

DIRECTORY OF NATIONAL PARKS AND SANCTUARIES IN
HIMACHAL PRADESH

MANAGEMENT STATUS AND PROFILES



SHEKHAR SINGH

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Editors

Directory of National Parks and Sanctuaries in Himachal Pradesh

MANAGEMENT STATUS AND PROFILES

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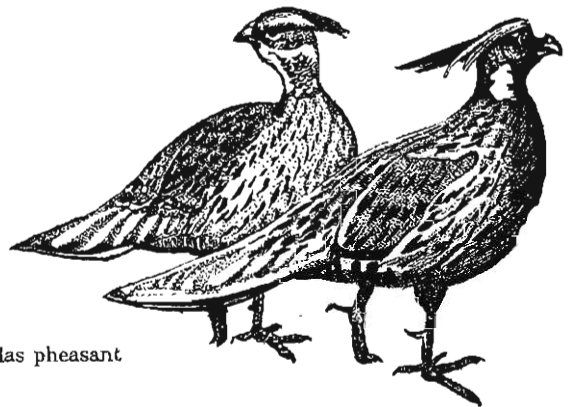
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Koklas pheasant

Illustrations by Pratibha Pande

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GLOSSARY AND LIST OF ABBREVIATIONS

Glossary of Local/Hindi Terms

Chowkidar	Watchman
Deo	A god, or a holy spot
Dhar	A spur or ridge
Dharamsala	Boarding house, usually run near pilgrimage sites
Dogri	A small farm house next to the fields
Gad	Stream
Gaddi	A nomadic shepherd community of the Himalaya
Gala	Pass
Garang	Stream
Ghasini	Grassland, often near habitation
Got	A high altitude grassland
Gujjar	A nomadic cattle-herder community of Western Himalaya
Gurkha	Hill person of Nepali origin
Jot	A high altitude grassland, often next to a mountain pass
Khad	Narrow valley, or water course
Khala	Stream
Khango	Pass
Kund	Tank/lake
Lakh	A hundred thousand
Lathis	Stout sticks usually wielded by watchmen and policemen
Maharaja	King or Emperor
Mela	Fair/festival
Nal/Nala/ Nallah	A water course, usually a small stream
Pani	Water
Rana	Prince or Chief
Sarai	Rest house/Hotel
Thach	A high-altitude grassland with temporary shelter for graziers
Tibba	Peak, spur
Yatra	Journey (Religious yatra = pilgrimage)

List of Abbreviations with Their Expansions

ACF	Assistant Conservator of Forests
BSL	Bhakra Satluj Link (A canal leading out from the Satluj River)
C	Celsius
DFO	Divisional Forest Officer
dh	divisional headquarters*
E	East
FIH	Forest Inspection Hut
FRH	Forest Rest House
fv	field visitor*
Govt.	Government
ha.	hectares
Hist.	History*
H.P.	Himachal Pradesh
HPSEB	Himachal Pradesh State Electricity Board

HPTDC	Himachal Pradesh Tourism Development Corporation
Info.	Information*
IUCN	International Union for the Conservation of Nature and Natural Resources
Jt.	Joint
km	kilometres
m	meters above sea level
map	map of park/sanctuary sent by the wildlife authorities
MES	Military Engineering Service
met	records of the Meteorological Department, Government of India
mm	millimetres
mp	management plan*
N	North
NCC	National Cadet Corps
NGO	Non-Governmental Organisation
notif.	notification*
NP	National Park
P.O.	Post Office
PF	Protected Forests
PWD	Public Works Department
PWDRH	Public Works Department Rest House
qa	query answers*
Q1	Questionnaire I*
Q3	Questionnaire III*
R	River
RF	Reserve Forest
RH	Rest House
RO	Range officer
sq.	square
S W	South-West
Spp	Species
TB	Tourist bungalow
tg	tourist guide
tp	toposheet*
U.K.	United Kingdom
wp	working plan*
WL	Wildlife
WLS	Wildlife Sanctuary

*these refer to sources of information used in the directory sheets; for an explanation of these please refer to 'Note on Methodology'.

ACKNOWLEDGEMENTS

The directory on Himachal Pradesh is first of a series of volumes describing the national parks and sanctuaries in India. This work emanates out of an ongoing study on the management of national parks in India, sponsored by the Ministry of Environment and Forests, Government of India. The directories have been sponsored by the Wildlife Institute of India. We are grateful to both for supporting this work.

Mrs. Dilnavaz Variava was the initiator of the first study from which much of this work has progressed. Though she could not keep up her active participation due to other commitments, in spirit she continues to be a member of the research team, and has contributed immeasurably to this effort. The initial funding was facilitated by Shri B.B. Vohra, then Chairman of the erstwhile National Committee on Environmental Planning. We also owe a debt of gratitude to him.

The work on this set of directories would not have started but for the support of Shri Samar Singh, Joint Secretary, Ministry of Environment and Forests, Government of India, and his colleague, Shri Kishore Rao. Subsequent progress was mainly due to Dr. M.K. Ranjitsinh, Additional Secretary, Ministry of Environment and Forests, Government of India, and Shri H.S. Panwar, Director, Wildlife Institute of India, Dehradun. For this specific volume Shri Vinay Tandon, Deputy Director (WL), with his special knowledge of Himachal Pradesh, was most helpful. We owe a special debt to Dr. W. A. (Alan) Rodgers of the Wildlife Institute of India who, among other things, gave his detailed comments on our various drafts. His all-too-frequent discoveries of our many blunders have been very sobering for us, and a source of great merriment to him.

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The Research Team

INTRODUCTION

This directory on the national parks and sanctuaries in Himachal Pradesh is one of a series of volumes covering the entire country. The purpose of each of these directories is to make available, in one place, information regarding the ecological, legal and management status of parks and sanctuaries in a state, or cluster of states and union territories.

Each of the directories contains a section on the management status of such wildlife protected areas, directory sheets on each park and sanctuary, and annexures listing, among other things, the fauna and flora found in these areas.

The directory sheets, along with the maps, attempt to profile each area, describing its history, its legal status, its topography and climate, its vegetation, and the plant and animal species found there.

These directories, we hope, would be of use to park and sanctuary managers and State wildlife officials in their tasks of managing, and planning for, a protected area network. We also hope that the information contained here would assist policy planners in the Government of India.

The task of protecting wildlife parks and sanctuaries needs everyone's support, and especially requires the participation of conservationists across the world. It is our endeavour, through these directories, to highlight the value of these wilderness area and to list some of the main threats to their sanctity. We expect that an awareness of what is at stake, and the seriousness of the threats, will motivate more and more people to speak up for the plants and animals, and their few remaining homes.

The task of collecting and updating information on our parks and sanctuaries is a huge and continuing one. It cannot be done by a single individual, or even a single group or institution. But a data-base is of primary importance, for very little authentic management or planning can be done without it. We therefore seek the support of the reader, and all other interested persons, and would welcome their writing in to us on any errors in our data, or with any new information that is available. In return, we would keep them informed of further work and publications on the subject. Please write in to:

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India

A NOTE ON METHODOLOGY

This directory is a by-product of an ongoing study on the management of national parks. For the purpose of the study, three questionnaires—I, II, & III—were designed to be filled in by the park/sanctuary Directors, State Governments and non-governmental organisations/individuals, respectively.

The information relevant to the different sections of the directory was first extracted from questionnaire I. Queries were then sent to the State Governments on various gaps or inconsistencies in this information. Field visitors (members of the research team) were also sent to most of the areas (28 out of 31) to get more detailed and up-to-date information. A list of field visitors is given below.

Responses by the State Government to the queries sent, the field visitors reports and other sources (listed below) were consulted to draft the directory sheets. These directory sheets were then sent back to the State Governments for final checking, and based on their comments and on the comments of other knowledgeable persons, the sheets have been finalised, and data compiled on the management status.

The map of each area is based on the maps sent by the wildlife authorities along with questionnaire I. Wherever available, Survey of India topographical sheets were also consulted (for a list of map sources, please see 'References and Bibliography' at the end of this volume). The maps have been finalised after discussion with State wildlife officials, and verification by field visitors.

SOURCES

The information in this directory has been compiled from the following sources:

1. Questionnaire I (Q1), filled and returned by the wildlife authorities for each national park and sanctuary
2. Questionnaire III (Q3), filled and returned by various non-governmental organisations or individuals for separate parks and sanctuaries
3. Management Plans (mp) or History files (Hist. file) of the parks/sanctuaries, or Information sheets (Info. sheet) on them, where available
4. Forest Working Plans (wp) for the forest divisions within which various parks and sanctuaries fall.* The following are the sanctuaries and the corresponding forest divisions for which Working Plans were available:

Bandli Sanctuary — Suket Division
Daranghati Sanctuary — Sarahan Division
Darlaghat Sanctuary — Kunihar Division
Gangul Siahbehi Sanctuary — Chamba Division
Gobind Sagar Sanctuary — Bilaspur Division
Kalatop Khajjiar Sanctuary — Chamba Division
Lippa Asrang Sanctuary — Kinnaur Division
Majathal Sanctuary — Kunihar Division
Naina Devi Sanctuary — Bilaspur Division
Rakchham Chitkul Sanctuary — Kinnaur Division
Rupi Bhaba Sanctuary — Kinnaur Division
Sechu Tuan Sanctuary — Pangi Division
Shikari Devi Sanctuary — Suket Division
Shimla Water Catchment Sanctuary — Shimla Division

*Among the most valuable sources of information on the fauna and flora of the region are the forest working plans of the various forest divisions, prepared by the Forest Department. These usually have a listing of the trees and other plants, mammals and birds found in the division. Unfortunately, there is often no simple way of identifying which of the species listed for a division are also present in a particular park or sanctuary within the division. Also, these lists are rarely up-to-date. However, for those who are interested in the fauna and flora of the region, it would be worthwhile to pursue the relevant working plan.

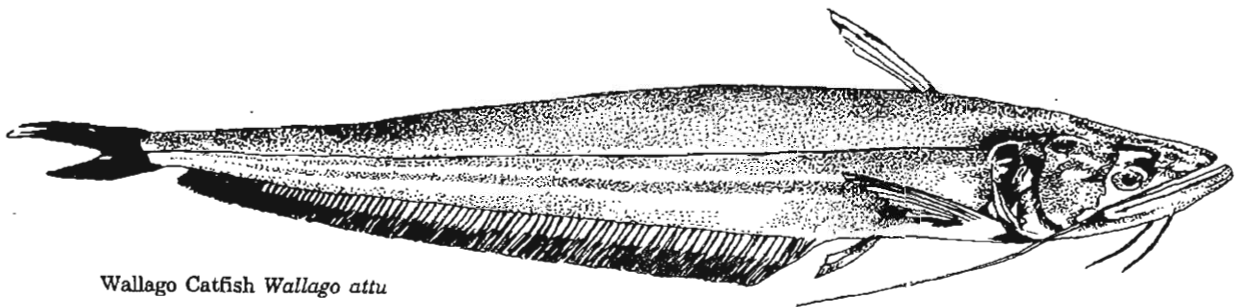
5. Survey of India Topographical Sheets (tp), or maps sent in by the wildlife authorities (Map)
6. Gazette notifications of the areas (notif)
7. Answers to various queries (qa) provided by the State Wildlife Wing, and information obtained from divisional wildlife headquarters (dh)
8. Various reports and documents of the Meteorological Department, Government of India
9. Various reports of the Census Commissioner
10. Reports of the field visitors (fv). For a full list of field visitors, see below.
11. Other published and unpublished material, as listed in the References and Bibliography.

Sources of information are included, within brackets, in the text (see *References and Bibliography* for expansions of abbreviations used in text). Where no source is mentioned, it implies that the information was provided by the State Wildlife Wing in Questionnaire I, or as response to queries (sources 1 and 7 above).

LIST OF FIELD VISITORS TO NATIONAL PARKS AND SANCTUARIES OF HIMACHAL PRADESH

<i>Name of N/S</i>	<i>Name of Field Visitor</i>	<i>Time of Visit</i>
GREAT HIMALAYAN NATIONAL PARK	Pallav K. Das Farhad Vania, Raman Mehta, Ashish Kothari, and Sultana Bashir	May 1985 August 1989
PIN VALLEY NATIONAL PARK	Pallava Bagla	August 1988
BANDLI SANCTUARY	Pallav K. Das	1985
CHAIL SANCTUARY	Dilnavaz Variava and Shekhar Singh	May 1985
CHURDHAR SANCTUARY	Ashish Kothari Raman Mehta and Ashish Kothari	November 1988 September 1989
DARANGHATI SANCTUARY	Vasant Saberwal	April 1987
DARLAGHAT SANCTUARY	Dilnavaz Variava	May 1985
GAMGUL SHAHBEHI SANCTUARY	Madhu Ramnath	1986
GOBIND SAGAR SANCTUARY	<i>No field visit done</i>	
KAIS SANCTUARY	Shashank Hedao	July 1987
KALATOP KHAJJAR SANCTUARY	Pallava Bagla and Pallav K. Das	May 1985
KANAWAR SANCTUARY	Pallav K. Das	1985
KHOKHAN SANCTUARY	Pallav K. Das	1985
KUGTI SANCTUARY	Pallav K. Das	June 1985
LIPPA ASRANG SANCTUARY	<i>No field visit done</i>	
MAJATHAL SANCTUARY	Dilnavaz Variava	May 1985
MANALI SANCTUARY	Pallav K. Das and Ashish Kothari	May 1985
NAINA DEVI SANCTUARY	<i>No field visit done</i>	
NARGU SANCTUARY	Pallav K. Das and Ashish Kothari	May 1985
PONG LAKE SANCTUARY	Shashank Hedao	July 1987
RAKCHHAM CHITKUL SANCTUARY	Pallava Bagla	November 1987
RENUKA SANCTUARY	Dilnavaz Variava and Ashish Kothari	May 1985 October 1987
RUPI BHABA SANCTUARY	Pallav K. Das and Pallava Bagla	1985; August 1988

SECHU TUAN NALA SANCTUARY	Shashank Hedao	June 1987
SHIKARI DEVI SANCTUARY	Vasant Saberwal	April 1987
SHILLI SANCTUARY	Shashank Hedao	June 1987
SHIMLA WATER CATCHMENT SANCTUARY	Ashish Kothari and Pallava Bagla	October 1987
SIMBALBARA SANCTUARY	Dilnavaz Variava	May 1985
TALRA SANCTUARY	Shashank Hedao	June 1987
TIRTHAN SANCTUARY	Pallav K. Das	May 1985
TUNDAH SANCTUARY	Pallava Bagla and Pallav K. Das	June 1985



Wallago Catfish *Wallago attu*

**LIST OF NATIONAL PARKS AND SANCTUARIES IN
HIMACHAL PRADESH INDICATING CODE, NAME, AND
DISTRICT(S) IN WHICH THEY ARE LOCATED**

<i>Code</i>	<i>Name</i>	<i>District(s)</i>
HP/N/GRE	GREAT HIMALAYAN NATIONAL PARK	Kullu
HP/N/PIN	PIN VALLEY NATIONAL PARK	Lahul and Spiti
HP/S/BAN	BANDLI SANCTUARY	Mandi
HP/S/CHA	CHAIL SANCTUARY	Solan, Shimla
HP/S/CHU	CHURDHAR SANCTUARY	Sirmaur, Shimla
HP/S/DARA	DARANGHATI SANCTUARY	Shimla
HP/S/DARL	DARLAGHAT SANCTUARY	Solan, Bilaspur
HP/S/GAM	GAMGUL SIAHBEHI SANCTUARY	Chamba
HP/S/GOB	GOBIND SAGAR SANCTUARY	Bilaspur
HP/S/KAI	KAIS SANCTUARY	Kullu
HP/S/KAL	KALATOP KHAJJAR SANCTUARY	Chamba
HP/S/KAN	KANAWAR SANCTUARY	Kullu
HP/S/KHO	KHOKHAN SANCTUARY	Kullu
HP/S/KUG	KUGTI SANCTUARY	Chamba
HP/S/LIP	LIPPA ASRANG SANCTUARY	Kinnaur
HP/S/MAJ	MAJATHAL SANCTUARY	Solan, Shimla
HP/S/MAN	MANALI SANCTUARY	Kullu
HP/S/NAI	NAINA DEVI SANCTUARY	Bilaspur
HP/S/NAR	NARGU SANCTUARY	Mandi
HP/S/PON	PONG LAKE SANCTUARY	Kangra
HP/S/RAK	RAKCHHAM CHITKUL SANCTUARY	Kinnaur
HP/S/REN	RENUKA SANCTUARY	Sirmaur
HP/S/RUP	RUPI BHABA SANCTUARY	Kinnaur
HP/S/SEC	SECHU TUAN NALA SANCTUARY	Chamba
HP/S/SHIK	SHIKARI DEVI SANCTUARY	Mandi
HP/S/SHIL	SHILLI SANCTUARY	Solan
HP/S/SHIM	SHIMLA WATER CATCHMENT SANCTUARY	Shimla
HP/S/SIM	SIMBALBARA SANCTUARY	Sirmaur
HP/S/TAL	TALRA SANCTUARY	Shimla
HP/S/TIR	TIRTHAN SANCTUARY	Kullu
HP/S/TUN	TUNDAH SANCTUARY	Chamba

The directory sheets are placed alphabetically as per the order given above, national parks first and then sanctuaries.

76°

77°

78°

79°

NATIONAL PARKS AND SANCTUARIES OF HIMACHAL PRADESH

33°

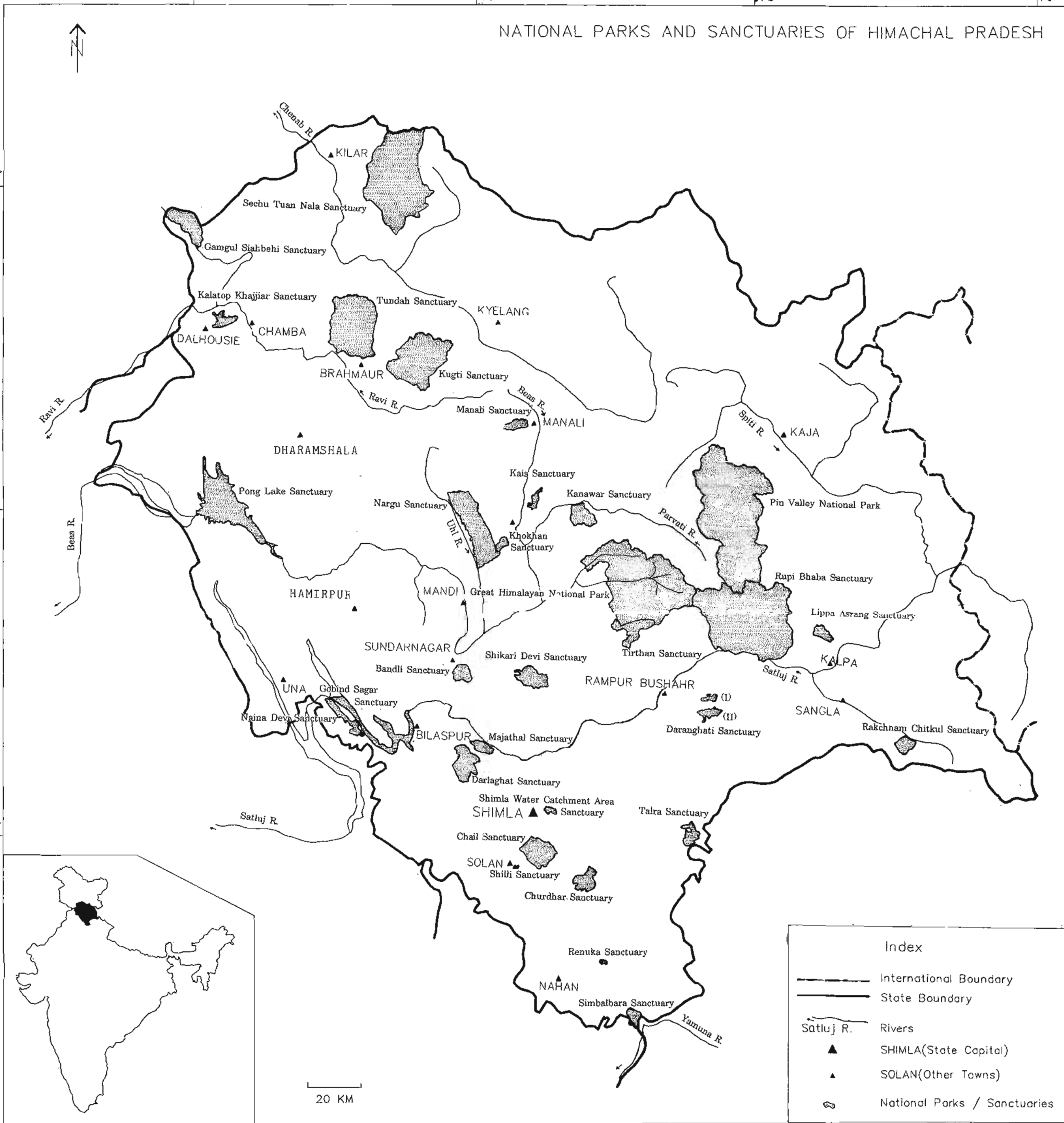
33°

32°

32°

31°

31°



Index	
	International Boundary
	State Boundary
	Rivers
	SHIMLA(State Capital)
	SOLAN(Other Towns)
	National Parks / Sanctuaries

- Source:
1. Chandigarh, Delhi, Haryana, Himachal Pradesh, and Punjab'. Survey of India, Second Edition, 1984.
 2. 'National Parks in India'. Survey of India map, 1986
 3. Location maps of National Parks and Sanctuaries sent by the Himachal Pradesh Forest Department, Wildlife Wing, (undated).

Updated to: April, 1989.
Key to all maps on pp. 103-104

KEY TO THE DIRECTORY SHEET

This directory contains information on each national park and sanctuary in Himachal Pradesh, in the format given below. Section headings are followed by a description, within brackets and *in italics*, of the types of information given in each section. Wherever relevant, qualifications and clarifications regarding each section are given after the description.

[CODE: *Appears at the top right-hand corner of the first page. Each national park or sanctuary has a code consisting of three elements as follows:*

- (1) *the first two or three letters denote the State, eg. HP for Himachal Pradesh and RAJ for Rajasthan;*
- (2) *the next letter denotes whether the area is a national park (N) or sanctuary (S);*
- (3) *the next three or four letters denote the first three or four letters of the first word in the name of the park/sanctuary. (Where the first three letters of the first word are identical for two or more parks/sanctuaries in a state, a fourth letter has been used. For example, HP/S/SHIL denotes Shilli Sanctuary in Himachal Pradesh.*

(For a full list of codes and names of national parks and sanctuaries of Himachal Pradesh, see p. xv)].

[NAME OF PARK/SANCTUARY]

HIGHLIGHTS: *[Gives a brief description of the area, highlighting the ecological, topographical, historical, and cultural values.]*

LEGAL STATUS : *[Gives the date on which a sanctuary or national park was notified. If the area was notified prior to 1972, it gives the Act under which this was done. For national parks where final notification has not been issued, it gives the current legal status and date when the intention to constitute the area into a national park was declared. For those national parks which were earlier sanctuaries, it specifies the legal history and also gives the date on which the area was earlier notified a sanctuary. In all the above instances the notification numbers, where available, are also given.]*

The Wild Life (Protection) Act, 1972 (hereafter called the Act) which governs the setting up and management of national parks and sanctuaries, prescribes a number of steps for the establishment of protected areas.

These steps are:

- (1) Notification of the area as a sanctuary [Section 18 (1)] or declaration of intent to make it into a national park [Section 35 (1)].
- (2) Identification of any rights existing in the area [Section 19].
- (3) Acquisition, settlement, exclusion, or disallowance of these rights [Section 24].
- (4) Final notification in the case of national parks [Section 35 (4)].

Since 1972, all parks and sanctuaries in Himachal Pradesh are being set up under the Wildlife (Protection) Act of 1972. Prior to this, areas were declared sanctuaries under the Punjab Wild Birds and Wild Animals Act, 1933, or the Himachal Pradesh Wild Birds and Wild Animals Protection Rules, or under both of these.

Ordinarily, all those areas that were set up as national parks or sanctuaries under any earlier act would automatically become national parks or sanctuaries under the Wild Life (Protection) Act 1972 (Section 66(3)). However, in some cases sanctuaries declared under earlier acts were notified for a specific period only. It, therefore, became necessary to re-notify these under the later act. Wherever such a situation has occurred, the original dates along with the name of the earlier relevant acts, where known, have been given.

In some sanctuaries, though the legal procedures have not been completed, it is known that no rights exist. However, legally, the procedures still remain incomplete, for the Act does not provide an exception for such areas.

Control by Wildlife Wing: The Act prescribes that each state may have a Chief Wildlife Warden [Section 4 (1)] and that the control of the national parks and sanctuaries would rest with the Wildlife staff.

In Himachal Pradesh the control of the national parks and sanctuaries was transferred to the Wildlife Wing only in April, 1987 and then also not for all of them. For those areas where the control is still not with the Wildlife Wing (e.g. Cobind Sagar Sanctuary), this fact is mentioned here.

Where certain activities or specific uses in a park or sanctuary are controlled by agencies other than the Wildlife Wing, the relevant information is given under the head "use by other government agencies" in the section on human uses.

AREA AND ZONING: [*Gives the total area of the park or sanctuary in hectares, rounded off to two decimal places; and in square kilometers, within parentheses, also rounded off to two decimal places. Also gives any modifications in this area that may have taken place since the park/sanctuary was established. Further gives the existing or proposed break-up of the area into various types of zones, if any.*]

The area as given by the wildlife authorities is often different from that measured on the map of any park/sanctuary (see Appendix 1). Minor differences could be due to the difficulty in drawing exact boundaries of the park/sanctuary. But in some cases, e.g. Daranghati and Naina Devi Sanctuaries, the difference is quite substantial. This could be either because the boundaries reported by the wildlife authorities were wrong, or because the scale on the maps they sent were incorrect. These discrepancies could not be resolved.

Various types of zonation, mainly into core and buffer management units, are found in parks and sanctuaries in India. The different types that we have encountered are listed below :

- (1) Where both the buffer and the core zone are inside the notified park/sanctuary.
- (2) Where the park/sanctuary is designated the core zone, and an area surrounding it but **outside the park/sanctuary** is designated buffer zone.
- (3) Where a national park is designated the core zone and a sanctuary surrounding it or adjacent to it is designated buffer zone.
- (4) Where the original notification designates both the core and the buffer zones, but only the core zone has been taken over for management as park/sanctuary while the buffer zone remains outside the managed area.

The actual situation for each park and sanctuary has been clarified under the head Area & Zoning. Only those areas which reported the first type given above have been considered to have zoning; the others three types, if encountered, have been categorised under 'no zoning', but their exact situation has been explained in this head.

Also, the term zone has been universally used to describe what has been variously called 'belt' or 'area' in the notification and other documents.

LOCATION: [*Gives the administrative district(s) within which the area is located, the latitudinal and longitudinal range of the area, and the nearest town, railhead and airport.*]

APPROACH(ES): [*Gives distances and convenient approaches to the area, from state headquarters or other prominent towns or cities.*]

Unless otherwise specified, the approaches refer to travel by road. Distances given, unless otherwise mentioned, are to the nearest point on the boundary of the park/sanctuary.

TOPOGRAPHY AND CLIMATE: [*Gives altitudes, temperatures, mean annual rainfall, and snow precipitation, where applicable.*]

Information regarding highest and lowest points in each park and sanctuary was mostly obtained from Survey of India topographical sheets, in the case of those areas for which these were available. Where no toposheets were available, information is as supplied by the wildlife authorities either in the questionnaire or in the map.

Information regarding temperatures, rainfall and snowfall usually pertain to the meteorological station nearest to the park/sanctuary. Only very rarely is such a station located within the protected area. This data, as such, can only be seen as an approximation.

Further, even where the data is from inside the park/sanctuary, it will refer to only one spot and would not necessarily indicate the range of temperatures and precipitation occurring in that park or sanctuary.

FLORA: [*Describes the vegetation, and lists the forest types, first the names and then the codes, as per the revised list of Champion and Seth [Champion and Seth 1968]. Information is also given about plantations, and about introduced and threatened plant species.*

A full list of trees, and of other plants, found in the park/sanctuary appears in Appendices 3 and 5, respectively. The vernacular and English names of these species are given in Appendices 4 and 6.]

Forest Types: Given the information regarding geographical location, climate and topography, at least some of the forest types reported from some of the areas could not occur there, if Champion and Seth are to be believed. For example, type Lower Western Himalayan Temperate Forest 12/C1 was reported from Lippa Asrang Sanctuary; the maximum height for this forest type given by Champion and Seth is 3000 m, whereas Lippa Asrang's lowest reported height is 4000 m. However, since we do not yet know whether our information on climate, or on altitudes, or both, is erroneous, or whether these forest types are wrongly listed from that area, we are leaving the information as it is. It might also be possible that the information is accurate, and that Champion

The flora lists for each park and sanctuary are separated into 'Trees' and 'Other Vegetation' (Appendices 3 and 5 respectively). In the former are included plants which have been definitely classified as trees in recognized texts; in the latter come all other forms of plants, including those for which the classification into 'trees' and 'non-tree plants' is unclear.

FAUNA: [*Lists mammals, reptiles, amphibians, insects and other fauna occurring in the area. Also lists locally threatened species, i.e., those that are threatened in the area, irrespective of whether they are threatened in the country as a whole. A list of birds found in the area occurs in Appendix 7.*

Usually only common names of fauna are listed. However, if common names are not known for a particular species, its latin name is given. The scientific name of species listed in the directory are given in Appendix 8.]

Separate lists of species of mammals, reptiles, fish, and amphibians are given in this section.

In the fauna list, where only a genus is known that has only two species, or only two of its species can possibly occur in the area under question, both the species have been mentioned with a slash (/) in between and a question mark (?) after them. This means "one of the two or both".

The common names of various species are listed in alphabetical order with the species name first. A list of the common names along with the corresponding scientific names has been provided in Appendix 8.

The common and scientific names used are as per the following sources (for greater details see Appendices 4 and 6):

Mammals : Prater 1980

Birds: Ripley 1982

Reptiles: Daniel 1983

Fishes: List supplied by the Zoological Survey of India

A list of insects was available for only one of the sanctuaries. Even the available lists of mammals, birds, reptiles and fish are neither necessarily complete nor always current. At least some of these lists owe their origin to forest working plans, where each successive plan often reproduced the list in the earlier plan. It is, therefore, expected that all the fauna listed for any park or sanctuary might have been spotted there at some point in time, but whether all of it still exists there is not certain. Where more up-to-date listings have been made, their source has been acknowledged.

The population and density of species has not been mentioned except occasionally in a most general way. This is mainly because reliable information on densities was not available for most areas.

OCCURENCE AND CONTROL OF DISEASE: [*Gives information about flora and fauna epidemics, vaccination of livestock, and availability of a veterinarian.]*

Vaccination for Livestock: As very few areas have reported vaccination programmes for livestock, their absence has not been mentioned in the directory sheets. Only where vaccination has taken place, the fact has been mentioned in the section on occurrence and control of diseases.

The same applies for the practice of checking whether livestock entering parks or sanctuaries are vaccinated.

Veterinarian: Though vets have been reported from many areas, it must be remembered that they are invariably vets trained to look after domesticated animals. However, their presence ensures the availability of their advice and services during an epidemic or in an emergency involving wild animals.

OTHER FACTORS AFFECTING HABITAT: [*Gives details of forest fires, frost, gales and cyclones, hailstorms, hot winds, pollution, weeds, waterlogging, avalanches, and landslides.*]

WATER RESOURCES : [*Lists natural and artificial water sources, both perennial and seasonal.*]

MANAGEMENT PLAN: [*Indicates the existence of a management plan for the area, its status and the period for which it is valid.*]

Though some of the parks and sanctuaries have prepared management plans, these vary in content and coverage; some have a lot of details, while others are little more than a budget for capital expenditure.

Also, it is not always certain that the management plan, though prepared, has been approved, or is being followed even if it has been approved.

BUDGET : [*Indicates whether a separate budget exists for each area. Where a separate budget does exist, the budgeted amount for the last two years for which information is available is given. Where the budgetary allocation is for one or two specific types of expenditure, these are also mentioned.*]

It is not necessary that the separate budget allocated to a park/sanctuary covers all the expenditure related to that area. For example, the budget for Kugti Sanctuary is shown as Rs. 5000, which is clearly inadequate to meet even salaries of the staff posted there. It can therefore be assumed that in such cases part of the expenditure is met from other budget heads.

PERSONNEL: [*Gives designation and number of staff, and identifies the local in-charge.*]

The senior-most officer of a park or sanctuary living in or adjacent to it, has been designated the local in-charge.

Where any of the park or sanctuary staff have had wildlife training, this is mentioned under this head.

EQUIPMENT : [*Lists equipment available at or for the area. Does not list basic equipment like torches and lathis nor office equipment and furniture.*]

RESEARCH AND MONITORING : [*Details research and monitoring work on/in the park or sanctuary. Also indicates availability of literature on the area.*]

No officially published literature exists separately for any one of Himachal Pradesh's parks and sanctuaries. However, the wildlife department has brought out one publication covering the whole state [Department of Forest Farming and Conservation, undated]. Also relevant for a large part of the state is a report produced by A.J. Gaston, P.J. Garson, and M.L. Hunter [Gaston et. al. 1981].

Most protected areas in Himachal Pradesh have at least an outline map, and sometimes a more detailed one is available at the divisional headquarters. The availability of maps has thus not been specifically mentioned, except where the map available is of a specialised nature (e.g. a wildlife distribution map).

COMMUNITY INTERACTION PROGRAMMES: [*Details educational activities for local communities on wildlife and wildlife management.*]

HUMAN PRESENCE : [Gives details regarding rights and leases, habitation, grazing, offences and illegal activities, tourism, use by other government agencies, and other miscellaneous activities within the area, indicating extent and type of activity.]

Habitation: The number of villages mentioned in the directory sheets is that given by the state wildlife authorities. In some cases this is different from the number shown on the map, either because the locations of some of the villages are not known and therefore cannot be shown on the map, or because the map is based on Survey of India toposheets which depict a different number of villages.

Relocation of Villages: Though many of the parks and sanctuaries have villages located within their boundaries, there has been no relocation of these villages to areas outside after notification of the area as a park or sanctuary. This fact has not been specifically mentioned in the directory sheets as it is true for all the protected areas in Himachal Pradesh having a population within.

Minor Forest Produce: This phrase includes herbs, roots, plants, bark, seeds, flowers, cocoons, grasses, leaves, bamboo, kindling and brush wood.

Plantations for Fuel and Fodder: As fuel and fodder plantations have been taken up in or around very few of the parks and sanctuaries, their absence has not been specifically mentioned. Only where such plantations exist, relevant available information has been given in the section on human uses.

Compensation: Till recently, there was no provision for paying compensation for injury or death of domestic animals or human beings, caused in and around parks and sanctuaries by wild animals. Only in 1986 was this changed. However, even till today no compensation is payable for crop damage, even though this occurs in and around many of the areas. The species reportedly responsible for crop damage are:

Bear, Himalayan Black	Hare, Indian
Bear, Himalayan Brown	Langur, Hanuman
Boar, Wild	Macaque, Rhesus
Civet, spp ?	Magpie, Redbilled
Deer, Barking	Magpie, Yellowbilled
Deer, Red	Parakeet, spp ?
Flying Fox	Pheasant, Kaleej
Fox, Red	Porcupine, Indian
Goral	Rats, spp ?

Number of Visitors: Though, for certain areas, the number of visitors has been indicated, it must be kept in mind that none of the parks or sanctuaries in Himachal Pradesh have a strict regulation of entry, and none are totally fenced in. Therefore, in many cases the number of visitors is an estimate made by the park or sanctuary authorities.

INFORMATION FOR VISITORS: [Indicates entry restrictions if any, best time for visiting the area, historical and cultural sites, accommodation and other facilities available, and future plans, if any, to extend tourist facilities.]

Seasons The winter months in Himachal Pradesh are from December to March, summer from April to June, monsoon from July to September, while October and November can only be described as autumn, not too wet and not too cold (except in high-altitude areas, of course!).

Regulation of Entry: Only those areas have been considered to have regulation of entry where manned checkpoints exist at all the entrances, and some sort of check or control, like issuing of entry tickets, is practiced.

Trained Guides: None of the parks and sanctuaries in Himachal Pradesh employ trained tourist guides. This being a universal state of affairs, their absence has not been remarked upon separately for each area.

NGOs/INDIVIDUALS ASSOCIATED: [*Gives names and addresses of non- governmental groups or individuals associated with the area.*]

CONTACT ADDRESS(ES): [*Contact addresses have been given, where available, of both the local in-charge, who can be contacted personally at the park or sanctuary, and of the divisional in-charge, who should be addressed in the matter of accommodation, information, etc.*]

Clarifications pertaining to all or many of the above sections:

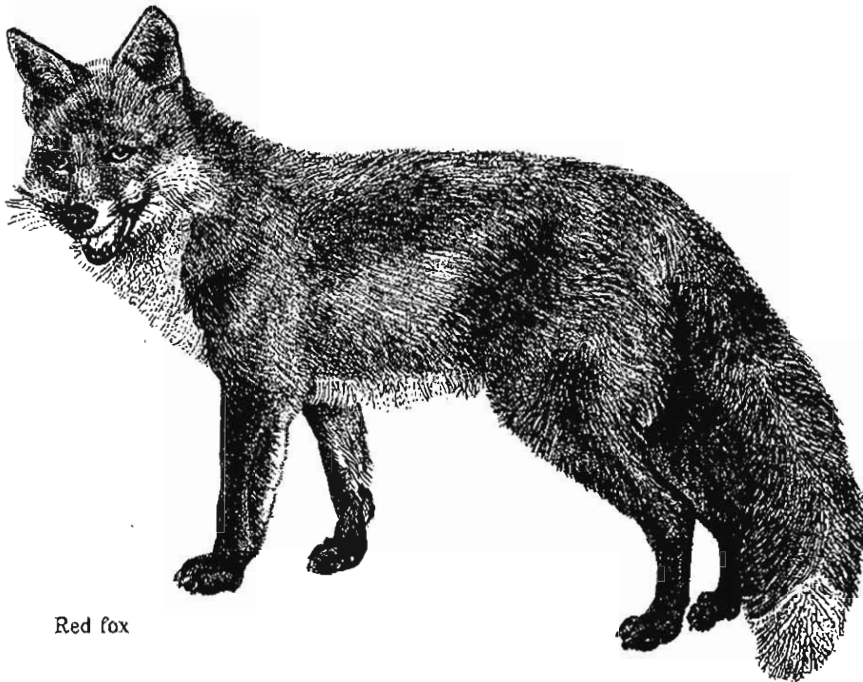
Date of Information: For some items, the date of information has been given in the text. For others, the information has been checked with the State Wildlife authorities upto February 1988; in the case of Great Himalayan National Park and Churdhar Sanctuary, upto September 1989. However, in many items, like population, fauna and flora listing, etc., the information is not necessarily as on these dates, but as on the last update by the State authorities themselves.

Information Not Available: Wherever it is indicated, for a head or item, that information is not available, it means that information is not available with the Wildlife Wing of the concerned State, including the park/sanctuary authorities. It is quite possible that this information is available with some other source but we have not been able to procure it.

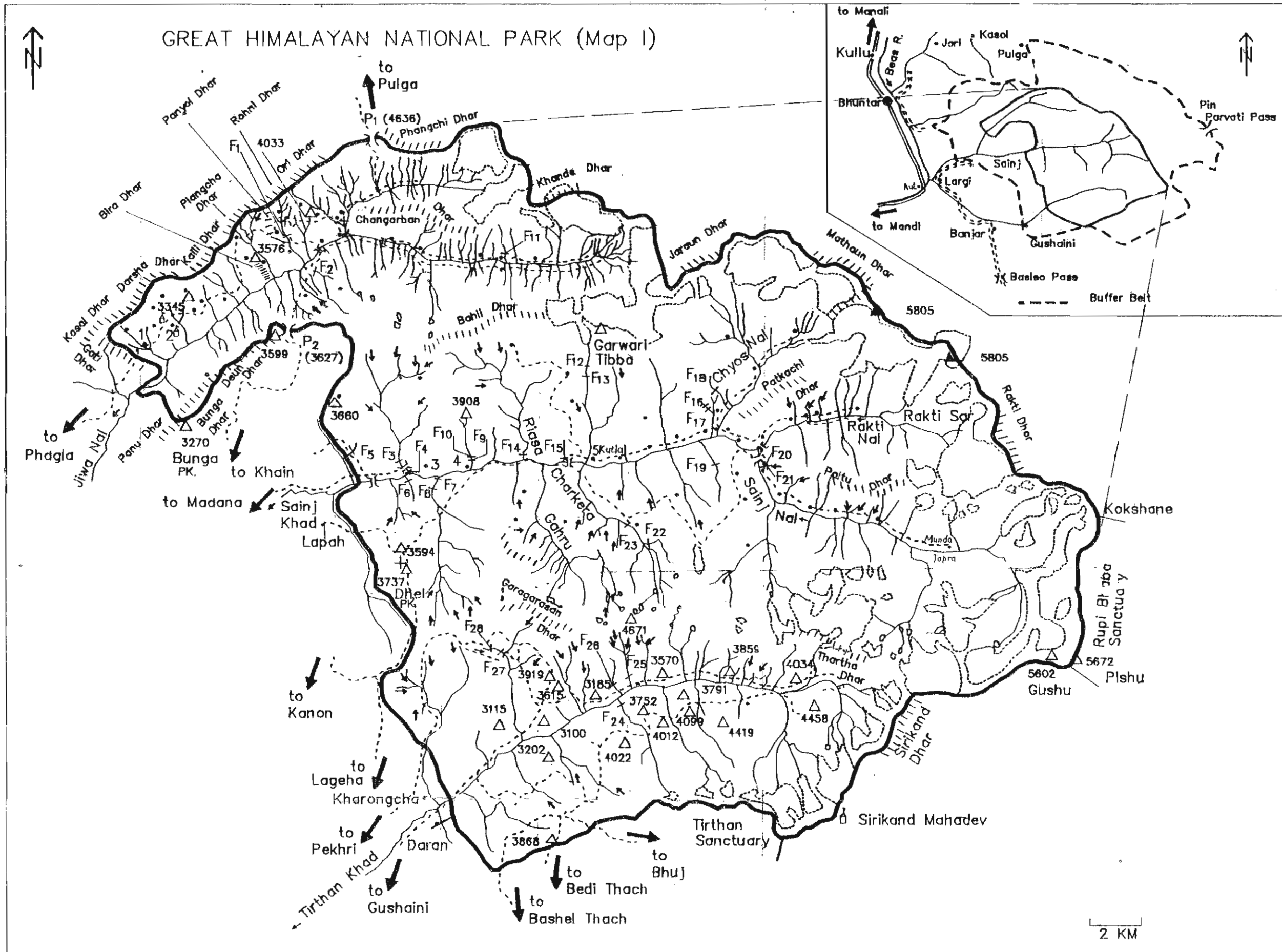
Territorial Wing: Occasionally officers of the Territorial Wing of the Forest Department issue permits and licences for, or in other ways control, activities within national parks and sanctuaries. Where relevant, this has been mentioned in the sheet.

