

THE
BIRDS
OF
SIKKIM



SÁLIM ALI

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INTRODUCTION

Sikkim is a vertical strip of extremely rugged montane country, 40 to 60 miles broad and about 100 miles deep, wedged in between the Himalayan States of Nepal in the west and Bhutan on the east. It lies between lat. $27^{\circ} 5'$ and $28^{\circ} 9'$ N. and long. $87^{\circ} 59'$ and $88^{\circ} 56'$ E. and covers an area of 2818 square miles. Its northern boundary with Tibet runs more or less parallel with the main Himalayan axis from the Dongkia Mountain westward following the stupendous spur of Kinchinjau. It is a political demarcation rather than a strictly natural boundary since it admits, within the northernmost section of Sikkim, terrain that is typically Tibetan in physiography possessing a predominantly Palaeartic fauna from about the 28th parallel. The Singalila Ridge or Spur running about 60 miles south to north almost from plains level, separates Sikkim from east Nepal and culminates near its northern extremity in some of the loftiest mountains in the world, the Kinchinjunga massif, which, besides Kinchinjunga itself (28,146 ft.) includes many other peaks, e.g. Pandim, Simvo, Siniolchu, Junnoo and Kabru, all of well over 20,000 ft. The greater part of the eastern boundary of Sikkim is formed by the Chola Range, much loftier than the Singalila, stretching south from the main Himalayan axis at Dongkia Mountain (over 23,000 ft. high). This range is pierced by passes, some of which form the normal trade routes between India (Kalimpong) and Tibet (Lhasa) through the Chumbi Valley. Of these the most frequented are the Tangkar La (16,000 ft.), Natu La (14,200 ft.) and the Jelep La (14,390 ft.). The northern trade route with Tibet, along the Teesta and Lachen Valleys, is through the high Kongra La Pass (16,840 ft.) or eastward from Chungthang up the Lachung Valley through the Dongkia Pass (18,030 ft.). The southern boundary of the State runs with the Darjeeling District of W. Bengal.

The Singalila Ridge on the west, the Chola on the east with the main Himalayan axis across their northern extremities virtually enclose Sikkim in a titanic horseshoe. The horseshoe is the catchment area of the headwaters of the Teesta River, one of the principal physical features of the country, which runs north-south practically throughout its entire length. Its principal feeder streams or affluents—the Lachen, Lachung, Zemu, Talung, Great Rangeet, Rongli and Rangpo—all rise either within the horseshoe or just beyond the political boundaries of the State.

The climate varies between the tropical heat of the valleys and the alpine cold of the snowy ranges. The rainfall, except in the Tibetan facies near the northern boundary, is very heavy, averaging 137 inches annually at Gangtok. From November to February the rainfall is light, and the weather in November and December is normally clear and fine. In March thunderstorms commence, and, growing more and more frequent, usher in the SW. monsoon season which lasts till October.

The main source of the Teesta River is the Chho Lhāmo Lake situated at over 17,000 ft. elevation. From here it descends steeply

for some 16,000 ft. down to Rangpo all within a distance of about 50 miles. In its short and torrential course its waters are continually augmented by the concentrated drainage of smaller streams and mountain torrents in addition to its main affluents. It is thus easy to understand how such an insignificant and innocent-looking stream as the Teesta is during the dry season can suddenly swell into the thundering, raging torrent it becomes in the monsoon, causing gigantic landslides all along its course year after year, and widespread floods and devastation where it debouches into the Indian plains.

The level nature of the Gangetic delta and the rest of the country intervening between the mountains and the Bay of Bengal, some 400 miles directly to the south, permits the steady unobstructed inflow from the sea of the moisture-laden currents of the SW. monsoon and renders Sikkim the most humid region of the entire Himalayan chain. The transverse narrow valleys formed by the mass of mountainous spurs criss-crossing one another, heavily forest-clad up to 12,000 ft., give rise to local modifications of exposure, temperature, humidity and luxuriance of vegetation, and affect in varying degree the altitudinal distribution of sedentary birds.

By comparison, the Himalayas to the west of central Nepal are considerably less humid, a feature which is clearly reflected in all their plant and animal life. An analysis of the races of typically Himalayan birds collected along the southern aspect of the entire Himalayan axis suggests that the zoogeographical boundary between the eastern and the western Himalayas lies in the region of the Arun-Kosi River (in Nepal), some 50 miles west of the Sikkim border, the forms inhabiting the moister eastern Himalayas being appreciably darker in coloration as well as somewhat smaller in size.

Vegetation

In luxuriance and floral composition, the vegetation of Sikkim and the humid eastern Himalayas bears a greater similarity with the Malay Peninsula and Archipelago than with the Himalayas west of central Nepal. Many of the typical orders and families of plants common to the former two regions are totally absent in the western Himalayas.

Broadly speaking, three altitudinal zones of vegetation are recognizable in Sikkim. They are not clear-cut at their boundaries but merge into one another, often showing considerable local encroachments and recessions above and below the line depending upon physical configuration and exposure of the terrain and the resultant ecological factors:

1. The Tropical Zone extends roughly from the foothills of the Outer Himalayas to an altitude of about 4000 ft. It contains deep, steep-sided valleys and gorges, with well-drained flanking slopes clothed in dense evergreen jungle. It is characterized by gigantic trees with buttressed trunks with huge lianas and climbers covering them, intertwining in the foliage canopy and festooning from tree to



