica* Desmarest, *Tabl. Meth. Hist. Nat.*, In *Nouv. Dict. Hist. Nat.*, 24 : 9, 17.

Type locality: India.

Distribution: India: Throughout in suitable localities.

Elsewhere: Bangladesh, China, Hong Kong, Indonesia, Laos, Malaysia, Myanmar, Pakistan, Sri Lanka, Taiwan, Thailand, Vietnam.

Remarks: Commonly seen at Timli and at Sakra Nalla in Badshahibagh area.

Status: IWPA: Schedule II, Part II; CITES: Appendix III; CAMP: LRnt (Nationally); DD (Globally).

16. *Paraoxurus hermaphroditus* (Pallas, 1777)**Common Palm Civet**

1777. *Viverra hermaphroditus* Pallas. In Shreber. *Die Säugethiere*, 3 (25): 426. (1777).

Type locality: Uncertain. “Das Vaterland des beschriebenen Thieres ist die Barbarey”

Distribution: India: Almost throughout the country except desert part of Rajasthan and Gujarat.

Elsewhere: Bhutan, Cambodia, China, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Singapore, Sri Lanka, Thailand, Vietnam, Sulawesi, Moluccas, Aru Islands.

Remarks: Very common sighted at Timli and Badshahibagh.

Status: IWPA: Schedule II, Part II; CITES: Appendix III; CAMP: LR1c (Nationally); DD (Globally).

Family HERPESTIDAE

17. *Herpestes edwardsii* (E.Geoffroy Saint-Hilaire, 1818)

Indian Grey Mongoose

1818. *Ichneumon edwardsii* E.Geoffroy Saint- Hilaire, *Descrip. De L'Egypte*, 2 : 139.

Type locality: "Indes orientales" restricted to Madras, India by Ellerman and Morisson-Scott (1951).

Distribution: India: Throughout.

Elsewhere: Afghanistan, Bahrain, Indonesia, Iran, Japan, Kuwait, Malaysia, Nepal, Pakistan, Saudi Arabia, Sri Lanka.

Remarks: Widespread practically seen throughout the study area, frequently observed around Asarori, Karuwapani, Timli and Bhureshah Nala on the northern slopes and Mohand, Shakumbri Devi and Badshahibagh areas on the southern slopes of the WDS.

Status: IWPA: Schedule IV; CITES: Appendix III; CAMP: LR1c (Nationally); DD (Globally).

Order PROBOSCIDEA

Family ELEPHENTIDAE

18. *Elephas maximus* Linnaeus, 1758

Indian Elephant

1758. *Elephas maximus* Linnaeus, *Syst. Nat.* 10th ed., 1: 133.

Type locality: Sri Lanka.

Distribution: India: Andhra Pradesh, Bihar, Karnataka, Kerala, Orissa, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal, and North eastern States, a feral in Andaman Islands.

Elsewhere: Bangladesh, China, Cambodia, Indonesia, Laos, Malaysia, Sri Lanka, Thailand, Vietnam.

Remarks: Uncommon. Frequently seen around Mohand and occasionally in Asarori and its environs.

Status: IWPA: Schedule I, Part I; RDB: VU; CITES : Appendix I; CAMP: VU (Nationally); DD (Globally).

Order ARTIODACTYLA
Family SUIDAE

19. *Sus scrofa* Linnaeus, 1758

Wild Boar

1758. *Sus scrofa* Linnaeus, *Syst. Nat.* 10th ed., 1: 49.

Type locality: Germany.

Distribution: *India:* Throughout.

Elsewhere: Australia, China, Central and South America, Fiji Islands, Europe, Galapagos, Hawaiian Islands, Indonesia, Lesser Sunda Islands, Mauritius, Moluca Islands, Norway, Numerous oceanic Islands, New Guinea, South Russia to middle east, Sri Lanka, Sweden, South Africa, Solomon Islands, U.S.A., West Indies.

Remarks: Common. Occurs throughout the study area.

Status: IWPA: Schedule III; CAMP: LR1c (Nationally); DD (Globally).

Family CERVIDAE

20. *Muntiacus muntjak* (Zimmermann, 1780)

Barking Deer

1780. *Cervus muntjak* Zimmermann, *Geogr. Gesch. Mensch. Vierf. Thiere*, 2:131.

Type locality: Java, Indonesia.

Distribution: *India:* Almost throughout the country except Jammu and Kashmir and desert region.

Elsewhere: Bangladesh, Bhutan, China, Indo-China, Indonesia, Malaysia, Nepal, Pakistan, Sri Lanka.

Remarks: Common. In all, it was observed and/ or heard on four occasions. Twice near Karuwapani (once it was sighted and on the other occasion it was heard), once seen near Mohand once near Shakumbri Devi, and once heard barking near Shakumbri Devi.

Status: IWPA: Schedule III; CAMP: LR1c (Nationally); DD (Globally).

21. *Axis axis* (Erxleben, 1777)

Chital or Spotted Deer

1777. *Cervus axis* Erxleben. *Syst. Regn. Anim.*, 1: 312.

Type locality: Bank of the Ganges, Bihar, India.