Distances: All distances to the park/sanctuary, unless otherwise specified, refer to the closest point on the boundary of the park/sanctuary.

DIRECTORY SHEETS

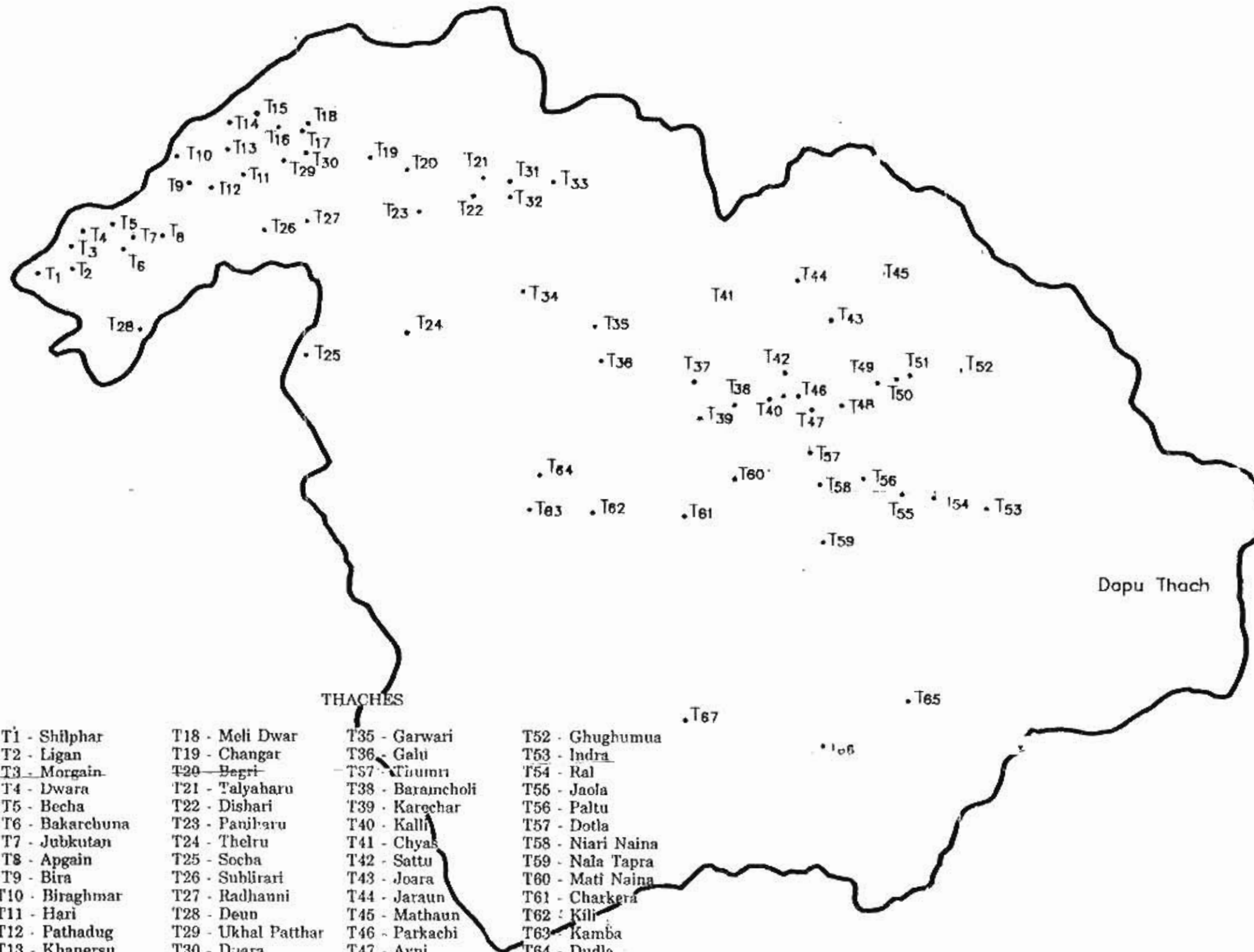
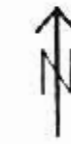


Red fox



VILLAGES	MOUNTAIN PASSES	WATER FALLS			
1 - Kundar	P ₁ - Phangchi Galu (Open from June to October)	F ₁ - 36 Metres	F ₈ - 15 Metres	F ₁₅ - 10 Metres	F ₂₂ - 20 Metres
2 - Manjhan		F ₂ - 25 Metres	F ₉ - 10 Metres	F ₁₆ - 15 Metres	F ₂₃ - 20 Metres
3 - Shagor		F ₃ - 5 Metres	F ₁₀ - 15 Metres	F ₁₇ - 10 Metres	F ₂₄ - 20 Metres
4 - Shakti	P ₂ - Kandi Galu (Open from May to November)	F ₄ - 12 Metres	F ₁₁ - 10 Metres	F ₁₈ - 30 Metres	F ₂₅ - 20 Metres
5 - Maraur		F ₅ - 6 Metres	F ₁₂ - 60 Metres	F ₁₉ - 20 Metres	F ₂₆ - 10 Metres
		F ₆ - 10 Metres	F ₁₃ - 40 Metres	F ₂₀ - 60 Metres	F ₂₇ - 30 Metres
		F ₇ - 60 Metres	F ₁₄ - 10 Metres	F ₂₁ - 40 Metres	F ₂₈ - 10 Metres

GREAT HIMALAYAN NATIONAL PARK (Map II)



- | | | | |
|------------------|---------------------|------------------|-------------------|
| T1 - Shilphar | T18 - Meli Dwar | T35 - Garwari | T52 - Ghughumua |
| T2 - Ligan | T19 - Changar | T36 - Galu | T53 - Indra |
| T3 - Morgain | T20 - Begri | T37 - Chumri | T54 - Ral |
| T4 - Dwara | T21 - Talyaharu | T38 - Baramcholi | T55 - Jaola |
| T5 - Becha | T22 - Dishari | T39 - Karechar | T56 - Paltu |
| T6 - Bakarchuna | T23 - Paniharu | T40 - Kalli | T57 - Dotla |
| T7 - Jubkutan | T24 - Thelru | T41 - Chyas | T58 - Niari Naina |
| T8 - Apgain | T25 - Socha | T42 - Sattu | T59 - Nala Tapra |
| T9 - Bira | T26 - Subhirari | T43 - Joara | T60 - Mati Naina |
| T10 - Biraghmar | T27 - Radhanni | T44 - Jaraun | T61 - Charkera |
| T11 - Hari | T28 - Deun | T45 - Mathaun | T62 - Kili |
| T12 - Pathadug | T29 - Ukhal Patthar | T46 - Parkachi | T63 - Kamba |
| T13 - Khanersu | T30 - Duara | T47 - Avni | T64 - Dudla |
| T14 - Rohni | T31 - Raticbha | T48 - Majhaun | T65 - Tharthadhar |
| T15 - Shililuari | T32 - Khutar Ka Ban | T49 - Jauvla | T66 - Khol |
| T16 - Rati Hati | T33 - Ranka | T50 - Rahni | T67 - Shankha |
| T17 - Gara Dwar | T34 - Bahli | T51 - Joara | |

2 KM

GREAT HIMALAYAN NATIONAL PARK

The Great Himalayan National Park consists of the upper catchment areas of the Tirthan, Sainj, and Jiwa Rivers which flow westwards and feed the Beas River. Though "large scale fellings in easily accessible areas" were carried out during the Second World War [mp] the area is one of the least disturbed in the state. It therefore consists of relatively good forests and meadows, which support an extremely diverse wildlife population. This includes the largest remaining population of Himalayan tahr in Himachal Pradesh [Gaston 1986]. The park is also one of the only two places in India where "anything more than a remnant population of Western tragopan is known to survive" [Garson & Gaston 1985]. Some spectacular scenery complements the biological richness of the area.

The present park area includes a part (8396 ha.) of Tirthan Sanctuary, the rest of which adjoins the southern boundary. The national park is also bordered by Pin Valley National Park on the north-east, Kanawar Sanctuary on the north-west, and Rupi Bhaba Sanctuary to the east; all these together constitute Himachal Pradesh's largest protected wildlife region. The eastern part of the park is permanently under glaciers and ice.

LEGAL STATUS: Part of the present area (8396 ha.) was declared a sanctuary (Tirthan) on June 17, 1976. Intention to declare the whole area a national park was issued on March 1, 1984, vide Notification No. 6-16/73-SF-II.

AREA AND ZONING: 62,000 ha. (620 sq.km). There is a proposal to add to the park the part of the catchment of River Parvati which lies between Pulga and Pin Parvati Pass. This area (extent not known) is at present included in the buffer belt.

There is no zoning within the Park. However, 1,11,600 ha. of the adjoining area outside the national park has been notified as a buffer belt, and a Tourist Zone is proposed [mp].

LOCATION: District Kullu; *Latitudinal range* 31°38'28" to 31°54'58"N [tp]; *Longitudinal range* 77°20'11" to 77°45'52"E [tp]; *Nearest town* Kullu (60 km); *Nearest railhead* Joginder Nagar (100 km); *Nearest airport* Bhuntar (Kullu) (50 km).

APPROACHES: From Delhi to Aut (484 km) on the Delhi-Kullu road, then to Sainj (20 km), on to Ropah (8 km) at the edge of the park and thereafter on foot. Alternatively, from Aut to Gushaini (28 km), and on by foot to the park (15 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 1500 m to 5805 m [tp]. No specific information on temperatures, rainfall, and snow precipitation is available. However, it is known that

compared to the rest of the Beas area, the Sainj and Tirthan Valleys experience a climate more akin to that of Shimla and the front ranges. Snowfall in winter is lower and rainfall during the monsoon period is heavier. Temperatures are probably higher for a given altitude. [Gaston *et al.* 1981].

FLORA: Forest types in the park include Ban Oak Forest 12/C1(a), Moist Deodar Forest 12/C1(c), Western Mixed Coniferous Forest 12/C1(d), Moist Temperate Deciduous Forest 12/C1(e), Kharsu Oak Forest 12/C2(a), Western Himalayan Upper Oak/Fir Forest 12/C2(b), Montane Bamboo Brakes 12/DS1, Himalayan Temperate Parkland 12/DS2, Himalayan Temperate Pastures 12/DS3, West Himalayan Sub-Alpine Fir Forest 14/C1(a), Sub-Alpine Pastures 14/DS1, Birch/Rhododendron Scrub Forest 15/C1, Deciduous Alpine Scrub 15/C2, and Alpine Pastures 15/C3 [mp, qa, fv]. 52,602 ha. of the park is demarcated forest; the rest of the area is unclassified forest or under pastures, permanent snow, agriculture, and habitation. In the buffer belt, 94,897 ha. are demarcated and reserved forest; the rest unclassified forest, agriculture, and habitation.

The vegetation in both valleys (Sainj and Tirthan) is similar with Northerly aspects clothed in dense forest, dominated below 2000 m by Blue Pine and higher up by a diverse deciduous broad-leaved forest on moderately sloping areas and Fir on steep areas. The Tirthan Valley between Bandal, and Rolla also supports small areas of lower altitude oak forest. Southerly aspects are generally more open; stands of Blue

Pine and Deodhar are interspersed among grass and shrub-clad hillsides, with a zone of Kharsu Oak forest above 2800 m. Extensive meadows occur above the tree line, particularly on the south side of the Sainj Valley above Shangarh and at Delathach, above Lopah.

Much of the forest on north-facing slopes contains a dense understory of bamboo (*Arundinaria spathiflora*) which forms impenetrable thickets in some places, particularly from 2200-2800 m. At lower altitudes the forest, even close to villages, supports a well developed understory containing a wide variety of shrubs. Vegetation on the high altitude meadows is also diverse, including many attractive herbaceous plants not seen elsewhere; among them species of *Iris*, *Frittilaria*, *Cagea* and *Primula*. [Gaston et al. 1981]

No information is available on threatened species of flora. There is a patch of *Taxus baccata* in the Jiwa Nal valley near Manjhan village, which is the only such patch reported in the park and surrounding areas.

For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, mp, Gaston et.al. 1981]

Bear, Himalayan Black

Bear, Brown

Cat, Jungle

Cat, Leopard

Civet, Himalayan Palm

Deer, Barking

Deer, Musk

Fox, Red

Goral

Ibex

Jackal

Langur, Common or Hanuman

Leopard

Leopard, Snow

Macaque, Rhesus

Marten, Himalayan

Yellowthroated

Mouse, House

Mouse-hare, Himalayan

Porcupine, Indian/Hodgson's?

Serow

Sheep, Blue

Shrew, Grey

Shrew, Himalayan Water

Squirrel, Kashmir Flying/

Common Giant Flying?

Tahr, Himalayan

Vole, Royle's

Weasel, Himalayan

Wolf

Reptiles

Viper, Russel's/Himalayan Pit ?

Birds (See Appendix 7)

Species believed to be locally threatened are Snow leopard, Musk deer, Serow, Blue sheep, Ibex, Wolf, Leopard, Western tragopan, and Chir pheasant. There is an exceptionally good population of Monal pheasants [Gaston, Pers. comm.]

OCCURRENCE AND CONTROL OF DISEASE: There are reports of diseases affecting wild animals, and of the decimation of Goral population in a part of the park, in 1979, by a mange-like disease [Garson & Gaston 1985]. No further details are available. Nor is there information on diseases affecting flora. The nearest veterinarian is located at Baha (5 km); there is also one at Gushaini (15 km).

OTHER FACTORS AFFECTING HABITAT: Forest fires over large areas are known to occur in May-June and October-November. Occasional avalanches in winter and landslides in the rainy season are reported. Frost and hailstorms occur frequently. The water sources in *thacks* and upper slopes tend to dry up in the summer months.

WATER RESOURCES: Jiwa Nal, Sainj River, and Tirthan River pass through the park. There are also several perennial and seasonal streams, three springs, and 49 glaciers of varying sizes [tp].

The Sainj and Tirthan Rivers join at Larji, where they both enter the Beas, just after the main river has entered the deep gorge which isolates the upper Beas area from the front ranges. Unlike the valleys of the Parbati and the Beas itself, these two southerly tributaries show little sign of glaciation, being narrow

and steep-sided throughout their length. The lower reaches of both rivers fall below 1300 m, while the highest surrounding peaks reach 6200 m. [Gaston *et al.* 1981]

BUDGET: Rs. 10,00,000 allocated for 1988-89.

MANAGEMENT PLAN: Prepared on July 22, 1987 by the Chief Wildlife Warden, and valid upto March, 1997. This plan was approved in 1988.

PERSONNEL: One Divisional Forest Officer who is also designated the Park Director, two Range Officers, four Deputy Range Officers, and fifteen Forest Guards. The Range Officers, stationed at Sainj and Banjar, are locally in-charge.

EQUIPMENT: Four pairs of binoculars, and high-altitude trekking and camping equipment. Wireless sets are proposed to be purchased under the 1988-89 budget.

RESEARCH AND MONITORING: None by the park authorities. Research in the national park area was undertaken in 1979-80 and 1981-82 by Dr. A.J. Gaston of the Canadian Wildlife Service, M.L. Hunter of the University of Maine, and Dr. P.J. Garson of The University of Newcastle-upon-Tyne, U.K., and again in 1983 by Dr. P.J. Garson.

COMMUNITY INTERACTION PROGRAMMES: None. There is one Honorary Wildlife Warden appointed for the park.

HUMAN PRESENCE:

Rights and Leases: Local people have rights to grazing, collection of timber, fuelwood, and herbs and other minor forest produce, fodder extraction, agriculture, habitation, religious monuments, and burial grounds. Approximately 75 ha. of the park are used for agriculture, and permits are issued for herb collection to villagers from surrounding areas [mp]. There are universal rights of passage and religious *yatra*.

Habitation: There are four villages and 68 *thaches* [tp] inside the park. The villages are inhabited by 114 families, but the exact population figure is not available. There is a proposal to relocate these four villages to a site in the buffer belt. In the buffer belt there are over 75 villages, population figures of which are not available [Gaston *et al.* 1981].

Grazing: Apart from local rights, permits are issued for grazing to Gaddis and other migratory graziers coming from Sarahan, Tirthan, and Jammu. Grazing is permitted in the entire park except the Rolla Forest in Tirthan Valley. The total number of livestock grazing inside include 510 from park villages, 1015 from adjacent villages; in addition 6,611 heads of livestock are brought in from the south (Tirthan Valley) and the north-west (Kanawar). Incidents of injury to livestock by leopards are reported to occur occasionally.

Offences and Illegal Activities: Hunting is believed to be a common illegal activity, with three cases having been registered in the period 1983-85. Another common offence is that of causing fire, though no cases on this have been registered. Illegal grazing in Rolla Forest has been reported. A majority of those who collect minor forest produce from the area are reportedly 'outsiders' with no permit to do so [fv].

Tourism: No information on number of tourists is available. The area is occasionally visited by trekking parties.

Miscellaneous: In 1983-84, a clash took place between villagers and the park staff, over the killing of a Barking deer.

INFORMATION FOR VISITORS: The best periods for visiting the park are April to June and September to November, when the weather and visibility are good and animals are easier to spot. Places of religious importance in and around the park include the hot springs at Khirganga and Mantalai, the source of the Rakti Nal at Rakti Sar, and the source of the Tirthan River at Hans Kund. The preparation of camping sites and nature trails, and the construction of additional roads, are planned to enhance tourist facilities in the park [mp].

Permits for entry have to be obtained from the Park Director at Shamshi. There are thirteen rest houses around the park with a total of fifty beds.

NGOs/INDIVIDUALS ASSOCIATED: Honorary Wildlife Warden Shri Shabab

CONTACT ADDRESSES:

Director
Great Himalayan National Park*
At. Shamshi -175 125
District Kullu
Himachal Pradesh

Range Officer (WL)
Great Himalayan National Park
Sainj - 175 134
District Kullu
Himachal Pradesh



Himalayan tahr

*The Park has recently (mid-1989) been rechristened Jawaharlal Nehru Great Himalayan National Park, but the previous name is still in common usage.

PIN VALLEY NATIONAL PARK

A high-altitude Himalayan national park containing a variety of rare animals such as the Woolly hare, Tibetan gazelle, and Snow leopard. The entire area is a cold desert, interspersed with a few alpine meadows [fv]. There is heavy pressure on the meadows by the seasonal influx of livestock of migratory graziers [fv]. The park adjoins the buffer belt of the Great Himalayan National Park to the south-west, and shares its southern boundary with Rupi Bhaba Sanctuary.

LEGAL STATUS: Intention to constitute the area into a national park was declared on January 9, 1987.

AREA & ZONING : 67,500 ha. (675 sq.km) [notif]. There is no zoning within the park. However, an area of 1,15,000 ha. adjoining the national park has been notified as the buffer zone.

LOCATION: *Districts* Lahul and Spiti; *Latitudinal range* 31°44'55" to 32°11'00"N [tp]; *Longitudinal range* 77°45'00" to 78°06'09"E [tp]; *Nearest town* Tabe (47 km); *Nearest railhead* Shimla (443 km); *Nearest airport* Shimla (458 km).

APPROACHES: Shimla to Rampur Bushahr (140 km), on to Tabe (256 km), then to Atargu Bridge (17 km), and finally on foot to Kagha (30 km), which is adjacent to park. Alternatively from Rupi Bhaba Sanctuary, which is adjacent, through Shakarog Khango Pass or Tari Khango Pass on foot; or from buffer belt of the Great Himalayan National Park, which is adjacent, through the Pin Parvati Pass on foot.

TOPOGRAPHY AND CLIMATE: *Altitude* 3300 to 6632 m; *Temperature* -19.7 to 26.8°C; *Mean annual rainfall* 170.3 mm. There is heavy snow precipitation, exact figures of which are not available.

FLORA: Forest types found in the park include Dry Alpine Scrub 16/C1, and Dwarf Juniper Scrub 16/E1. Himalayan pencil cedar is reported to be threatened.

From 1980 to 1987, prior to the area being declared a national park, 43 ha. of what is now the buffer zone (outside the park) was planted with Poplar and Willow. Poplar is an introduced species. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Fox, Red/Indian ?
 Ibex
 Gazelle, Tibetan
 Hare, Woolly
 Leopard, Snow

Marmot, Himalayan
 Mouse-hare, Himalayan
 Porcupine, Indian/ Hodgson's ?
 Sheep, Blue
 Wolf

Birds: (See Appendix 7)

Species reported to be threatened are Snow leopard, Fox (Indian/Red?), and Wolf.

OCCURRENCE AND CONTROL OF DISEASE: There is no information on whether flora and fauna are affected by epidemics, nor on whether programmes for vaccination of cattle are undertaken. The nearest veterinarians are located at Mud and Guling, in the buffer zone.

OTHER FACTORS AFFECTING HABITAT: No information.

WATER RESOURCES: Pin, Parahiro, and Khamengar are the major rivers [tp]. There are 12 other perennial streams, and several springs and glaciers [tp].

BUDGET: Rs. 6,10,000 for 1987-88.

MANAGEMENT PLAN: None. Under preparation.

PERSONNEL: One Deputy Range Officer and two Forest Guards. The DFO (Kaza) holds additional charge as Director of the park.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: People from adjoining areas enjoy herb collection rights in the park.

Habitation: There is no permanent habitation inside the national park. However, 17 *thaches* are used by shepherds when they bring their livestock inside in the summer. 17 villages, with a total population of 1,258 people, are located in the surrounding buffer zone.

Grazing: Shepherds of Kinnaur are issued permits by the DFO, Nichar, to graze their sheep and goats in the park area. In addition, 2801 heads of livestock come in from adjacent villages to graze in the park and its buffer zone. Snow leopards and wolves have reportedly caused injury to livestock, but no claims for compensation have been recorded.

Offences and Illegal Activities: None recorded.

Tourism: No records are kept of how many tourists visited the park.

INFORMATION FOR VISITORS: The area is accessible only from May to October. There are three rest houses around the park with a total of ten beds. No transportation facilities are available inside the park.

Inner line permit is required by all Indians who wish to visit the park. Foreign nationals are ordinarily not allowed into the area.

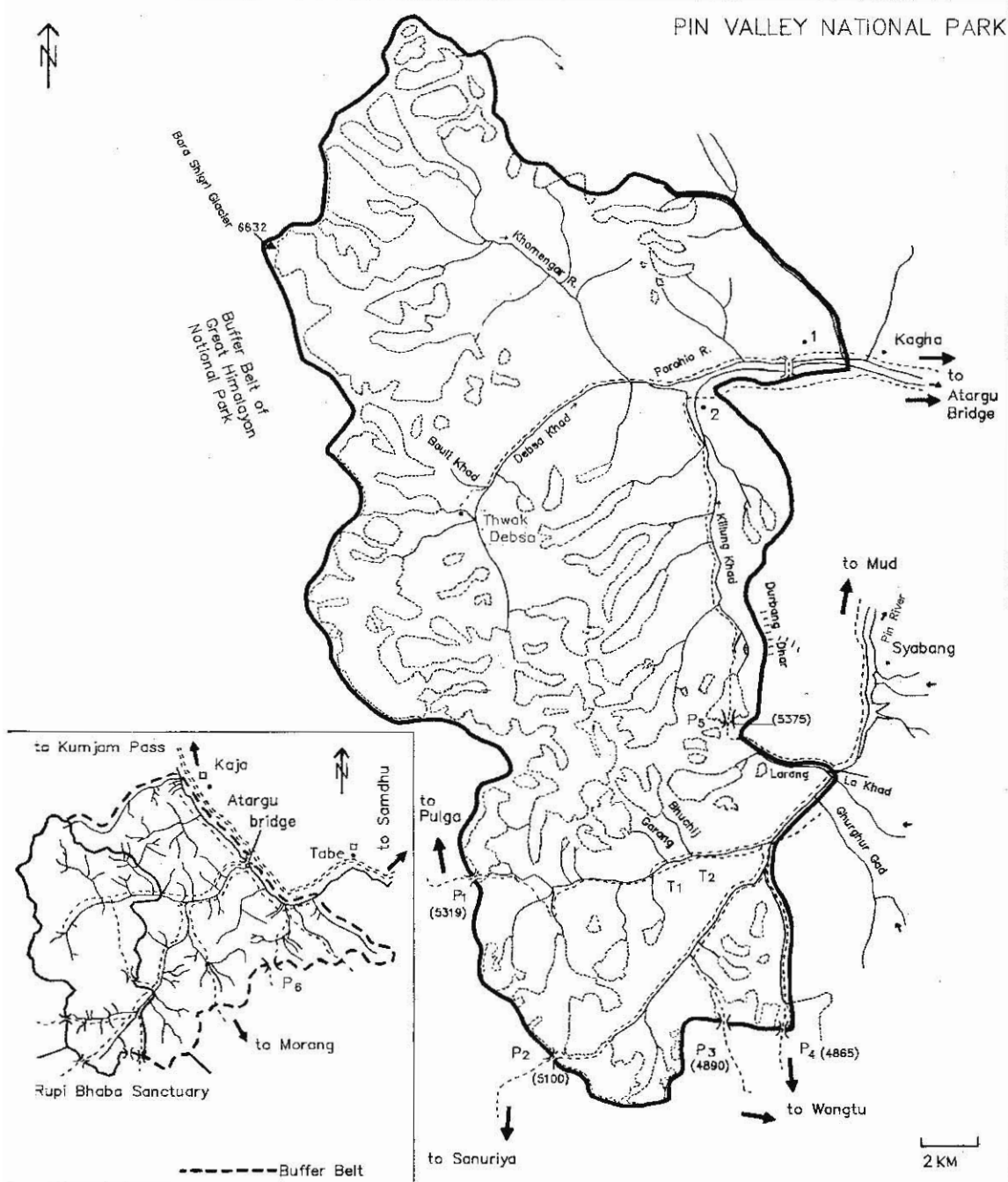
CONTACT ADDRESS:

DFO (WL)
Sarahan Division
Sarahan Bushehar - 172 102
District Shimla
Himachal Pradesh



Bearded vulture

PIN VALLEY NATIONAL PARK



VILLAGES

- 1 - Gechang
- 2 - Thidim

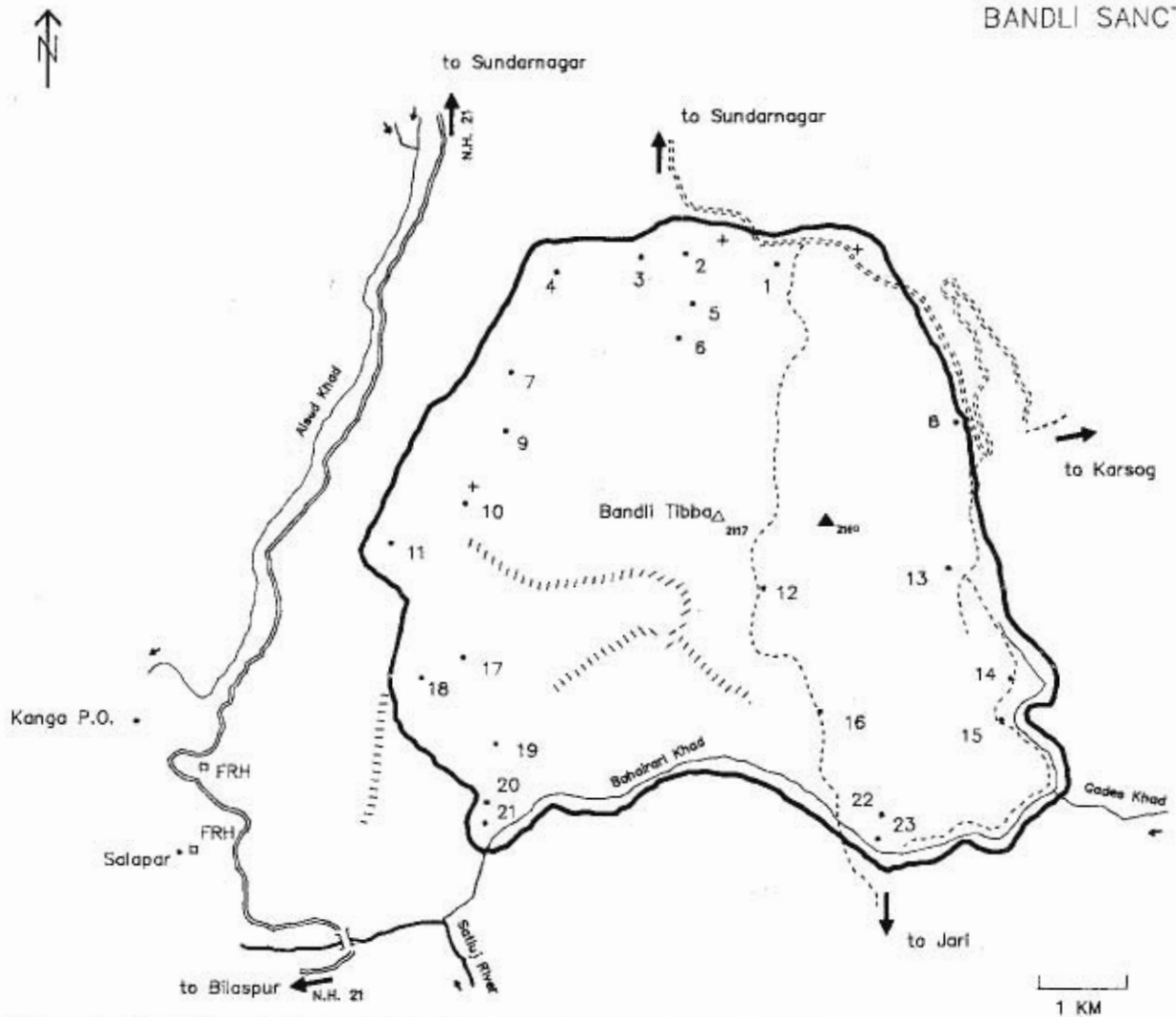
THACHES

- T₁ - Rung
- T₂ - Bisang

MOUNTAIN PASSES

- P₁ - Pin Parvati
(Kulu Khango)
- P₂ - Shakarog Khango
(Open From July to september)
- P₃ - Nirnish Khango
(Open from July to September)
- P₄ - Tari Khango
(Open From July to September)
- P₅ - Larang La
(Killung La)
- P₆ - Larsaway (inset)
(Open From July to October)

BANDLI SANCTUARY



VILLAGES

- | | | | | | |
|--------------|------------|-------------|-------------|---------------|------------------|
| 1 - Rangh | 5 - Bhal | 9 - Bobri | 13 - Badhu | 17 - Kandar | 21 - Seog |
| 2 - Ugi | 6 - Sariun | 10 - Nihari | 14 - Hluh | 18 - Manahnu | 22 - Chhalchhara |
| 3 - Dharanda | 7 - Raslin | 11 - Saroni | 15 - Kharni | 19 - Khurahai | 23 - Sial |
| 4 - Phagla | 8 - Suwaru | 12 - Niri | 16 - Nared | 20 - Khairi | |

BANDLI SANCTUARY

A heavily disturbed sanctuary with a small population of Chir pheasant and Leopard. The area was earlier a Protected Forest.

LEGAL STATUS: First notified in 1962. Renotified on 27 March, 1974. All the required legal steps have been taken.

AREA AND ZONING: 4133 ha. (41.33 sq.km). No zoning.

LOCATION: *District Mandi; Latitudinal range 31°25'21" to 31°29'02"N [tp]; Longitudinal range 76°52'04" to 76°56'54"E [tp]; Nearest town Sundarnagar (7 km); Nearest railhead Jogindernagar (81 km); Nearest airport Bhuntar (Kullu) (90 km).*

APPROACHES: From Shimla to Sundarnagar (132 km), then to Moloh (5 km), which is adjacent to the sanctuary. Alternatively, from Shimla to Bilaspur (90 km), Bilaspur to Salapur (23 km), then on foot (3 km).

TOPOGRAPHY AND CLIMATE: *Altitude 762 to 2160 m [tp]; Temperature 1 to 35°C; Mean annual rainfall 1524.2 mm [met].*

FLORA: Forest types include Himalayan Sub-tropical Pine Forest 9/C1 and Ban Oak Forest 12/C1(a). Plantations of Chir pine have been established in the sanctuary, but no details are available. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Bear, Himalayan Black	Leopard
Civet, Common Palm/ Himalayan Palm ?	Marten, Himalayan Yellowthroated
Deer, Barking	Macaque, Rhesus
Goral	Mongoose, Common
Hare, Indian	Porcupine, Indian
Langur, Common	

Birds (See Appendix 7)

There is no information on locally threatened species.

OCCURRENCE AND CONTROL OF DISEASE: Information is not available regarding epidemics among flora and fauna. The nearest veterinarian is based at Sundarnagar, 7 km away.

OTHER FACTORS AFFECTING HABITAT: Much of the sanctuary has been affected, at one time or another, by forest fires. However, no fire control measures exist. Frost and hailstorms are also recurring phenomena. The area is prone to droughts, and 80% of the sanctuary was affected in 1980-81. Four tanks have since been dug as a counter-measure.

WATER RESOURCES: There are four seasonal tanks (artificial), eleven perennial water holes (natural), and three springs in the sanctuary [tp]. There are also three perennial and several seasonal streams along the boundary [tp]. The Satluj River flows close to the south-western boundary of the sanctuary [tp].

BUDGET: No separate budget.

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer, one Deputy Ranger, and three Forest Guards.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Habitation: There are, within the sanctuary, 23 villages [tp]. In the surrounding area there are several villages and Sundarnagar town [tp]. Population figures are not available.

Grazing: Gaddi and Gujjar nomads are given permits by the DFO (Territorial) for grazing inside the sanctuary [fv]. Injury to livestock by leopards is reported to have occurred and 2 such cases have been accepted for compensation in 1987.

Offences and Illegal Activities: Details about offences are scanty. Destruction of habitat by fire is reported, but no cases have been registered. Three cases of illegal hunting of Leopards were recorded in 1984-85.

Local people carry on the following activities: agriculture, grazing, quarrying, fodder extraction, and collection of timber, fuelwood and minor forest produce. These activities were considered to be rights till the recent completion of the legal procedures for setting up the sanctuary. At present, habitation and other activities of the local people inside the sanctuary are considered illegal [fv].

Tourism: No details are available on number of tourists, but reportedly very few visit the sanctuary [fv].

Use by Other Government Agencies: The forest department is planting trees (no further details available), and the H.P. State Electricity Board has some transmission lines passing through the sanctuary.

Miscellaneous: About 1000 labourers from outside are employed annually to work on plantations in the sanctuary.

INFORMATION FOR VISITORS: The best time for visiting the sanctuary is from April to June and from September to December. The absence of tall grass during this period facilitates observation of animals.

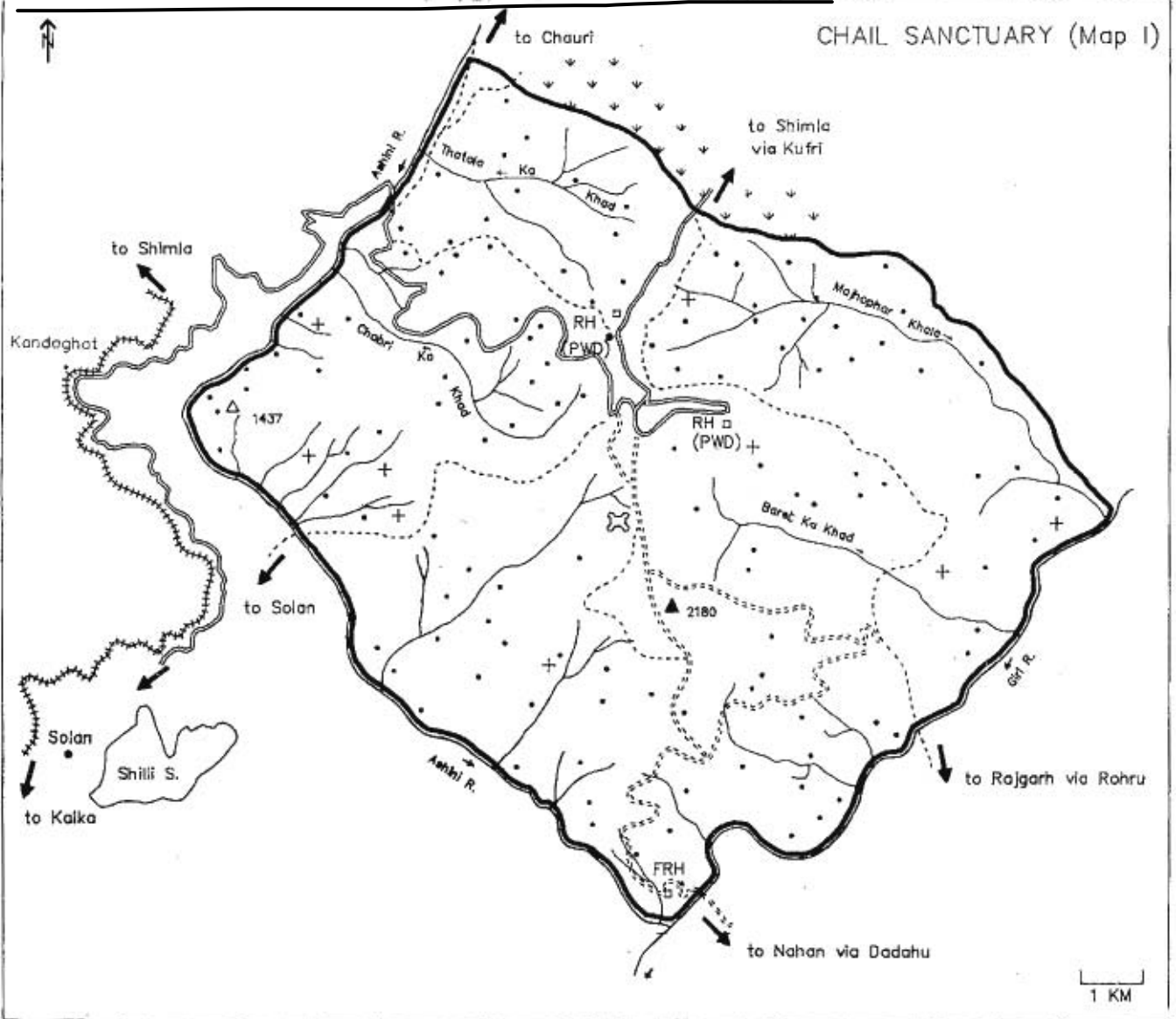
There are four rest houses around the sanctuary with a total of thirty beds. Sundarnagar also has various other hotels and rest houses. There is no regulation of entry into the sanctuary.