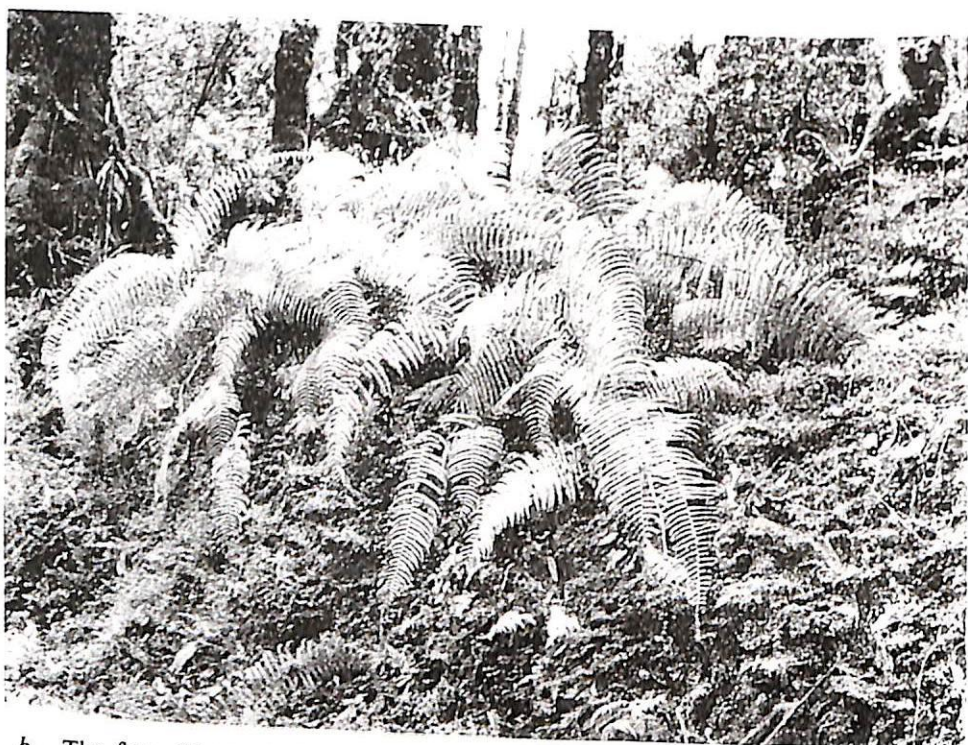
a. Terraced cultivation, from the foothills up to *c.* 6,000 ft.



b. Junipers and buckthorn scrub, near Thangu, *c.* 13,000 ft.



a. Deciduous facies of the tropical zone, c. 3,000 ft.
W. Sikkim



b. The fern *Gleichenia* (? *linearis* Cl.) a common feature of the tropical and sub-tropical zones, c. 4-5,000 ft.

tree. Orchids of numerous species abound, and the handsome large-leaved *Rhaphidophora* drapes the trunks along with numerous vines and peppers. Wild bananas, straight-stemmed screw-pines (*Pandanus*), nettles, and giant bamboos provide the other features characteristic of this type of moist foothills forest.

2. Above this belt, and up to an elevation of 6500 ft. or so, the vegetation assumes a sub-tropical aspect, passing as it ascends into the Moist Temperate type of Champion's classification: dense tall evergreen forest with oaks and rhododendrons predominating. Near its upper limit (at *c.* 9000 ft.) Silver Fir appears with the oaks, and the forest is mixed with various deciduous trees such as *Magnolia*, *Acer* and *Betula*. The undergrowth consists largely of the high-level 'maling' bamboo (*Arundinaria*) or dwarf rhododendron and other evergreen shrubs. Ferns, epiphytic mosses and many other epiphytes are abundant.

3. Between 9000 ft. and 13,000 ft. comes the Temperate Zone of mixed conifer forest containing hemlock (*Tsuga*) and spruce (*Picea*) with varying amounts of Blue Pine (*Pinus excelsa*), Silver Fir (*Abies webbiana*) and junipers, and with a shrubby undergrowth of rhododendron and *Arundinaria* bamboo.

These three main divisions, which present appreciable gradations and differences in their floristics on the outer ranges and interior of Sikkim as well as locally, are succeeded higher still by Alpine forest and scrub. The former is composed of small crooked trees and large shrubs, interspersed with patches of fir and pine. The stunted forest is mainly of rhododendrons of many species which impart to it an evergreen character. Sikkim is justly renowned for the abundance and lavish variety of its rhododendrons. They range from dwarf bushes growing above the snow line with insignificant tiny white flowers, through dense shrubs with enormous tufts of showy blossoms—white, pink, mauve, crimson and yellow—to large forest trees up to 60 ft. high or more with fiery scarlet blossoms that light up the verdant hillsides from miles away. In May, when most of the high-growing varieties burst into their multi-coloured masses of flowers, they present a spectacle of exquisite and indescribable charm. In spring the ground in the more open patches becomes carpeted with a profusion of flowers, prominent among which are the primulas. Ferns abound in patches, and epiphytic mosses and lichen are common. Vegetation, here dependent largely on snowfall and melting snow, gets progressively dwarfed and scanty towards the upper limits. Low evergreen scrub, 2 or 3 ft. high, of rhododendron, juniper, cotoneaster, etc. predominates, with *Anemone*, *Corydalis* and *Fritillaria* as some of the commonest herbs. Beyond 17,000 ft. or thereabouts vegetation ceases in inner Sikkim, the heights above being covered by rock and snow.

These altitudinal zones of vegetation are of the highest interest to the student of bird ecology inasmuch as each of them harbours a more or less characteristic avifauna of its own. Perhaps nowhere in the world would one find the unique phenomenon of so divergent a range of climates and vegetation telescoped into so circumscribed

a space. Hooker gives a good example. He writes: 'From the bed of the Ratong in which grow palms with screw-pine and plantain, it is only seven miles in a direct line to the perpetual ice In other words the descent is so rapid that in eight miles the Ratong waters every variety of vegetation from the lichen of the Poles to the palm of the Tropics; while throughout the remainder of its mountain course it falls from 4000 ft. to 300 ft. flowing amongst tropical scenery through a valley whose flanks rise from 5000 ft. to 12,000 ft. above its bed.'