Distribution: India: Peninsular India, northwards to Kumaon and Sikkim including West Bengal introduced in Andaman.

Elsewhere: Nepal, Sri Lanka, introduced in many parts of the world.

Remarks: Very common. Frequently observed at and around Mohand, Shakumbri Devi, Asharori, Karuwapani and Sabhawala.

Status: IWPA: Schedule IV; CAMP: LR1c (Nationally); DD (Globally).

22. *Axis porcinus* (Zimmermann, 1780)

Hog Deer or Para

1780. *Cervus porcinus* Zimmermann, *Geogr. Gesch. Mensch. Vierf. Thiere*, 2: 131.

Type locality: Bengal, India.

Distribution: India: Assam, Himachal Pradesh, North eastern States, Punjab, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere: Indo-China, Myanmar, Nepal, Pakistan, Saim, Sri Lanka, Thailand.

Remarks: Uncommon. Occasionally recorded near Mohand.

Status: IWPA: Schedule III; CAMP: LRnt (Nationally); DD (Globally).

23. *Cervus unicolor* Kerr, 1792

Sambar

1792. *Cervus unicolor* Kerr. *In. Linnaeus, Anim. Kingdom*, p. 300.

Type locality: Sri Lanka.

Distribution: *India:* Tamil Nadu northwards to Uttarakhand, Uttar Pradesh, east to Northeastern States.

Elsewhere: Australia, Indo-China, Indonesia, Malaysia, Myanmar, Taiwan, Sri Lanka.

Remarks: Very common. Found throughout the study area and frequently sighted at Asarori, Karuwapani, Sabhawala, Timli, Sakra Nala and Shakumbri Devi.

Status: IWPA: Schedule III; CAMP: LR1c (Nationally); DD (Globally).

Family BOVIDAE

24. *Boselaphus tragocamelus* (Pallas, 1766)

Nilgai; Blue Bull

1766. *Antelope tragocamelus* Pallas, *Misc. Zool.*, p. 5.

Type locality: Plains of Peninsular India.

Distribution: *India:* From base of Himalayas to Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttarakhand, Uttar Pradesh.

Elsewhere: Nepal, Pakistan.

Remarks: Common. Observed as many as on five occasions: thrice in Shakumbri Devi area (12-15 individuals) and twice in Asarori area (6-8 individuals).

Status: IWPA: Schedule III; CAMP: LR1c (Nationally); DD (Globally).

25. *Naemorhedus goral* (Hardwicke, 1825)

Goral

1825. *Antelope goral* Hardwicke, *Trans. Linn. Soc. London*, 14: 518.

Type locality: Himalayas, Nepal.

Distribution: *India:* Himachal Pradesh, Jammu and Kashmir, Northeastern States, Sikkim, Uttar Pradesh, West Bengal.

Elsewhere: Bhutan, China, Korea, Myanmar, Pakistan.

Remarks: Uncommon. Occasionally reported from the Mohand locality.

Status: CITES: Appendix I.

Order PHOLIDOTA
Family MANIDAE

26. *Manis crassicaudata* (Gray, 1827)
Indian Pangolin

1827. *Manis crassicaudata* Gray, In Griffith *et al. Anim. Kingdom*, 5: 282.

Type locality: India.

Distribution: India: Andhra Pradesh, Bihar, Delhi, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh, West Bengal.

Elsewhere: Bangladesh, China, Pakistan, Sri Lanka.

Remarks: Once sighted near Karuwapani area. According to the local people the species is commonly seen in the WDS area feeding on termite mounds.

Status: IWPA: Schedule I, Part I; RDB: VU; CITIES: Appendix II; CAMP: LRnt (Nationally); DD (Globally).

Order RODENTIA
Family SCIURIDAE

27. *Funambulus pennantii* Wroughton, 1905
Northern Palm Squirrel

1905. *Funambulus pennantii* Wroughton, *J. Bombay, nat. Hist. Soc.*, 16: 411.

Type locality: Mandvi Taluka of Surat district, Gujarat, India.

Distribution: India: North, northeast, west and central India, Andaman Island.

Elsewhere: Afghanistan, Iran, Nepal, Pakistan.

Remarks: Very common. Frequently seen throughout the study area.

Status: IWPA: Schedule IV; CAMP: LRlc (Nationally); DD (Globally).

Family HYSTRICIDAE

28. *Hystrix indica* Kerr, 1792
Indian Crested Porcupine

1792. *Hystrix indica* Kerr, In Linnaeus, *Anim. Kingdom*, p. 213.

Type locality: India.

Distribution: India: Throughout.

Elsewhere: Israel, Nepal, Pakistan, Russian Turkestan, Sri Lanka.

Remarks: Uncommon. Quails reported in Timli forest.

Status: IWPA: Schedule IV; CAMP: LR1c (Nationally); DD (Globally).

Family MURIDAE

29. *Rattus rattus* (Linnaeus, 1758)

House Rat

1758. *Mus rattus* Linnaeus, *Syst. Nat.* 10th ed., 1 : 61.

Type locality: Uppsala, Uppsala County, Sweden.

Distribution: India: Cosmopolitan, Practically throughout the country.