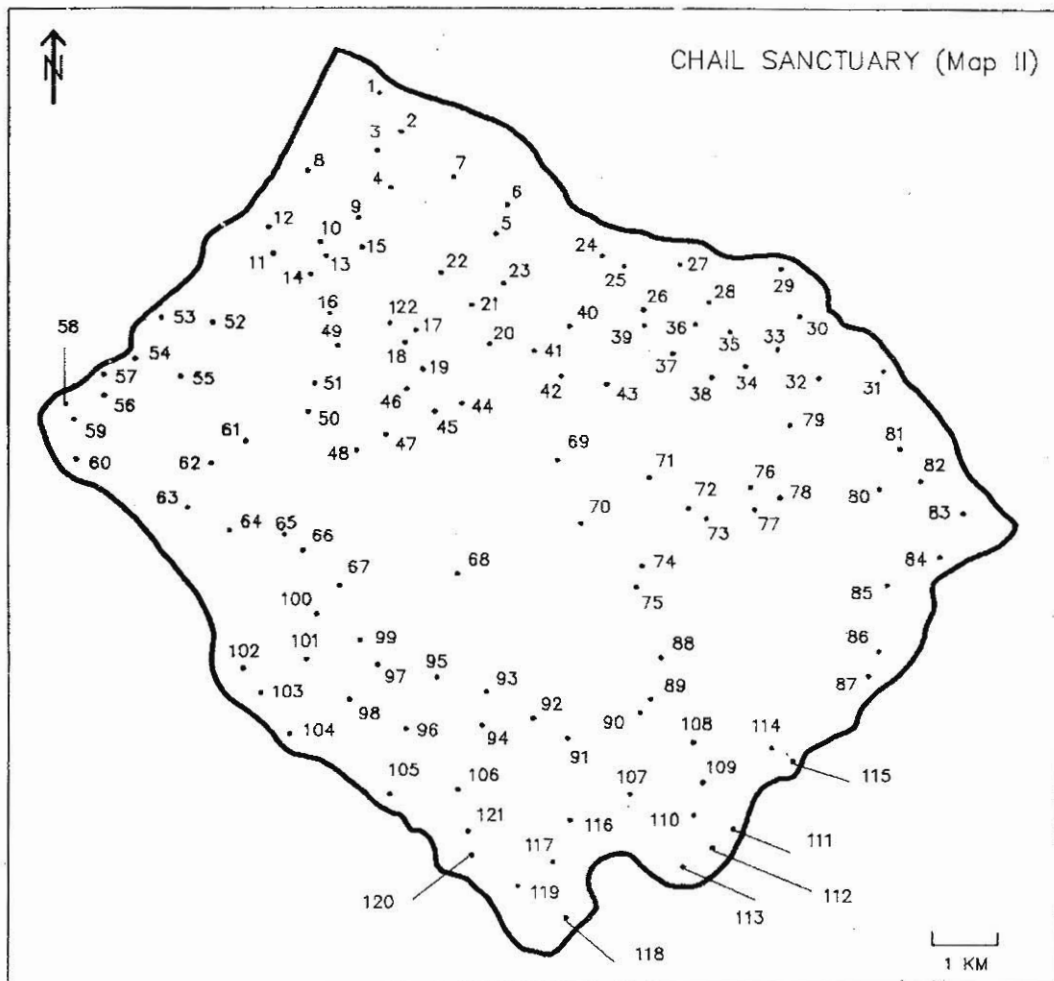
CONTACT ADDRESSES:

Range Officer (WL)
Mandi-175 001
Himachal Pradesh

DFO (WL)
Kullu Division
Kullu-175 101
Himachal Pradesh

CHAIL SANCTUARY (Map I)





VILLAGES

1 - Benun	26 - Chambi	51 - Chabri	76 - Badhet	101 - Bhuyara
2 - Narad	27 - Kataula	52 - Pavash	77 - Naag	102 - Sunnu
3 - Thatala	28 - Kertu	53 - Kiar	78 - Tikar	103 - Kathog
4 - Chibon	29 - Phanevali	54 - Kaniola	79 - Shalet	104 - Bag
5 - Dharechi	30 - Bandli	55 - Chohra	80 - Tana	105 - Lomsar
6 - Khilo	31 - Balog	56 - Shadog	81 - Dablu	106 - Takrona
7 - Salohi	32 - Baghanji	57 - Anji	82 - Shunra	107 - Rehad
8 - Nahara	33 - Bad	58 - Kasonio	83 - Nohan	108 - Pujari Ki Ser
9 - Khat	34 - Kanina	59 - Majoi	84 - Khal	109 - Kori
10 - Dhar Ki Ser	35 - Parthana	60 - Paroth	85 - Jogash	110 - Kalana
11 - Dochi	36 - Dhera	61 - Chali	86 - Lakhoti	111 - Kajir
12 - Nalgotr	37 - Dohai	62 - Grani	87 - Rathog	112 - Dadher
13 - Pajjali	38 - Deotlo	63 - Sainj	88 - Kanauri	113 - Katal
14 - Dharan	39 - Malan Shil	64 - Damdar	89 - Chathne	114 - Tananji
15 - Chauki	40 - Shanet	65 - Jakhed	90 - Hamri	115 - Tikri
16 - Sona	41 - Timru	66 - Daghil	91 - Chagaan	116 - Rowand
17 - Bharech	42 - Sherpur	67 - Kharanji	92 - Hinar	117 - Basar
18 - Kot	43 - Thara Ka Jubar	68 - Siaula	93 - Rohar	118 - Gauhra
19 - Kathla	44 - Mohag	69 - Nagoli	94 - Kurgul	119 - Naog
20 - Chail	45 - Shakog	70 - Hukal	95 - Karog	120 - Dohar
21 - Sakori	46 - Karaltu	71 - Jadhaj	96 - Nauhra	121 - Anchil
22 - Mihani	47 - Kohia	72 - Dhali	97 - Chhot	
23 - Banjhl	48 - Koda	73 - Jethna	98 - Dochi	
24 - Kadharab	49 - Dunu	74 - Mavri	99 - Kai	
25 - Chabit	50 - Jhaja	75 - Ghewa	100 - Garin ja	

CHAIL SANCTUARY

Formerly a private game reserve of the erstwhile Maharaja of Patiala, it is now heavily degraded. Yet it contains one of the world's most significant populations of the greatly threatened Chir pheasant [Garson 1983], as well as a herd of European Red Deer (*Cervus elaphus*) introduced half a century ago by the former Maharaja of Patiala. The sanctuary has, within its boundaries, Chail town and numerous villages [tp], and is connected by a forest corridor to Shimla water catchment sanctuary in the north.

LEGAL STATUS: Notified a sanctuary on 21 March, 1976. [notif]

AREA AND ZONING: 10,854.36 ha. (108.54 sq.km) [DCF WL Shimla, 1988]. No zoning.

LOCATION: Districts Solan and Shimla; *Latitudinal range* 30°53'36" to 31°00'42"N [tp]; *Longitudinal range* 77°07'20" to 77°16'44"E [tp]; *Nearest town* (other than Chail) Shimla (45 km); *Nearest railhead* Kandaghat (29 km); *Nearest airport* Shimla (60 km).

APPROACHES: From Shimla to Chail town (45 km), which is inside the sanctuary. Alternatively, from Kalka, via Kandaghat, to Chail.

TOPOGRAPHY AND CLIMATE: *Altitude* 701 to 2180 m [tp]; *Temperature* -4 to 28°C; *Mean annual rainfall* 1602.7 mm.

FLORA: Forest types found in the sanctuary include Himalayan Sub-tropical Pine Forest 9/C1; Ban Oak Forest 12/C1(a); and Moru Oak Forest 12/C1(b).

The dominant forest tree is the White or Silver Oak *Quercus incana*, mixed at lower altitudes with Chil Pine *Pinus roxburghii*. Tree Rhododendron *Rhododendron arboreum* forms pure stands in a few places and Deodhar *Cedrus deodara* and Blue Pine *Pinus excelsior (wallichiana)* have been sown in some areas. Because of disturbance, there is little mature forest and much secondary scrub. In general, forest covers the slopes with a northerly aspect, while south-facing slopes support grasslands, usually with patches of forest or scrub in gullies and depressions. These grasslands are probably dependent on regular cutting and burning for their continued existence. [Gaston & Singh 1980].

408.5 ha. had been planted till 1984, mostly with Chil, Deodar, Oak and Robinia. Introduced flora includes Eucalyptus, Robinia and Poplar. There is no information available on threatened species of flora. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, WII Pers. Comm.]

Bear, Himalayan Black	Leopard
Boar, Indian Wild	Macaque, Rhesus
Cat, Leopard	Marten, Himalayan Yellowthroated
Deer, Barking	Porcupine, Indian
Deer, Red	Sambar
Goral	Squirrel, Common Giant Flying/Kashmir
Hare, Indian	Flying ?
Langur, Common	

Birds (See Appendix 7)

Species believed to be locally threatened are Leopard, Chir pheasant and Red deer. The Chir pheasant population may have declined by about 50% between 1979 and 1983, and there may be some decrease in the population of Kaleej pheasant also [Garson 1983].

Red deer have been introduced into the sanctuary. A Chir pheasant breeding and rehabilitation programme has been started in 1988. Due to scarcity of green fodder, 3.62 ha is planted twice a year (June and November) with wheat, barley, and maize for feeding deer species and Goral.

OCCURRENCE AND CONTROL OF DISEASE: No diseases of flora and fauna reported. The nearest veterinarian is located at Kandaghat, 29 km away.

OTHER FACTORS AFFECTING HABITAT: Forest fires and hailstorms are known to occur. During 1984-85, 1364 ha. was affected by forest fires. There appears to be a severe shortage of water in the sanctuary. In some places water holes have been dug, but competition between livestock and wild animals for water remains intense [fv]. Droughts are reported to have affected the sanctuary in 1979-80. *Lantana camara* is fast becoming a problem weed in the area.

WATER RESOURCES: 21 seasonal human-made water holes, 13 perennial and several seasonal streams, and 9 perennial springs [Q1, tp]. Ashni River flows along the W and S-W border, and Giri River along the S-E border of the sanctuary [tp].

BUDGET: Rs. 7,00,000 for works and protection in 1987.

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer, 5 Deputy Rangers and 20 Forest Guards. Local in-charge is the Range Officer at Chail.

EQUIPMENT: A pair of binoculars.

RESEARCH AND MONITORING: Surveys of Chir pheasant have been undertaken singly or jointly by A.J. Gaston of the Canadian Wildlife Service, P.J. Garson of the University of Newcastle-upon-Tyne, and Virendra Sharma of the Punjab University, in 1979 and 1983 [Garson & Sharma 1987]. A vegetation map, a wildlife distribution map, and an outline map of the area are available for reference.

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Local people have habitation, grazing, collection of timber, firewood and other forest produce, quarrying, cultivation (3446 ha.), and fodder extraction rights. Rights also exist in relation to burial grounds, religious *yatra* and religious monuments. Only 100 ha. of forest is free from these rights, where only right of way is allowed. In addition, there are 18 private industries, including sawmills, inside the sanctuary.

Habitation: 121 villages, and Chail town, are located inside the sanctuary [tp], with a total population of 8,627. The surrounding area is also thickly populated, though figures are not available.

Grazing: Over much of the area (6517 ha.), local people have rights to grazing.

Offences and Illegal Activities: Poaching of Goral and Barking deer is reported to occur, though apparently declining in intensity [Garson & Singh 1983]. There has been one prosecution, a case of illegal hunting in 1983-84.

Use by Other Government Agencies: Various government departments have control over area within the sanctuary: the PWD (0.5 ha) for water supply, the PWD (23 ha) for roads, H.P. Tourism (25ha) for tourist lodges/activities, Military Engineering Service (50 ha) for buildings and a school, H.P. Horticulture Department (16 ha) for building and horticulture farms, and H.P. Forest Department (10 ha) for Forest Training School.

Extraction of Ban oak is reported to have been allowed in 1983, with about 550 trees being cut and at least five hectares cleared [Garson 1983].

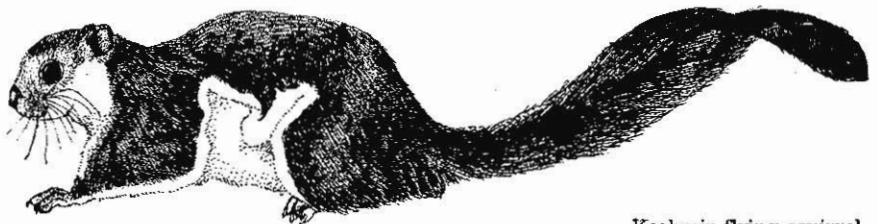
INFORMATION FOR VISITORS: The best period for visiting the sanctuary is from March to June as it is easiest then to spot animals. Among places of interest, there are some old palaces of the former Maharaja of Patiala, and the Siddh Baba Temple. There is no regulation of entry in the sanctuary.

There are four rest houses with 18 beds, and several hotels, in Chail.

CONTACT ADDRESSES:

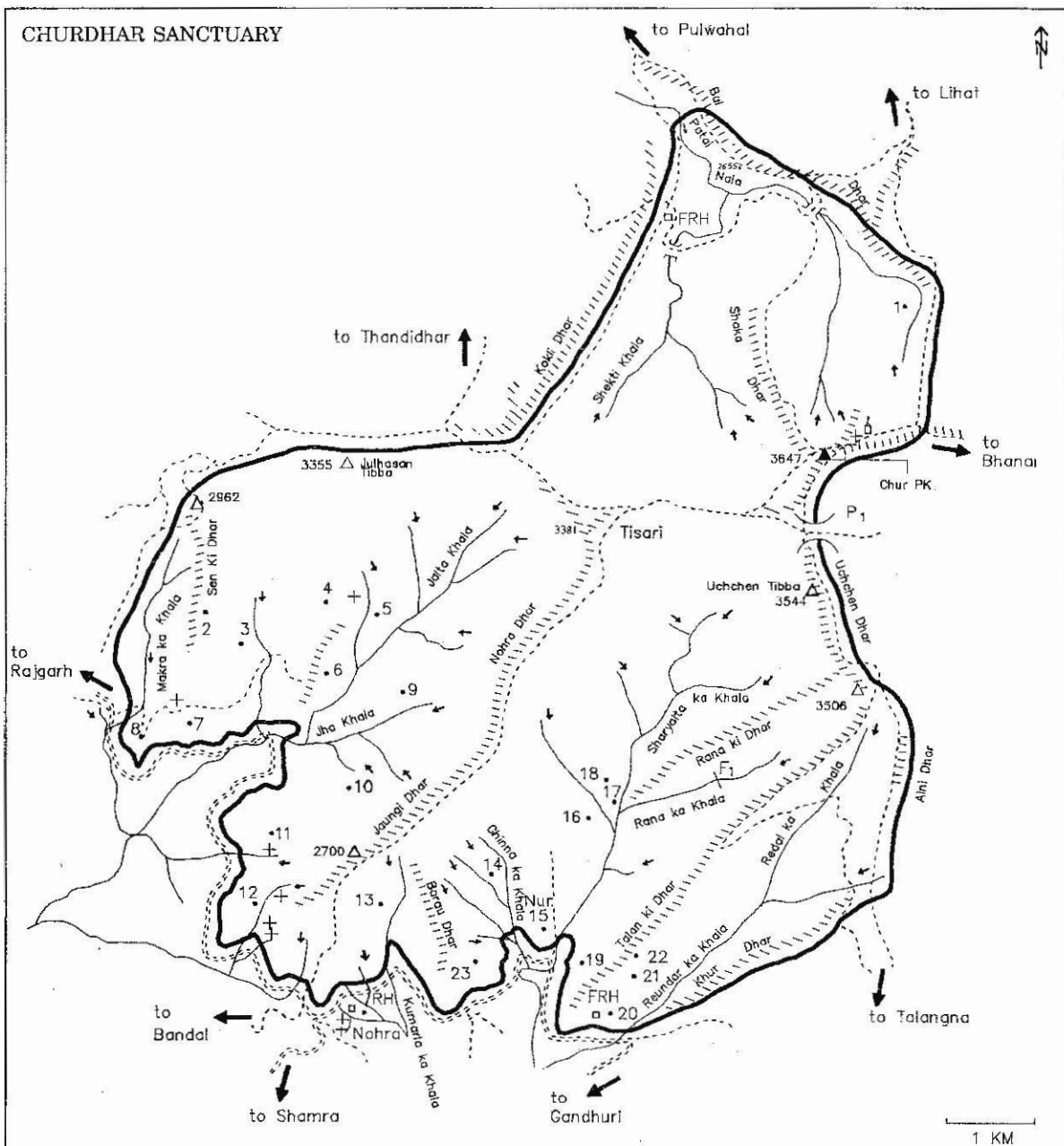
Range Officer (WL)
Chail-173 217
District Solan
Himachal Pradesh

DFO (WL)
Shimla Division
Talland, Shimla-171 001
Himachal Pradesh



Kashmir flying squirrel

CHURDHAR SANCTUARY



VILLAGES

- | | | |
|----------------|--------------|--------------------------|
| 1 - Lana Bagto | 7 - Kanda | 13 - Khanatiyan |
| 2 - Dani | 8 - Chhog | 14 - Raundi |
| 3 - Marori | 9 - Pauri | 15 - Raundi |
| 4 - Chand | 10 - Eran | 16 - Shidal |
| 5 - Motirai | 11 - Dungsar | 17 - Sharyalta |
| 6 - Thera | 12 - Sotani | 18 - Kaudhunj Ka Patthar |

MOUNTAIN PASS

- P₁ - Pal Ka Pass
(Open From April to November)

WATER FALL

- F₁ - 6 Metres

CHURDHAR SANCTUARY

One of the state's newest sanctuaries, Churdhar has amongst the last good stretches of forest left in southern Himachal Pradesh. Old residents testify to these forests being a stronghold of Musk deer in the past, and recount with some sadness the indiscriminate hunting which has decimated it perhaps to the point of local extinction. Churdhar still contains good habitat for Monal and other pheasants. The sanctuary gets its name from Chur peak, on top of which sits a majestic statue of Lord Shiva commanding a breathtaking view of the valleys and forests below.

LEGAL STATUS: Notified a sanctuary on 15 November, 1985 vide Notification No. 6-24/73-SF.

AREA AND ZONING: 5615 ha. (56.15 sq.km). No zoning.

LOCATION: *Districts* Sirmour and Shimla [tp]; *Latitudinal range* 30°48'37" to 30°54'39"N [tp]; *Longitudinal range* 77°23'32" to 77°29'49"E [tp]; *Nearest town* Nohra (1 km); *Nearest railhead* Solan (approx. 67 km); *Nearest airport* Shimla (approx. 116 km).

APPROACH: From Shimla to Solan (48 km), then to Nohra via Rajgarh (approx. 67 km), and then on foot (1 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 2000 to 3647 m [tp]; Information regarding temperature, rainfall and snowfall not available.

FLORA: Forest types include Western Mixed Coniferous Forest 12/C1(d), Kharsu Oak Forest 12/C2(a), and Alpine Pastures 15/C3.

The Forest Department has carried out plantations of Deodar, Oak, and other species [fv], further details of which are not available. No information on threatened species of flora is available. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [wp, fv]

Bear, Himalayan Black
Boar, Indian Wild
Deer, Barking
Deer, Musk
Goral

Langur, Common
Leopard
Macaque, Rhesus
Mouse-hare, Himalayan
Porcupine, Indian

Birds (See Appendix 7)

The Musk deer population has reportedly been severely depleted by hunting; it is uncertain if there are any left at all [fv].

OCCURRENCE AND CONTROL OF DISEASE: No information.

OTHER FACTORS AFFECTING HABITAT: No information.

WATER RESOURCES: 16 perennial and several seasonal streams, and 7 springs [tp].

BUDGET: None till 1989. Rs. 3,35,000 in 1989-90 have been allotted for development works; there is also an allotment for salaries and plantations, details of which are not available [TA Pers. comm.].

MANAGEMENT PLAN: None. Under preparation [TA Pers. comm.].

PERSONNEL: One Range Officer, one Deputy Range Officer and six Forest Guards [TA Pers. comm.].
The Range Officer at Nohra is the local in-charge.

RESEARCH AND MONITORING: None

EQUIPMENT: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Villagers residing inside have rights to habitation, agriculture, extraction of timber, fuelwood, and minor forest produce, grazing, and collection of fodder. All these activities, with the exception of habitation and agriculture, are also carried out by the surrounding villagers inside the sanctuary. It is, however, unclear whether these are rights. Rights exist in relation to religious *yatra* (to Chur peak) and religious monuments.

Habitation: 23 villages [tp], and six temporary camps (possibly all Gujjar camps), are located within the sanctuary [tp, fv]. In addition, there is one temple complex, where a handful of priests and assistants stay almost through the year [fv].

Grazing: Apart from the grazing rights that local people have, Gujjars are given permits for grazing, and periodically bring large numbers of livestock (figures not available) into the sanctuary.

Offences and Illegal Activities: Some amount of animal and wood poaching is reported, though no offences have been recorded. [fv]

Tourism: No record of visitors is kept. Several thousand pilgrims visit the Chur peak and the temple near it every year [fv].

Use by Other Government Agencies: There is a Forest Department nursery inside the sanctuary [fv].

Miscellaneous: Some labourers have been employed in 1988-89 for making inspection paths, but no further details are available [fv].

INFORMATION FOR VISITORS: The best periods for visiting the sanctuary are April-May, and September-October, when the weather is pleasant and visibility is good. Chur peak, which can be reached by a scenic trekking route, has a statue of Shiva on top, and a temple nearby [fv]. Entry into the sanctuary is not regulated.

There are two rest houses, one inside and one outside. The temple complex near Chur peak also offers accommodation.

CONTACT ADDRESSES:

Range Officer (WL)
Nohra - 173 104
District Sirmaur
Himachal Pradesh

DFO (WL)
Shimla Division
Talland, Shimla - 171 001
Himachal Pradesh



Musk deer

DARANGHATI SANCTUARY

This sanctuary forms an important habitat for Musk deer, Himalayan tahr, and pheasants. The area was earlier a hunting reserve of the former Raja of Bushahr State. The sanctuary is in two segments, with villages and cultivated area in between. Animal movement takes place over snow-clad peaks into the Rakchham Chitkul Sanctuary in the south-east and Talra Sanctuary in the south.

LEGAL STATUS: First notified a sanctuary [mp] in 1962. Renotified on 27 March, 1974.

AREA AND ZONING: 16,740 ha. (167.40 sq.km). No zoning.

LOCATION: District Shimla; *Latitudinal range* 31°22' to 31°28'N [mp]; *Longitudinal range* 77°47' to 77°51'E [mp]; *Nearest town* Rampur Bushahr (60 km); *Nearest railhead* Shimla (192 km); *Nearest airport* Shimla (207 km).

APPROACHES: From Shimla to Rampur Bushahr (140 km), then to Sarhan (40 km), on to Kinoo (20 km), finally on foot to sanctuary (Daranghati I). Alternatively, from Rampur Bushahr to Taklech (60 km), then on foot to sanctuary (Daranghati II - 25 km), or to Dophda (40 km), then on foot to sanctuary (25 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 2100 to 3315 m; *Temperature* -8 to 17°C; *Mean annual rainfall* 750 mm [mp]. Snowfall figures are not available.

FLORA: Forest types include Ban Oak Forest 12/C1(a) [wp], Moist Deodar Forest 12/C1(c), Western Mixed Coniferous Forest 12/C1(d), Moist Temperate Deciduous Forest 12/C1(e), Kharsu Oak Forest 12/C2(a), Dry Broadleaved and Coniferous Forest 13/C1, Dry Temperate Coniferous Forest 13/C2, West Himalayan Sub-Alpine Fir Forest 14/C1(a), and Alpine Pastures 15/C3 [mp]. These forests cover 10,000 ha. of the sanctuary [mp].

From 1982 to 1984, Deodar was planted on over 30 ha. by the Territorial Wing of the Forest Department. Other commercial timber plantations have also been done, but no details are available. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, qa, fv, mp, Gaston et.al. 1983]

Bear, Himalayan Black	Hyena, Striped
Bear, Brown	ibex, Himalayan
Cat, Jungle	Leopard
Civet, Himalayan Palm	Marten, Himalayan Yellowthroated
Deer, Barking	Serow
Deer, Musk	Sheep, Blue
Flying Fox	Squirrel, Common Giant Flying
Fox, Red	Tahr, Himalayan
Goral	Weasel, Himalayan
Hare, Indian	

Birds (See Appendix 7)

Serow, Himalayan tahr, and Western tragopan are reported to be locally threatened [Q1, Q3].

OCCURRENCE AND CONTROL OF DISEASE: There is no information on whether flora and fauna is affected by epidemics. The nearest veterinarian is located at Dophda, 25 km away.

OTHER FACTORS AFFECTING HABITAT: Forest fires are common. Frost and hailstorms also occur.

WATER RESOURCES: Ten major and several minor perennial streams [mp].

BUDGET: Unspecified amount for "creation of infrastructure".

MANAGEMENT PLAN: Prepared and approved for the period 1985-86 to 1989-90 [mp].

PERSONNEL: One Range Officer, one Deputy Range Officer, and eight Forest Guards.

EQUIPMENT: Binoculars, tents, rucksacks, altimetre, and other camping and trekking equipment.

RESEARCH AND MONITORING: A wildlife survey has been conducted by Dr. A.J. Gaston, of the Canadian Wildlife Service, in 1980 and again in 1983 [Q3].

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Local people have rights to grazing, agriculture, habitation, and extraction of slate and stone for house construction [Q1, mp]. Collection of timber, fuelwood, and minor forest produce, and fodder extraction, is allowed at concessional rates [mp].

Habitation: There are 2 villages, one *thach* and one *dogri* inside, population figures of which are not available. The surrounding area has 26 villages, *dogris*, and *thaches*, with a population of 5,223.

Grazing: Apart from local rights, nomadic Gujjars are issued grazing permits by the Forest Department [fv]. Over 7,500 cattle, sheep, and goats graze inside, of which 5,000 are from surrounding villages. The number of livestock brought in by Gujjars is not known. Cattle-lifting by Leopards is reported [fv].

Offences and Illegal Activities: Illegal hunting is reported to be common [fv]; four cases were registered in 1985-86.

Tourism: Tourism statistics are not maintained, but the area is visited only by small trekking parties [mp].

Use by Other Government Agencies: There is a Forest Department nursery inside [fv].

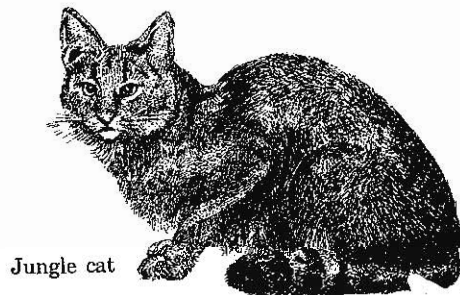
INFORMATION FOR VISITORS: The best periods for visiting the sanctuary are in May, and September to November, when the higher reaches are accessible, and there is little precipitation. There is no regulation of entry into the sanctuary.

There are six rest houses outside with a total of 28 beds.

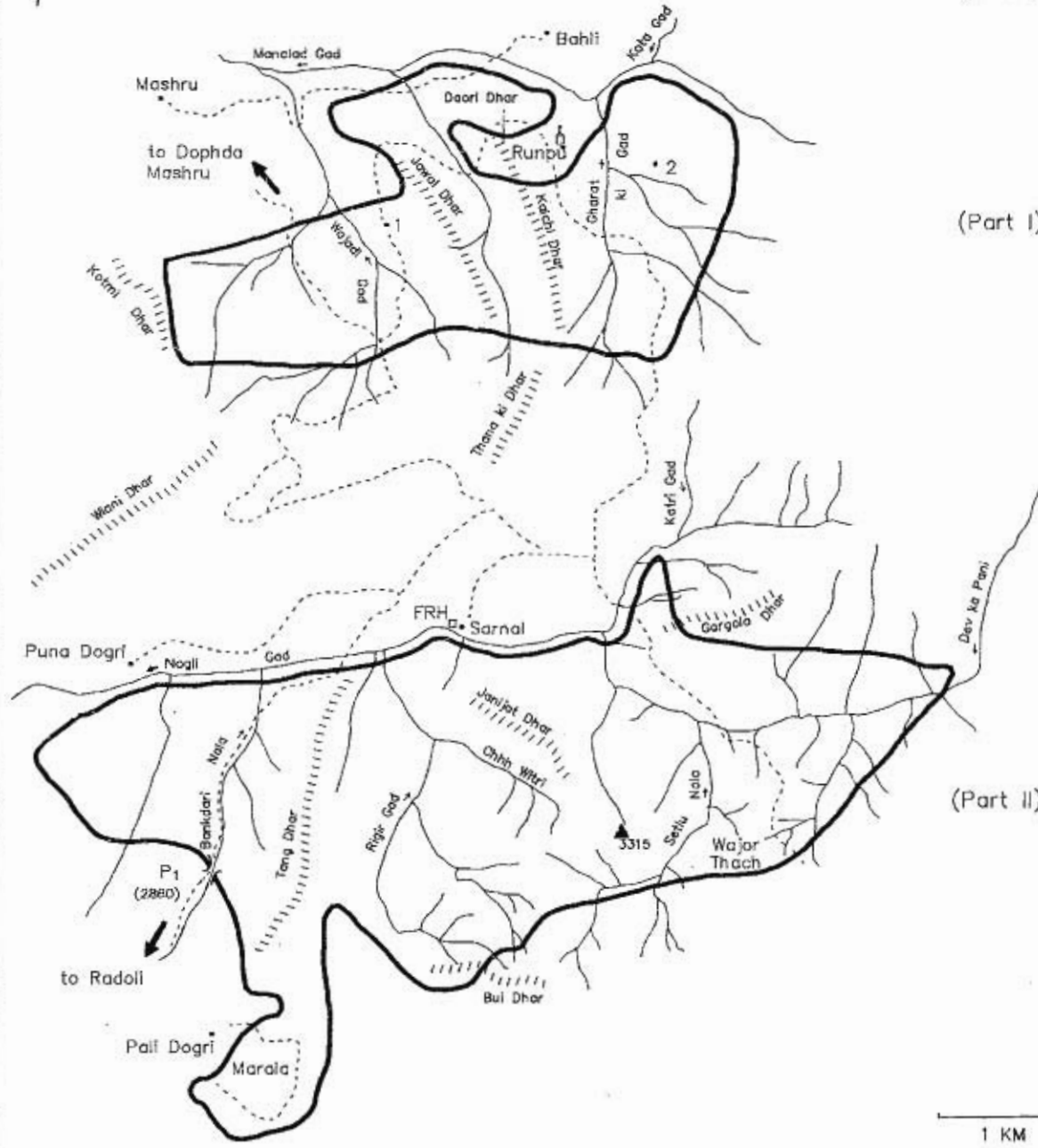
CONTACT ADDRESSES:

Range Officer (WL)
Dophda, Tehsil Rampur Bushahr
District Shimla
Himachal Pradesh

DFO (WL)
Sarahan Division, Sarahan Bushehar
District Shimla-172 102
Himachal Pradesh



DARANGHATI SANCTUARY (I & II)



(Part I)

(Part II)

1 KM

VILLAGE & DOGRI
 1 - CHHUARWA
 2 - Wangsharan Dogri

MOUNTAIN PASS
 P₁ - Sarnal

DARLAGHAT SANCTUARY

A heavily disturbed scrub area with some small populations of Kaleej pheasant and Chukor partridge. Much of the area is under cultivation. Majathal Sanctuary adjoins the N-E boundary.

LEGAL STATUS: First notified a sanctuary in 1962. Renotified on 27 March, 1974.

AREA AND ZONING: 9226.80 ha. (92.27 sq.km). No zoning.

LOCATION: Districts Solan and Bilaspur; *Latitudinal range* 31°09'12" to 31°17'13"N [tp]; *Longitudinal range* 76°52'40" to 76°59'30"E [tp]; *Nearest town* Shimla (35 km); *Nearest railhead* Shimla (35 km); *Nearest airport* Shimla (50 km).

APPROACH: There is an entry point on the Shimla-Bilaspur State Highway, 35 km from Shimla.

TOPOGRAPHY AND CLIMATE: *Altitude* 1075 to 2069 m [tp]; *Temperature* -1 to 30°C; *Mean annual rainfall* 1040 mm [wp].

FLORA: Forest types include Tropical Euphorbia Scrub 6B/DS2 and Ban Oak Forest 12/C1(a) [wp]. Plantation work has been carried out, but no data on this is available. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Boar, Indian Wild
Civet, Himalayan Palm
Deer, Barking
Fox, Red/Indian ?
Goral

Hare, Indian
Jackal
Leopard
Marten, Stone/Himalayan Yellowthroated ?
Porcupine, Indian/Hodgson's ?

Birds (See Appendix 7)

Species reported as locally threatened are Chukor partridge and Barking deer.

OCCURRENCE AND CONTROL OF DISEASES: There is no information on flora and fauna epidemics. A veterinarian is located at Ghialat Sogian, inside the sanctuary.

OTHER FACTORS AFFECTING HABITAT: Fires regularly affect about one-fourth of the area, and hailstorms occur over the entire sanctuary. Frost is common in winter [wp]. Droughts also occur occasionally [fv]. There is reportedly an over-population of *Lantana camara* [wp].

WATER RESOURCES: Badar Khad is the major perennial stream [tp]. There are three other perennial and several seasonal streams and 32 springs [tp], along with two seasonal (artificial) water-holes.

BUDGET: Rs. 4,00,000 for 1987-88

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer, two Deputy Range Officers, and six Forest Guards.

EQUIPMENT: One pair of binoculars.

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: 2,994 ha. of the sanctuary is under cultivation and habitation, which are considered rights by the local people. These people also enjoy rights in relation to grazing, extraction of fodder, and collection of timber, fuelwood and minor forest produce over the whole of the sanctuary except areas closed for plantations. There are also rights in relation to religious monuments and burial grounds. An annual religious fair is held at the Bara Deo Temple in April-May. Gaddi nomads are issued permits, by the Territorial Wing of the Forest Department, for grazing their livestock inside the sanctuary.

Habitation: There are 141 villages inside the sanctuary [tp] with a population of 15,008. Information on surrounding population is not available.

Grazing: Local people have grazing rights, while Gaddi nomads are issued permits to bring their livestock inside the sanctuary. The number of livestock grazing inside is not known.

Offences and Illegal Activities: Offences relating to causing fire hazard, destruction of habitat, and illegal grazing have been recorded and compounded by the Territorial Wing.

Tourism: There is no record of the number of tourists visiting the sanctuary.

Use by other Government Agencies: The PWD has control over the roads inside [fv].

Miscellaneous: Some work has been done to meet the fuel and fodder requirements of local people, but no details of this are available.

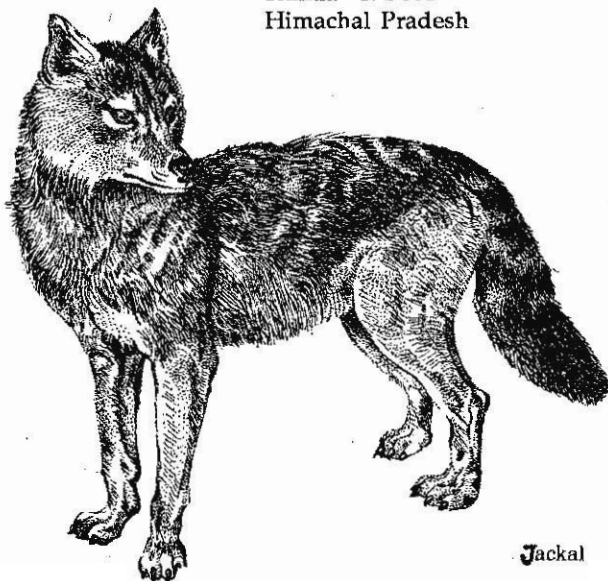
INFORMATION FOR VISITORS: The sanctuary is easily approachable, and can be visited throughout the year. There is no regulation on entry into the sanctuary. Bari Deo and Bara Deo temples are located on its south-west boundary.

There is one rest house inside with 4 beds, and two rest houses outside with a total of 8 beds.

CONTACT ADDRESSES:

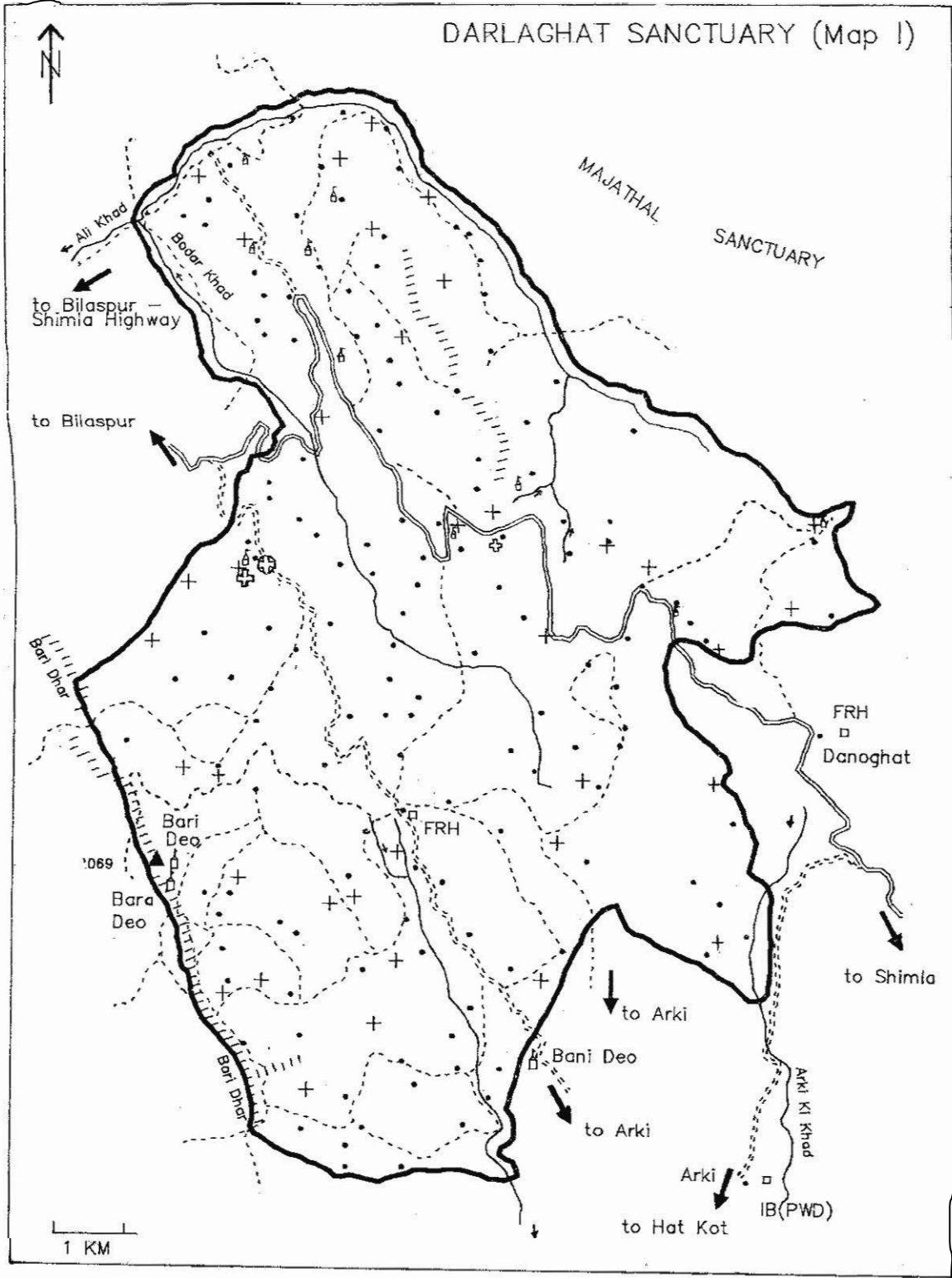
Range Officer (WL)
Tutu Range, Talland
Shimla - 171 001
Himachal Pradesh

DFO (WL)
Shimla Division, Talland
Shimla - 171 001
Himachal Pradesh



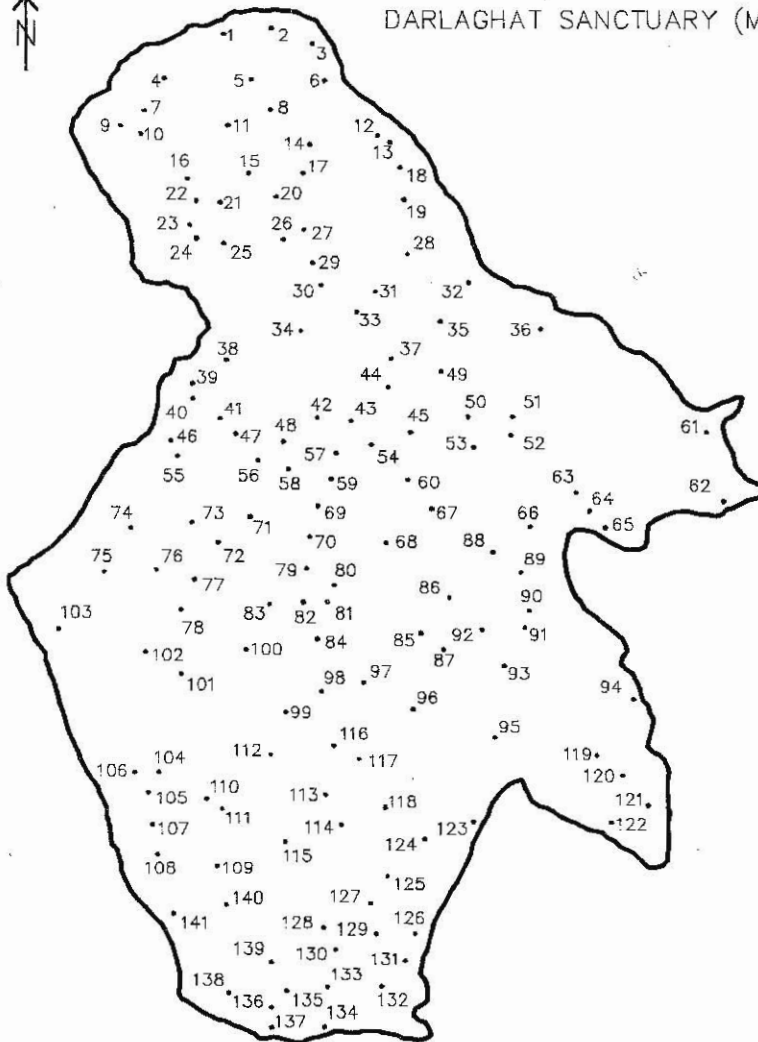
Jackal

DARLAGHAT SANCTUARY (Map I)





DARLAGHAT SANCTUARY (Map II)