This abrupt telescoping of the terrain—from the hot, steamy foothill valleys to the arctic cold of the snow-capped peaks—which has produced the marked altitudinal zonation in the rainfall, humidity, climate and vegetation is also responsible for the great variety and numerical abundance of the resident bird life, making Sikkim perhaps the richest area of its size anywhere in the world. In addition to the 430 species described in the following pages, the Appendix gives a further 97 which have been recorded as occurring or having occurred in Sikkim, bringing the total up to 527 species. This list could easily be enlarged by the inclusion of vagrants, transients on migration and near-certainties, so that a round 550 species would not be an unreasonable overall reckoning for the country. This means about 30 per cent of the aggregate bird species and subspecies found in the entire subcontinent comprising the Indian Union, Pakistan, Nepal and Bhutan together with Ceylon. Many forms of exceptional beauty and rarity are peculiar to this region but also spill over into Nepal on the west and Bhutan on the east.

A curious parallelism exists between the avifauna (and of several other widely differing forms of animal life as well) inhabiting the moist Sikkim Himalayas, Burma and Malaya on the one hand and the far-flung rain forests of the southern Western Ghats on the other. The postulated origin and mechanics of this phenomenon are discussed in my book on the birds of Travancore and Cochin, and it will suffice here merely to draw attention to it again for the benefit of future investigators.

Thanks to the labours of Brian Hodgson and his band of local collectors between 1845 and 1858, and of Mandelli, Blanford and others in the 70's and after, a fairly complete collection of birds from Sikkim territory was built up, which is now available for study chiefly in the British Museum (Natural History), London, but also scattered over various other museums in Europe and in America. In the present century these collections have been enlarged by the contributions of several other ornithologists, notably Col. F. M. Bailey, Herbert Stevens, Frank Ludlow, Col. R. Meinertzhagen, Dr Ernst Schäfer, and lastly by the recent Loke-Sálim Ali bird survey of Sikkim.

It is doubtful if any forms unknown to science still remain undiscovered in this area, though the material relating to several of the rarer and little-known species, e.g. wrens and some of the Timaliinae, is meagre and insufficient for a proper study. But by and large, further general specimen-collecting seems redundant. A review of our



a. Epiphytic ferns, moss, and orchids are characteristic of the tropical and sub-tropical zones.



b. The handsome large-leaved *Rhabdophora* (? *glauca* Schott) and numerous vines and creepers here drape the trunks of the forest trees.

knowledge of the bionomics of this impressive array of birds, however, reveals a lack that is truly deplorable. In the case of an area that had never been explored before it is understandable that the pioneers should have concentrated their efforts on the amassing of specimens. Unfortunately, they were obliged to do most of their collecting vicariously with the aid of illiterate, local, professional hunters and snarers. Thus, though in the case of Hodgson all the specimens brought to him were carefully measured, weighed and described, and frequently also sketched, many of them are without precise data as to altitude or environment, and even their sexing is often dubious. The published literature dealing with these comprehensive 'classical' collections is largely descriptive and taxonomical; field notes are practically non-existent, excepting those of a very general and diffuse nature, and even that in a few cases only. Of the later investigators B. B. Osmaston, who was posted as a forest officer in Darjeeling District, recorded some very useful notes, especially concerning nidification. Stevens's *Birds of the Sikkim Himalayas* is a commendable attempt to sort out the bird life into 'altitudinal life zones' on the available data. Meinertzhagen with his refreshing tendency to avoid the well-worn ruts of bird study and explore new avenues has provided some model observations on the status and habits of several little-known species of the high altitudes. But perhaps the most thorough and rational collecting of Sikkim birds in recent times has been done by Dr Ernst Schäfer during the two years immediately preceding the Second World War. His collections are particularly valuable since they cover every season of the year, including the monsoon. Anyone acquainted with the depressing conditions prevailing in that period—week after week of gloomy overcast skies, the saturated atmosphere reeking of mildew and dripping with moisture, the incessant relentless downpours with enormous landslides constantly holding up movement, hordes of insatiable leeches for ever after one's blood, and similar other discomforts—will agree that this is no mean achievement and calls for a very high order of dedication to scientific research. Ornithologists familiar with Dr Schäfer's earlier work in Tibet (*Ornithologische Ergebnisse zweier Forschungsreisen nach Tibet, J. f. O. 1938, Sonderheft*) and with his competence and excellence as a field biologist will appreciate the incalculable harm Sikkim ornithology has sustained through tragic loss under war conditions of all his manuscript field notes. Fortunately the collection itself found its way after various vicissitudes to its destination, the Berlin University Zoological Museum, where it was critically studied by Prof. Erwin Stresemann. Through the latter's friendly co-operation I have been privileged to consult and make use of his valuable taxonomical report (in MS.) on Schäfer's material. Stresemann's measurements of these fresh specimens, his notes on ages, moults and other data, together with the dependable sexing, dates and altitudes on their labels have added very considerably to our knowledge of the seasonal local occurrences, altitudinal movements, and nidification of sedentary birds. By filling many of the previous blanks they have helped to make the present

account of Sikkim avifauna less incomplete than it must otherwise have been.

Migration

Certain well-known migrants such as wild ducks and geese can be seen passing over Sikkim regularly in autumn and spring, and some other species are known to spend the winter or a part of that season at lower altitudes. Apart from this, our knowledge of bird migration in Sikkim is on a par with that of their bionomics—in other words practically nil. The Lachen Valley is reputedly a traditional flyway for ducks and geese, at least on northward migration in spring (February/March). But very little authentic data are recorded from the interior of Sikkim because few students of birds have ever been able to stay there, as they have in the more accessible western Himalayas, long enough to carry out adequate observations.

The following is a list of collecting and other localities more commonly mentioned in the text, with their approximate altitudes in feet above sea level. The variants of the spelling, frequently used in maps and publications on Sikkim, are shown in brackets.