Elsewhere: Introduced world wide in the tropics and temperate zones.

Remarks: Very common. Observed frequently in human habitations.

Status: IWPA: Schedule V; CAMP: LR1c (Nationally); DD (Globally).

30. *Mus musculus* Linnaeus, 1758

House Mouse

1758. *Mus musculus* Linnaeus, *Syst. Nat.*, 10 ed., 1: 62.

Type locality: Uppsala, Uppsala County, Sweden.

Distribution: India: Practically throughout.

Elsewhere: Spread throughout most of the world through its close association with human beings. (Ellerman and Morrison-Scott, 1951).

Remarks: Very common. Recorded frequently from human habitations.

Status: IWPA: Schedule V; CAMP: LR1c (Nationally); DD (Globally).

31. *Mus booduga* (Gray, 1837)

Field Mouse

1837. *Leggada booduga* Gray, *Mag. Nat. Hist.* [Charlesworth's], 1: 586.

Type locality: South Mahratta, India.

Distribution: India: Throughout the country.

Elsewhere: Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

Remarks: Common. Usually sighted in the cultivations.

Status: IWPA: Schedule V; CAMP: LR1c (Nationally); DD (Globally).

32. *Bandicota bengalensis* (Gray & Hardwicke, 1833)

Lesser Bandicoot Rat

1833. *Arvicola bengalensis* Gray & Hardwicke, *Illustr. Indian Zool.*, pl. 21.

Type locality: Bengal, India.

Distribution: India: Throughout.

Elsewhere: Indo-China, Indonesia, Myanmar, Nepal, Pakistan, Sri Lanka.

Remarks: Common. Usually seen in the fields.

Status: IWPA: Schedule V; CAMP: LR1c (Nationally); DD (Globally).

Order LAGOMORPHA

Family LEPORIDAE

33. *Lepus nigricollis* Cuvier, 1823

Indian Hare or Black-napped Hare

1823. *Lepus nigricollis* F. Cuvier, *Dict. Sci. Nat.*, 26: 307.

Type locality: Malabar, (Madras = Chennai, Tamil Nadu), India.

Distribution: India: Throughout.

Elsewhere: Bangladesh, Bhutan, Indonesia, Pakistan, Sri Lanka.

Remarks: Very common. Found throughout the WDS area, particularly at Asarori, Karuwapani, Sabhawala, Timli, Mohand, Shakumbri Devi and Badshahibagh.

Status: IWPA: Schedule IV; CAMP: LR1c (Nationally); DD (Globally).

SUMMARY

The present article deals with 33 species of mammals belonging to 29 genera of 18 families under 9 orders through direct observations and/ or from the reports based on the local information. Besides systematic account, the article includes first reference, type locality, distribution (both in India and elsewhere), remarks and status (under various conservation categories) for each species observed.

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REFERENCES

- Alfred, J.R.B., Sinha, N. K. and Chakraborty, S. 2002. *Checklist of Mammals of India, Rec. zool. Surv. India, Occ. Paper No. 199*: 1-289. (Published – Director, Zool. Surv. India, Kolkata).
- Alfred, J.R.B., Das, A.K. and Sanyal, A.K. 2006. *Animals of India: Mammals*. ENVIS – Zool. Surv. India, Kolkata: 1 – 236.
- Ellerman, J.R. 1961. *The Fauna of British India, including Ceylon and Burma (Mammalia, Vol. III Rodentia*. Zoological Survey of India. (In 2 parts). 1: 1-482; 2: 483-884.
- Ellerman, J.R. and Morrison, T. C. S. 1951. *Checklist of Palaearctic and Indian Mammals, 1758-1946*. Second Edition. British Museum of Natural History, London, 810 pp.
- Jerdon, T. C. 1867. *The Mammals of India*. British Museum of Natural History.
- Menon, V. 2003. *A field guide to Indian Mammals*. Dorling Kindersley (India) Pvt. Ltd. Pp. 1-201.
- Pocock, R. I. 1939. *The Fauna of British India, including Ceylon and Burma; Mammalia, Vol. 1. Primates and Carnivora*, in part. Taylor and Francis, Ltd., London, 463 pp.
- Pocock, R. I. 1941. *The Fauna of British India, including Ceylon and Burma; Mammalia, Vol. 2. Carnivora*, in part. Taylor and Francis, Ltd., London, 503 pp.
- Prater, S. H. 1971. *The Book of Indian Animals*. Bombay Natural History Society. Pp. i-xxiii + 1-324.
- Sinha, N. K. 1995. Mammals (Mammalia). In *Fauna of Conservation Area Series 5: Rajaji National Park*. Zool. Surv. India, Pp. 9-23.
- Sati, J.P. and Sinha, N.K. 2003. Mammalia. In *Fauna of Asan Wetland*. Zool. Surv. India, *Wetland Ecosystem Series 5*: 39-42.
- Wilson, D.E. and Reeder, D. M. [eds.] 1993. *Mammals Species of the World: A Taxonomic and Geographic Reference*. Smithsonian Inst., Press, Washington and London. Pp. i-xxvii + 1-1207.



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