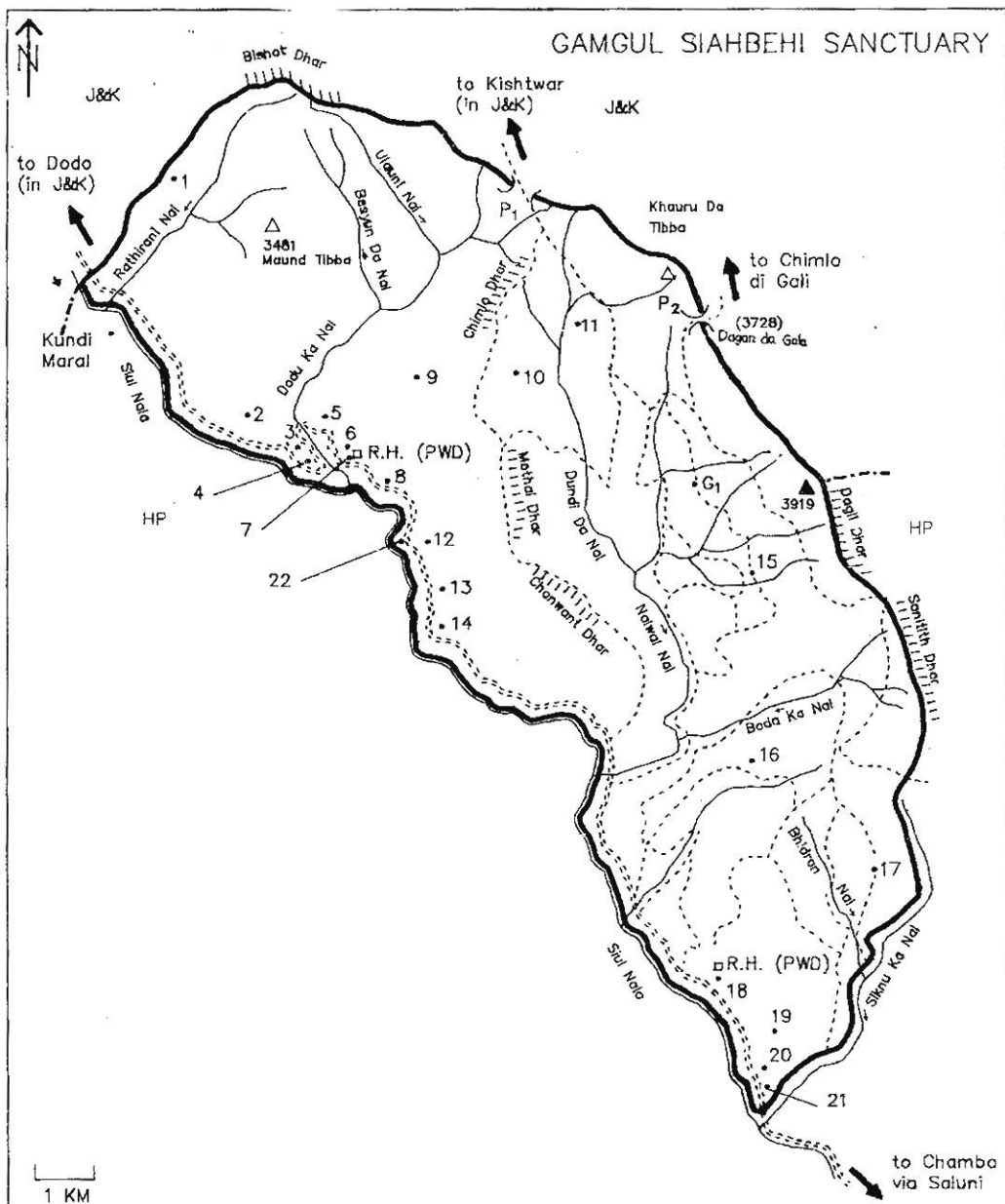
- 81 - Sakru
- 82 - Barlaga
- 83 - Pethad
- 84 - Kiyari
- 85 - Androli
- 86 - Dati
- 87 - Sarnun
- 88 - Ladi
- 89 - Sog
- 90 - Khangar
- 91 - Panja
- 92 - Baga
- 93 - Lamo
- 94 - Jarol
- 95 - Ghanagu
- 96 - Kunnu
- 97 - Sihmon
- 98 - Piplughat
- 99 - Sosa
- 100 - Bannon
- 101 - Bulia
- 102 - Soryanj
- 103 - Jabal
- 104 - Galuhi
- 105 - Dayothal
- 106 - Chari Di Besak
- 107 - Ladog
- 108 - Madam
- 109 - Khad Kanetan
- 110 - Sunah
- 111 - Bhelad
- 112 - Surajpur
- 113 - Bagi
- 114 - Kalawan
- 115 - Bhel
- 116 - Ghial Khech
- 117 - Rihota
- 118 - Khali
- 119 - Sar
- 120 - Dasal
- 121 - Mandhetu
- 122 - Chambiul
- 123 - Kalharan
- 124 - Nachhiali
- 125 - Chandanpur
- 126 - Gharnu
- 127 - Harthu
- 128 - Basantpur
- 129 - Parana
- 130 - Kohrog
- 131 - Kalyanpur
- 132 - Laha

VILLAGES

- | | | | |
|---------------|----------------|---------------------|--------------------|
| 1 - Godan | 21 - Kunknu | 41 - Pasal | 61 - Mangu |
| 2 - Barog | 22 - Tepra | 42 - Dori | 62 - Bambira |
| 3 - Kasumbia | 23 - Kuiran | 43 - Seyar | 63 - Karara |
| 4 - Naugaon | 24 - Malethi | 44 - Dehli | 64 - Suken |
| 5 - Chamba | 25 - Badahal | 45 - Darla | 65 - Sharla |
| 6 - Badahal | 26 - Chhamle | 46 - Dhundan | 66 - Pathragal |
| 7 - Chakli | 27 - Riog | 47 - Myana | 67 - Satoti |
| 8 - Dugli | 28 - Jablu | 48 - Ranoch Khalosa | 68 - Koti |
| 9 - Dauru | 29 - Dhaaru | 49 - Dabatan | 69 - Badog |
| 10 - Samloh | 30 - Auhar | 50 - Majer | 70 - Palani Ghati |
| 11 - Gujri | 31 - Kalata | 51 - Basyana | 71 - Nanwan |
| 12 - Parnu | 32 - Phagwand | 52 - Chalyan | 72 - Balhi |
| 13 - Saner | 33 - Suli | 53 - Chhotera | 73 - Bater |
| 14 - Ser | 34 - Juh | 54 - Kotla | 74 - Maknata |
| 15 - Pansoda | 35 - Noniwala | 55 - Ghialat Sogian | 75 - Daret |
| 16 - Kothi | 36 - Sarsnan | 56 - Ganyota | 76 - Neri |
| 17 - Damras | 37 - Yu | 57 - Sulog | 77 - Kotla |
| 18 - Kanswala | 38 - Dugnun | 58 - Badog | 78 - Gowara Dangar |
| 19 - Changar | 39 - Chamakadi | 59 - Hanuman | 79 - Mandhhoti |
| 20 - Sulang | 40 - Lalana | 60 - Sameli | 80 - Changar |

- 133 - Sahlana
- 134 - Sahrol
- 135 - Malena
- 136 - Bajor
- 137 - Kueru
- 138 - Ghadiach
- 139 - Karjunta
- 140 - Panharu
- 141 - Kuhar

GAMGUL SIAHBEHI SANCTUARY



VILLAGES

- 1 - Top
- 2 - Talai Chhota Baju Bag
- 3 - Marhun
- 4 - Nauka
- 5 - Pon Dhar
- 6 - Dhar
- 7 - Langeria
- 8 - Padar
- 9 - Kiara
- 10 - Matrala
- 11 - Gamgul

GOT

- G₁ - Ban Ka Got

MOUNTAIN PASSES

- P₁ - Chimlo Ji Gali
- P₂ - Dagan di Gali

- 12 - Banjel
- 13 - Lared
- 14 - Pringul
- 15 - Dagill
- 16 - Nambau
- 17 - Silari
- 18 - Bhandal
- 19 - Khander
- 20 - Gaggal
- 21 - Kethii
- 22 - Rahar

GAMGUL SIAHBEHI SANCTUARY

A high-altitude sanctuary harbouring small populations of Musk deer, Himalayan tahr, and pheasants. This is the only sanctuary in Himachal Pradesh which has reported the presence of Kashmir stag, though none have been observed in the last few years. The sanctuary is under severe human pressure and is heavily grazed. Its northern boundary adjoins the state of Jammu and Kashmir.

LEGAL STATUS: First notified a sanctuary in 1949 [wp]. Renotified on 27 March, 1974.

AREA AND ZONING: 10,885.40 ha. (108.85 sq.km). No zoning.

LOCATION: District Chamba; *Latitudinal range* 32°49' to 32°52'N; *Longitudinal range* 75°52' to 75°57'E; *Nearest town* Chamba (75 km); *Nearest railhead* Pathankot (195 km).

APPROACH: From Chamba via Saluni to Bhandal (inside the sanctuary) (80 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 1800 to 3919 m [map]; *Temperature* -10 to 35°C; *Mean annual rainfall* 1430.2 mm [wp]; *Mean annual snowfall* 1143 mm.

FLORA: Forest types include Moist Deodar Forest 12/C1(c), Western Mixed Coniferous Forest 12/C1(d), and Alpine Pastures 15/C3.

Between 1981 and 1983, Robinia, Deodar, Kail, Ash, Willow, Alnus, Poplar, Salix, and Walnut were planted over 174 ha. These were primarily for commercial use. Poplar is an introduced species. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Bear, Himalayan Black	Civet, Himalayan Palm
Bear, Brown	Deer, Barking
Cat, Jungle	Deer, Musk
Cat, Leopard	Fox, Red
Goral	Porcupine, Indian
Ibex	Rat, Indian Bush
Jackal	Serow
Langur, Common	Squirrel, Common Giant Flying
Leopard	Stag, Kashmir
Macaque, Rhesus	Tahr, Himalayan
Marmot, Longtailed	Vole, Royle's
Marten, Himalayan Yellowthroated	Weasel, Himalayan
Mouse-hare, Himalayan	Wolf

Birds (See Appendix 7)

OCCURRENCE AND CONTROL OF DISEASE: A vaccination programme for livestock is undertaken in areas adjacent to the sanctuary, with 40% of livestock having been vaccinated. The nearest veterinarian is located at Sangni, 2 km away.

OTHER FACTORS AFFECTING HABITAT: One forest fire affecting 3 ha. was reported in 1983-84. Hailstorms and frost are known to occur over the whole area.

WATER RESOURCES: There are 14 major perennial streams and several minor perennial and seasonal streams [map], as well as six springs. Siul Nal flows along the western boundary [fv].

BUDGET: Rs. 1,25,400 in 1987-88, and Rs. 20,000 in 1986-87.

MANAGEMENT PLAN: None. Under preparation.

PERSONNEL: One Range Officer with additional charge of Tundah and Kugti Sanctuaries, one Deputy Range Officer, and four Forest Guards. The Deputy Range Officer, located at Bhandal (inside), is the local in-charge.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Local people have rights to or leases for collection of timber, fuelwood and minor forest produce, quarrying, habitation and cultivation. Permits are issued for grazing, and fodder extraction is allowed on payment of nominal fees. Rights also exist in relation to religious monuments and burial grounds.

Habitation: There are 3 villages inside the sanctuary with a population of 400, and several Gujjar gots. Area under habitation and cultivation is 60.75 ha. The surrounding area has 55 villages with a population of 4,953. (The map shows many more villages but it is not clear whether these are temporary or abandoned sites).

Grazing: Apart from the local people, Gujjars are also issued grazing permits by the Forest Department, and bring in 11,639 cattle. The number of livestock from adjoining areas grazing inside the sanctuary is 9,000; the corresponding number from villages inside is not available.

Offences and Illegal Activities: Poaching during the winter months is reportedly common, especially near the Jammu & Kashmir border [fv].

Tourism: Tourists rarely visit the sanctuary, and no records are kept.

Use by Other Government Agencies: The PWD is constructing a road through the sanctuary. Commercial felling by the Forest Department was carried out till 1986, but has now been stopped. There are two PWD rest houses inside the sanctuary.

Miscellaneous: Outside labour (numbering 180) was employed in 1983-84, for road construction by the PWD, and for plantation work by the Forest Department.

INFORMATION FOR VISITORS: The best periods for visiting the sanctuary are March-April and November-December, when wild animals are easily observed. There is no regulation of entry.

There are two rest houses inside with a total of 4 beds, and one outside with 2 beds.

Observation hides are being made for visitors' use.

CONTACT ADDRESSES:

Deputy Range Officer (WL)
P.O. Bhandal, Tehsil Chauraha
District Chamba
Himachal Pradesh

DFO (WL)
Chamba Division
Chamba - 176 310
Himachal Pradesh

GOBIND SAGAR SANCTUARY

The sanctuary is constituted out of the Bhakra Dam reservoir, and forms a habitat for several species of fish, and a winter refuge for migratory waterfowl. The area adjoining the south-west boundary of the reservoir has been notified as the Naina Devi Sanctuary.

LEGAL STATUS: First notified a sanctuary on 5 December, 1962. Renotified on 27 March, 1974. The Bhakra Management Board has control over the area.

AREA AND ZONING: 10,034 ha. (100.34 sq.km). No zoning.

LOCATION: Districts Bilaspur and Mandi; *Latitudinal range* 31°14'03" to 31°26'30"N [tp]; *Longitudinal range* 76°26'06" to 76°51'55"E [tp]; *Nearest town* Bilaspur (1 km); *Nearest railhead* Kiratpur (30 km); *Nearest airport* Chandigarh (100 km).

APPROACH: From Shimla to Bilaspur (90 km), 1 km from the sanctuary. Alternatively, from Chandigarh to Bilaspur (100 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 350 to 500 m [tp]; *Temperature* -2 to 45°C; *Mean annual rainfall* 1155 mm.

FLORA: Primarily Wetland. Forest types on the periphery include Northern Dry Mixed Deciduous Forest 5B/C2. For full flora lists see Appendices 3 and 5.

FAUNA:

Fish [wp, Tilak 1988, Sharma & Rao 1983]

Aorichthys seenghala (Singhara)*

Barilius bendilisis (Chilwa)

Catla catla (Catla)

Clupisona montana (Jhalli)

Cirrhinus mrigala (Mrigal)

Ctenopharyngodon idellus (Grass carp)

Cyprinus carpio (Mirror carp)

Garra lamta (Topra)*

Hyphophthalmichthys moltrix (Silver carp)

Labeo bata (Beta)

Labeo dero (Gid)

Labeo dyocheilus (Kuni)

Labeo rohita (Rohu)

Mastacembelus armatus (Guj)

Mystus seenghala (Singhara)

Notopterus notopterus

Ophiocephalus punctatus

Puntius ticto (Ticto)

Puntius sarana (Sarena)

Salmo trutta fario

Schizothorax richardsonii (Gungli)

Tor putitora (Mahseer)

(*Reported in the Working Plan, but considered by the ZSI to be doubtful [Tilak 1988])

Birds (See Appendix 7)

Of the fish given in the above list, all except Chilwa, Gid, Kuni, Gungli, Mahseer, Sarena, Ticto, and Jhalli have been introduced into the reservoir [Tilak 1988].

OCCURRENCE AND CONTROL OF DISEASE: There is no information on flora and fauna epidemics. The nearest veterinarian is located at Bilaspur, 1 km away.

OTHER FACTORS AFFECTING HABITAT: Water pollution in the lake is reported to be common, the main sources being nearby cement and match factories, quarrying, and Bilaspur town [fv].

WATER RESOURCES: The sanctuary is a reservoir fed by the Satluj River, eight major streams, as well as several minor perennial and seasonal streams [tp].

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer, with additional charge of Naina Devi Sanctuary, located at Naina Devi.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Local people are given permits to fish, by the Fisheries Department, and to extract fodder, though it is not clear whether such extraction is done on the islands in the lake, or on the edge of the sanctuary along the lake shore [fv].

Habitation: There is no human population inside the sanctuary. The surrounding area has Bilaspur and Nangal towns, and several villages [tp], the population figures of which are not available.

Offences and Illegal Activities: Poaching of waterfowl has been reported [fv].

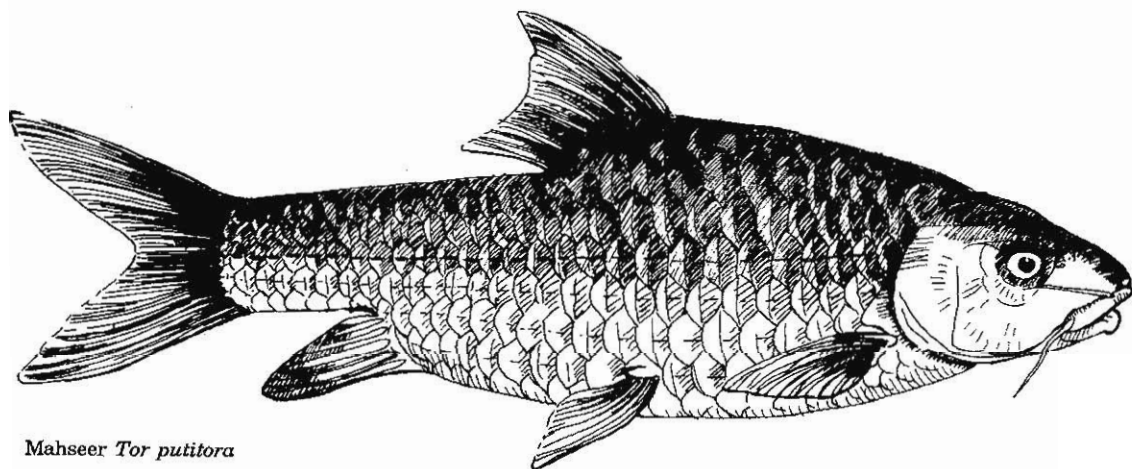
Use by Other Government Agencies: The Bhakra Management Board and the Fisheries Department also do fishing in the lake, and carry out rearing and releasing of fish into the reservoir [wp]. The Central Fisheries Research Organisation has a research centre at Bilaspur, on the edge of the sanctuary [wp].

INFORMATION FOR VISITORS: The best time for visiting the sanctuary is between October and December, when migratory birds can be seen. The Bhakra Dam is located to the north-west of the sanctuary [tp]. There are ten rest houses on the outskirts with a total of over 60 beds.

CONTACT ADDRESSES:

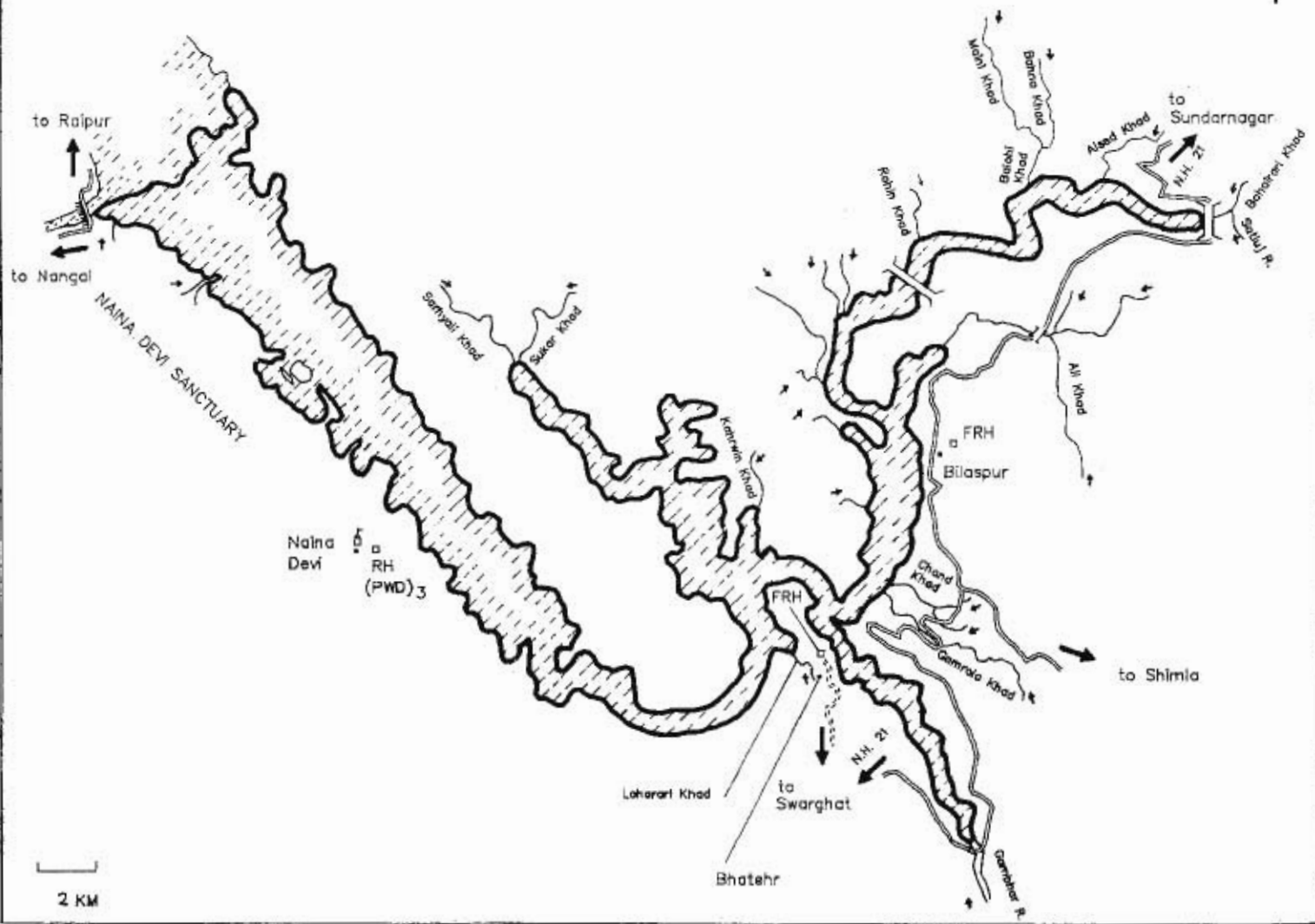
Range Officer (WL)
Naina Devi - 174 310
District Bilaspur
Himachal Pradesh

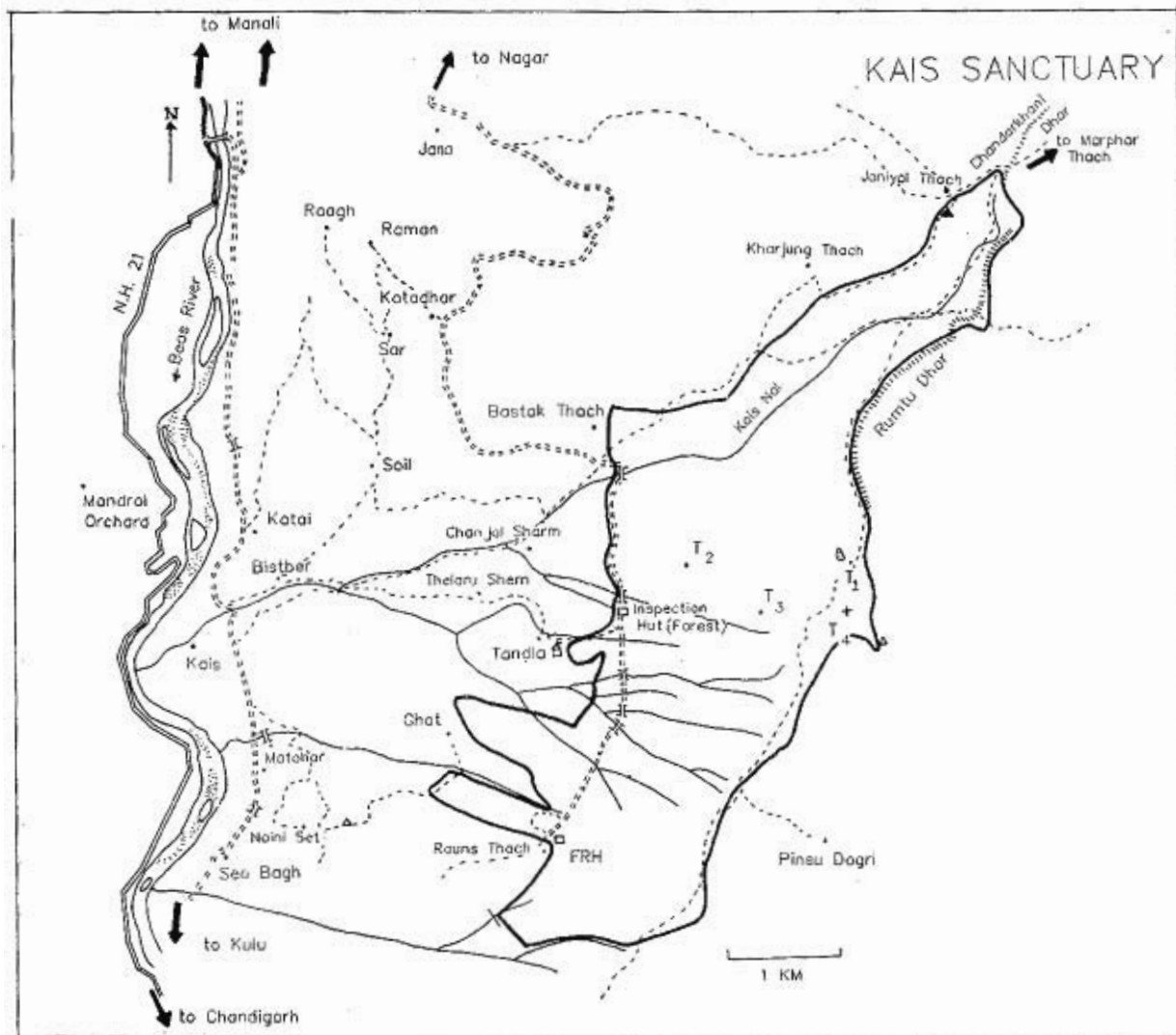
DFO (WL)
Shimla Division
Talland, Shimla - 171 001
Himachal Pradesh



Mahseer *Tor putitora*

GOBIND SAGAR SANCTUARY





- Thaches**
- T1 - Phutasar Thach
 - T2 - Mundal Thach
 - T3 - Mati Kuchar Thach
 - T4 - Jaloda Thach

Waterfall

F₁ - 190 metres

KAIS SANCTUARY

This small, heavily disturbed sanctuary reportedly harbours populations of the endangered Musk deer, as well as of several species of pheasants. It includes part of the catchment of the Kais Nal, an important tributary of the Beas River.

LEGAL STATUS: Notified a sanctuary on 26 February, 1954 under the Punjab Wild Birds & Wild Animals Protection Act, 1933.

AREA AND ZONING: 1419.03 ha. (14.19 sq. km). No zoning.

LOCATION: District Kullu; *Latitudinal range* 31°59'31" to 32°03'19" N; *Longitudinal range* 77°09'17" to 77°12'44" E; *Nearest town* Kullu (10 km); *Nearest railhead* Jogindernagar (137 km); *Nearest airport* Bhuntar (Kullu) (20 km).

APPROACHES: Chandigarh to Kullu (270 km), then via Kani Village on foot (10 km). Alternatively, from Kullu to Nagar (15 km), and on by a motorable road.

TOPOGRAPHY AND CLIMATE: *Altitude* 2800 m to 3680 m [tp]; *Temperature* -5 to 30°C; *Mean annual rainfall* 1071 mm. Snowfall figures are not available.

FLORA: Detailed information on forest types found in the sanctuary is not available. Some of the area has alpine pastures [fv].

From 1981-82 to 1985-86, 317 ha have been planted with Maple, Fir, Ash, Deodar, Poplar, Rai, and Walnut. Poplar is an introduced species. No information is available on locally threatened species. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Bear, Himalayan Black	Sheep, Blue
Bear, Brown	Squirrel, Kashmir Flying/Common Giant
Deer, Musk	Flying ?
Langur, Common	Tahr, Himalayan
Leopard	

Birds (See Appendix 7)

There are unconfirmed reports of the Indian wild dog, Ibex, and Goral existing in the sanctuary [fv]. Species believed to be locally threatened are Musk deer, Chir pheasant, Western tragopan, and Himalayan tahr.

OCCURRENCE AND CONTROL OF DISEASE: Information is not available regarding epidemics among flora and fauna. The nearest veterinarian is located at Kullu, 10 km away.

OTHER FACTORS AFFECTING HABITAT: Forest fires occur frequently. Hailstorms and frost occur yearly. Landslides are also common during the rainy season [fv].

WATER RESOURCES: Five natural water holes, three perennial and several seasonal streams, and one spring [tp].

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: 1 Range Officer (with additional charge of Manali Sanctuary) and 1 Forest Guard.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: People of the surrounding villages enjoy rights in relation to grazing, and collection of fodder, timber and minor forest produce from the sanctuary. In addition, commercial felling is also done to meet local demands [fv]. Villagers from adjacent areas also have religious *yatra* rights, and every year in August they pass through the sanctuary to reach Bijli Mahadev Shrine, located just south of the sanctuary.

Habitation: There are no villages inside the sanctuary, though villagers from the surrounding areas come and stay inside during summer to avail of the pastures [fv]. There are nine *thaches* inside [map]. Information on villages in the adjoining areas is not available.

Grazing: Two Gujjar groups are given permission every year to stay and graze their flocks through summer. These permits are issued by the Territorial Wing of the Forest Department at Kullu. The entire sanctuary is open for grazing except some areas of Forest Department plantations which have been fenced. Villagers of adjacent areas have the right to graze their cattle inside, but no records are maintained of how much livestock they bring in.

Tourism: Camping parties visit the sanctuary in summer [fv]. Records of tourists visiting the sanctuary are not maintained.

Use by other Government Agencies: In 1985-86, 574 Fir trees were felled by the Forest Department for making poles and fences. There is a Forest Department nursery inside the sanctuary at Matikuchhar. Various other forestry activities are carried out by Government agencies other than the Wildlife Wing [fv], details of which are not available. A water pipeline for irrigation runs through the sanctuary, and the PWD controls the roads inside [fv].

Miscellaneous: Outside labour is employed from April to November, for plantation work and road repairs. Some instances of livestock and humans being injured or killed by Black bears and Leopards have been reported [fv].

INFORMATION FOR VISITORS: The best periods for visiting the sanctuary are from May to June and from September to October, when visibility is good. There is no regulation of entry.

There is one rest house inside with 3 beds and three outside with a total of 18 beds.

CONTACT ADDRESSES:

Range Officer (WL)
Manali - 175 131
Dist. Kullu
Himachal Pradesh

DFO (WL)
Kullu Division
Kullu - 175 101
Himachal Pradesh



Chukor partridge

KALATOP KHAJJIAR SANCTUARY

This small sanctuary lies in the catchment of the Ravi River, and contains patches of good coniferous and Oak forests. A lovely bowl-shaped meadow at Khajjiar, with a lake and a 'floating' island, is a popular tourist spot. There is a 'golden' domed temple at the edge of this meadow, dedicated to the deity 'Khajinag', from whom the area derives its name [tg].

LEGAL STATUS: Notified a Game Sanctuary on 1 July, 1949 [notif 2]. Renotified on 29 August, 1958 under the Indian Forest Act, 1927 and the Punjab Wild Birds and Wild Animals Protection Act, 1933 [notif 1]. Notified once again on 14 December, 1982 [notif 2].

AREA AND ZONING: 2026.89 ha. (20.27 sq.km). There is a proposal to add area (extent not known) to the south.

There is no zoning. However, the 1958 notification declared 63.2 ha. of the sanctuary as 'Sanctum Sanctorum', and 3108.8 ha. around the sanctuary as Buffer Belt' for a period of 20 years [notif 1]. The new notification has no such demarcation [notif 2].

LOCATION: District Chamba; *Latitudinal range* 32°02' to 32°04'N; *Longitudinal range* 76°01' to 76°06'E; *Nearest town* Dalhousie (6 km); *Nearest railhead* Pathankot (86 km); *Nearest airport* Amritsar (198 km).

APPROACHES: From Chandigarh to Dalhousie (352 km), on to Lakkadmandi inside the sanctuary (10 km). Kalatop is a further 3 km, and Khajjiar another 12 km. Alternatively, from Chamba to Khajjiar (36 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 1185 to 2768 m [mp]; *Temperature* -10 to 35°C; *Mean annual rainfall* 2647.8 mm [mp]; *Mean annual snowfall* 672.3 mm [mp].

FLORA: The vegetation consists of

mature mixed Blue Pine and Deodhar forest, with some Green Oak and Tree Rhododendron...Undergrowth in the forest is well developed, dense in places and with a good cover of grass in November [Gaston 1979a].

Forests cover 1962.84 ha. of the sanctuary [mp], the forest types being Ban Oak Forest 12/C1(a) over 120 ha., Moist Deodar Forest 12/C1(c) over 1047.24 ha., and Western Mixed Coniferous Forest 12/C1(d) over 795.60 ha. [mp]. Interspersed with these are some Alpine Pastures 15/C3 [fv].

Species of special interest noted from the sanctuary are *Aconitum heterophyllum* and *Saussurea lappa*, both medicinal herbs [fv].

There are 6 Forest Department nurseries inside the sanctuary. Plantations have been carried out from 1979 to 1984, over an area of 636.50 ha., primarily for commercial timber and fuelwood. The species planted include Deodar, Chir pine, Robinia, Horsechestnut, Ban oak, Walnut, and Poplar. However, damage to the plantations has been recorded due to infestations by the insect *Euzophera cedrella*.

Of the species planted, Poplar, Robinia, and Horsechestnut are exotic to the area. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, fv, Gaston et.al. 1983]

Bear, Himalayan Black
Cat, Leopard
Deer, Barking
Deer, Musk
Goral
Jackal
Langur, Common

Leopard
Marten, Stone/Himalayan Yellowthroated ?
Porcupine, Indian
Serow
Squirrel, Kashmir Flying/Common
Giant Flying ?

Insects

Euzophera cedrella [wp]

Birds (See Appendix 7)

Musk deer is believed to be locally threatened.

OCCURRENCE AND CONTROL OF DISEASE: There is no information on flora and fauna epidemics. Vaccination programmes for livestock are undertaken in and around the Khajjiar meadow settlement [fv]. There is a veterinarian at Khajjiar.

OTHER FACTORS AFFECTING HABITAT: Forest fires [fv], hailstorms and frost are known to occur. Mild drought is also reported [fv]. The lake at Khajjiar meadow has been polluted by the litter left behind by visitors. It is also facing heavy siltation, though the PWD is attempting to desilt it [fv]. 35 checkdams have been constructed by the Forest Department for soil conservation.

WATER RESOURCES: There are two artificial tanks, one natural lake, seven streams, and three springs, all perennial. There are also nine seasonal streams.

BUDGET: Rs. 5,37,500 in 1987-88.

MANAGEMENT PLAN: Drawn up for the period 1985-86 to 1989-90.

PERSONNEL: One Range Officer, three Deputy Range Officers, ten Forest Guards, and one Rest House Chowkidar. The local in-charge is the Range Officer, located at Banikhet.

EQUIPMENT: One pair of binoculars, and high-altitude camping and trekking gear.

RESEARCH AND MONITORING: Dr. A.J. Gaston of the Canadian Wildlife Service conducted wildlife surveys in 1978 and 1979 [Q3].

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: The villagers residing inside have habitation and cultivation rights over 135 ha. They also enjoy rights in relation to grazing, collection of timber, minor forest produce, and fuelwood, and extraction of fodder. Permits are issued for collection of herbs. These villagers are also permitted to make charcoal from deadwood [fv]. Villagers from adjacent areas are given permits for collection of fodder and minor forest produce. There is a temple of Naga Raja on the Khajjiar meadow, where an annual fair is held, attended by several hundred people [fv].

Habitation: There are 15 villages inside the sanctuary, with a total population of 1766. The adjacent area has 35 villages with a population of 5760.

Grazing: Local people have the right to graze their cattle inside the sanctuary. The livestock of villages inside the sanctuary numbers 223, while that in adjacent villages is 430. Migratory graziers are issued permits by the Territorial Wing of the Forest Department. The number of livestock brought in by them in 1981-82 was 678; subsequent estimates are not available.

Offences and Illegal Activities: There are reports of illegal hunting, destruction of habitat, and grazing, but no offences have been recorded [fv].

Tourism: In 1983-84, a total of 3,626 tourists visited the sanctuary. Trekking camps are regularly organised by the Sainik School and the National Cadet Corps [fv].

Use by other Government Agencies: Parts of the sanctuary are used by the PWD for roads, by the Tourism Department for tourism over 200 ha., by various departments for housing, by the Forest Department for nurseries, and by the military for a road. Forestry operations, including felling of trees for timber, were carried out in 1983-84.

Miscellaneous: About 100 labourers are employed inside the sanctuary. Mixed plantations have been raised by the Forest Department to meet the fuel and fodder requirements of the local people.

There are reports of fatal attacks on people by bears [fv]. One incidence of a clash of villagers with the forest staff has taken place, over the shooting of a bear which was alleged to have mauled ten people [fv].

INFORMATION FOR VISITORS: The best time for visiting the sanctuary is from March to May and from September to November, when the weather is favourable. Khajjiar meadow and lake, and the Khajinag temple, are places of tourist interest. There is one watchtower for wildlife viewing. There is no regulation of entry into the sanctuary.

There are five rest houses inside with a total of 21 beds.

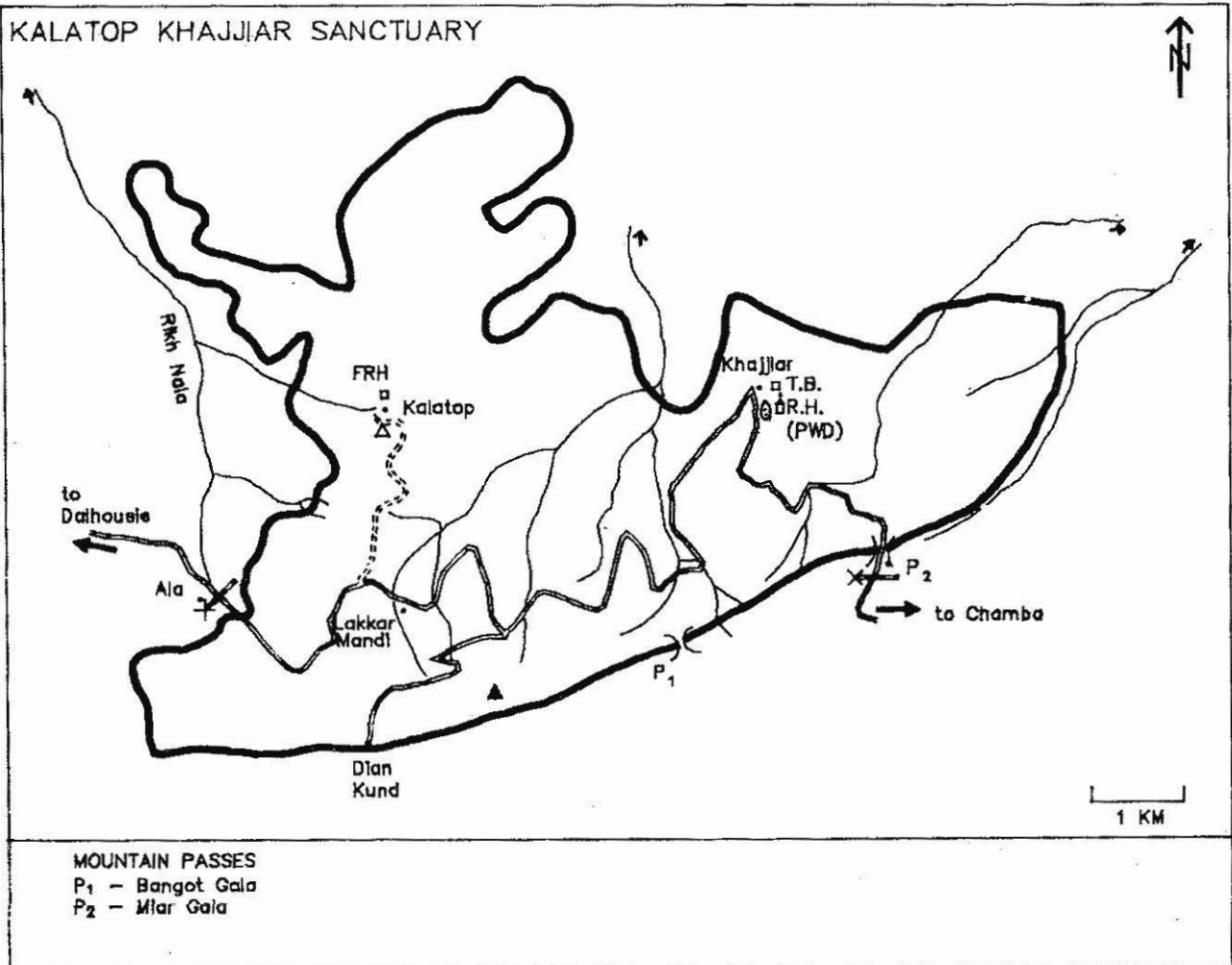
There is a visitors' centre at Banikhet, outside the sanctuary. Horses are available for riding on the meadow [fv]. More watchtowers are under construction for tourist use.

CONTACT ADDRESSES:

Range Officer (WL)
P.O. Banikhet-176 303
District Chamba
Himachal Pradesh

DFO (WL)
Chamba Division
Chamba H.O. - 176 310
Himachal Pradesh

KALATOP KHAJJIAR SANCTUARY



KANAWAR SANCTUARY

A high-altitude sanctuary, mostly steep to precipitous, with rocky cliffs and narrow valleys. The sanctuary has a large diversity of forest flora. It is also important as the home of one of India's largest remaining populations of Himalayan tahr [Q3]. To its south-east, the area is connected by a forest corridor to the Great Himalayan National Park.

LEGAL STATUS: Notified a sanctuary on 26 February, 1954, under the Punjab Wild Birds and Wild Animals Protection Act, 1933.

AREA AND ZONING: 6070 ha. (60.7 sq.km). There is a proposal to add an unspecified amount of area adjoining the eastern boundary. This area is thought to have a good wildlife population and is devoid of permanent habitation.

There is no zoning, but a proposal has been made to demarcate a tourist zone of 162.5 ha. within the sanctuary [mp].

LOCATION: District Kullu; *Latitudinal range* 31°55'10" to 32°01'13"N [tp]; *Longitudinal range* 77°17'00" to 77°23'50"E [tp]; *Nearest town* Manikaran (2 km); *Nearest railhead* Jogindernagar (150 km); *Nearest airport* Bhuntar (Kullu) (27 km).

APPROACH: Shimla to Kullu (230 km), Kullu to Kasol (23 km), and on by foot.

TOPOGRAPHY AND CLIMATE: *Altitude* 1800 to 4833 m; *Temperature* -10 to 25°C *Mean annual rainfall* 1000 mm [mp]; *Mean annual snowfall* 321 mm [mp].

FLORA: Forest types include Ban Oak Forest 12/C1(a), Moist Deodar Forest 12/C1(c), Western Mixed Coniferous Forest 12/C1(d), Moist Temperate Deciduous Forest 12/C1(e), Kharsu Oak Forest 12/C2(a), West Himalayan Sub-Alpine Fir Forest 14/C1(a), and Alpine Pastures 15/C3 [Q1, mp]. The Moist Temperate Deciduous Forest here is one of the few undisturbed pockets of this type left in Himachal [Gaston, Pers. comm.].