Ari (Arita)	4900
Changu (Chhanggu, or Tsomgo)	12,500
Chungthang (Chumthang)	5500
Dentam, Great Rangeet Valley	4500
Dikchu	2000
Gangtok	5500
Gayamtashana Tso (Gayum Chhona)	16,000
Gezing	5000
Gnatong (Nāthang)	12,500
Gyagong (Giaogang, or Gyaokong)	16,000
Jeluk (Jéyluk)	9000
Kapup (Kupup)	13,000
Karponang	9000
Kewzing (Sosing)	5800
'Kiang-Lager' (Schäfer's camp)	16,500
Lachen	8900
Lachung	8900
Lingtam	5500
Manshitang	6000
Martam	2000
Pakyong (Pakhyong)	4400
Pemionche (Pemayangtse)	6850
Penlom La (Penlong La)	6000
Rangpo	1200
Rinchinpong	5000
Singhik	4400
Singtam	1200
Temi	5200
Thangu (Thanggu)	13,500
Yumthang (Yeumthang)	11,500

Some Important Literature on Sikkim Birds

- Blanford, W. T. (1871-2): Account of a Visit to the Eastern and Northern frontiers of Independent Sikkim. *Jour. Asiat. Soc. Bengal* 40 :367; 41 :30.
- (1872): Notes on a Collection of Birds from Sikkim. *ibid.*, 152-170 (with plates and descriptions of *Phylloscopus pallidipes*, *Pellorneum mandellii*, *Propasser saturatus*).
- (1877): Notes on some Birds in Mr Mandelli's collection from Sikkim, Bhutan and Tibet. *Stray Feathers* 5:482-7.
- Brooks, W. Edwin (1880): Ornithological Observations in Sikkim, the Punjab and Sind. *Stray Feathers* 8:464-9.
- Gammie, J. A. (1877): Occasional Notes from Sikkim. *Stray Feathers* 5:380-7.
- Ludlow, F., and Kinnear, N. B. (1937): The Birds of Bhutan and adjacent Territories of Sikkim and Tibet. *Ibis*: 1-46, 249-93.
- — (1944): The Birds of South-eastern Tibet. *Ibis*: 43-86, 176-208, 348-89.
- Meinertzhagen, R. (1927): Systematic Results of Birds collected at High Altitudes in Ladak and Sikkim. *Ibis*: 363-422, 571-633.
- Scully, F. (1880): A Contribution to the Ornithology of Nepal. *Stray Feathers* 8:204-368.
- Stevens, Herbert (1923-5): Notes on the Birds of the Sikkim Himalayas. *Jour. Bom. Nat. Hist. Soc.* 29:503-18, 723-40, 1007-30; 30:54-71, 353-79, 664-85, 872-98.

A book that is quite indispensable to the proper understanding of the physiography and vegetational characteristics of Sikkim is Sir J. D. Hooker's *Himalayan Journals*, published in 1891. It is a classic of its kind—the enthralling narrative of a most difficult and adventurous pioneering exploration and sojourn between 1848 and 1850 in the then unsettled territories of the Raja of Sikkim. The Appendix to the volume, which deals in some detail with the physical geography and vegetation of the Sikkim Himalayas, east Nepal and adjacent provinces of Tibet, is a masterly account. It is the basis of the description of Sikkim in the *Imperial Gazetteer of India* as well as of practically all other similar accounts, wherever published.

Hooker's description of the vegetation, and the relevant sections of the more recent 'A Preliminary Survey of the Forest Types of India and Burma' by H. G. Champion (*Indian Forest Records*, N. S. Silviculture, Vol. 1, No. 1, 1936) will give even a naturalist with no special training in botany a clear and vivid picture of conditions in Sikkim.

Acknowledgements

Besides Professor Stresemann and Dr Schäfer, I am indebted to so many for help in various ways that thanking them all individually is not possible. However, special mention must be made of my friend

Loke Wan Tho of Singapore, who with his usual munificence not only kept the Sikkim Ornithological Survey in the field for several months at a time during two separate trips, but by personally taking part in the second expedition, contributed substantially to the field work especially as regards calls and habits, and by his photography.

To the Maharajkumar of Sikkim, Hon. Lt.-Col. P. T. Namgyal, P.V., O.B.E., and the former Dewan, John S. Lall, I.C.S., is due the credit for the original suggestion of a well-illustrated book on the birds of Sikkim which was readily backed up by the State Government with a generous donation towards its production. To Mr Lall as also to his successor Mr K. R. Rustomjee, I.C.S., and to the Chief Secretary Rai Bahadur Densappa and numerous other officials of the Sikkim Government, high and low, I am indebted for their helpful co-operation and the facilities which enabled our prolonged stay and travel in a somewhat difficult country.

Finally my thanks to Dr Biswamoy Biswas of the Zoological Survey of India and Dr S. Dillon Ripley of Yale University's Peabody Museum of Natural History for their continued help and advice, especially in regard to the intricacies of modern fashions in taxonomy and nomenclature, and to the authorities of the Chicago Natural History Museum for permission and facilities to study their rich collections of Himalayan birds, especially the Sikkim material procured by H. Stevens and the Suydam Cutting Expedition, which proved so highly rewarding.