Cupressus spp. have been introduced into the sanctuary. No data is available regarding threatened floral species. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, fv]

Bear, Himalayan Black
 Bear, Brown
 Cat, Jungle
 Civet, Himalayan Palm
 Deer, Barking
 Deer, Musk
 Fox, Red
 Goral
 Ibex
 Jackal
 Langur, Common
 Leopard

Leopard, Snow
 Marten, Himalayan Yellowthroated
 Macaque, Rhesus
 Mouse-hare, Himalayan
 Porcupine, Indian
 Serow
 Sheep, Blue
 Squirrel, Common Giant Flying
 Tahr, Himalayan
 Weasel, Himalayan
 Wolf

Birds (See Appendix 7)

Locally threatened species include Snow leopard, Musk deer, Serow, Blue sheep, Chir pheasant, Western tragopan, and Himalayan tahr.

OCCURRENCE AND CONTROL OF DISEASE: There are reports of past occurrence of foot and mouth disease, but no further details of epidemics among flora and fauna are available. The nearest veterinarian is located at Manikaran, 2 km away.

OTHER FACTORS AFFECTING HABITAT: Frost and forest fires are known to occur. The area is also prone to avalanches and landslides.

WATER RESOURCES: The Parvati River flows just above the northern boundary [tp]. There are three seasonal human-made water holes, nine perennial and several seasonal streams, one glacier, and one spring [Q1, tp].

BUDGET: No separate budget. For 1987-88 Rs.50,000 were allotted for the construction of guard huts.

MANAGEMENT PLAN: A management plan was drawn up on December 2, 1983. The Plan is valid from 1984-85 to 1989-90 [mp].

PERSONNEL: One Range Officer, one Deputy Range Officer and four Forest Guards.

EQUIPMENT: Five binoculars, one planimetre, two tents, six rucksacks, 10 first-aid boxes, 15 sleeping bags. (Though provided for Kanawar Sanctuary, this and other equipment is kept at Kullu and is available for all the sanctuaries in Kullu Division.)

RESEARCH AND MONITORING: Dr. A.J. Gaston of the Canadian Wildlife Service, and Mr. M.L. Hunter and Dr. P.J. Garson of the University of Newcastle-upon-Tyne conducted studies on the feasibility of setting up the proposed Great Himalayan National Park, and on the status of Himalayan flora and fauna, in 1979-80 and 1981-82 [Q3].

A checklist of birds is available for reference.

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Apart from habitation and grazing rights, rights exist in relation to extraction of timber, quarrying, agriculture (200 ha.), religious monuments, and extraction of minor forest produce. Villagers also have the right to collect dry standing and fallen wood, and to extract fodder [fv]. During 1980-83, 468.5 tonnes of herbs were extracted from the sanctuary and some adjoining areas. Bamboo is extracted to make baskets and roofs for huts [fv].

Habitation: There are two villages within the sanctuary with an estimated population of 460 people. Four *thaches* are also located within [tp]. 14 villages are located in the adjacent area.

Grazing: Local people have the right to graze their livestock inside. Of the total livestock, those belonging to the villages in and around the sanctuary number 7615, while those brought in by nomads number 15,897. Permits for grazing are issued by the RO (Territorial), Kasol. Leopards and Black bears are reported to cause death or injury to livestock.

Offences and Illegal Activities: There are reports of illegal hunting of Musk deer, Himalayan tahr, Black bear, and Monal pheasant, but no offences have been recorded as yet [Q3, fv].

Tourism: In 1983-84, a total of 1200 visitors, mainly members of trekking parties, visited the sanctuary. Many of the visitors come to climb the peaks in and around the sanctuary.

Use by other Government Agencies: Under the proposed Parvati Hydrel Scheme II, a tunnel is planned through the sanctuary. The wildlife authorities have protested against this.

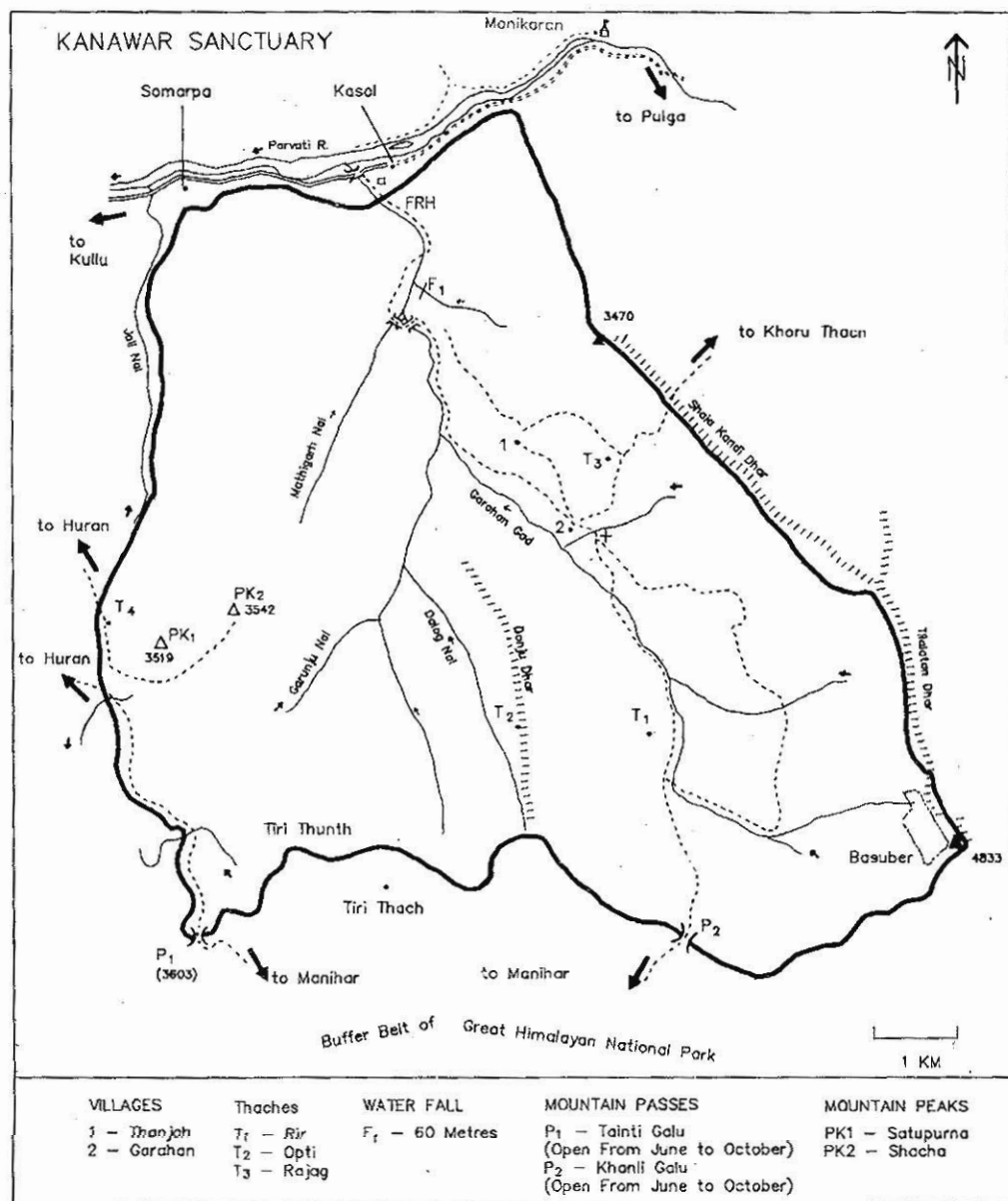
INFORMATION FOR VISITORS: The best time for visiting the sanctuary is April-June and then, after the rains, in September-October. In these months the weather is conducive for travelling, and for spotting animals. On the outskirts of the sanctuary there are lakes and natural springs of religious and historical importance at Khirganga and Mantalai. There is also a temple and a *gurudwara* at Manikaran, adjacent to the sanctuary. Entry to the sanctuary is not regulated.

There are four rest houses in the outskirts with 12 beds. At Manikaran, accommodation is also available at some *dharamshalas* [fv]. There are plans for extending tourist facilities, and for the construction of 5 watchtowers.

CONTACT ADDRESSES:

Range Officer (WL)
Kasol
District Kullu
Himachal Pradesh

DFO (WL)
Kullu Division
Kullu-175 101
Himachal Pradesh



KHOKHAN SANCTUARY

Home for one of the largest reported diversity of mammals in Himachal Pradesh, including endangered species like the Himalayan tahr and Musk deer, Khokhan sanctuary is unfortunately heavily disturbed by humans and livestock. It is connected to Nargu Sanctuary in the south-west, across the Bagi Dhar. Wild animals are reported to move between the sanctuaries across this ridge.

LEGAL STATUS: Notified a sanctuary on February 26, 1954, under the Punjab Wild Birds and Wild Animals Act, 1933.

AREA AND ZONING: 1405 ha. (14.05 sq.km). A proposal, to add 957.33 ha. of adjoining forest, and delete 365.40 ha. from the present area, is pending [DFO (WL) Kullu, letter]. No zoning.

LOCATION: District Kullu; *Latitudinal range* 31°50'10" to 31°53'24"N [tp]; *Longitudinal range* 77°03'21" to 77°06'55"E [tp]; *Nearest town* Bhuntar (6 km); *Nearest railhead* Jogindernagar (115 km); *Nearest airport* Bhuntar (Kullu) (6 km).

APPROACHES: Chandigarh to Kullu (312 km), or Shimla to Kullu (230 km). From Kullu to Paha (17 km), then on foot. There are also other trekking routes from Kullu and Shamshi, via Khokhan village.

TOPOGRAPHY AND CLIMATE: *Altitude* 1500 to 2787 m [tp]; *Temperature* -5 to 28°C; *Mean annual rainfall* 850 mm [fv]; *Mean annual snowfall* 330 mm [fv].

FLORA: Forest types include Moist Deodar Forest 12/C1(c), Moist Temperate Deciduous Forest 12/C1(e), and Kharsu Oak Forest 12/C2(a). These forests cover an area of 1183.24 ha. [DFO (WL) Kullu, letter].

During the period 1979-80 to 1983-84, 213.53 ha. were planted with commercial species. Information on these species is not available. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Bear, Himalayan Black	Marten, Stone/Himalayan Yellowthroated ?
Cat, Jungle	Macaque, Rhesus
Civet, Himalayan Palm	Mouse-hare, Himalayan
Deer, Barking	Porcupine, Indian/Hodgson's ?
Deer, Musk	Sheep, Blue
Fox, Red	Squirrel, Kashmir Flying/Common Giant
Goral	Flying ?
Jackal	Tahr, Himalayan
Langur, Common	Weasel, Himalayan
Leopard	Wolf

Birds (See Appendix 7)

Most of the listed mammals and birds are believed to be locally threatened due to habitat destruction [fv].

OCCURRENCE AND CONTROL OF DISEASE: No data is available on diseases of flora and fauna. The nearest veterinarian is located at Bhuntar, 6 km from the sanctuary.

OTHER FACTORS AFFECTING HABITAT: Forest fires are frequent, with two large fires reported in 1985 [fv]. Hailstorms and frost also occur in the area. Drought has been a serious problem since 1980, with rains having failed repeatedly [fv]. Very muddy streams indicate that soil erosion might be high [fv].

WATER RESOURCES: Two seasonal artificial tanks, four perennial natural water holes, seven springs, and three perennial and several seasonal streams [Q1, tp].

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer, one Deputy Range Officer, and two Forest Guards.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Collection of fuelwood and minor forest produce [fv], grazing, quarrying, agriculture, habitation, and collection of dry fallen and standing timber are considered to be rights of the local people.

Habitation: There are 28 villages inside the sanctuary, with a population of 526 (perhaps single isolated households have been counted as separate villages). Information about villages and population in the adjoining area is not available. If the proposed deletion of area takes place, there will be no villages inside the sanctuary boundaries [DFO (WL) Kullu, letter].

Grazing: Local villagers have grazing rights. In addition, two Gujjar families are issued grazing permits by the Territorial Division of the Forest Department. The total number of livestock grazing inside is 11,710.

Offences and Illegal Activities: In March, 1981, one case of illegal hunting was reported. No subsequent offences have been recorded.

Tourism: No records are maintained of the number of tourists visiting the sanctuary.

Use by other Government Agencies: The PWD has control over a water pipeline project inside the sanctuary [fv]. The State Forest Development Corporation extracts minor forest produce from the sanctuary.

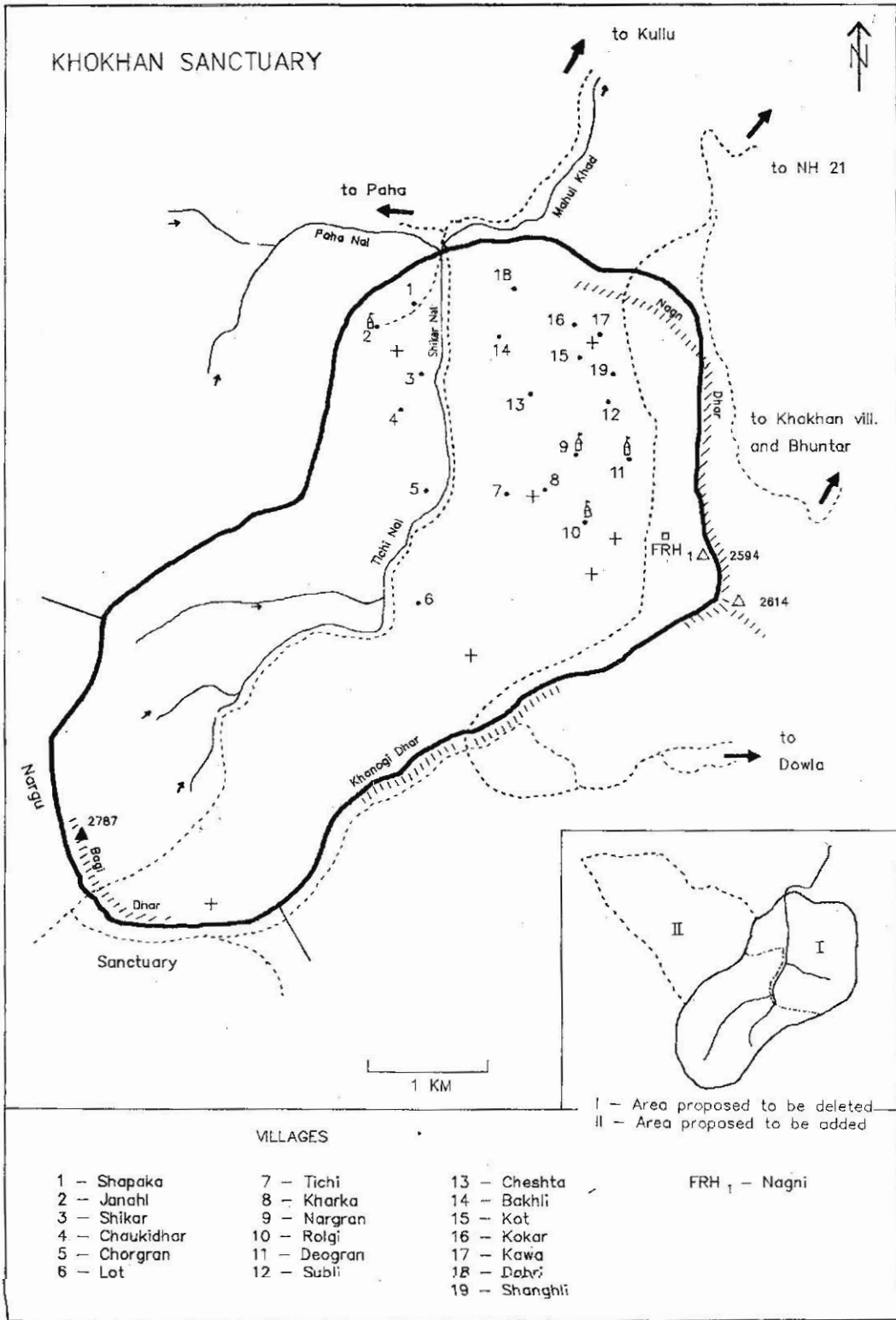
INFORMATION FOR VISITORS: The best time for visiting the sanctuary is April to June when it is easily accessible, and from September to November, when visibility is good. Entry into the sanctuary is not regulated.

There is one rest house outside with 6 beds, and one inside with 4 beds.

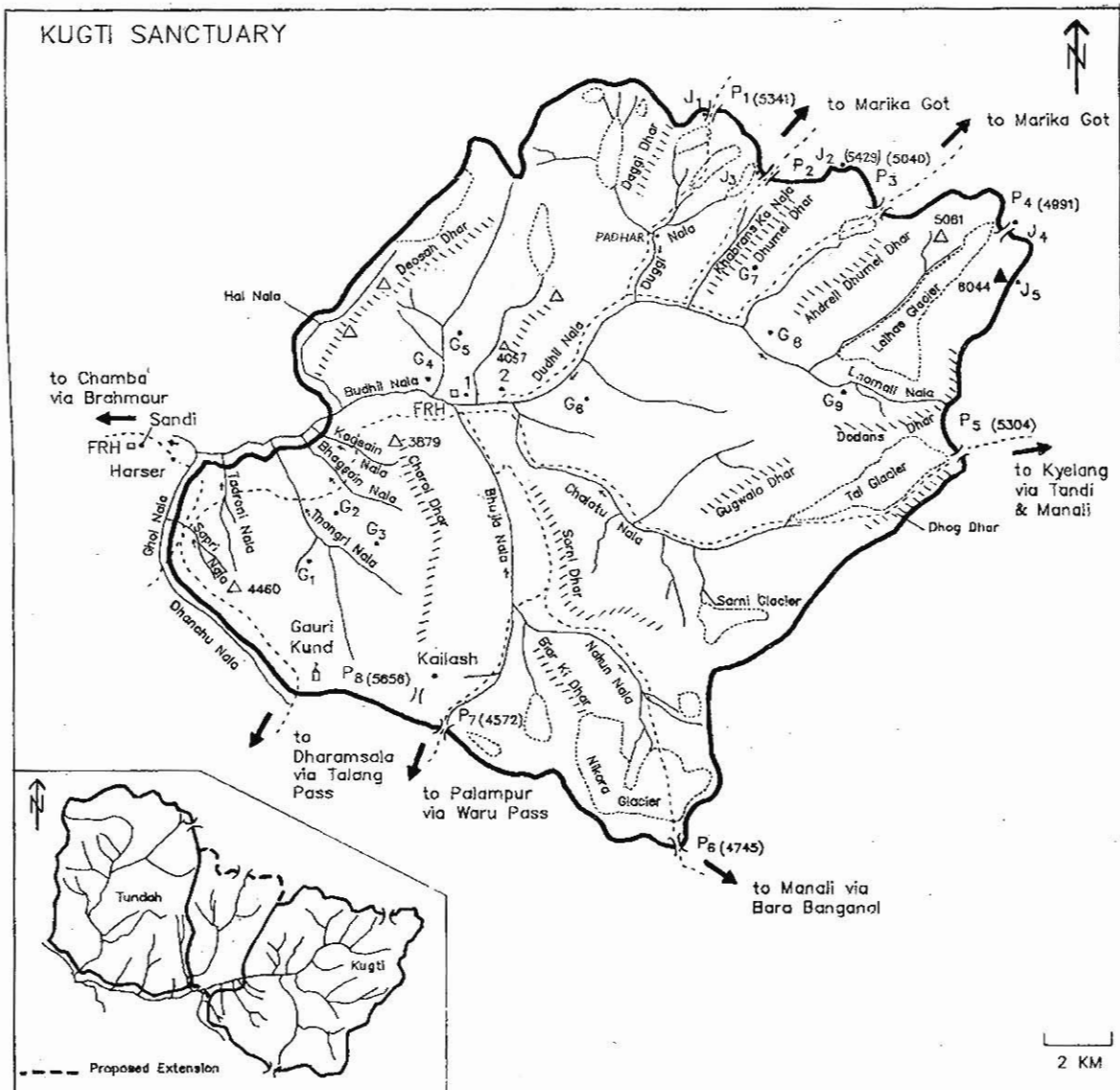
CONTACT ADDRESSES:

Range Officer (WL)
Kullu-175 101
Himachal Pradesh

DFO (WL)
Kullu Division
Kullu - 175 101
Himachal Pradesh



KUGTI SANCTUARY



VILLAGES	GOTS	JOTS	MOUNTAIN PASSES
1 - Kugti	G ₁ - Thangri Got	J ₁ - Dugga Ka Jot	P ₃ - Kugti Galu
2 - Upril Kugti	G ₂ - Kaphrotu Got	J ₂ - Grechh Jot	P ₆ - Nikora Pass
	G ₃ - Majhlahi Got	J ₃ - Duggi Jot	P ₇ - Khidala Galu
	G ₄ - Lahal Got	J ₄ - Laihas Jot	P ₈ - Chobu Pass
	G ₅ - Gandoo Got	J ₅ - Sanakdeh K Jot	
	G ₆ - Sappar Got		
	G ₇ - Relina Got		
	G ₈ - Dabau Got		
	G ₉ - Badela Got		

Names of P₁, P₂, P₄, P₅, not known

KUGTI SANCTUARY

This sanctuary is rich in high-altitude Himalayan wildlife, and is one of the last homes of Himalayan tahr in Himachal Pradesh [Gaston 1986]. It is also well-known as a source of many medicinal plants. Abundant water resources, many originating from glaciers, and a diverse topography add to the attraction of the area. To the west it is connected with Tundah Sanctuary by a forest corridor. There is an annual pilgrimage by thousands of people to the Mani Mahesh Temple inside the sanctuary.

LEGAL STATUS: First notified as sanctuary in 1962. Renotified on March 27, 1974.

AREA AND ZONING: 37,886.68 ha. (378.87 sq.km). No zoning.

LOCATION: District Chamba; Latitudinal range 32°25' to 32°35'N; Longitudinal range 76°44' to 76°53'E; Nearest town Chamba (87 km); Nearest railhead Pathankot (209 km).

APPROACHES: From Pathankot to Chamba (122 km), Chamba to Brahmaur (61 km), then to Harser (13 km), then on by foot to Kugti village inside the sanctuary (14 km).

TOPOGRAPHY AND CLIMATE: Altitude 2250 to 6044 m; Temperature -10 to 25°C; Mean annual rainfall 445 mm. Snowfall figures are not available.

FLORA: Forest types include Moist Deodar Forest 12/C1(c) spread over 5,800 ha., Western Mixed Coniferous Forest 12/C1(d) over 6,028 ha., and Alpine Pastures 15/C3.

The herbs *Gentiana kuroo* (Karu) and *Jurinea macrocephala* (Dhup) are believed to be locally threatened due to over-extraction [fv]. Plantation work over 133 hectares has been carried out from 1979 to 1984. Kail and Deodar were planted for commercial timber; other species planted are Poplar, Robinia, Walnut, Fir, and Spruce. Of these, Poplar and Robinia are introduced. There is a Forest Department nursery at Kugti.

For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, Gaston et.al. 1983, fv]

Bear, Himalayan Black	Ibex
Bear, Brown	Langur, Common
Cat, Leopard	Leopard
Deer, Musk	Marten, Himalayan Yellowthroated
Fox, Indian/Red ?	Serow
Goral	Tahr, Himalayan

Birds (See Appendix 7)

Species believed to be locally threatened are Serow, Musk deer, Ibex, Himalayan brown bear, Monal pheasant, Himalayan tahr, and Chir pheasant [fv].

The existence of Western tragopan here is unconfirmed; it is reported by local people, and a possible call identification has been reported by Dr. A.J. Gaston of the Canadian Wildlife Service [Gaston 1979a], but a survey in 1987 by the Zoological Survey of India did not reveal any sign of this species [Narang et.al. 1987].

OCCURRENCE AND CONTROL OF DISEASE: A major epidemic had struck Tahr and Goral in 1969-70, details of which are not available. There has been no recurrence. A vaccination programme is undertaken actively for cattle inside the sanctuary and in adjacent areas. There is a veterinarian at Kugti, inside the sanctuary.

OTHER FACTORS AFFECTING HABITAT: Frost, hailstorms and forest fires occur in the sanctuary [fv]. A major fire occurred in 1984 in the Bhyanu RF inside the sanctuary. Streams have become very muddy, reportedly due to increasing soil erosion [fv]. Uprooting of trees due to snowfall is also reported [fv]. Major avalanches in 1984 carried away thousands of trees [Gaston, Pers. comm.].

WATER RESOURCES: There are nine major and several other perennial streams, as well as 14 seasonal streams. The area also has 14 glaciers [map].

BUDGET: Rs. 5000 for 1986-87.

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer (holding additional charge of Tundah and Gamgul Siahbehi Sanctuaries), one Deputy Range Officer, five Forest Guards, and one part-time Chowkidar. The Deputy Range Officer, located at Kugti village, is the local in-charge.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

Human Presence:

Rights and Leases: Villagers living inside have rights or leases in relation to grazing, agriculture, extraction of fodder, and collection of timber, fuelwood, and minor forest produce. In addition, a yatra to the Mani Mahesh Temple inside attracts thousands of pilgrims, who are allowed access to it through the sanctuary.

Habitation: There are two villages inside with a population of 651. There are also ten *gots* inside [map]. The adjoining areas have nine villages with a population of 1,255.

Grazing: Apart from the local rights and leases, grazing permits are issued to nomadic Gaddis. The livestock from inside and surrounding villages which grazes inside the sanctuary numbers 7,384, while another 25,000 are brought in by Gaddis. There is reportedly cattle-lifting by leopards [fv].

Offences and Illegal Activities: Labour working on the PWD road, as well as people from the adjoining areas, reportedly poach wildlife [fv]. No offences have however been recorded.

Tourism: In 1983-84, a total of 41 tourists visited the sanctuary; more recent information is not available. Several thousand pilgrims visit the Mani Mahesh temple inside.

Use by Other Government Agencies: Other government agencies using the sanctuary are the PWD for a road, the Forest Department for a nursery, and the State Forest Development Corporation for collection of deadwood [fv]. There are transmission lines passing through the sanctuary [fv].

INFORMATION FOR VISITORS: The best periods for visiting the sanctuary are May-June and September-October, when the weather is good. There is no regulation on entry to the sanctuary.

There is one rest house inside with 2 beds and one on the outskirts with 4 beds.

Plans to extend the tourist facilities include construction of watch towers.

CONTACT ADDRESSES:

Deputy Range Officer (WL)
Kugti Village, Tehsil Brahmaur
District Chamba
Himachal Pradesh

DFO (WL).
Chamba Division
Chamba - 176 310
Himachal Pradesh

LIPPA ASRANG SANCTUARY

A high-altitude area, this sanctuary is one of the few in India from where the Yak has been reported, though it may well be feral. Musk deer and Ibex are also present. The area is largely flat, like a huge plateau, and a part of it is barren cold desert. The sanctuary is among the few in Himachal Pradesh which are not open to tourists.

LEGAL STATUS: First notified a sanctuary in 1962. Renotified on 27 March, 1974.

AREA AND ZONING: 3089.90 ha. (30.89 sq.km) [DCF WL Shimla 1988]. No zoning.

LOCATION: District Kinnaur; *Latitudinal range* 31°40'15" to 31°44'18" N [tp]; *Longitudinal range* 78°08' to 78°17'38" E [tp]; *Nearest town* Morang (28 km); *Nearest railhead* Shimla (265 km); *Nearest airport* Shimla (280 km).

APPROACH: Shimla to Rampur Bushahr (140 km), then on National Highway 22 via Kalpa to Jangi (89 km), and finally on foot (26 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 4000 to 5022 m [map]; *Temperature* -10 to 15°C; *Mean annual rainfall* 226.3 mm. Snowfall figures are not available.

FLORA: Forest types include Lower Western Himalayan Temperate Forest 12/C1, Upper West Himalayan Temperate Forest 12/C2, Kharsu Oak Forest 12/C2(a), Dry Broadleaved and Coniferous Forest 13/C1, Dry Temperate Coniferous Forest 13/C2, Dry Alpine Scrub 16/C1, Dwarf Juniper Scrub 16/E1 [Q1, wp, fv].

For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Bear, Himalayan Black	Ibex
Bear, Brown	Leopard
Deer, Musk	Sheep, Blue
Goral	Yak

Birds (See Appendix 7)

Species believed to be locally threatened are Musk deer, Leopard, Goral, Brown bear, Ibex, Monal and Himalayan snowcock. The Yak may be feral.

OCCURRENCE AND CONTROL OF DISEASE: Epidemics among fauna or flora have not been recorded. The nearest veterinarian is located at Lippa, 10 km away.

OTHER FACTORS AFFECTING HABITAT: Hailstorms and frost occur in the sanctuary area. Also reported are landslides caused by a road passing through the area.

WATER RESOURCES: The perennial Taiti Garang flows along the N-E boundary of the sanctuary; in addition, there are several other streams [map]. The Pholohang Glacier is also located inside [map].

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer, and one Forest Guard. The Range Officer, posted at Nugulsari, is the local in-charge, and has additional charge of Rakchham Chitkul Sanctuary.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Villagers from adjoining areas have rights in relation to grazing, collection of timber, fuelwood and minor forest produce, and extraction of fodder. Herb extraction is also allowed. Rights to religious yatra also exist.

Habitation: Within the sanctuary, there is one *dogri*. There are also seven *thaches* used only in summer [map]. One village, nine *thaches*, and a few *dogris* are located in adjacent areas, with a population of about 500.

Grazing: Villagers from adjacent areas have the right to graze their livestock inside the sanctuary. The total number of livestock grazing inside is 23,429, presumably including those coming from other areas.

Use by Other Government Agencies: A nine km unmetalled road through the sanctuary is under the control of the PWD.

INFORMATION FOR VISITORS: The best time for visiting the sanctuary is from April to June and in September-October when the area is free from snow. However the area is not yet open for tourism. Inner Line Permits are required to visit the area, and foreign nationals are not ordinarily allowed entry. There are three rest houses outside with a total of 12 beds.

CONTACT ADDRESSES:

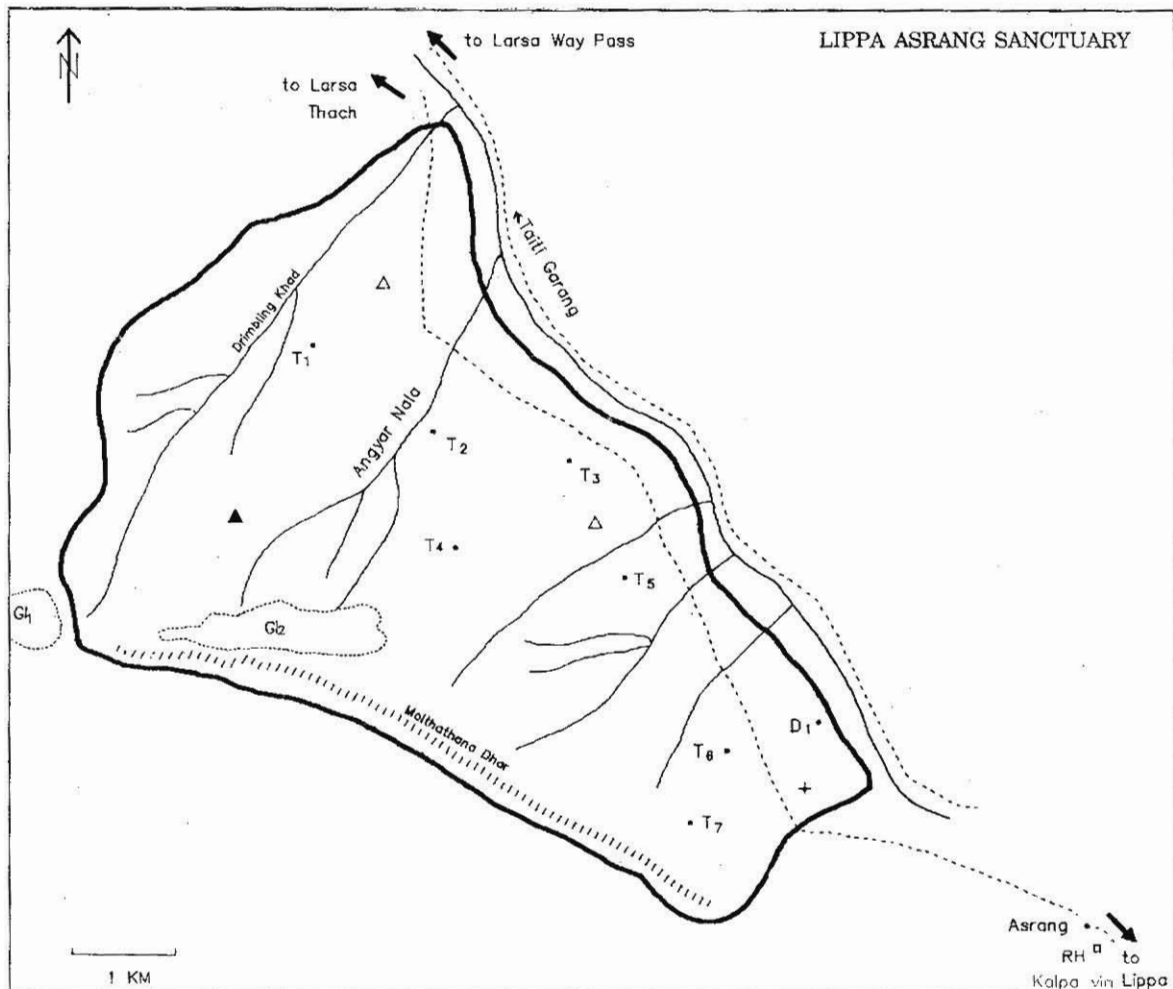
Range Officer (WL)
Nugulsari
District Kinnaur
Himachal Pradesh

DFO (WL)
Sarahan Division
Sarahan Bushehar
District Shimla - 172 102
Himachal Pradesh



Brown bear

LIPPA ASRANG SANCTUARY

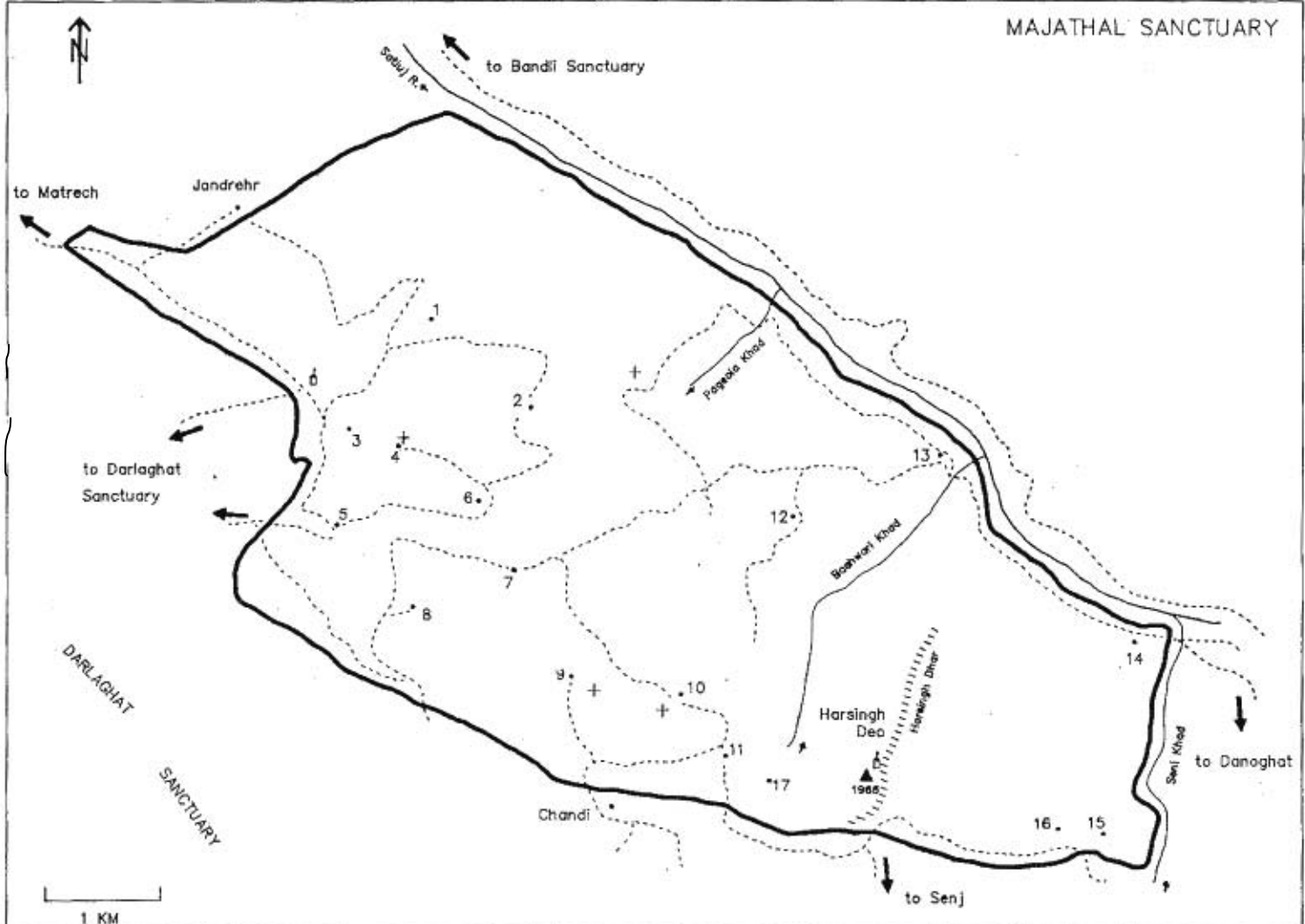


THACHES
 T₁ - Drimbling
 T₂ - Tongling
 T₃ - Phodang
 T₄ - Panthatkang

DOGRI
 D₁ - Perang

Glaciers
 G₁ - Drimbling
 G₂ - Phoichang

MAJATHAL SANCTUARY



VILLAGES

- | | | | | | |
|------------|-------------|-------------|-------------|--------------|-------------|
| 1 - Sohra | 4 - Chaloni | 7 - Pajaura | 10 - Sirali | 13 - Kiari | 16 - Darwa |
| 2 - Taneri | 5 - Sohra | 8 - Khali | 11 - Pao | 14 - Mindraj | 17 - Kiartu |
| 3 - Thrao | 6 - Parlab | 9 - Bambeli | 12 - Neori | 15 - Kat | |

MAJATHAL SANCTUARY

This oak forest area is located in the catchment of the Satluj River, and contains typical low-altitude western Himalayan flora and fauna. Studies have established this sanctuary to be possibly "the single most important locality for Chir Pheasants in the world" [Garson 1983]. Darlaghat Sanctuary lies to its south-west.

LEGAL STATUS: First notified a sanctuary in 1962. Renotified on March 27, 1974.

AREA AND ZONING: 3938.86 ha. (39.39 sq. km). No zoning.

LOCATION: *Districts Solan and Shimla [tp]; Latitudinal range 31°15'03" to 31°18'43"N [tp]; Longitudinal range 76°56'20" to 77°02'24"E [tp]; Nearest town Shimla (76 km); Nearest railhead Shimla (76 km); Nearest airport Shimla (91 km).*

APPROACH: Shimla to Tattapani (51 km), and then on foot to the sanctuary (approx. 25 km).

TOPOGRAPHY AND CLIMATE: *Altitude 900 to 1966 m [tp]; Temperature -1 to 29°C; Mean annual rainfall 1040 mm.*

FLORA: Forest types include Ban Oak Forest 12/C1(a), spread over 2661.60 ha.
For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Bear, Himalayan Black	Jackal
Boar, Indian Wild	Langur, Common
Cat, Jungle	Leopard
Civet, Common Palm	Macaque, Rhesus
Civet, Himalayan Palm	Marten, Himalayan Yellowthroated
Deer, Barking	Sambar
Goral	

Birds (See Appendix 7)

A species believed to be locally threatened is the Chir pheasant.

OCCURRENCE AND CONTROL OF DISEASE: Information on epidemics among flora and fauna is not available. The nearest veterinarian is located at Darlaghat, 13 km away.

OTHER FACTORS AFFECTING HABITAT: Forest fires are common and hailstorms are known to occur. Droughts also occur in the area.

WATER RESOURCES: The Satluj River flows along the north-eastern boundary of the sanctuary, and Senj Khad along its eastern boundary [tp]. There are two other perennial and several seasonal streams, as well as four springs [tp].

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer, one Deputy Range Officer, and three Forest Guards. The Range Officer, located at Piplughat, is locally in-charge.

EQUIPMENT: None

RESEARCH AND MONITORING: Under the Himachal Wildlife Project, Dr. P.J. Garson of the University of Newcastle-Upon-Tyne conducted a survey of Chir and other pheasants in 1983 [Garson 1983].

Vegetation, contour, wildlife distribution, and outline maps are available for reference.

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Apart from habitation and cultivation, villagers inside the sanctuary also have rights in relation to grazing, collection of timber, fuelwood and minor forest produce, and extraction of fodder. Rights also exist in relation to religious yatra, religious monuments, and burial grounds.

Habitation: 17 villages, with a total population of over 700, are located inside the sanctuary. Information on population residing in adjacent areas is not available. Of the sanctuary area, 1277.26 ha. are under cultivation and habitation.

Grazing: Local people have the right to graze their livestock inside the sanctuary. They also burn grasslands seasonally for this purpose [Garson, 1983]. Their livestock number 915, while livestock coming in to graze from adjacent villages number 1,700. Five cases of death or injury to livestock by wild animals have been recorded from 1982 to 1985.

Offences and Illegal Activities: Illegal hunting is reported to occur, but no cases have been filed.

Tourism: Records of visitors to the sanctuary are not maintained.

Miscellaneous: There is one recorded instance of Black bear killing a human, in 1984.

INFORMATION FOR VISITORS: The best time for visiting the sanctuary is in May-June, and October, when the area is easily approachable. Places of religious interest in the sanctuary include Harsingh Temple. Entry into the sanctuary is not regulated.

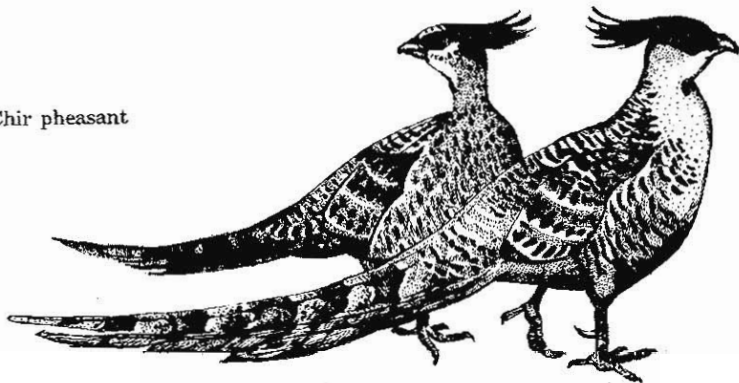
There is one rest house on the outskirts with 4 beds.

CONTACT ADDRESSES:

Range Officer (WL)
Piplughat
District Solan
Himachal Pradesh

DFO (WL)
Shimla Division
Talland
Shimla - 171 001
Himachal Pradesh

Chir pheasant



MANALI SANCTUARY

A little-known sanctuary whose eastern boundary is very close to the hill resort of Manali. The sanctuary forms part of the catchment of Manalsu Nala, an important tributary of the Beas River. The higher reaches are good habitat for pheasants, Musk deer, and Ibex, though there is disturbance from the large livestock herds coming in from the surrounding areas and from herds taken through the sanctuary by Gujjars and Gaddis. There are some lovely Alpine meadows carpeted with a variety of wild flowers. Beas Kund, the source of Beas River, is located just north of the sanctuary, and the Pir Panjal Range along its western boundary.

LEGAL STATUS: Notified a sanctuary on 26 February, 1954 under the Punjab Birds and Wild Animals Protection Act, 1933.

AREA AND ZONING: 3180 ha. (31.80 sq.km). No zoning.

LOCATION: District Kullu; *Latitudinal range* 32°13' to 32°15'N; *Longitudinal range* 77°05' to 77°10'E; *Nearest town* Manali (1 km); *Nearest railhead* Jogindernagar (165 km); *Nearest airport* Bhuntar (Kullu) (52 km).

APPROACHES: Chandigarh to Kullu (270 km), Kullu to Manali (42 km), and from Manali on foot (1 km). Alternatively Shimla to Manali (280 km), then on foot (1 km)

TOPOGRAPHY AND CLIMATE: *Altitude* 2273 to 5173 m [map]; *Temperature* -4 to 30°C; *Mean annual rainfall* 1080 mm. Snowfall figures not available.

FLORA: Forest types include Ban Oak Forest 12/C1(a), Moist Deodar Forest 12/C1(c), Western Mixed Coniferous Forest 12/C1(d), Moist Temperate Deciduous Forest 12/C1(e), Kharsu Oak Forest 12/C2(a), and Alpine Pastures 15/C3.

From 1984 to 1986, 36 ha. have been planted with Poplar, Willow, Fir, Spruce and Robinia. Poplar and Robinia are introduced species. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, Q3, Green 1987, Gaston et.al. 1981]

Bear, Himalayan Black	Leopard
Bear, Brown	Leopard, Snow
Cat, Jungle	Lynx
Civet, Himalayan Palm	Macaque, Rhesus
Deer, Barking	Marten, Himalayan Yellowthroated
Deer, Musk	Porcupine, Indian
Fox, Indian	Serow
Goral	Squirrel, Kashmir Flying/Common Giant
Ibex	Flying ?
Langur, Common	Tahr, Himalayan

Birds (See Appendix 7)

Locally threatened species of fauna include Chir pheasant [fv], Musk deer, Ibex, Serow, Western tragopan, and Lynx. The Snow leopard may be locally extinct - there have been no recent sightings [Gaston et.al. 1983]. Captive breeding of Monal pheasant has been attempted in Manali town.

OCCURRENCE AND CONTROL OF DISEASE: Tahr and Goral have reportedly suffered in the past from diseases transmitted by cattle [fv]. No recent information is available regarding epidemics among flora and fauna. The nearest veterinarian is located at Manali, 1 km away.

OTHER FACTORS AFFECTING HABITAT: Forest fires, hailstorms and frost are known to occur, though no further information on these is available. Also, there are some avalanche-prone points in the higher reaches.

WATER RESOURCES: Water resources consist of two artificial seasonal tanks, four perennial water holes, and two perennial and several seasonal streams. The Manalsu Nala is the major stream.

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer (with additional charge of Kais Sanctuary) and one Forest Guard. The Range Officer (WL), Manali, is the local in-charge.

EQUIPMENT: None

RESEARCH AND MONITORING: Research on pheasants was undertaken in 1979-80 by Dr. A.J. Gaston of the Canadian Wildlife Service and Dr. P.J. Garson of Newcastle-Upon-Tyne University. This was in connection with a survey of this area, under the Himachal Wildlife Project, to determine the feasibility of making a national park here [Gaston et.al. 1981].

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: People in the adjacent villages have rights in relation to grazing, extraction of fodder [fv], quarrying, and collection of timber, fuelwood, and minor forest produce (mainly herbs).

Habitation: There are no villages in the sanctuary [fv]. Twelve *thaches* [map], three temporary *Gujjar* settlements in Lamb Dug area and three temporary *Gaddi* settlements in Dohrni area [fv] are within the sanctuary. Information about habitation in the adjoining areas is not available except that Manali town is located a kilometre away.

Grazing: Villagers in adjacent areas have the right to graze their livestock inside the sanctuary. In addition, permits for grazing are given to Gujjars and Gaddis [fv]. A total of about 10,000 heads of livestock graze inside [Q3].

Offences and Illegal Activities: Poaching is reportedly common [fv]. Two cases of illegal hunting have been recorded, one involving the killing of two Ibex in 1984, and another in which a Black bear was killed by villagers in 1983.

The former is still pending in the court, the latter was settled by fining the offenders Rs. 451.

Tourism: Large trekking parties visit occasionally [Q3]. Apart from these, not many other tourists visit the sanctuary [fv], and no records are kept.

Miscellaneous: One Gujjar was injured by a Black bear in 1984.

INFORMATION FOR VISITORS: May-June, and again September to November, are the best months for visiting the sanctuary, as the weather is conducive to travel, visibility is good, and the higher reaches are accessible [Q1, Q3]. Entry into the sanctuary is not regulated.

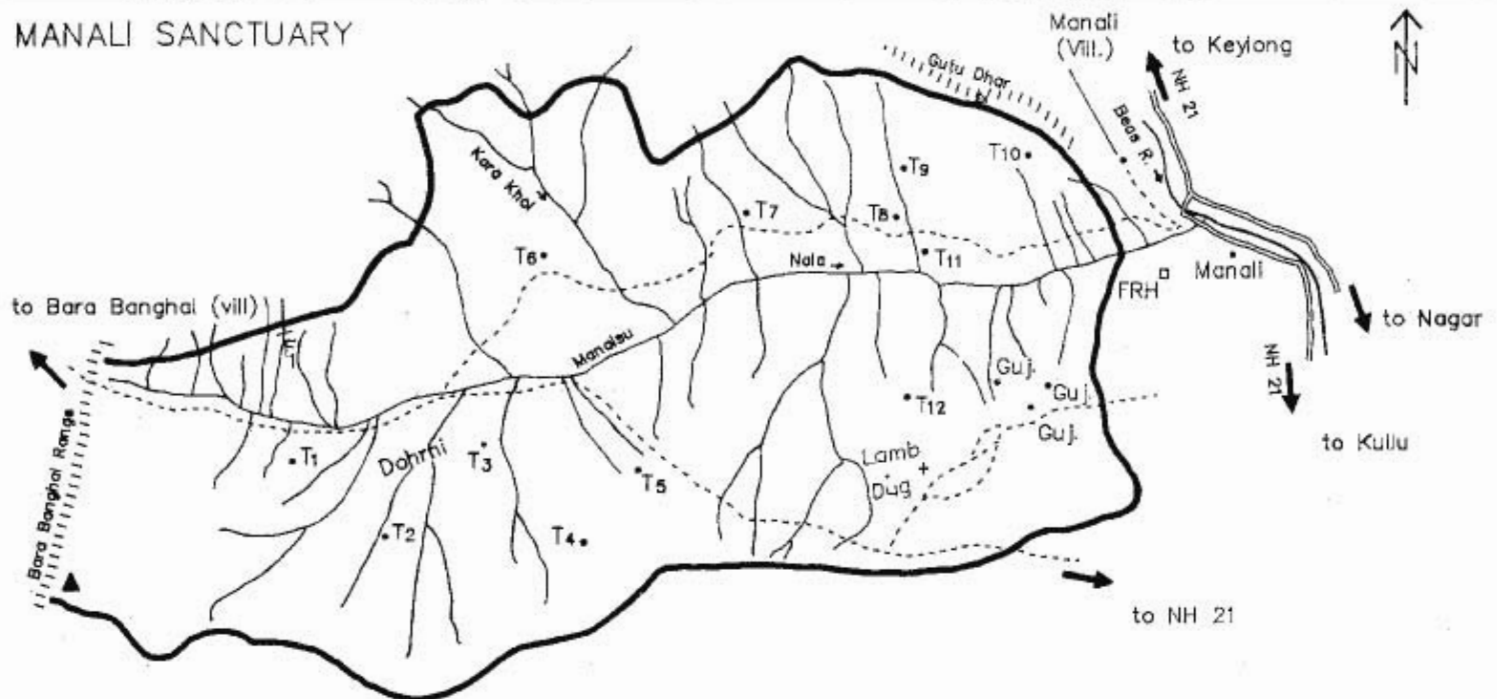
There are various hotels and rest houses in Manali town.

CONTACT ADDRESSES:

Range Officer (WL)
Manali - 175 131
Dist. Kullu
Himachal Pradesh

DFO (WL)
Kullu Division
Kullu - 175 101
Himachal Pradesh

MANALI SANCTUARY



1 KM

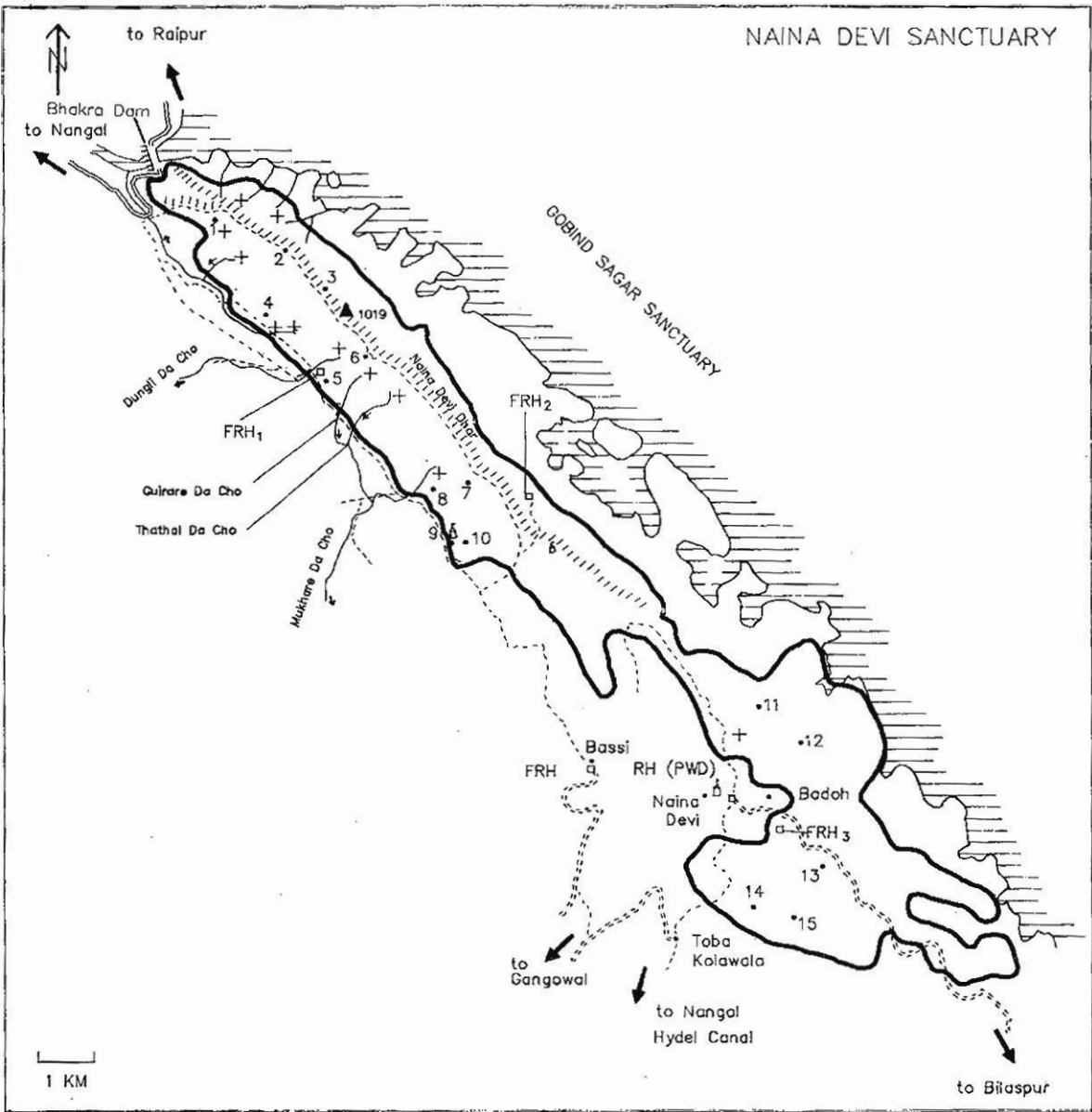
THACHES

WATER FALL

T ₁ - Tainta	T ₃ - Banoun	T ₅ - Sagaruti	T ₇ - Ramarung	T ₉ - Redakan	T ₁₁ - Gramling	F ₁ - 50 Metres
T ₂ - Kahra	T ₄ - Sayarchu	T ₆ - Damana	T ₈ - Duakt	T ₁₀ - Kumsu	T ₁₂ - Madh	

The western boundary of Manali Sanctuary was unclear on the maps available, and could not be verified.

NAINA DEVI SANCTUARY



VILLAGES

- | | | | |
|-----------------|----------------|----------------|---------------------------|
| 1 - Manak Chauk | 6 - Kasla | 11 - Kharakari | FRH ₁ - Lehri |
| 2 - Mohali | 7 - Thana | 12 - Maleta | FRH ₂ - Sandla |
| 3 - Dorian | 8 - Uparla Bas | 13 - Galwa | FRH ₃ - Badoh |
| 4 - Paisel | 9 - Sandla | 14 - Mandhali | |
| 5 - Lehri | 10 - Sinani | 15 - Nimawali | |

NAINA DEVI SANCTUARY

Located in the inner Siwaliks this sanctuary harbours flora and fauna more akin to that found in the forests of the northern plains of India than in the Himalayas. It adjoins the Gobind Sagar Sanctuary to the north-east, and its north-west boundary is close to the Bhakra dam.

LEGAL STATUS: First notified a sanctuary on 5 December, 1962. Renotified on March 27, 1974.

AREA AND ZONING: 12,268 ha. (122.68 sq.km). No zoning.

LOCATION: District Bilaspur; *Latitudinal range* 31°16'40" to 31°24'36" N [tp]; *Longitudinal range* 76°25'54" to 76°35'38" E [tp]; *Nearest town* Nangal (19 km); *Nearest railhead* Nangal (19 km); *Nearest airport* Chandigarh (110 km).

APPROACHES: From Nangal, 19 km. From Shimla to Bilaspur (90 km), and on to the sanctuary (31 km). From Delhi to Rupnagar (Punjab) (300 km), and on to the sanctuary (69 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 500 to 1019 m [tp]; *Temperature* -2 to 40°C; *Mean annual rainfall* 1155 mm [wp].

FLORA: Forest types include Northern Dry Mixed Deciduous Forest 5B/C2, covering 3000 ha., and Siwalik Chir Pine Forest 9/C1(a), spread over 1,550 ha. There is also some area of Dry Bamboo Brake 5B/E9 [wp].

Commercial plantation has been undertaken over 1427 ha., from 1979 to 1984. The main trees planted were Chil and Acacia spp. No information is available on threatened floral species. *Eucalyptus* spp. is an introduced species [fv]. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, wp, Gaston 1986]

Boar, Indian Wild
Cat, Jungle
Deer, Barking
Fox, Indian
Goral
Hare, Indian
Jackal
Langur, Common
Leopard

Macaque, Rhesus
Marten, Himalayan
Yellowthroated
Mongoose, Common
Porcupine, Indian
Sambar
Serow
Squirrel, Common Giant Flying

Reptiles [wp]

Cobra, Indian
Gecko, Northern House
Krait, Common Indian

Monitor, Common
Indian
Ratsnake, Common

Birds (See Appendix 7)

Species believed to be locally threatened are Leopard and Sambar. The presence of Serow is uncertain.

OCCURRENCE AND CONTROL OF DISEASE: Occasional defoliation of Chil trees has been reported [wp]. No information is available regarding epidemics of fauna. Vaccination of cattle is undertaken by the Veterinary Department, but no details are available. The nearest veterinarian is located at Naina Devi on the outskirts of the sanctuary.

OTHER FACTORS AFFECTING HABITAT: Forest fires and hot winds are known to occur in the western part of the sanctuary; in the period 1979 to 1982, 6.3 ha. was affected by fire. Drought, soil erosion, and landslides are other recurring phenomena recorded in the sanctuary [fv]. The weed *Lantana camara* is spreading in the area.

WATER RESOURCES: Seven perennial and several seasonal streams, one artificial perennial tank, 10 seasonal artificial water-holes, and 11 springs [tp].

BUDGET: Rs. 4,00,000 for protection staff and habitat development.

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer (also in-charge of Gobind Sagar Sanctuary), three Deputy Range Officers, nine Forest Guards, and one Peon. The Range Officer, located at Naina Devi, is the local in-charge.

EQUIPMENT: One pair of binoculars.

RESEARCH AND MONITORING: None.

COMMUNITY INTERACTION ACTIVITIES: None

HUMAN PRESENCE:

Rights and Leases: Local people have rights or leases in relation to grazing, collection of timber, fuelwood, and minor forest produce, fodder extraction, religious yatra, religious monument, and burial grounds. There is also some private agricultural land in the sanctuary.

Habitation: 14 villages and hamlets are located within the sanctuary [tp]. Both the sanctuary and the surrounding areas are reported to have heavy human population, but figures are not available.

Grazing: 3902 head of livestock, belonging to people living within the sanctuary, graze inside. Gaddi nomads are also permitted to bring in their livestock, numbering 2,500. Two cases of livestock killed by wildlife were reported in 1983-84.

Offences and Illegal Activities: One instance of poaching of Sambar has been reported (date not known), and two cases of causing fire hazard have been filed between 1979 and 1982.

Tourism: No record is kept of the number of tourists visiting the sanctuary.

Use by other Government Agencies: The PWD has control over the road inside (a stretch of 20 km), and the HPSEB over transmission lines. Control over tourism is in the hands of the Bhakra Dam Project Authorities.

Miscellaneous: Some work has been done to meet the fuel and fodder requirements of local people, but no details of this are available.

INFORMATION FOR VISITORS: The best period for visiting the sanctuary is the winter months, since the climate is pleasant [fv], and migratory birds are present in the adjacent Gobind Sagar Sanctuary. Places of interest include the Naina Devi Temple, just adjacent to the sanctuary [fv].

Entry of visitors is controlled by the Bhakra Dam Project Authorities [tg].

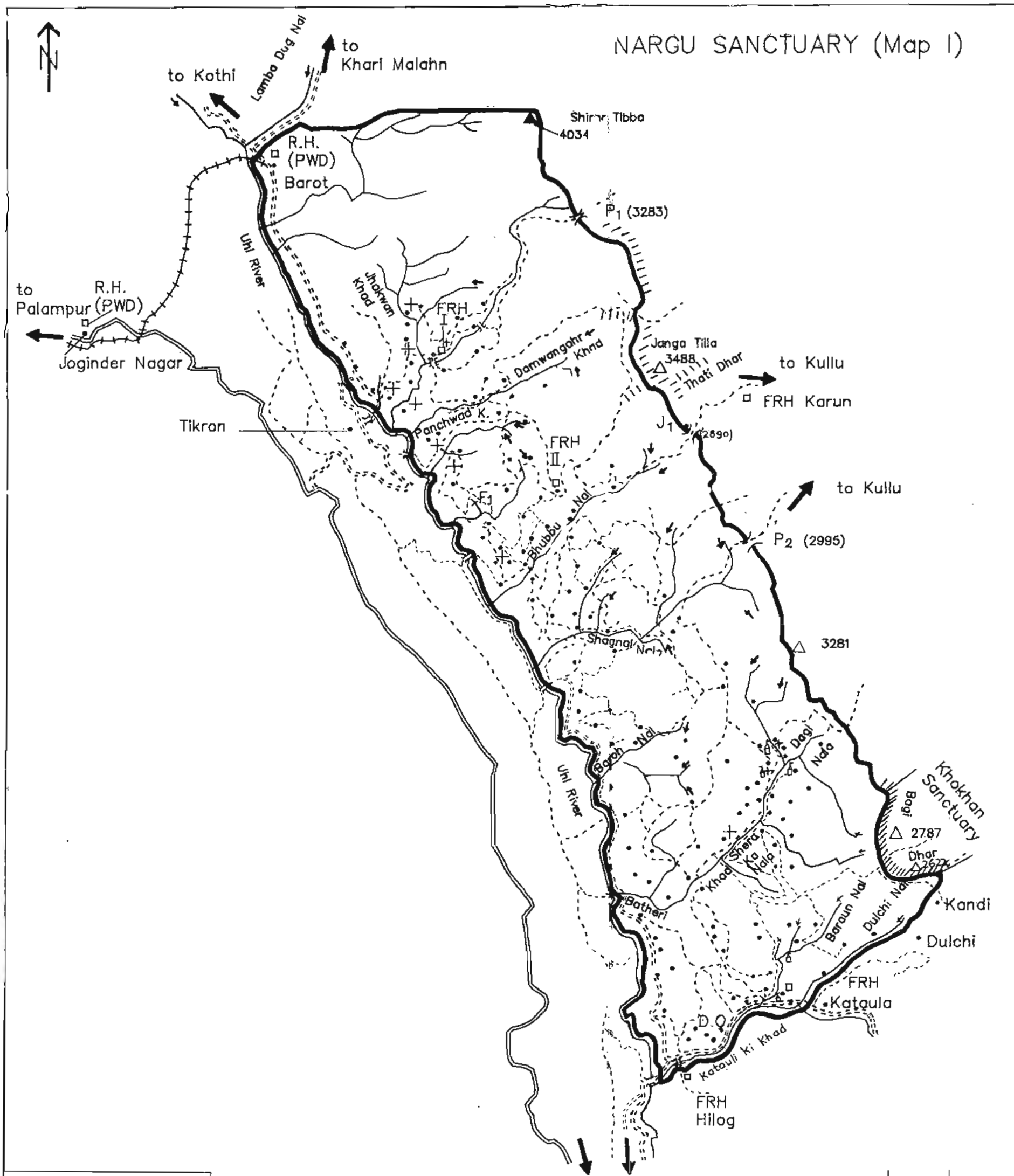
There are two guest houses inside and two on the outskirts with 16 beds.

CONTACT ADDRESSES:

Range Officer (WL)
P.O. Naina Devi - 174 310
District Bilaspur
Himachal Pradesh

DFO(WL)
Shimla Division
Talland
Shimla-171 001
Himachal Pradesh

NARGU SANCTUARY (Map I)



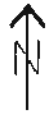
D.O. - Dairy Office

JOT
J₁ - Bhubbu Jot

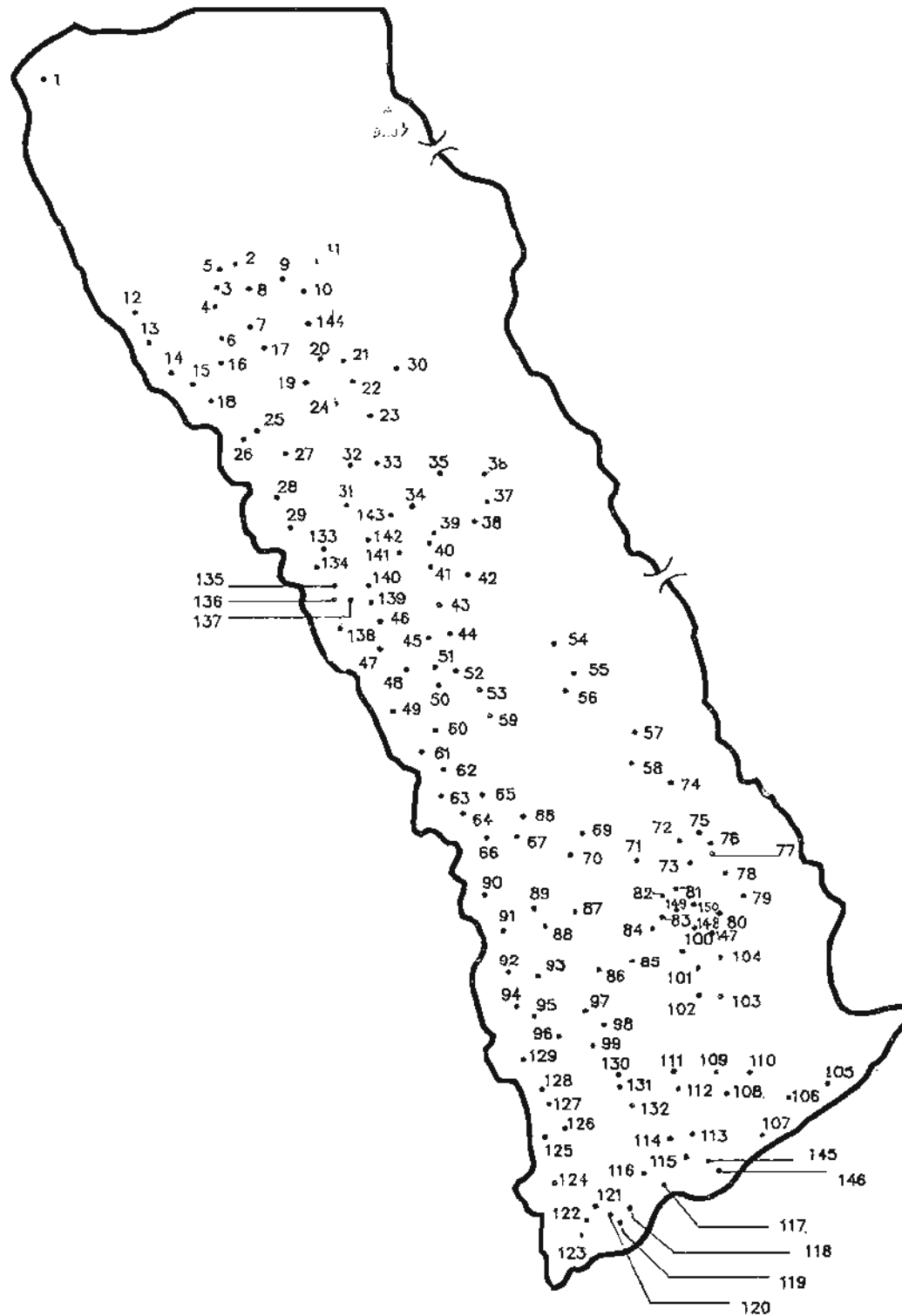
MOUNTAIN PASSES
P₁ - Pajaund Galu
Name for P₂ not known

FRH I - Thalakhad
FRH II - Gacaman

WATER FALL
F₁ - 8 Metres



NARGU SANCTUARY (Map II)



- 101 - Serl
- 102 - Shanor
- 103 - Banoa
- 104 - Bharyanu
- 105 - Kundakh
- 106 - Sharang
- 107 - Mathyana
- 108 - Pichhlanal
- 109 - Barnidhar
- 110 - Baraun
- 111 - Baregran
- 112 - Khand ra Nal
- 113 - Chimkari Bhet
- 114 - Dalogi
- 115 - Joria
- 116 - Aigan
- 117 - Budhal
- 118 - Nandal
- 119 - Chauki
- 120 - Salgi
- 121 - Khanasr
- 122 - Kail
- 123 - Ghatpa
- 124 - Tihri
- 125 - Ropa
- 126 - Dingahr
- 127 - Riagri
- 128 - Kutohr
- 129 - Katwahar
- 130 - Alganghar
- 131 - Dari
- 132 - Kandi Gaihr
- 133 - Ghagtian
- 134 - Kanpan
- 135 - Tikkar
- 136 - Kashehar
- 137 - Dhangayan
- 138 - Dhanwan
- 139 - Kalangehr
- 140 - Sudnar
- 141 - Ahlang
- 142 - Bharalang
- 143 - Karesahar
- 144 - Tegar
- 145 - Kalei
- 146 - Kataula

2 KM

VILLAGES

- | | | | | |
|-----------------|----------------|------------------|----------------|------------------|
| 1 - Barot | 21 - Shamalang | 41 - Hurang | 61 - Bahi | 81 - PhegarSer |
| 2 - Madharwan | 22 - Damwan | 42 - Phatehr | 62 - Baghar | 82 - Khanashu |
| 3 - Bhamchwan | 23 - Daint | 43 - Kharalang | 63 - Tikkar | 83 - Derudhar |
| 4 - Sangdhar | 24 - Baretra | 44 - Ka Sie | 64 - Barwahan | 84 - Hirudhar |
| 5 - Marh | 25 - Tarswan | 45 - Singhadhar | 65 - Lotkara | 85 - Taranun |
| 6 - Bajot | 26 - Dhár | 46 - Batehr | 66 - Sari | 86 - Tonbagh |
| 7 - Thaldkhad | 27 - Dhamrehr | 47 - Kathog | 67 - Baroni | 87 - Lori |
| 8 - Beri Bijgan | 28 - Bharan | 48 - Pekhra | 68 - Ganhag | 88 - Thamtahan |
| 9 - Dharlan | 29 - Bulang | 49 - Ganwag | 69 - Jorla | 89 - Bahianar |
| 10 - Garaman | 30 - Garhgroon | 50 - Michla Rona | 70 - Kujardhar | 90 - Kafit |
| 11 - Garaman | 31 - Jhagarkot | 51 - Khan | 71 - Sanwar | 91 - Bag |
| 12 - Bardha | 32 - Geggwan | 52 - Kashahra | 72 - Garhaun | 92 - Nagain |
| 13 - Lachkandi | 33 - Adgwan | 53 - Ropa | 73 - Garehr | 93 - Jalwag |
| 14 - Kuli jhan | 34 - Gacaman | 54 - Shogha | 74 - Kagon | 94 - Gunkhri |
| 15 - Cheiang | 35 - Kungri | 55 - Chhuchhal | 75 - Kot | 95 - Shangalwaha |
| 16 - Dhamchian | 36 - Kortang | 56 - Datur | 76 - Padar | 96 - Thaha |
| 17 - Kharian | 37 - Bhadwani | 57 - Phungandhar | 77 - Lehri | 97 - Batheri |
| 18 - Latehan | 38 - Shilh | 58 - Bara | 78 - Kamartu | 98 - Bharbaregan |
| 19 - Draggar | 39 - Tehri | 59 - Nag | 79 - Mandra | 99 - Malwara |
| 20 - Kharidhar | 40 - Shawar | 60 - Trajila | 80 - Bharari | 100 - Dayog |

NARGU SANCTUARY

A heavily degraded area which has only a few good patches of wildlife habitat left in its higher, inaccessible reaches. These patches possibly support a small population of Musk deer and Goral. But with a human population density of almost one person per hectare, and a livestock density of nearly 2 per hectare, this sanctuary is among the most densely populated sanctuaries in Himachal Pradesh. Towards the south-east it adjoins Khokhan Sanctuary.

LEGAL STATUS: First notified a sanctuary in 1962, for 10 years, under the Punjab Wild Birds and Wild Animals Protection Act, 1933, and the H.P. Wild Birds and Wild Animals Protection Rules. Renotified on 27 March, 1974. All the legal procedures have been completed.

AREA AND ZONING: 27,837 ha. (278.37 sq.km). No zoning.

LOCATION: District Mandi; *Latitudinal range* 31°46'36" and 32°05'00"N [tp]; *Longitudinal range* 76°50'00" and 77°04'38"E [tp]; *Nearest town* Mandi (25 km); *Nearest railhead* Barot (inside); *Nearest airport* Bhuntar (Kullu) (100 km).

APPROACH: From Shimla to Mandi (160 km), then on Mandi-Joginder Nagar Road, which runs close to the western boundary of the sanctuary.

TOPOGRAPHY AND CLIMATE: *Altitude* 970 to 4,034 m [tp]; *Temperature* -5 to 20°C [met]; *Mean annual rainfall* 1380 mm [met]. Snowfall figures are not available.

FLORA: Forest types include Subtropical Pine Forest 9, Ban Oak Forest 12/C1(a), Moru Oak Forest 12/C1(b), Moist Deodar Forest 12/C1(c), Western Mixed Coniferous Forest 12/C1(d), Moist Temperate Deciduous Forest 12/C1(e), Kharsu Oak Forest 12/C2(a), and Sub Alpine Forest 14.

No information is available on threatened species of flora. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Bear, Himalayan Black	Langur, Common
Bear, Brown	Leopard
Civet, Himalayan Palm	Macaque, Rhesus
Deer, Barking	Marten, Stone/Himalayan Yellowthroated?
Deer, Musk	Porcupine, Indian
Goral	Squirrel, Common Giant Flying
Hare, Indian	Weasel, Himalayan

Birds (See Appendix 7)

Species believed to be locally threatened are Musk deer, Leopard, Chir pheasant, and Himalayan brown bear [fv].

OCCURRENCE AND CONTROL OF DISEASE: No information is available regarding epidemics among flora and fauna. The nearest veterinarian is located at Kamand, 1 km from the sanctuary.

OTHER FACTORS AFFECTING HABITAT: Frost and hailstorms are known to occur. Fire is a serious problem, with 236 ha. affected in 1978-79 and large areas affected every year subsequently. The rains failed from 1983 to 1985, creating drought-like conditions [fv]. Habitat degradation has also led to soil erosion, as suggested by the muddy streams [fv].

WATER RESOURCES: Uhl River flows along the western boundary. In addition, there are 7 major perennial and several minor perennial and seasonal streams [tp, map].

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer, stationed at Tikran, three Deputy Rangers, and six Forest Guards. The Ranger Officer is trained in Wildlife Management. He is locally in-charge.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Religious *yatras* to adjacent pilgrimage spots are allowed through the sanctuary.

Habitation: There are 170 villages inside the sanctuary, with a population of 26,360 [Hist. file]. Population figures for adjacent areas are not available. A substantial part of the local population consists of Gujjars [fv].

Grazing: Grazing is extensive, the reported livestock population being 51,585 [Hist. file]. Injury and death to livestock by wild animals is reported, but no compensation cases have been recorded.

Offences and Illegal Activities: The local people carry out the following activities, which were considered rights till the legal procedures of the sanctuary were completed: habitation, agriculture (9152 ha.), grazing, extraction of fodder, timber and fuelwood collection from most of the forest area, minor forest produce collection from the Sub Alpine forests, and removal of loose stones and earth for construction. It is alleged that the procedures were not completed properly and that many rights were not recorded.

It appears that illegal hunting is common in the sanctuary [fv], but so far only one case has been recorded.

Use by Other Government Agencies: Though a moratorium on commercial felling in the area was declared in 1983, felling of trees reportedly continued till at least 1985 [fv]. Other government departments active inside the sanctuary are the PWD and the Electricity Department, who control the roads and transmission lines, respectively [fv].

Tourism: Tourism is minimal in the sanctuary, and no records are kept on its extent [fv].

INFORMATION FOR VISITORS: The periods from April to June and September to December are best for visiting the sanctuary as the grass is low and visibility good. There is no regulation on entry into the sanctuary.

There are four rest houses inside with a total of 14 beds.

CONTACT ADDRESSES:

Range Officer (WL)
Tikran
District Mandi
Himachal Pradesh

DFO (WL)
Kullu Division.
Kullu - 175 101.
Himachal Pradesh

PONG LAKE SANCTUARY

The Pong Lake was created in 1976 by damming the Beas River. This reservoir attracts a large number of migratory waterbirds, and is the only place in India where the rare Rednecked grebe has been recorded [Gaston, 1985]. The lake contains "one permanent island and several others that are intermittently connected to the shore" [Gaston, 1986].

LEGAL STATUS: Notified a sanctuary on 1 June, 1983.

AREA AND ZONING: 30,729 ha. (307.29 sq. km). There is a proposal to include the area upto the road encircling the lake, into the sanctuary [mp]. The extent of this additional area is not known.

No zoning inside the sanctuary. All land over 440 metres above mean sea level in a five km radius of the lake, an area of roughly 20,000 ha., was notified as buffer zone [notif.] but has not yet come under actual management by the sanctuary authorities. This is reportedly due to the heavy human population in this area [fv].

LOCATION: District Kangra; *Latitudinal range* 31°80'[OUP 1982] to 32°07'26" [tp] N; *Longitudinal range* 75°58'[tp] to 76°25'E [OUP 1982]; *Nearest towns* Dehra Gopipur, on lake periphery, and Talwara (8 km); *Nearest railheads* Mukerian (32 km), and Pathankot, (30 km).

APPROACHES: From Shimla to Una (202 km), then to Talwara (63 km), then on to the sanctuary (8 km). Alternatively, Una to Dehra Gopipur (58 km), adjacent to the sanctuary.

From Chandigarh to Una (164 km), on to Dehra Gopipur (58 km).

From Shimla to Hamirpur (172 km), then to Jwalamukhi (30 km), on to Dehra Gopipur (9 km).

Nagrota Surian, which is adjacent to the eastern side of the lake, can be approached from Dehra Gopipur.

TOPOGRAPHY AND CLIMATE: *Altitude* 335.14 to 435.86 m (Full Reservoir Level); *Temperature* 5.6 to 44.3°C; *Mean annual rainfall* 1780 mm.

FLORA: The sanctuary is a wetland. Forest types in the notified buffer zone include Dry Deciduous Scrub 5/DS1 (1300 ha), Dry Bamboo Brake 5B/E9 (500 ha), and Himalayan Subtropical Pine Forest 9/C1 (350 ha).

Khair and Chil plantations were started in 1979-80 in the buffer zone. 2377 ha. had been planted till 1983-84. Exotics introduced include Eucalyptus (planted in 1985 as part of the social forestry programme), *Agave spp.*, and Bottle brush. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Boar, Indian Wild

Deer, Barking

Fox, Indian/Red ?

Hare, Indian

Hedgehog, Longeared/Pale ?

Jackal

Langur, Common

Macaque, Rhesus

Mongoose, Common/Small Indian ?

Nilgai

Porcupine, Indian

Sambar

Reptiles

Cobra, Indian

Gecko, Brook's

Monitor, Common Indian

Python, Indian

Fish [Khan undated, Husain 1988]

Tor putitora (Mahseer)

Wallago attu (Mallip)

Ophiocaphtalus marulius (Soal)

Amphibians

Frog, Indian Bull

Birds (See Appendix 7)

OCCURRENCE AND CONTROL OF DISEASES: Information on whether there are epidemics among fauna and flora is not available. The nearest veterinarian is located at Dehra Gopipur, on the periphery of the lake.

OTHER FACTORS AFFECTING HABITAT: Hot winds are known to occur. 60% of the notified buffer zone is affected by drought.

WATER RESOURCES: The Pong Lake is a perennial reservoir. There are also five perennial streams.

BUDGET: Rs. 9,57,000 (1987-88); Rs. 4,28,000 (1986-87)

MANAGEMENT PLAN: A management plan, valid for the period 1983-84 to 1988-89, was prepared on 17.11.1982 and approved in December, 1984 [Q1, mp].

PERSONNEL: One Range Officer, one Deputy Range Officer and six Forest Guards. The local in-charge is the Range Officer, located at Nagrota Surian.

EQUIPMENT: 2 boats, 1 with a diesel engine.

RESEARCH AND MONITORING: Sanjeeva Pandey, earlier DFO Dehra, conducted surveys of birds seen at the sanctuary from 1984 to 1986 [Pandey, 1986]. Dr. A.J. Gaston of the Canadian Wildlife Service also studied the lake briefly in 1985 [Gaston 1985].

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: The local people have fishing rights in the lake. In the notified buffer zone, inhabitants enjoy rights to agriculture, collection of dry standing and fallen trees, extraction of fodder, and grazing.

Habitation: There is no habitation in the sanctuary. There are 128 villages in the area notified as buffer zone, with a population of 50,000. There are 225 villages with a population of 85,000 in adjacent areas.

Grazing: The number of livestock grazing inside is 46,000; it is unclear if this figure refers to both the sanctuary area (the lake bed during low water level) as well as the buffer zone. Sheep, goats, and feral cattle often reach the islands in the lake to graze [Pandey undated].

Offences and Illegal Activities: Illegal fishing is reported from the sanctuary, as also illegal cultivation of the reservoir bed exposed at low water levels [fv, Pandey undated].

Tourism: There is no record of the number of visitors to the sanctuary.

Use by Other Government Agencies: The sanctuary is also used by various government agencies for fisheries (the State Fisheries Department issues licenses to eight fisherfolk societies), for horticulture and for irrigation. The control over the dam, and therefore over the water level in the lake, rests with the Bhakra Management Board.

Miscellaneous: Outside labour (number not known) is employed for construction purposes [fv]. Two clashes have taken place between the sanctuary authorities and local people, both involving attempts by the former to do plantations in the catchment areas of the reservoir and dam where villagers carry out cultivation [fv].

INFORMATION FOR VISITORS: The best period for visiting the sanctuary is from October to March, when migratory birds flock there. There is no regulation of entry into the sanctuary.