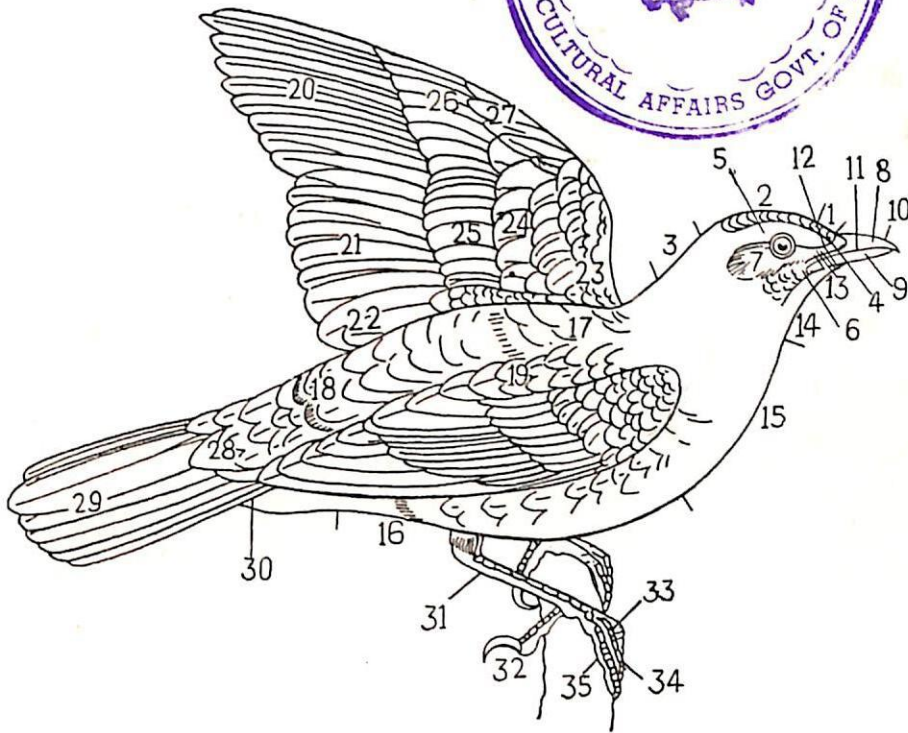
Tropical evergreen forest near Temi, 4-5000 ft.

PLATE 5





Moist evergreen sub-tropical forest near Kewzing, c. 7,000 ft., with heavily moss-covered tree-trunks and boulders, and dense undergrowth of seedlings and ferns. Typical biotope for *Microua* wrens.

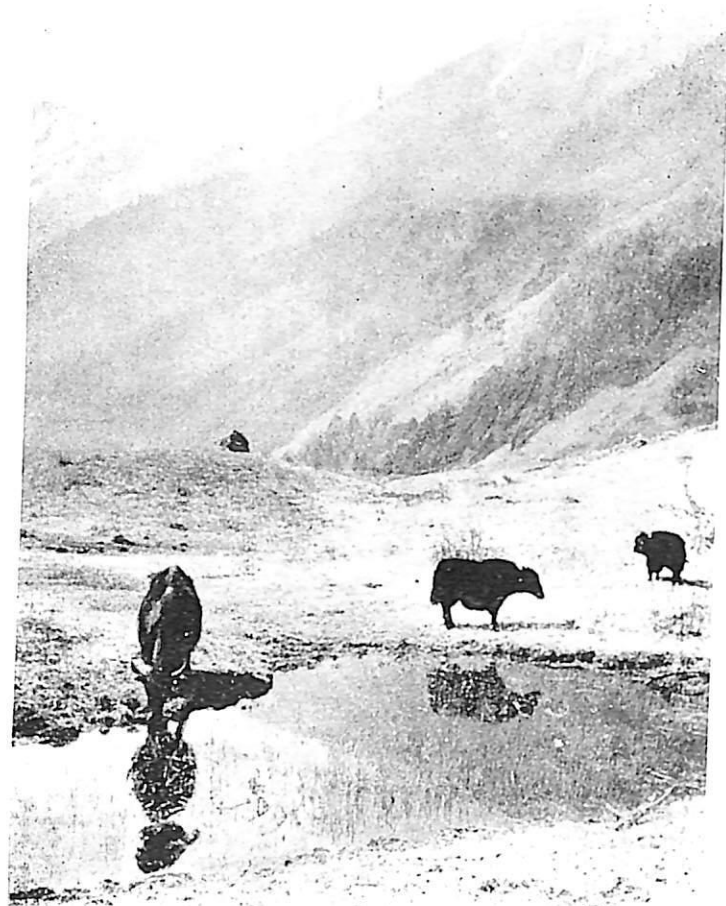


TERMS USED IN DESCRIPTION OF A BIRD'S PLUMAGE AND PARTS

- | | |
|---|---|
| 1. Forehead | 19. Scapulars |
| 2. Crown | 20. Primaries (the earlier or outermost 9 or 10 visible quills of the wing) |
| 3. Nape or occiput; the top end of the hindneck | 21. Outer secondaries (wing-quills springing from the radius and ulna) |
| 4. Lores (space in front of eye) | 22. Inner secondaries |
| 5. Supercilium | 23. Lesser wing-coverts |
| 6. Cheeks | 24. Median wing-coverts |
| 7. Ear-coverts | 25. Greater wing-coverts |
| 8. Upper mandible or maxilla | 26. Primary coverts |
| 9. Lower mandible | 27. Winglet or bastard wing |
| 10. Culmen or upper profile of maxilla | 28. Upper tail-coverts |
| 11. Commissure or line of junction of the two mandibles | 29. Tail-feathers or rectrices |
| 12. Rictal bristles or vibrissae | 30. Under tail-coverts |
| 13. Chin | 31. Tarsus |
| 14. Throat | 32. Hind toe or first toe or hallux |
| 15. Breast | 33. Inner or second toe |
| 16. Abdomen | 34. Middle or third toe |
| 17. Back | 35. Outer or fourth toe |
| 18. Rump | |

STANDARDS OF SIZE EMPLOYED

Sparrow	...	Length about	6"	Crow	...	Length about	17"
Quail	...	"	7-8"	Kite	...	"	24"
Bulbul	...	"	8"	Duck	...	"	24"
Myna	...	"	9"	Village hen	...	"	18-30"
Pigeon	...	"	13"	Vulture	...	"	36"
Partridge	...	"	13"				



a. Upland yak pastures near Lachen, c. 9,500 ft.



b. Birch, juniper and dwarf rhododendrons. A good biotope for rosefinches, N. Sikkim, c. 13,500 ft.