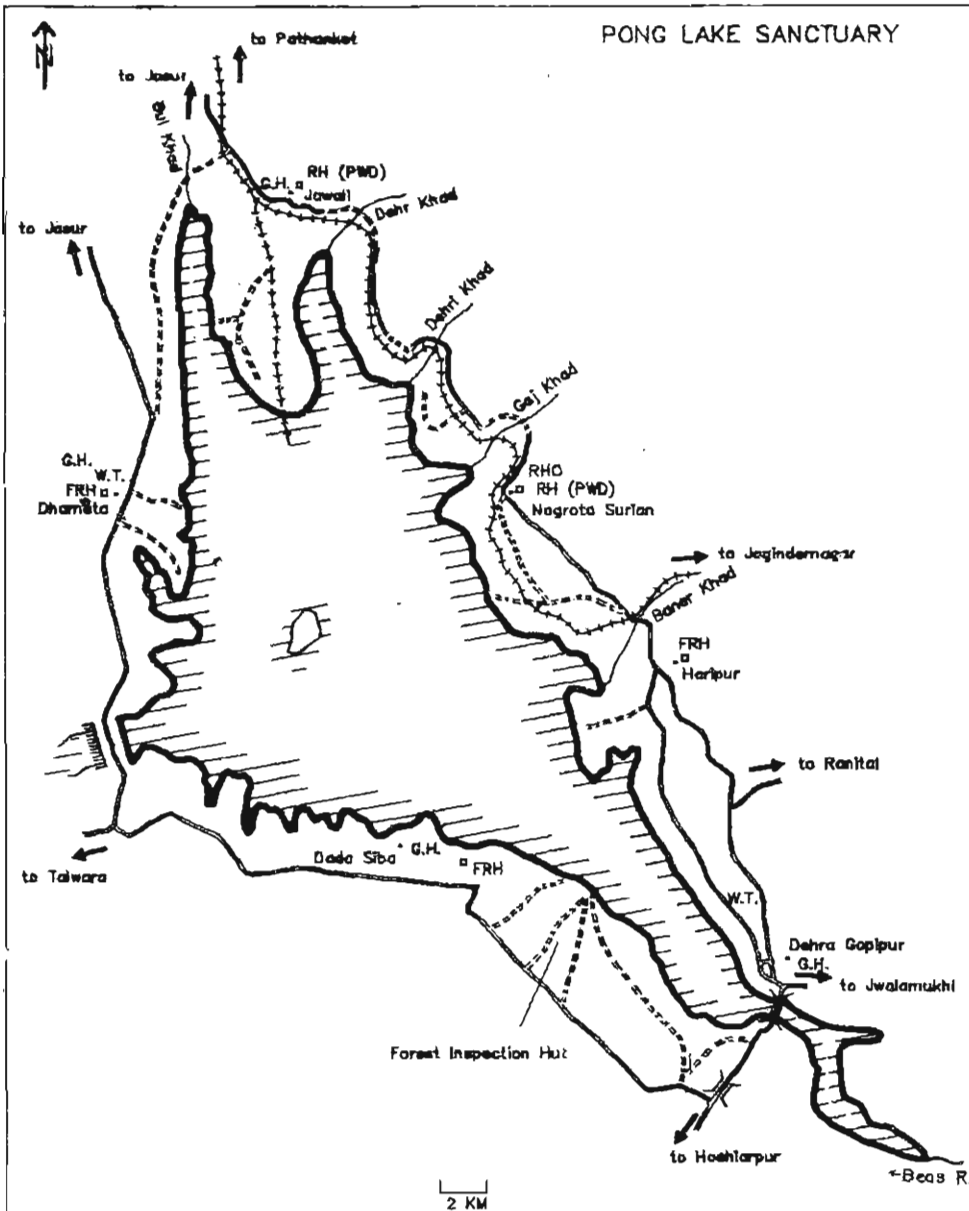
There are five rest houses in the notified buffer zone with a total of 16 beds.

Future plans include providing transportation facilities and additional accommodation for tourists. Watchtowers are being constructed at Bari and Dhameta.

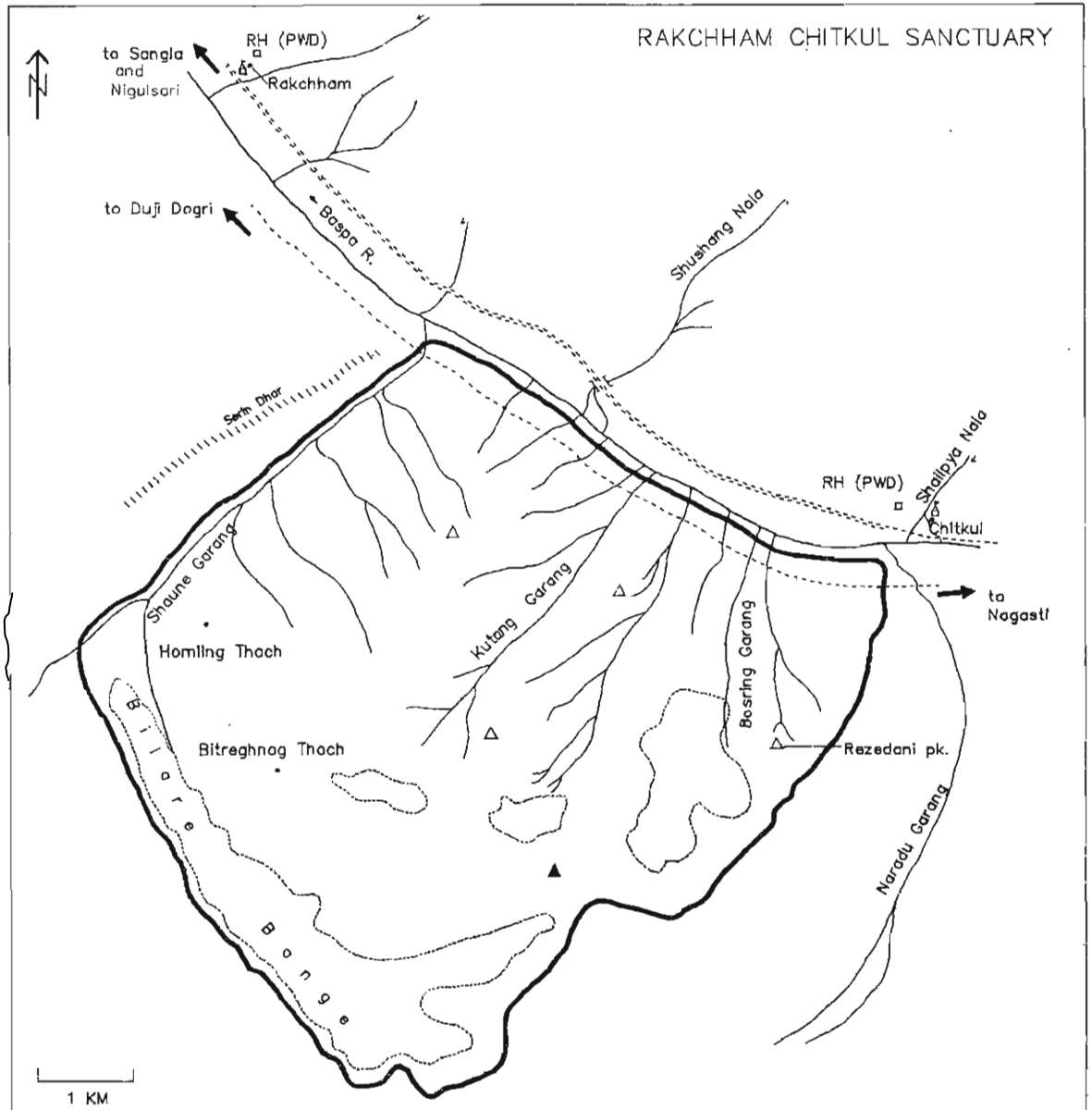
CONTACT ADDRESSES:

Range Officer (WL)
Nagrota Surian - 176 027
Teh. Jwali
District Kangra
Himachal Pradesh

DFO (WL)
Chamba Division,
Chamba - 176 310,
Himachal Pradesh



RAKCHHAM CHITKUL SANCTUARY



RAKCHHAM CHITKUL SANCTUARY

This high-altitude sanctuary is a good habitat for the endangered Musk deer. Govind Pashu Vihar Sanctuary, in Uttar Pradesh, falls adjacent to its southern boundary, and a little beyond the eastern boundary of the sanctuary lies the Tibetan plateau of China.

LEGAL STATUS: First notified a sanctuary in 1962. Renotified on March 27, 1974.

AREA AND ZONING: 3411 ha. (34.11 sq.km). No zoning.

LOCATION: *District* Kinnaur; *Latitude* Approx. 31°30'N [OUP 1982]; *Longitude* Approx. 78°23'E [OUP 1982]; *Nearest town* Kalpa (80 km); *Nearest railhead* Shimla (254 km); *Nearest airport* Shimla (269 km).

APPROACH: From Shimla to Rampur Bushahr (140 km), then via Nigulsari to Sangla (95 km), and on to sanctuary (19 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 3200 to 5486 m [map]; *Temperature* -10 to 15°C; *Mean annual rainfall* 463.9 mm [wp]; *Mean annual snowfall* 1129.7 mm [wp].

FLORA: Forest types found in the sanctuary include Lower Western Himalayan Temperate Forest 12/C1, Upper West Himalayan Temperate Forest 12/C2, Dry Broadleaved & Coniferous Forest 13/C1, Dry Temperate Coniferous Forest 13/C2, and Dry Alpine Scrub 16/C1.

No information is available on locally threatened species. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [wp]

Bear, Himalayan Black	Goral
Bear, Brown	Leopard
Deer, Musk	Sheep, Blue

Fish

Trout, Brown

Birds (See Appendix 7)

Species believed to be locally threatened are Musk deer, Leopard, Goral, Brown bear, Himalayan black bear and Monal pheasant.

The Brown trout was introduced into Kashmir and Himachal Pradesh around 1900, and has spread into this sanctuary.

OCCURRENCE AND CONTROL OF DISEASE: No details are available on epidemics among flora or fauna. The nearest veterinarian is located at Sangla, 19 km away.

OTHER FACTORS AFFECTING HABITAT: Forest fires, hailstorms and frost are known to occur. Some parts experience avalanches regularly [fv]. No information is available on overpopulation of fauna or flora.

WATER RESOURCES: Baspa River flows along the N-E border of the sanctuary and Shaune Garang along the north-western border [map]. There are 7 perennial streams in the sanctuary, and 4 glaciers [map, tp].

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer and one Forest Guard. The Range Officer is locally in-charge of the sanctuary, and is posted at Nigulsari. He holds additional charge of Lippa Asrang Sanctuary.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: The 500 inhabitants of Chitkul Village have rights in relation to grazing, and collection of timber, fuelwood, fodder, pine needles and other minor forest produce inside the sanctuary. Rights to religious *yatra* and burial grounds exist with all the local villagers.

Habitation: There are no villages inside. However, 2 *thaches* used by approximately 50 people during summer are located within the sanctuary. There are 3 villages in the adjacent area with a total population of about 2000 people.

Grazing: Chitkul Village livestock, numbering 8000, graze inside the sanctuary. In addition, graziers from other parts of Himachal Pradesh and Uttar Pradesh get permits for grazing inside the sanctuary, and bring in about 25000 heads annually.

Offences and Illegal Activities: In 1978, one case of illegal possession of a dead Musk deer was reported. There are believed to be a large number of offences in the area, which are not recorded due to shortage of protection staff [fv]. It is also reported that personnel of the para-military forces poach wildlife in the sanctuary [fv].

Tourism: Tourist records are not maintained.

Use by Other Government Agencies: The Indo-Tibetan Border Police and Special Security Bureau (SSB) personnel use the sanctuary for their armed exercises. The Himachal Pradesh State Electricity Board is doing a preliminary exploration for the proposed Baspa Hydel Project.

INFORMATION FOR VISITORS: The best period for visiting the sanctuary is from April to June, and again in September and October, when the area is approachable and the weather is conducive to wildlife spotting. Inner line permit is required by Indians. The area is ordinarily closed to foreign nationals.

There are four rest houses outside with a total of 22 beds.

CONTACT ADDRESSES:

Range Officer (WL)
Sangla
District Kinnaur
Himachal Pradesh

DFO (WL)
Sarahan Division
Sarahan Bushehar - 172 102
Himachal Pradesh



Goral

RENUKA SANCTUARY

One of the smallest sanctuaries in Himachal Pradesh, more famous as a pilgrimage spot and for its lion safari, than for its wildlife. A large crystal-clear lake, embedded like a jewel in a small valley with forested hills rising all around, is the focus of pilgrim and wildlife activity. Renuka and Parshuram Temples are within the sanctuary. Indeed, the religious sentiment associated with the place has helped in protecting the wildlife, especially in the lake. One of the more memorable sights here is that of hundreds of huge fish jumping and darting in and above the water to catch the food morsels thrown to them by pilgrims, churning the water into white foam in the process.

LEGAL STATUS: First notified a sanctuary on 22 July, 1964, under the Punjab Wild Birds and Wild Animals Act, 1933, and the Himachal Pradesh Wild Birds and Wild Animals Protection Rules [notif. 1]. Renotified on 25 March, 1987 [notif. 2].

AREA AND ZONING: 402.80 ha. (4.03 sq.km). No zoning inside the sanctuary. However, the entire sanctuary area has been declared as a Core Zone, and an area of 736.65 ha. adjacent to it but outside the sanctuary as Buffer Zone.

LOCATION: District Sirmaur; *Latitudinal range* 30°35'58" to 30°37'08"N [tp]; *Longitudinal range* 77°26'34" to 77°28'21"E [tp]; *Nearest town* Dadahu, 2 km; *Nearest railhead* Barara, 85 km; *Nearest airport* Chandigarh, 125 km.

APPROACHES: From Delhi to Ambala (175 km), then to Nahan (65 km), and on to the sanctuary (25 km). Alternatively from Shimla to Nahan (142 km), and on to sanctuary (25 km). Yet another approach is from Shimla to Solan (48 km), then to Rajgarh (48 km) via Kandaghat and Chail, and on to Dadahu (38 km), which is 2 km from the sanctuary.

TOPOGRAPHY AND CLIMATE: *Altitude* 200 to 887 m; *Temperature* 1 to 45°C; *Mean annual rainfall* : 2000 mm.

FLORA: Forest types include Northern Dry Mixed Deciduous Forest 5B/C2 and Dry Deciduous Scrub 5/DS1.

Plantations of Eucalyptus were done in the late 1970's [fv]. Renewed plantation work has been undertaken since 1984-85. Species planted include *Bauhinia vahlii*, Neem, Akhrot, Guava, Silver Oak, Bottle Brush, Derek, Mulberry, Subabul, Sain, Siris, Toon, Amaltash, Behul, Bahera, Ritha, Jamun, Ginger, Kaner, Amla, Shisham, Chir, Mango, Imli, Eucalyptus, Poplar, and Jacaranda [Hist. file]. Lantana reportedly covers almost 70% of the sanctuary [fv]. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, Hist. file, fv, dh]

Bear, Himalayan Black	Jackal
Cat, Jungle	Langur, Common
Civet, Himalayan Palm/Common Palm ?	Leopard
Deer, Barking	Macaque, Rhesus
Goral	Porcupine, Indian/Hodgson's ?
Hare, Indian	Sambar

Fish [Q1, Hist. file, dh]

<i>Tor paitora</i> (Mahseer)	<i>Mastacembelus armatus</i> (Guj)
<i>Cyprinus carpio</i> (Mirror carp)	<i>Ophioccephalus marulius</i> (Seul)

Reptiles [Q1, Hist. file, dh]

Cobra, Indian	Ratsnake, Common
Python, Indian	

Birds (See Appendix 7)

No information is available on species of amphibians, insects, and other fauna found in the sanctuary. Crocodiles are reported to have inhabited Renuka Lake in the past, but are now locally extinct [H.P. Forest Dept., undated]. One leopard is reported to visit the sanctuary area occasionally [fv]. A breeding programme for release into the wild was initiated in 1958 for Sambar, Spotted deer, Barking deer, Hog deer, and Lion. While most of these and other animals remain in the zoo [fv], a few Spotted deer, Barking deer, Sambar, Hog deer, and a pair of Mithun were released into the 'Open Park' herbivore safari in 1982-83 [H.P. Forest Dept., undated]. The Hog deer have not survived, but the other animals are reported to be thriving. One salt lick is provided for wildlife.

OCCURRENCE AND CONTROL OF DISEASE: A vaccination programme is undertaken for livestock in surrounding villages, with about 50% cattle reported to be covered. The nearest veterinarian is located at Dadahu, 2 km away.

OTHER FACTORS AFFECTING HABITAT: Frost and hot winds are known to occur. Soil erosion, and consequent siltation of the Renuka Lake also takes place. This was sought to be controlled by a check dam built in 1983-84, but siltation has intensified due to road construction on the slopes above the lake [fv]. About 3 ha. of the lake area has silted up and become grassland and marsh; efforts to desilt the lake are underway [fv]. The exotic weed *Lantana camara* is reported to be causing problems to the indigenous flora, having spread in most of the area.

WATER RESOURCES: Two natural perennial lakes, and one seasonal stream [tp]. The Giri River forms the western boundary of the sanctuary [tp].

BUDGET: A separate budget exists for the zoo and safari parks, but not for the rest of the sanctuary. Figures are not available.

MANAGEMENT PLAN: None

PERSONNEL: The staff includes one Range Officer, four Forest Guards, one Peon, two Van Drivers, several Animal Attendants, and one Mali. The Range Officer, at Renuka, is the local in-charge.

EQUIPMENT: One van for official and tourist use [H.P. Forest Dept., undated].

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: Nature camps and programmes are organised for school students.

HUMAN PRESENCE:

Rights and Leases: There are only rights pertaining to religious worship and visits inside the sanctuary. Pilgrims are allowed to visit the 5 temples situated inside, and the temple staff is permitted to stay within [fv]. An annual fair is held in November in which over 10,000 people visit the temple area. A Renuka Development Board is involved with this pilgrimage and other related work.

Habitation: 1 village, and 1 settlement around the temple complex (Renukaji), with a total of 360 people, are inside the sanctuary. The adjoining area has 14 villages with a population of 2463.

Offences and Illegal Activities: Some illegal fodder cutting and grazing occurs [fv], though no offences have been recorded.

Tourism: In 1983-84, 126 overnight visitors, and 15,000 casual visitors (at the fair) came to the sanctuary.

Use by Other Government Agencies: The area is also used by the PWD for roads, and by the Tourism Department for tourist activities.

Miscellaneous: Labour has been employed from adjacent villages for the zoo enclosure and the safari.

INFORMATION FOR VISITORS: The best time for visiting the sanctuary is from February to April, when sighting of wildlife is good. Entry to the sanctuary is not regulated.

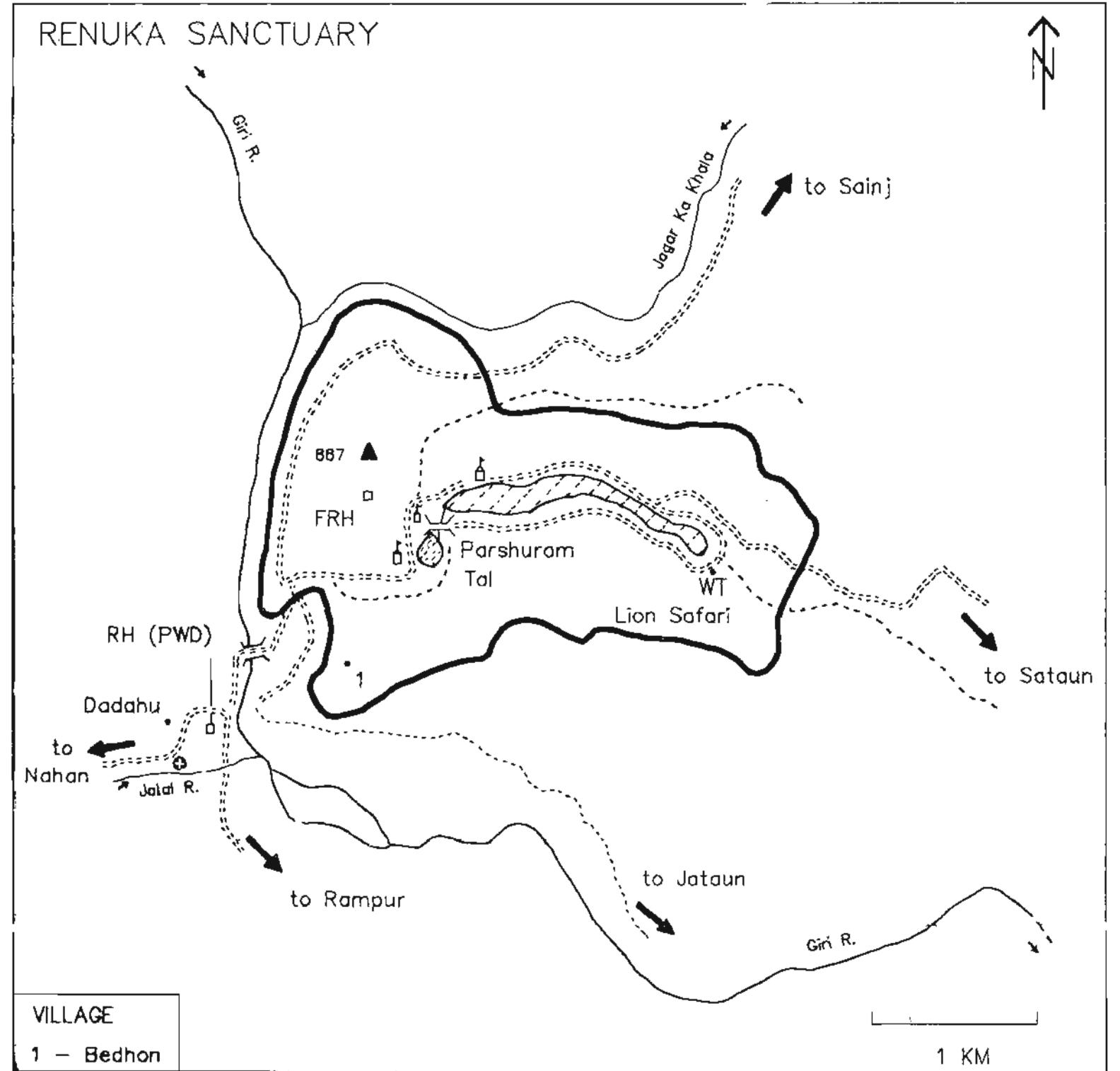
There are three rest houses inside with 46 beds.

One Forest Department van is available for tourist use in the safaris, with Forest Guards acting as guides [fv]. In addition, a camel cart [H.P. Forest Dept., undated], and some boats [Himachal Tourism, undated] are also available. There is a watchtower for viewing wildlife [fv].

CONTACT ADDRESSES:

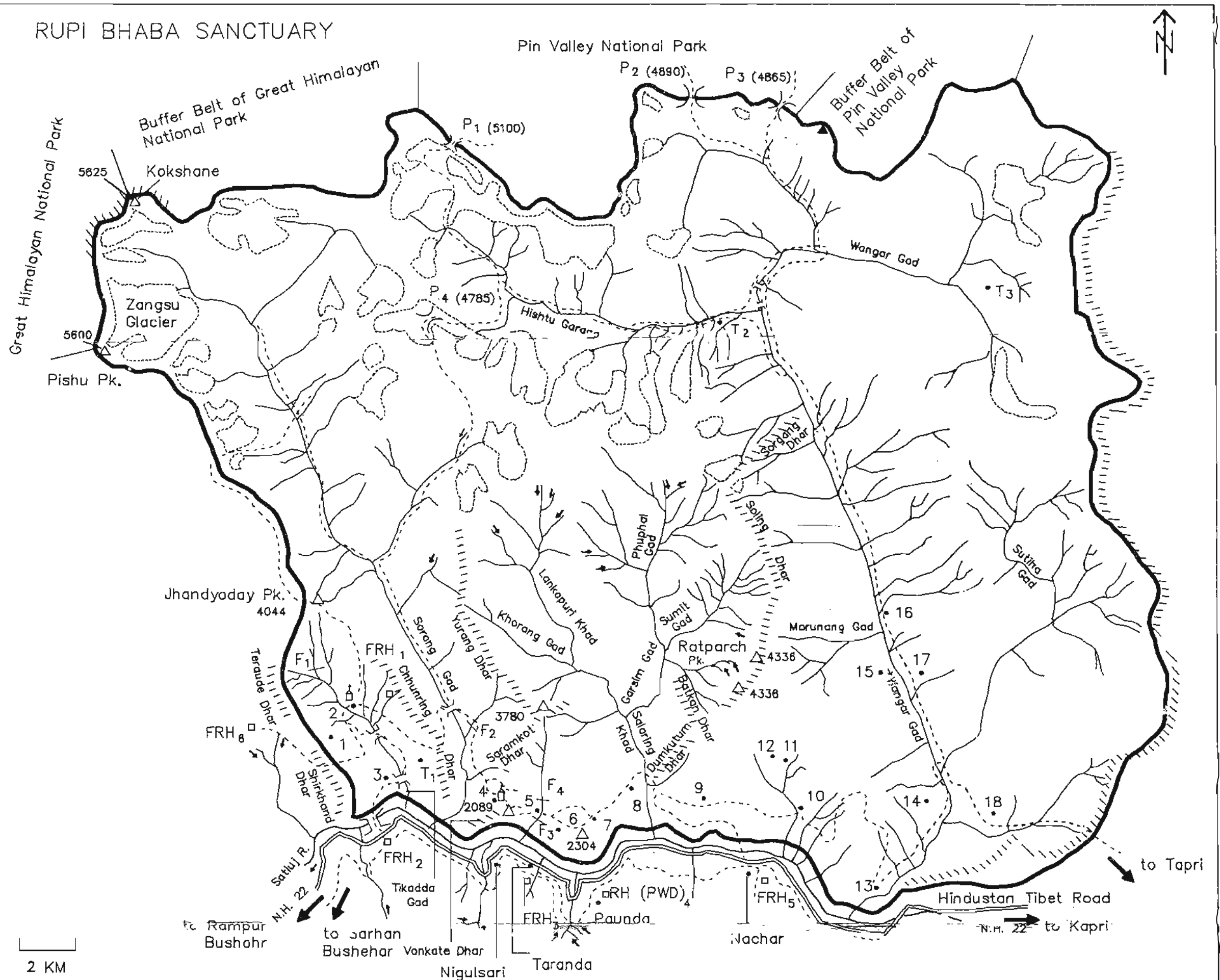
Range Officer (WL)
Renuka Wildlife Range
Renuka P.O.
Dadahu 173 022
District Sirmaur
Himachal Pradesh

DFO (WL)
Shimla Division
Talland
Shimla 171 001
Himachal Pradesh



RUPI BHABA SANCTUARY

Pin Valley National Park



VILLAGE AND DOGRI

- | | |
|------------------|-----------------|
| 1 - Saman Dogri | 10 - Kandar |
| 2 - Rupi | 11 - Sak |
| 3 - Linge Dogri | 12 - Sak Dogri |
| 4 - Bara Kamba | 13 - Wangtu |
| 5 - Chhota Kamba | 14 - Bei |
| 6 - Chikwa | 15 - Kaphnu |
| 7 - Garsun | 16 - Musrang |
| 8 - Rokchad | 17 - Yangpa |
| 9 - Natpa | 18 - Gaurdarang |

THACH

- | |
|--------------------------|
| T ₁ - Gorgang |
| T ₂ - Padal |
| T ₃ - Gyaka |

MOUNTAIN PASSES

- | |
|---|
| P ₁ - Shakarog Khango
(Open from July to September) |
| P ₂ - Nimish Khango
(Open from July to September) |
| P ₃ - Tari Khango
(Open from July to September) |
| P ₄ - Kamba Khango
(Open from July to September) |

WATER FALLS

- | | |
|----------------------------|--------------------------------|
| F ₁ - 76 Metres | FRH ₁ - Rupi |
| F ₂ - 36 Metres | FRH ₂ - Chauhra |
| F ₃ - 30 Metres | FRH ₃ - Taranda |
| F ₄ - 30 Metres | RH (PWD) ₄ - Paunda |
| | FRH ₅ - Nachar |
| | FRH ₆ - Kut |

RUPI BHABA SANCTUARY

A remarkably wide variation in altitudes supports a large diversity of habitats and wildlife in this catchment area of the Satluj River. The north of the sanctuary is covered by glaciers; the rest of the area is criss-crossed with streams. The Great Himalayan and Pin Valley National Parks are located on its western and northern boundaries, respectively. Rupi Bhaba today faces a major threat from an upcoming hydel scheme, the Sanjay Vidyut Project.

LEGAL STATUS: First notified a sanctuary on March 28, 1982. Renotified on June 30, 1982 [mp]. (The reasons for this renotification are not known).

AREA AND ZONING: 26,914.5 ha (269.15 sq.km) [mp]. The sanctuary notification mentions a *sanctum sanctorum* consisting of the catchments of Salaring Khad and Sorang Gad, and a Buffer Zone [mp], the location and extent of which is unclear.

LOCATION: District Kinnaur; *Latitudinal range* 31°30'00" to 31°47'06"N [tp]; *Longitudinal range* 77°45'06" to 78°09'00"E [tp]; *Nearest town* Rampur Bushahr (40 km); *Nearest railhead* Shimla (180 km); *Nearest airport* Shimla (195 km).

APPROACHES: Shimla to Rampur Bushahr (140 km) on NH22, then to Chauhra (37 km) also by NH22 and then on foot (3 km). Alternatively, Rampur Bushahr to Wangtu (60 km) and on to Kathgaon (16 km), inside the sanctuary, by road.

TOPOGRAPHY AND CLIMATE: *Altitude* 909 to 5650 m [tp]; *Temperature* -10 to 20°C [fv]; *Mean annual rainfall* 45 mm; *Mean annual snowfall* 300 mm [met].

FLORA: Forest types include Lower Western Himalayan Temperate Forest 12/C1, Kharsu Oak Forest 12/C2(a), Dry Broadleaved & Coniferous Forest 13/C1, Dry Temperate Coniferous Forest 13/C2, Alpine Pastures 15/C3 (Q1, mp]. The total area under forest cover is 7492 ha. [mp].

Plantations of Kail and Deodar have been undertaken in 1982-83 and 1983-84 to improve wildlife habitat. Conifers like Deodar, Kail, Spruce, and Fir, and broadleaved species like Horsechestnut, Robinia, Poplar, Prunus, and Walnut are planted to meet the growing fuel, fodder and timber requirements of the local people. Poplar and Robinia are introduced species.

For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, dh, mp]

Bear, Brown	Ibex
Bear, Himalayan Black	Leopard
Deer, Barking	Leopard, Snow
Deer, Musk	Serow
Fox, Red	Sheep, Blue
Goral	Tahr, Himalayan

Birds (See Appendix 7)

Species believed to be locally threatened are Musk deer, Snow leopard, Leopard, Monal pheasant, and Western tragopan.

OCCURRENCE AND CONTROL OF DISEASE: No information is available on whether epidemics among flora and fauna take place. A veterinarian is located at Kathgaon, inside the sanctuary.

OTHER FACTORS AFFECTING HABITAT: About 50 ha. was affected by fire in 1983-84. Frost and hailstorms are also reported. In 1984-85, 75% of the area was affected by drought.

WATER RESOURCES: The River Satluj flows along the southern boundary of the sanctuary [tp]. There are also four major perennial streams, several other perennial and seasonal streams and springs, and numerous glaciers [qa, mp, tp].

BUDGET: None

MANAGEMENT PLAN: A plan covering the period 1986-87 to 1990-91 has been made and approved.

PERSONNEL: Two Range Officers, two Deputy Range Officers, and nine Forest Guards. The two Range Officers, located at Rupi and Kathgaon, are locally in-charge.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Apart from grazing, local residents have rights to collection of timber, fuelwood and minor forest produce, habitation, agriculture, and quarrying. There are also rights in relation to religious *yatra*, religious monuments (six temples inside) and burial grounds. Fodder extraction is also allowed.

Habitation: There are 15 villages inside with a population of 2,420. There are also three *dogris* and three *thaches* [tp, map].

Grazing: Both local residents and nomadic Gaddi and Gujjar communities have grazing rights [fv]. Their cattle, grazing inside the sanctuary, number 19,694. In addition 7,500 sheep from the breeding centre at Jeori come inside to graze.

Offences and Illegal Activities: Illegal activities reported are tree felling and the use of explosives for poaching [fv].

Tourism: There is no record of the number of tourists visiting the sanctuary.

Use by other Government Agencies: The upcoming Sanjay Vidyut (Hydel) Project (SVP) is located within the sanctuary. Apart from use of the area for hydel purposes, other activities connected with the project include the setting up of roads, industry, transmission lines and housing. When completed, the SVP will submerge 10 ha. of the sanctuary area, and will take up another 40 ha. for tunnels, dams, and other uses. Heavy vehicular traffic, carrying construction material for the SVP, passes through the sanctuary [fv]. In addition, the proposed Nathpa-Jhakri Project across the River Satluj will submerge another portion of the sanctuary.

The Horticulture Department has a bee-keeping centre at Kathgaon.

Miscellaneous: Outside labour (number not known) was employed for plantation work in 1983-84 [fv]. Plantations have been done to meet the fuel, fodder and raw material needs of the villagers.

INFORMATION FOR VISITORS: April to June and September to October are the best periods for visiting the sanctuary as travelling inside is relatively easy. There are six temples in the sanctuary [fv]. An inner-line permit is required to enter from Wangtu Check Post [fv]. This permit is issued by the Deputy Commissioner at Shimla [fv]. Foreign nationals are ordinarily not permitted to visit the area.

There are two rest houses inside with a total of 14 beds and nine outside with a total of 56 beds.

CONTACT ADDRESSES:

Range Officer (WL) Bhaba
Kangraon
Tehsil Nichar
District Kinnaur
Himachal Pradesh

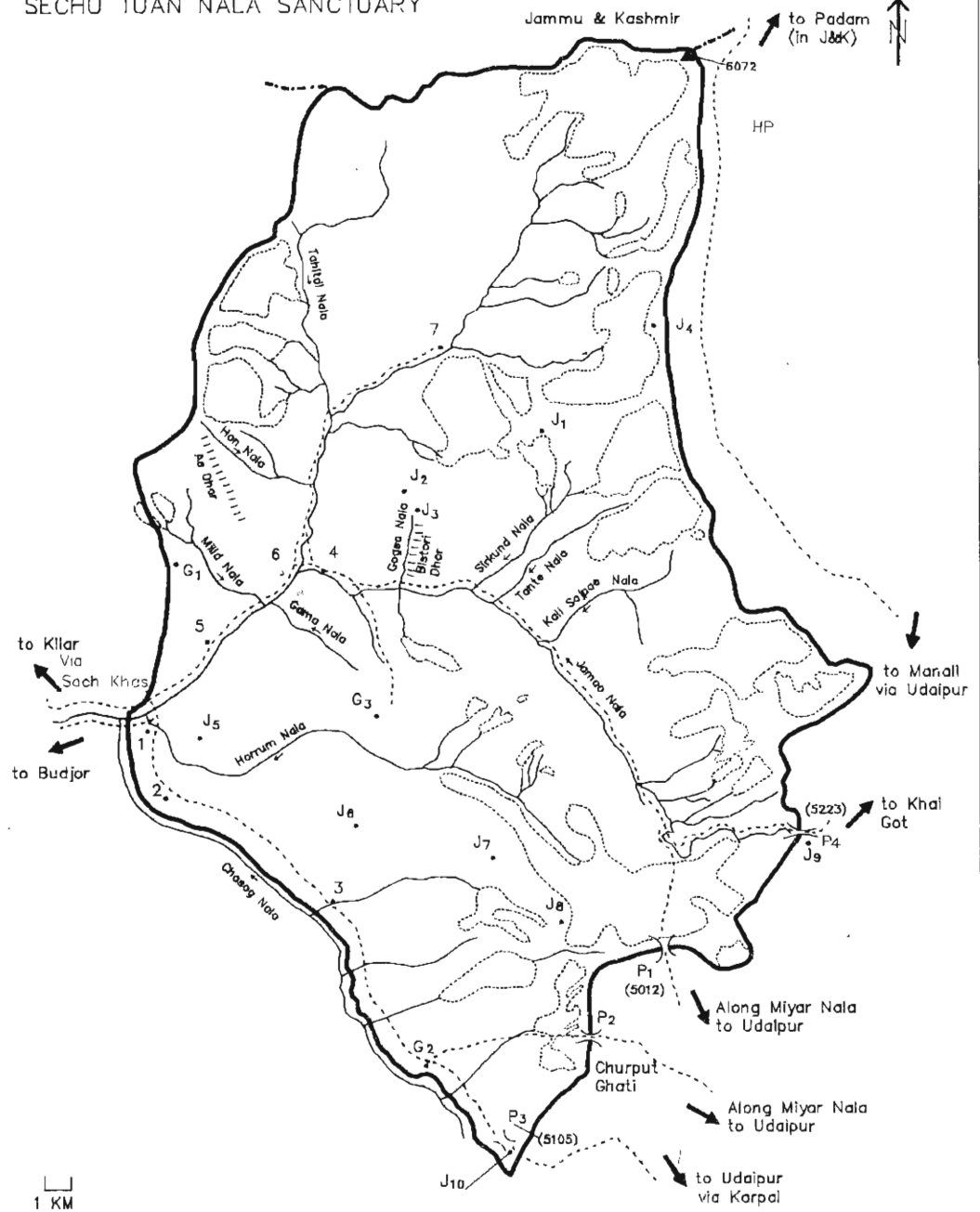
Range Officer (WL) Rupi
Nigulsari
Tehsil Nichar
District Kinnaur
Himachal Pradesh

DFO (WL)
Sarhan Division
Sarhan Bushehar - 172 102
Himachal Pradesh



Himalayan black bear

SECHU TUAN NALA SANCTUARY



VILLAGES

- | | |
|------------|-------------------|
| 1 - Sechu | 5 - Sanari |
| 2 - Chasog | 6 - Chiroti |
| 3 - Piwa | 7 - Guru Ka Alias |
| 4 - Tuan | |

GOTS

- | |
|------------------------|
| G ₁ - Mani |
| G ₂ - Patal |
| G ₃ - Katna |

JOTS

- | | |
|-------------------------|----------------------------|
| J ₁ - Baleli | J ₆ - Kulana |
| J ₂ - Bulka | J ₇ - Kolai |
| J ₃ - Topda | J ₈ - Dhudra |
| J ₄ - Mund | J ₉ - Dagal |
| J ₅ - Samani | J ₁₀ - Ghordhar |

MOUNTAIN PASSES

- | |
|---|
| P ₁ - Twani Pass (Urgus) |
| Names of P ₂ , P ₃ , P ₄ are not known |

SECHU TUAN NALA SANCTUARY

A very high altitude sanctuary with significant populations of Ibex, Musk deer, and Pheasants. Snow leopards are also reported from here.

LEGAL STATUS: First notified a sanctuary in 1962. Renotified on March 27, 1974.

AREA AND ZONING: 10,295 ha. (102.95 sq.km). No zoning inside the sanctuary. However, a surrounding area of 4,570 ha. is regarded as Buffer Zone.

LOCATION: District Chamba; *Latitudinal range* : Approximately 30°15' to 32°N; *Longitudinal range*: Approximately 76°20' to 77°E; *Nearest town* Chamba, 113 km; *Nearest railhead* Pathankot, 235 km.

APPROACHES: From Delhi, via Pathankot (400 km), to Chamba (75 km) and then on to Sach Pass (4413 m, open from June to October) via Sathraundi (75 km), to Kilar (25 km), and on by foot to Sechu (15 km). Alternatively, from Kishtwar (J&K) to Sarsu (36 km), then to Tholi (10 km), on to Ishtiari (25 km), then to Killar (25 km), on to Saj (13 km), finally to Sechu (12 km). Sarsu onwards is all on foot. A third approach is from Kyelang to Nigari (59 km), then on foot to Sach Khas (45 km), which is adjacent to the sanctuary.

TOPOGRAPHY AND CLIMATE: *Altitude* 2550 to 6072 m [map]; *Temperature* -20 to 27°C; *Mean annual rainfall* 500 mm.

FLORA: Forest types include Lower Western Himalayan Temperate Forest 12/C1, Moist Alpine Scrub 15, and Dry Alpine Scrub 16.

Species of medicinal interest found in the sanctuary include *Aconitum heterophyllum*, *Jurinea macrocephala*, and *Ephedra gerardiana*.

Plantations over 113.7 ha. have been taken up from 1979 to 1987, for fuelwood and other commercial purposes. Species planted include Deodar, Poplar, Kail, Willow, Robinia, and Walnut. Of these, Robinia and Poplar are introduced species. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, qa, fv]

Bear, Brown	Leopard, Snow
Bear, Himalayan Black	Markhor
Cat, Jungle	Mouse-hare, Himalayan
Deer, Musk	Serow
Goral	Sheep, Blue
Ibex	Tahr, Himalayan
Langur, Common	

Birds (See Appendix 7)

OCCURRENCE AND CONTROL OF DISEASE: Diseases have been reported among flora and fauna, but no information is available [fv]. A veterinarian is located at Sechu, inside the sanctuary.

OTHER FACTORS AFFECTING HABITAT: Fires [fv], frost, gales, and cyclones are known to occur. In 1986, 240 ha. were affected by fire. Landslides are reported to be very common [fv].

WATER RESOURCES: Ten major and many minor perennial streams, several seasonal streams, [map], and six springs. There are also several glaciers.

BUDGET: Rs. 90,000 for 1987-88.

MANAGEMENT PLAN: None

PERSONNEL: One Range Officer and one Forest Guard.

EQUIPMENT: None

RESEARCH AND MONITORING: None. Vegetation and contour maps are available for reference.