Family ANATIDAE: Ducks, Geese

THE EASTERN GOOSANDER

Mergus merganser orientalis Gould

Mergus Orientalis Gould, 1845, *Proc. Zool. Soc. London*: 1—Amoy, China.

Plate 10, fig. 5 (facing p. 81)

F.B.I. 6: 472

LOCAL NAME:

SIZE: Domestic duck—. Slimmer.

FIELD CHARACTERS: *Male: Above*, head, neck and crest black, glossed with metallic green and purple. Upper back glossy black; lower back, rump and upper tail-coverts grey, vermiculated with white. Tail silvery brown. Wing primaries blackish; secondaries white. *Below*, from lower neck down, white with a pale rosy salmon tint.

In flight, general aspect black and white with narrow pointed red bill and red legs.

Female: Above, head and neck rufous brown; rest of upper parts mottled grey. Primaries blackish; secondaries white and grey. Tail grey-brown. *Below*, sides of neck and underparts white, striped with grey on flanks.

In flight the rufous head, grey back, white underparts, black and white wings and thin pointed red bill and red legs are distinctive.

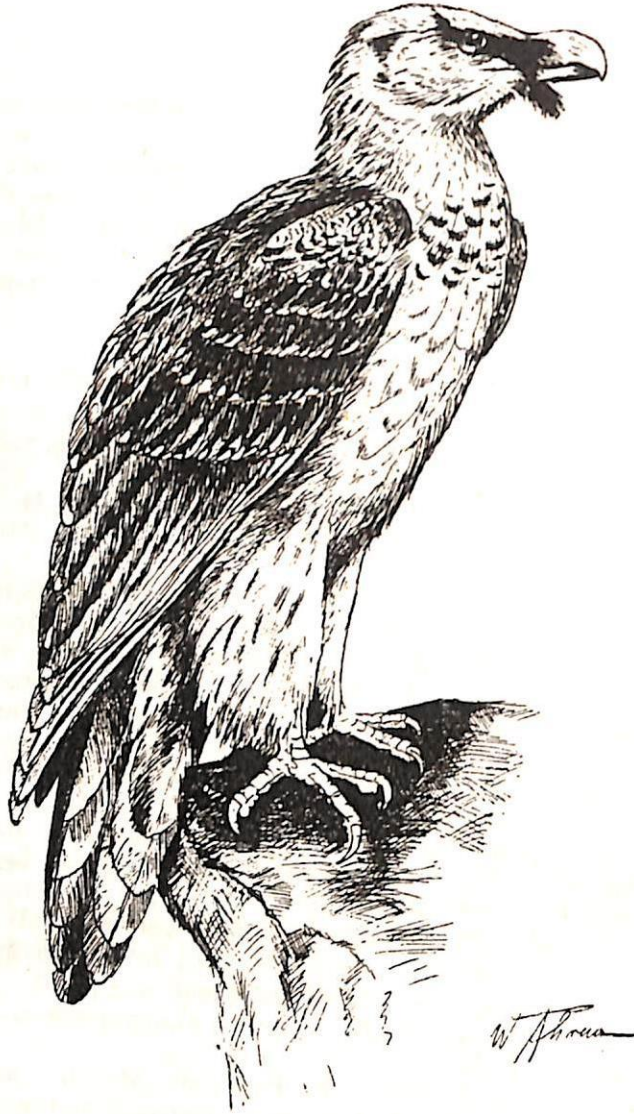
STATUS AND HABITAT: Uncommon winter visitor. Occasional on the upper reaches of the swift-flowing Teesta River. May breed in the Tibetan facies of N. Sikkim (?).

DISTRIBUTION OUTSIDE SIKKIM: *Summer* (breeding), Afghanistan, Turkestan to Tibet. *Winter*, along the Himalayas and their foothills from Kashmir to Assam.

GENERAL HABITS: Keeps in pairs or small parties of 5 to 8. An expert swimmer and diver, perfectly at home on icy torrential streams. Feeds mainly on fish, for capturing which its bill is especially adapted. Often hunts by concerted effort like cormorants, the birds swimming in a semicircle from bank to bank across fast-flowing streams, driving the fish into the less turbulent shallows near the edge and diving after them. When shifting its hunting grounds, flies low over the stream almost clipping the wavelets and is difficult to see against the background of stones and foam of the rushing water. *Call*: an occasional croak or *krrr*. Said to utter a soft plaintive whistle during the breeding season.

NESTING: Unrecorded within Sikkim limits.

RACIAL CHARACTERISTICS, MEASUREMENTS, ETC: Bill quite unlike a duck's: long, narrow, strongly hooked at tip, and with tooth-like serrations along the edges of the mandibles. Legs very backwardly placed, as in the grebes. The



Lämmergeier or Bearded Vulture
About one-ninth

do not differ in size or colour from the European-W. Asiatic population. The race inhabiting the mountains of Turkestan, Altai etc. is larger: according to Stegmann Wing (50 ♂♂) 813-893 (av. 860) mm. against *aureus* 780-832 (av. 808) mm.

Iris outer ring scarlet, inner khaki; bill horny brown, greenish plumbeous at base; feet grey; claws plumbeous.

Harriers are slender, graceful hawks unmistakable from their habit of gliding buoyantly on motionless outspread pointed wings close to the ground up and down with the contours, skimming the grassy or scrub-covered hillsides. From time to time they drop on lizards, insects, mice and small birds which are disposed of on the spot before resuming the hunt.

Stevens included four species as winter visitors in his list for the Sikkim Himalayas of which he considered 'the commonest' to be—

THE HEN HARRIER, *Circus cyaneus cyaneus* (Linnaeus)

FIELD IDENTIFICATION: ♂ a slender ashy grey hawk with black tips to its narrow wings. ♀ brown with a conspicuous white patch on rump.

The only occasion on which the Survey came across any harrier in Sikkim between November and April was at Phalut, 11,800 ft., in December—a single bird of undetermined species. Neither Meinertzhagen nor Schäfer obtained any specimens; therefore it is evident that the birds are by no means common, and possibly only odd transients occur on passage.

THE CRESTED SERPENT EAGLE

Spilornis cheela cheela (Latham)

Falco Cheela Latham, 1790, Index Ornith. I: 14—India (=Lucknow vide W. L. Slater).

F.B.I. 5: 96

LOCAL NAME:

SIZE: Kite+; heavier.

FIELD CHARACTERS: A large dark brown eagle with round, full, black-and-white crest (very prominent when erected); a conspicuous yellow patch at base of bill (cere), and unfeathered yellow legs. Underparts pale fulvous brown, ocellated and finely barred with black and white. In overhead aspect the light coloured body, broad rounded wings with a broad white bar along their entire length and a second less defined, a broad whitish band across tail and another ill-defined near its base, are diagnostic pointers. Sexes alike, but coloration very variable individually.

STATUS AND HABITAT: Common and generally distributed in the foothills and up to c. 7000 ft. elevation (Rangpo, Singtam, Martam, Kewzing, Singhik, Gangtok). Affects forested hillsides and valleys.

DISTRIBUTION OUTSIDE SIKKIM: W. Pakistan and N. India from Kashmir to Assam north of the Brahmaputra River; wintering south to the Gangetic Plain. Other races in peninsular India and Ceylon. The species extends through the Indochinese and Malaysian sub-regions to the Riu Kiu Islands and Philippines.

GENERAL HABITS: Sits upright in a high leafy tree overlooking a clearing or stream and pounces on prey moving on the ground—snakes, lizards, frogs; occasionally also small mammals and game-birds such as junglefowl. Pairs much given to soaring aloft in circles, uttering the characteristic whistling screams *kek-kek-kek-kee*. These are prefaced by a quick-repeated short *whi-whi* or *pu-pu-pu* in undertone, audible only at short range. Particularly noisy when breeding.

NESTING: Not specifically recorded in Sikkim. *Season* (W. Himalayan foothills)—March to May. *Nest*—a large structure of sticks, sometimes lined with green leaves, high up in a tree in or near a forest clearing. *Egg*—a singleton, variable in colour and markings, mostly creamy or yellowish white boldly blotched with reddish brown. Size about 72×56 mm.

RACIAL CHARACTERISTICS, MEASUREMENTS, ETC: The Fauna gives the measurements (♂ ♀) as: Wing 468-507; tarsus 100-102; tail 295-315 mm.

An adult ♂ collected by Schäfer (Gangtok, 23 March) has Wing 419; in another ♂ recently obtained by Dr Ripley in central Nepal it is 495 mm.

Iris yellow with brownish mottling; supraorbital skin, eyelids and cere yellow, bill basally plumbeous, distally black; legs and feet dirty yellow; claws black.

Family FALCONIDAE: Falcons

THE HIMALAYAN FALCONET

Microhierax caerulescens caerulescens (Linnaeus)

Falco caerulescens Linnaeus, 1758, Syst. Nat., ed. 10, 1: 88—Asia=Bengal
ex Edwards pl. 108.

Plate 9, fig. 7 (facing p. 80)

F.B.I. 5: 52

LOCAL NAME: Ching-fin-nyel (Lepcha).

SIZE: Between Sparrow and Bulbul.

FIELD CHARACTERS: A diminutive black and white falcon, very shrike-like when perched and in silhouette. Pointed wings and flight—a series of rapid fluttering flaps followed by a graceful glide—reminiscent of the Ashy Swallow-Shrike (*Artamus fuscus*). Tail partly spread in flight, square-ended and rather triangular, with apex at base like a barbet's, but proportionately longer. Above, glossy black.

Forehead and sides of face white with a prominent black band through the eye and a broad white collar on hind-neck. *Below*, chin, throat, thighs and under tail-coverts deep ferruginous. Rest of lower plumage white suffused with rust. Sexes alike; female larger.

STATUS AND HABITAT: Resident (?). Not common, but frequent in the Teesta Valley at low altitudes—up to c. 2000 ft. (Rangpo, Singtam). Affects the outskirts of forest and old cultivation clearings with tall dead trees to serve as foraging bases.

DISTRIBUTION OUTSIDE SIKKIM: The Himalayan foothills and terai from Kumaon to Assam. The species extends to Burma, Thailand and south Indochina.

GENERAL HABITS: Pairs or small parties. Sits upright like a shrike on the bare topmost branches of tall trees. Predatory on dragonflies, beetles, butterflies, large grasshoppers, etc. Also takes lizards and small birds. Swoops to the ground to pick them off, or captures them in its talons in mid-air, circling back to its base very like a Swallow-Shrike, and with a steep upward glide before alighting. Insect held under foot, wings pulled off and dropped to the ground, and body torn to pieces before swallowing. Like *Artamus*, it is one of the few birds that habitually take butterflies. When perched, swings tail slowly up and down like the Blackwinged Kite (*Elanus*).

NESTING: Not recorded in Sikkim and very little known except that it lays in disused barbet-holes etc. in trees.

RACIAL CHARACTERISTICS, MEASUREMENTS, ETC: A specimen (♀) collected by the Sikkim Survey measures: Wing 110; bill (from cere) 11; tarsus 25; tail 63 mm. Two specimens taken recently by Dr Ripley in E. Nepal give Wing ♂ 101; ♀ 110 mm.

Iris brown; cere dark brown; bill basally yellowish green, distally black; legs and feet blackish slate.

The English name 'Redlegged Falconet' commonly used for this bird is incorrect and misleading.

THE SHAHIN FALCON

Falco peregrinus peregrinator Sundevall

Falco peregrinator Sundevall, 1837, Physiogr. Sällskapet's Tidsskr. 1 (2): 117, pl. 4—at sea in lat. 6° 20' N. between Ceylon and Sumatra, 70 Swedish miles (=700 English miles) off the Nicobars.

F.B.I. 5: 34

LOCAL NAME:

SIZE: House Crow+.

FIELD CHARACTERS: A powerful, broad-shouldered, streamlined hawk with long pointed wings and swift direct flight. *Above*, slaty blue with black head. *Below*, pinkish white and rusty red, boldly cross-banded with black from abdomen down. A dark moustachial stripe on either side of throat. Sexes alike, but female appreciably larger.

STATUS AND HABITAT: ? Rare, but possibly resident and breeding

Family PHASIANIDAE: Pheasants, Partridges, Quails

THE SNOW PARTRIDGE

Lerwa lerwa (Hodgson)*Perdix lerwa* Hodgson, 1833, *Proc. Zool. Soc. London*, pt. 1: 107—Northern region of Nepal.

Plate 10, fig. 3 (facing p. 81)

F.B.I. 5: 433

LOCAL NAME: Lerwa (Bhutia).

SIZE: Partridge+.

FIELD CHARACTERS: A gregarious high altitude partridge with bright red legs and bill. *Above*, closely barred black and white. *Below*, largely deep chestnut, broadly streaked with whitish on abdomen and flanks. Under tail-coverts chestnut, streaked with black and tipped with whitish. Sexes alike.

STATUS AND HABITAT: Resident. Not uncommon at elevations between 10,000 and 15,000 ft. in winter (Singalila Ridge, Thangu, Yumthang, Changu); higher in summer. Affects alpine pastures, open hillsides above the tree-line covered with grass, lichen, ferns and rhododendron bushes and frequently interspersed with snow patches. Characteristic facies normally less bare and stony than of the Snowcock.

DISTRIBUTION OUTSIDE SIKKIM: The Himalayas from Afghanistan to Sikkim, S. Tibet to W. China.

GENERAL HABITS: Keeps in coveys of up to 20 birds or more which, when flushed, rise with a whirring and clapping of wings and scatter. Both Meinertzhagen and Ludlow describe them as tame and stupid birds, permitting themselves to be approached and fired at again and again till an entire covey may be wiped out. They are good eating. *Call*: a loud harsh whistle. *Food*: lichen, moss and vegetable shoots etc. with which a large amount of grit is swallowed.

NESTING: Not specifically recorded from Sikkim. Elsewhere *season*—May to July. *Nest*—a scrape on the ground, under cover of a rock or bush, well lined with moss and leaves. *Eggs*—3 to 5, smaller editions of those of the Snowcock, measuring about 55×36 mm.

RACIAL CHARACTERISTICS, MEASUREMENTS, ETC: Meinertzhagen gives for 14 Sikkim ♂♂ Wing 183-194; bill 21.5-25.5 mm. A ♀ collected by the Survey measured Wing 185; bill 24; tarsus 33; tail 108 mm.

Iris reddish brown to blood red; bill bright coral red; legs and feet orange-red to deep red, brightest in breeding season.

THE SIKKIM SNOWCOCK

Tetraogallus tibetanus aquilonifer R. & A. Meinertzhagen

Tetraogallus tibetanus aquilonifer R. & A. Meinertzhagen, 1926, *Bull. Brit.*

Orn. Cl. 46: 99—Interior of Sikkim.

F.B.I. 5: 432

LOCAL NAMES: Hrak-pa (Bhutia); Lapeha kengmo or kongmo (S. Tibet).

SIZE: Large domestic hen+.

FIELD CHARACTERS: A stout, dumpy, grey, black, white and chestnut game bird rather like a giant Grey Partridge. In overhead flight against a bright sky, edges of wings translucent white. *Male: Above*, crown, nape and hindneck grey. Back and rump grey with pale vermiculations, the rump scalloped with buff. A pale buff collar or lunar band across upper back and shoulders. Upper tail-coverts and central tail feathers rufous, with narrow wavy bands of blackish grey. A prominent white wing-patch. *Below*, chin, throat and breast white, separated by a black-edged grey band from rest of underparts which are white boldly streaked with black, broadest on flanks and lower abdomen.

Female: Similar, but grey breast-band with pale fulvous vermiculations and (white) neck and breast mottled with brownish.

STATUS AND HABITAT: Resident in the Tibetan plateau facies of Northern Sikkim, 15,000-17,000 ft. (Thangu, Gyagong). Affects bare rocky sparsely scrubbed hillsides and alpine pastures.

DISTRIBUTION OUTSIDE SIKKIM: Immediately adjacent S. Tibet. Overall, the species is found from the Pamirs through Tibet to western China.

GENERAL HABITS: Keeps in pairs or parties of 3 to 5; usually shy and wary. When alarmed, runs uphill with a waddling, rather goose-like gait, tail partially erected, displaying the white under tail-coverts prominently, and jerked now and again in the manner of a waterhen. Mounts a rock before taking off and coasts effortlessly on open wings in and out with the contours of the hillsides, or long distances across the valleys and from ridge to ridge. *Call*: a wild prolonged and penetrating whistle of several notes (usually 5) repeated with great persistence from a commanding rock; in cadence somewhat reminiscent of the Common Green Pigeon's call, in quality the Curlew's. The calls can be easily imitated, and serve to decoy the birds. When flushed and flying off in alarm a continuous cackle is uttered. *Food*: bulbs, tubers, roots, grass blades etc. along with which a great deal of grit is swallowed. An unpleasant peculiarity of the bird is the foul odour or 'stink' that emanates from the flesh, otherwise good eating, within a short time after it has been killed.

NESTING: Not specifically recorded from Sikkim. In adjacent Tibet *season*—chiefly May-June. *Nest*—a 'scrape' under protection of a rock or bush, usually lined with dead leaves and grass. *Eggs*—4 to 6, pale yellowish stone colour to rich reddish buff, scantily spotted with reddish brown, often more heavily at the *smaller* end. Size about 70×50 mm.

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