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Rights or leases in the area exist in relation to collection of timber and fuelwood, agriculture, habitation, burial grounds, and religious *yatra*. Villagers are also permitted fodder extraction and minor forest produce collection on payment. Rights also exist in relation to Hindu and Buddhist religious monuments [fv].

Habitation: There are 11 villages inside the sanctuary with a population of 1,049. The surrounding area has 14 villages with a population of 2,853.

Grazing: Grazing rights exist for villagers both inside and around the sanctuary. The number of livestock grazing inside is 3188. Injuries or death of livestock caused by Brown bear, Himalayan black bear, and Snow leopard are reported [fv]. In the first half of 1987 itself, 7 cases of livestock killings were recorded.

Offences and Illegal Activities: Gaddis are reported to be illegally grazing their livestock in summer [fv]. Poaching is also reported [fv].

Tourism: No records are maintained about the number of tourists visiting the sanctuary.

Use by Other Government Agencies: There are 23 km of PWD roads, and Irrigation Department pipelines and canals (length unknown) in the sanctuary. In addition, about 3 ha. is used for schools by the Education Department, and some area for dispensaries at Chasog [fv]. The Forest Department fells trees and extracts timber, and maintains three nurseries. Felling was also done in 1987 by the Forest Development Corporation. Inside the sanctuary (at Sechu) there is housing for the doctor and compounder of the dispensary [fv].

Miscellaneous: Outside labour (number not known) has been employed for timber extraction, and maintenance of nurseries and Forest Rest Houses [fv].

Minor clashes have occurred involving the Gaddis and villagers versus Forest and Police officials, in 1985 and 1986 [fv].

INFORMATION FOR VISITORS: The sanctuary is best visited from June to September due to good weather and easy accessibility. Hindu and Buddhist temples are located at Bhat, Tuan, Hilu, Chroti, and Kalichor. There is no regulation of entry into the sanctuary.

There are three rest houses inside with a total of 12 beds.

A Forest Range Rest Room is under construction at Tuan.

CONTACT ADDRESS:

DFO (WL)

Chamba Division

Chamba - 176 310

Himachal Pradesh

SHIKARI DEVI SANCTUARY

This sanctuary is named after the goddess Shikari Devi, to whom a temple situated within the sanctuary is dedicated. Having been a sanctuary since 1962, the area retains good habitat for animals like Musk deer, and Monal and other pheasants. There are also unconfirmed reports of Snow leopard in the area.

LEGAL STATUS: First notified a sanctuary in 1962. Renotified on March 27, 1974. The required legal steps have all been completed.

AREA AND ZONING: 7,200 ha. (72 sq. km). No zoning inside the sanctuary. However, an area of 14,150 ha. around the sanctuary is considered a Buffer Zone.

LOCATION: District Mandi; *Latitudinal range* 31°27'03" to 31°32'16"N [tp]; *Longitudinal range* 77°05'36" to 77°13'41"E [tp]; *Nearest town* Sundarnagar (75 km); *Nearest railhead* Shimla (128 km); *Nearest airport* Shimla (143 km).

APPROACHES: From Shimla to Sundarnagar (132 km), then to Thunag by road (60km), and on to Karsog (15 km), and finally on foot (12 km). Alternatively, from Shimla to Karsog by road (116 km), then on foot (12 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 1800 to 3359 m; *Temperature* -10 to 30°C; *Mean annual rainfall* 1038.80 mm [wp].

FLORA: Forest types include Ban Oak Forest 12/C1(a) (1100 ha.), Western Mixed Coniferous Forest 12/C1(d) (1500 ha.), Kharsu Oak Forest 12/C2(a) (2000 ha.), West Himalayan Upper Oak/Fir Forest 12/C2(b), Moist Temperate Deciduous Forest 12/C2(c), Sub-Alpine Forests 14, and Alpine Pastures 15/C3 [Q1, wp, dh, mp, fv].

For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, mp]

Bear, Himalayan Black	Leopard
Cat, Leopard	Leopard, Snow (unconfirmed records)
Civet, Himalayan Palm	Macaque, Rhesus
Deer, Barking	Marten, Stone/ Himalayan Yellowthroated ?
Deer, Musk	Porcupine, Indian
Goral	Squirrel, Kashmir Flying/ Common
Langur, Common	Giant Flying ?

Birds (See Appendix 7)

Species considered to be threatened are Musk deer, Monal pheasant, and Chir pheasant.

OCCURRENCE AND CONTROL OF DISEASE: Information about diseases affecting flora and fauna is not available. The nearest veterinarian is at Janjeli, 8 km away.

OTHER FACTORS AFFECTING HABITAT: Hailstorms and frost occur. Information about forest fires is not available.

WATER RESOURCES: Five natural water holes, six seasonal artificial tanks, 12 perennial and several seasonal streams. There is also one spring [tp].

BUDGET: None

MANAGEMENT PLAN: A management plan has been drawn up for the period 1984-85 to 1988-89, but has not yet been approved.

PERSONNEL: One Range Officer, two Deputy Rangers, and 10 Forest Guards.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: The activities of villagers in the sanctuary were considered their rights till the legal procedures were completed, reportedly without proper notice being given to the villagers. These activities include the following: grazing, removal of stones and earth for local use, habitation, and collection of timber, fuelwood and minor forest produce. Migratory graziers are given grazing permits by the DFO Territorial. Activities related to religious monuments and religious *yatra* are also carried out by residents and people from surrounding areas. An annual fair is held in May-June at the Budha Kedar spring [mp].

Habitation: 40 villages exist inside, population figures for which are not available. This population is augmented seasonally by 200 to 300 nomadic Gujjars [fv]. The surrounding area is also heavily populated, though figures are not available [fv].

Grazing: Migratory graziers are given permits for grazing their livestock inside the sanctuary. The number of livestock grazing inside is 6,792, including those of the local villagers.

Offences and Illegal Activities: Poaching of wildlife remains a problem in the area [fv]. In addition, all the above-mentioned activities of local villagers are now considered illegal for reasons already stated.

Tourism: Thousands of pilgrims visit the sanctuary every year [fv], but no record of tourist numbers is available.

Use by other Government Agencies: The Territorial Wing of the Forest Department has allowed felling of trees over 99.1 ha. by private contractors. Felling is also done by the Forest Development Corporation, though details of this are not available.

Miscellaneous: Labour (number not known) from outside is employed by the Forest Department.

INFORMATION FOR VISITORS: The sanctuary is best visited from April to June and from September to December when visibility is good. Places of religious interest include the temple of the goddess Shikari Devi, and the holy spring of Budha Kedar. There is no regulation of entry into the sanctuary.

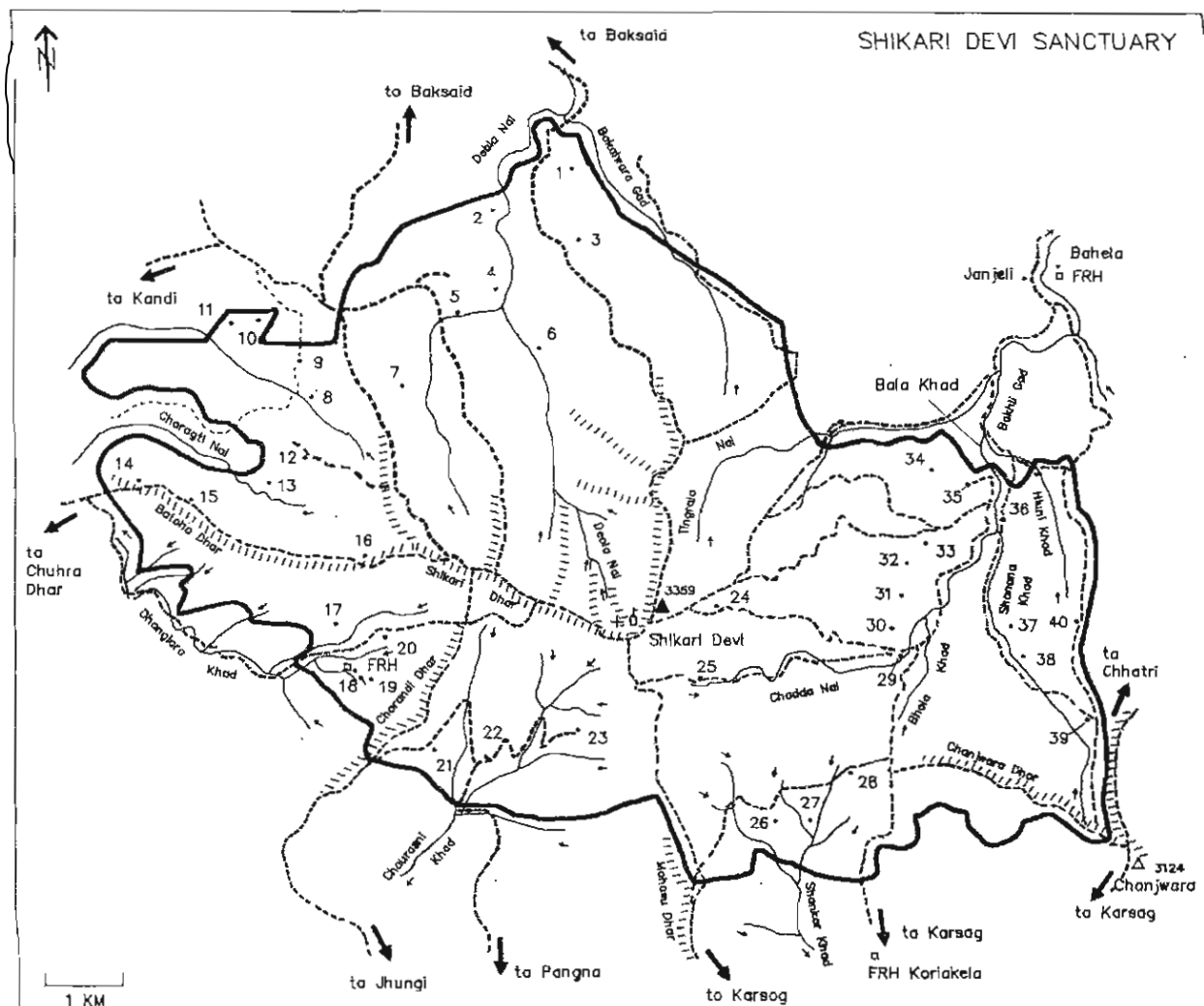
There are ten rest houses outside with a total of 52 beds and one inside with 4 beds.

Future plans for extending tourist facilities include construction of more rest houses, provision of camping equipment, and construction of hides and a watchtower for viewing wildlife.

CONTACT ADDRESSES:

Range Officer (WL)
Sundarnagar - 174 401
District Mandi
Himachal Pradesh

DFO (WL)
Kullu Division
Kullu - 171 101
Himachal Pradesh

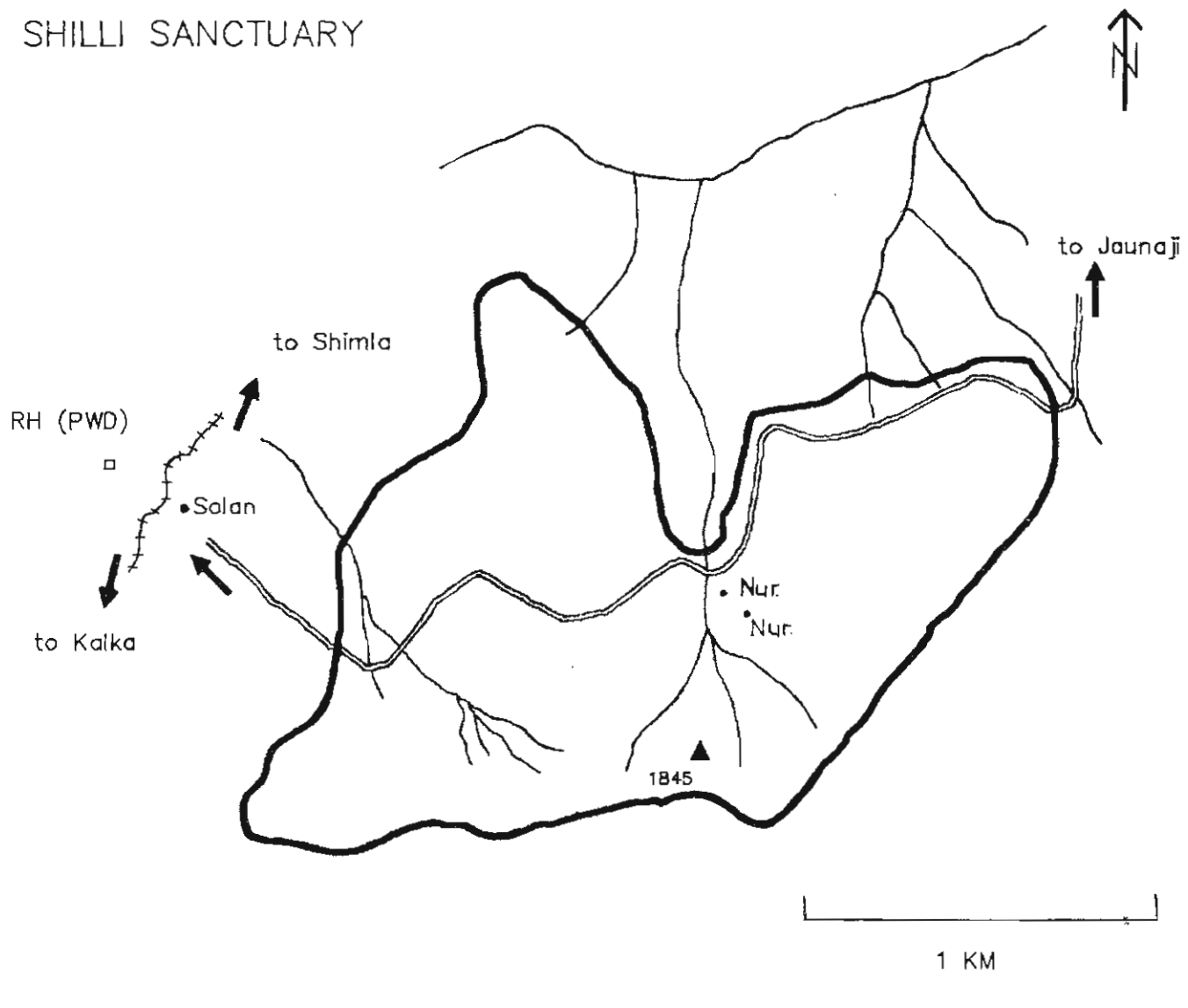


SHIKARI DEVI SANCTUARY

VILLAGES

- | | | | |
|----------------|-------------------|----------------|----------------|
| 1 - Lamb | 11 - Kashi | 21 - Chinwara | 31 - Dalehr |
| 2 - Chiadi | 12 - Khalwani | 22 - Chaurani | 32 - Shoda |
| 3 - Sauch | 13 - Surwala | 23 - Kuthiali | 33 - Saunt |
| 4 - Gurshani | 14 - Kandhli | 24 - Daklehr | 34 - Jagir |
| 5 - Jabal | 15 - Patoha | 25 - Kangar | 35 - Janot |
| 6 - Bansif | 16 - Thannachdhar | 26 - Chhanain | 36 - Riora |
| 7 - Dharawat | 17 - Takhar | 27 - Naerar | 37 - Lingranal |
| 8 - Chaikh | 18 - Devidhar | 28 - Kinag Deo | 38 - Jhagran |
| 9 - Marahwala | 19 - Chawali | 29 - Chadda | 39 - Binj |
| 10 - Bargaihan | 20 - Ghalor | 30 - Bansor | 40 - Judi |

SHILLI SANCTUARY



SHILLI SANCTUARY

The smallest sanctuary in Himachal Pradesh. Being located within a thickly populated area, it is highly disturbed, but has one of the last stretches of oak forest in the area. It was earlier a Protected Forest. There is a proposal to develop the sanctuary into a city park.

LEGAL STATUS: First notified a sanctuary in 1963. Renotified on March 27, 1974.

AREA & ZONING: 213.32 ha. (2.13 sq.km). No zoning.

LOCATION: *District Solan; Latitudinal range 30°54'15" to 30°54'41"N [tp]; Longitudinal range 77°07'45" to 77°09'13"E [tp]; Nearest town Solan, 0.5 km; Nearest railhead Solan, 0.5 km; Nearest airport Shimla, 40 km.*

APPROACHES: From Chandigarh to Solan via Kalka (70 km). Alternatively, from Shimla to Solan by road/rail (45 km).

TOPOGRAPHY AND CLIMATE: *Altitude 1230 to 1845 m; Temperature -4 to 30°C; Mean annual rainfall: 1150 mm [met].*

FLORA: Forest types found in the sanctuary include Northern Tropical Dry Deciduous Forest 5B and Ban Oak Forest 12/C1(a).

Plantation of exotic pines (species not known) has been carried out by Dr. Y.S. Parmar University of Horticulture and Forestry, Solan.

For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Deer, Barking
Goral
Hare, Indian
Jackal

Langur, Common
Leopard
Marten, Himalayan Yellowthroated
Porcupine, Indian/Hodgson's ?

Birds (See Appendix 7)

No definite information is available on threatened species, but all the fauna is possibly locally threatened in view of the heavy disturbance [fv].

OCCURRENCE AND CONTROL OF DISEASE: No information is available on epidemics among fauna and flora. The nearest veterinarian is located at Solan, 0.5 km away.

OTHER FACTORS AFFECTING HABITAT: Hailstorms occur in the sanctuary during April and May.

WATER RESOURCES: 2 perennial streams and 10 artificial tanks.

BUDGET: None

MANAGEMENT PLAN: None

PERSONNEL: The Range Officer in-charge is based at Chail. One Deputy Range Officer and two Forest Guards are posted at the sanctuary.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Local people have rights in relation to grazing, extraction of fodder, quarrying, agriculture, habitation, and collection of timber, fuelwood and minor forest produce. Rights also exist in relation to religious monuments and *yatra*, and burial grounds.

Habitation: There exist 6 villages inside with a population of 563, in addition to about 25 houses of Solan town. The surrounding area is thickly populated; it includes Solan town and several villages [fv].

Grazing: The number of livestock grazing inside is 378. There are reports of cattle lifting by leopards, though no cases have been recorded for compensation [fv].

Offences and Illegal Activities : One case of illegal possession of weapons has been recorded in 1982-83.

Tourism: There is no record kept of the number of tourists visiting the sanctuary.

Use by Other Government Agencies: 2 ha. are used for agricultural and nursery activities by the Dr. Y.S. Parmar University of Horticulture and Forestry, Solan.

INFORMATION FOR VISITORS: The sanctuary is best visited from May to June and from October to November, when the weather is good. There is no regulation of entry into the sanctuary.

There are three rest houses outside with a total of 18 beds, and various hotels and rest houses at Solan.

CONTACT ADDRESSES:

Range Officer (WL)
Chail - 173 213
District Solan
Himachal Pradesh

DFO (WL)
Shimla Division
Talland
Shimla - 171 001
Himachal Pradesh



Barking deer

SHIMLA WATER CATCHMENT SANCTUARY

One of the few sanctuaries in Himachal Pradesh free from habitation, this area has been preserved since the last century as the catchment area providing water to Shimla town. Earlier the property of the former Rana of Koti, the area came under State control in 1947-48 and was notified a protected forest in 1952 [mp]. Its terrain is very steep and precipitous at places and the whole area is criss-crossed with *nallahs* and streams. It has perhaps the highest density of Koklas pheasant among the state's national parks and sanctuaries [Garson and Gaston, 1985]. The sanctuary is connected by a forest corridor to Chail Sanctuary in the south.

LEGAL STATUS: First notified a sanctuary on July 29, 1958, for a period of 20 years. Renotified on December 14, 1982 [notif.]. Since no rights exist in the area, the other legal steps do not seem to have been considered necessary. The area is under the control of the Shimla Municipal Corporation [fv].

AREA AND ZONING: 1025.3 ha. (10.25 sq.km). No zoning.

LOCATION: District Shimla; *Latitudinal range* 31°05'12" to 31°07'11"N [tp]; *Longitudinal range* 77°12'54" to 77°16'04"E [tp]; *Nearest town and railhead* Shimla (5 km); *Nearest airport* Shimla (20 km).

APPROACH: From Shimla by road or on foot (5 km).

TOPOGRAPHY AND CLIMATE: *Altitude* 1900 to 2620 m [tp]; *Temperature* -5.4 to 32°C [mp]; *Mean annual rainfall* 1600 mm.

FLORA:

The vegetation consists predominantly of temperate coniferous forest, dominated by Deodhar, and mixed at lower elevations with White Oak and patches of Chil Pine, and at higher elevations with Blue Pine, Green Oak and Spruce. Shrub and ground layers are generally well developed, shrubs forming on average about 50% cover...Ground vegetation is predominantly grasses, but includes a variety of ferns and vascular herbs [Gaston 1979].

Forest types include Himalayan Subtropical Pine Forest 9/C1 (40 ha.), Lower Western Himalayan Temperate Forest 12/C1, Ban Oak Forest 12/C1(a) (104 ha.), Moist Deodar Forest 12/C1(c), which covers a major portion of the sanctuary, and Oak Scrub 12/DS1 [mp, fv].

For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, dh, Gaston 1979, Gaston et.al. 1981, Gaston et.al. 1983]

Cat, Leopard (uncertain record of droppings)

Deer, Barking

Deer, Musk (now locally extinct ?)

Goral

Langur, Common

Leopard

Macaque, Rhesus

Marten, Himalayan Yellowthroated

Porcupine, Indian

Sambar (uncertain record of droppings)

Squirrel, Kashmir Flying/Common

Giant Flying ?

Birds (See Appendix 7)

Species believed to be locally threatened are the Leopard and Koklas pheasant. Also, the population of Barking deer and Goral is reported to have declined since 1980. The Musk deer, reported by local people to have existed in the past, is now believed to be locally extinct. A survey in 1980 revealed no signs of its presence [IUCN undated]. Attempts to reintroduce Chir pheasants were made in 1968, but none survived.

OCCURRENCE AND CONTROL OF DISEASES: No information is available on whether there are epidemics of fauna. Periodic attacks of the Deodar leaf defoliator have been reported in the past [wp]. The nearest veterinarian is located at Shimla, five km away.

OTHER FACTORS AFFECTING HABITAT: A recurring problem in the sanctuary is the uprooting of trees due to heavy snow, during November to March. Hailstorms occur from April to May. Forest fires also occur, but rarely.

WATER RESOURCES: Two perennial and several non-perennial streams, and many springs [Q1, tp]. One artificial reservoir exists at Sog [fv].

BUDGET: None

MANAGEMENT PLAN: A 'Working Plan for Shimla Municipal Water Supply Catchment Forest' was valid for the period 1963-64 to 1982-83 [mp]. No plan exists for the present period [fv].

PERSONNEL: One Deputy Ranger and four Forest Guards, employed by the Municipal Corporation, Shimla. The local in-charge is the Deputy Ranger, posted at Shimla.

EQUIPMENT: None

RESEARCH AND MONITORING: Dr. A.J. Gaston of the Canadian Wildlife Service conducted wildlife surveys in the sanctuary in 1979 [Q3] in collaboration with the HP Forest Department. Dr P.J. Garson of the University of Newcastle-upon-Tyne continued these surveys in 1985.

COMMUNITY INTERACTION PROGRAMMES: Students from Shimla are taken to the sanctuary for nature study trips.

HUMAN PRESENCE:

Rights and Leases: No rights or leases exist in the sanctuary area. However, contracts are given for extraction of fodder.

Habitation: The sanctuary area is free of habitation. Settlements, which once existed inside, were relocated in the early part of this century. The sanctuary is flanked on one side by Shimla town and on the other by Kufri town [map]. Population figures for surrounding areas are not available.

Offences and Illegal Activities: A few cattle, sheep and goats from adjacent villages graze illegally inside the sanctuary. Some poaching of animals is also reported [fv].

Use by other Government Agencies: The sanctuary is used by the Irrigation and Public Health Departments for water supply to Shimla. Pipelines run through the sanctuary for this purpose [fv].

Miscellaneous: 60 labourers were engaged in check-dam and culvert repairs in 1987.

INFORMATION FOR VISITORS: March to June, and September to November, are the best periods for visiting the sanctuary, as the weather is pleasant [Q1, Q3].

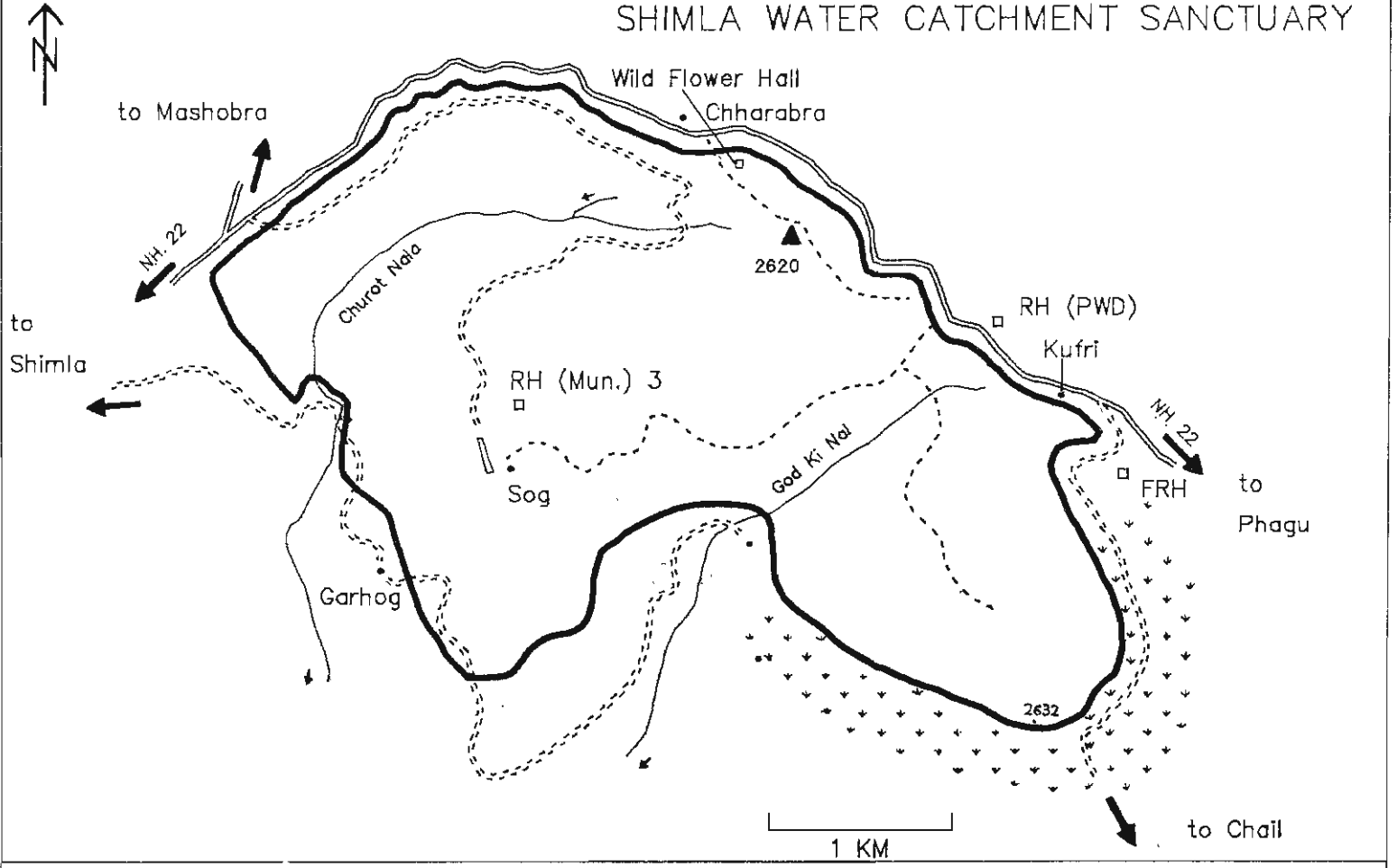
Tourism is ordinarily not allowed. However, a system of issuing permits exists for entry on foot or by vehicle. The Commissioner, Municipal Corporation, Shimla, handles this.

There is one rest house inside with 4 beds and three outside with a total of 104 beds.

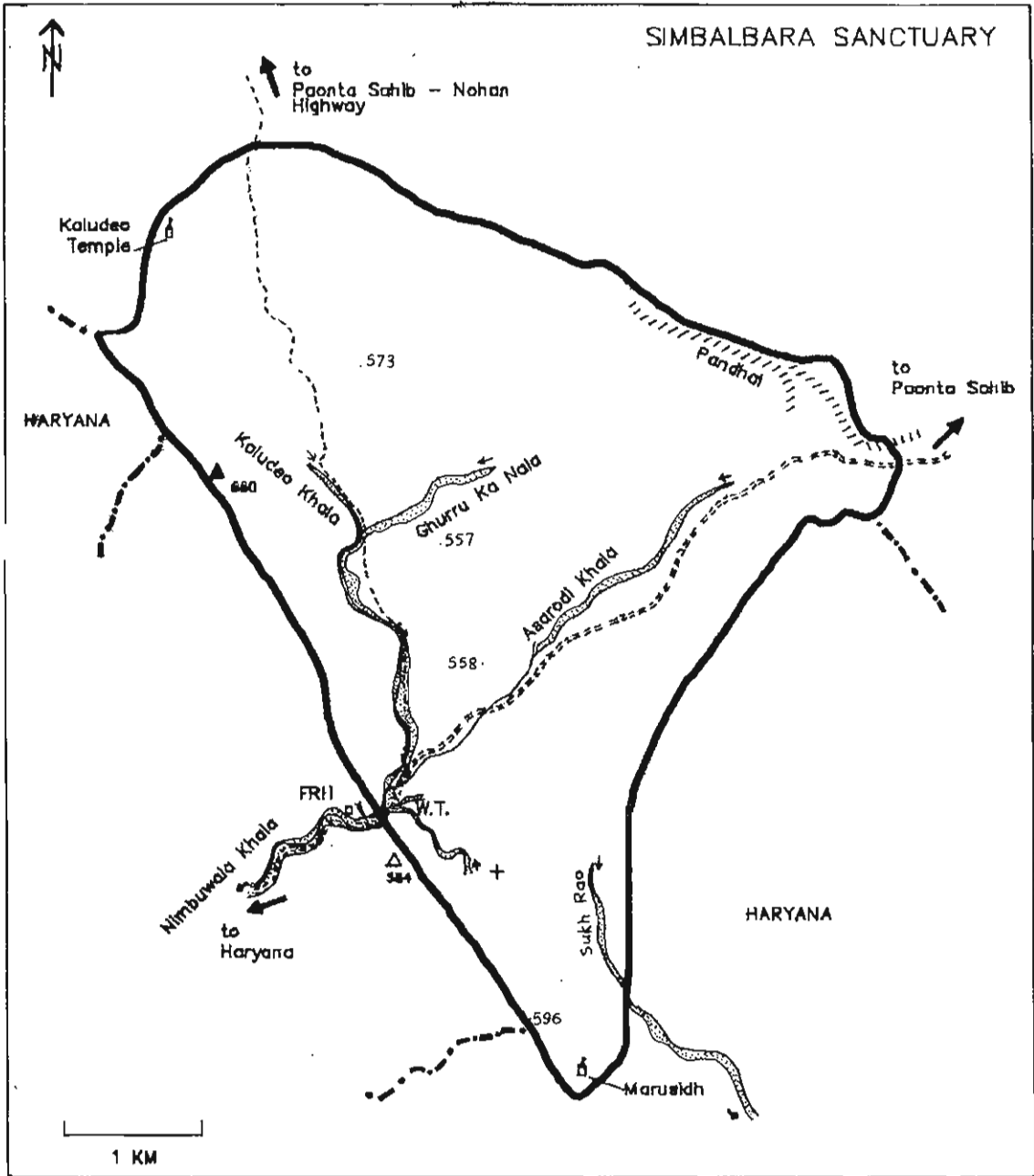
CONTACT ADDRESS:

The Forest Officer
Municipal Forest Office
Cart Road, Shimla - 171 001
Himachal Pradesh

SHIMLA WATER CATCHMENT SANCTUARY



SIMBALBARA SANCTUARY



SIMBALBARA SANCTUARY

This sanctuary is located in Paonta Valley, which is considered the western limit of Sal (*Shorea robusta*) in India. This is one of the few sanctuaries in Himachal Pradesh without human population, and also one of the few where reintroduction of animals has been planned. The area was earlier a hunting preserve of the former Maharaja of Sirmaur; historical records indicate the presence of Elephant in the past [mp]. It is believed that the hydel channel at Haridwar Barrage cut off the migratory route of Elephants [mp].

LEGAL STATUS: First notified a Game Sanctuary for 10 years on 8 February, 1958, under the Indian Forest Act 1927, the Punjab Wild Birds and Wild Animals Protection Act 1933, and other relevant acts [notif 1]. A revised notification was issued in 1972, and the sanctuary was renotified on 27 March, 1974 [notif 2].

AREA AND ZONING: 1903.44 ha. (19.03 sq.km). No zoning. However, in the first notification, an area of 789.20 ha. was declared Sanctum Sanctorum, and 3579.14 ha. around the sanctuary a Buffer Zone [notif 1].

LOCATION: District Sirmaur; *Latitudinal range* 30°24'21" to 30°28'13"N [tp]; *Longitudinal range* 77°27'18" to 77°31'26"E [tp]; *Nearest town* Paonta Sahib, 22 km; *Nearest railhead* Jamunanagar, 70 km; *Nearest airport* Dehradun, 70 km.

APPROACH: Easily approachable from Paonta Sahib, Jamunanagar, Dehradun, or Chandigarh.

TOPOGRAPHY AND CLIMATE: *Altitude* 400 to 660 m [tp]; *Temperature* 10 to 46°C [mp]; *Mean annual rainfall* 1260 mm.

FLORA: Forest types found here include Moist Sal-bearing Forest 3C/C2.

Plantations over 4 ha. to improve wildlife habitat, have been done in 1983-84. The species planted was Poplar, an introduced plant. Bamboo, another introduced species, was planted in 1966-68. A third introduced species is Eucalyptus [mp]. Some plantation of fodder species has been done from 1983 to 1987 [mp].

For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Boar, Indian Wild
Cat, Leopard
Deer, Barking
Deer, Spotted
Goral
Hare, Indian
Jackal

Langur, Common
Leopard
Macaque, Rhesus
Pangolin, Indian
Sambar
Tiger

Reptiles [mp, qa]

Monitor, Common Indian

Python, Indian

Birds (See Appendix 7)

Species believed to be locally threatened are Leopard, Tiger and Leopard cat. A breeding programme for Spotted deer, Hog deer, and Barking deer was initiated in 1978, with plans of reintroducing Spotted deer. Salt licks have been provided for the fauna.

OCCURRENCE AND CONTROL OF DISEASE: No epidemics reported. The nearest veterinarian is located at Paonta Sahib, 22 km away.

OTHER FACTORS AFFECTING HABITAT: Between 1980 and 1985, 3,100 ha. of the sanctuary were affected by fire. Hailstorms, frost, and hot winds are known to occur. The weed *Lantana camara* has spread all over the sanctuary [fv].

WATER RESOURCES: Seven perennial artificial water holes [mp], three perennial and many seasonal streams, and three springs [tp].

BUDGET: Rs. 3,00,000.00 for 1987-88.

MANAGEMENT PLAN: Prepared in June 1987, valid for the period 1987-88 to 1990-91 [mp].

PERSONNEL: One Range Officer, one Deputy Range Officer, and 6 Forest Guards.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: Students are taken on nature walks and camps inside the sanctuary. Two Honorary Wildlife Wardens have been appointed for this sanctuary.

HUMAN PRESENCE:

Rights and Leases: Visiting rights in relation to Kaludeo Temple exist. 50 to 100 pilgrims visit the area every month.

Habitation: There are no villages inside. The surrounding area has 35 villages with a population of 2,444 [mp].

Offences and Illegal Activities: A very small number of cattle, about 20, graze inside illegally [fv]. A road passing through is used by Gujjars and other migratory graziers [mp]. Illegal tree lopping is reported along this road [mp]. The part of the sanctuary adjoining Kalesar forest of Haryana is reportedly prone to poaching from across the border.

Tourism: Occasional trekking parties enter the area [fv]. No records of tourists visiting the sanctuary are maintained.

Miscellaneous: Outside labour (number not known) is employed in the sanctuary for the purpose of erecting cattle fences and other works. Instances of livestock being killed or injured by wildlife have been reported.

INFORMATION FOR VISITORS: The sanctuary can be visited throughout the year, as it is easily approachable. Sighting of wildlife is also good in all seasons [fv]. Entry into the sanctuary is not regulated.

There is one rest house outside with 2 beds. There is a watchtower for spotting animals [mp].

NGOs/INDIVIDUALS ASSOCIATED: Honorary Wildlife Wardens, Shri Ajay Bahadur Singh of Nahan, and Shri Kush Parmar of Paonta Sahib.

CONTACT ADDRESSES:

Range Officer (WL)
Simbalbara Sanctuary
Amargarh
District Sirmaur
Himachal Pradesh

DFO (WL)
Shimla Division
Talland
Shimla - 171 001
Himachal Pradesh

TALRA SANCTUARY

Formerly a popular hunting spot, this sanctuary continues to have heavy human pressure in the form of commercial logging and grazing. Only a few good patches of wildlife habitat reportedly remain, primarily in steep and inaccessible areas, still harbouring a population of Musk deer and five species of pheasants.

LEGAL STATUS: First notified a sanctuary in 1962. Renotified on 27 March, 1974.

AREA AND ZONING: 4,049.31 ha. (40.49 sq.km). No zoning.

LOCATION: District Shimla; *Latitudinal range* 30°57'46" to 31°03'19"N [tp]; *Longitudinal range* 77°43'30" to 77°48'21"E [tp]; *Nearest town* Jubbal (35 km); *Nearest railhead* Shimla (90 km); *Nearest airport* Shimla (105 km).

APPROACH: From Shimla via Jubbal to Chhachpur (75 km), then on to the sanctuary.

TOPOGRAPHY AND CLIMATE: *Altitude* 1500 to 3324 m [tp]; *Temperature* -7 to 28°C; *Mean annual rainfall* 874.5 mm [met]. Snowfall figures are not available.

FLORA: Forest types include Lower Western Himalayan Temperate Forest 12/C1 and West Himalayan Upper Oak/Fir Forest 12/C2(b).

Some trees have been planted, but no further details are available [fv]. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, fv]

Bear, Himalayan Black
Deer, Barking
Deer, Musk

Goral
Langur, Common
Leopard

Birds (See Appendix 7)

Species believed to be locally threatened are Musk deer, Monal pheasant, Western tragopan, and Chir pheasant.

OCCURRENCE AND CONTROL OF DISEASE: There is no information on whether there are epidemics among flora or fauna. The nearest veterinarian is located at Sawra, 23 km away.

OTHER FACTORS AFFECTING HABITAT: Frost and landslides [fv], as well as hailstorms are known to occur frequently.

WATER RESOURCES: The Sangkul Nala is the major perennial stream; Bhaigaon Khad, Urin Gad, Shila Khad, and Lodaru Khad are some of the other perennial streams [tp]. There are also several seasonal streams [tp].

BUDGET: Rs. 1,00,000 annually.

MANAGEMENT PLAN: None

PERSONNEL: One Deputy Range Officer and four Forest Guards. The Deputy Range Officer is the local in-charge.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Local people have rights and leases in the sanctuary in relation to grazing, collection of timber, fuelwood, herbs, and other minor forest produce, and extraction of fodder. Burial grounds of Gujjars are located inside the sanctuary [fv].

Habitation: There is one village inside the sanctuary with an estimated population of 250, and 7 villages in the surrounding area with a population of 2000. In addition there are 6 *thaches* inside [tp].

Grazing: Apart from local rights, grazing permits are issued to villagers from surrounding areas, who bring in 4000 to 5000 heads of livestock. Permits are also issued to Gujjars for grazing their livestock, but the number of livestock they bring in is not known. Injury to livestock caused by wild animals is reported, but no details are available [fv].

Offences and Illegal Activities: Poaching reportedly occurs, but no cases have been registered [fv]. Illegal grazing is also known to occur, especially in the form of cattle ingress from the bordering state of Uttar Pradesh.

Tourism: Records of tourists visiting the sanctuary are not kept.

Use by Other Government Agencies: The Forest Department carries out commercial felling; in 1987, 11,200 trees were felled. Till recently there were two Forest Department nurseries inside the sanctuary.

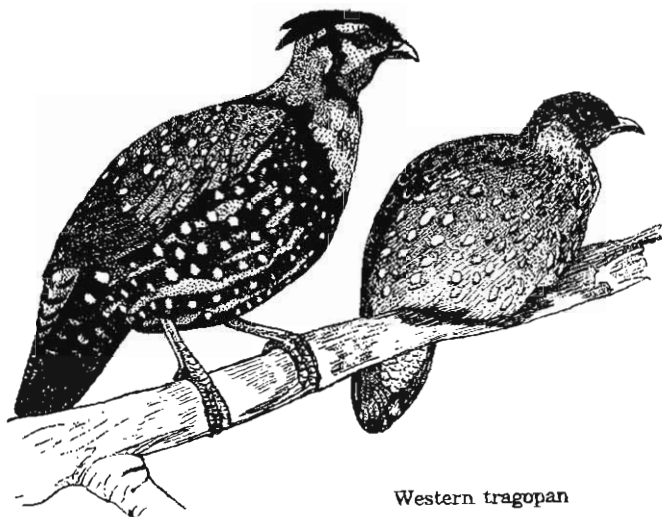
Miscellaneous: Outside labour (number not known) has been employed in the sanctuary [fv].

INFORMATION FOR VISITORS: April to June and September to October are the best periods for visiting the sanctuary, as the vegetation is rich and the climate is pleasant [Q1, fv]. There is no regulation of entry into the sanctuary.

There are three rest houses in the outskirts with a total of 8 beds. There is also one forest rest house, currently in disuse, inside the sanctuary.

CONTACT ADDRESS:

DFO (WL)
Shimla Division
Talland
Shimla - 171 001
Himachal Pradesh

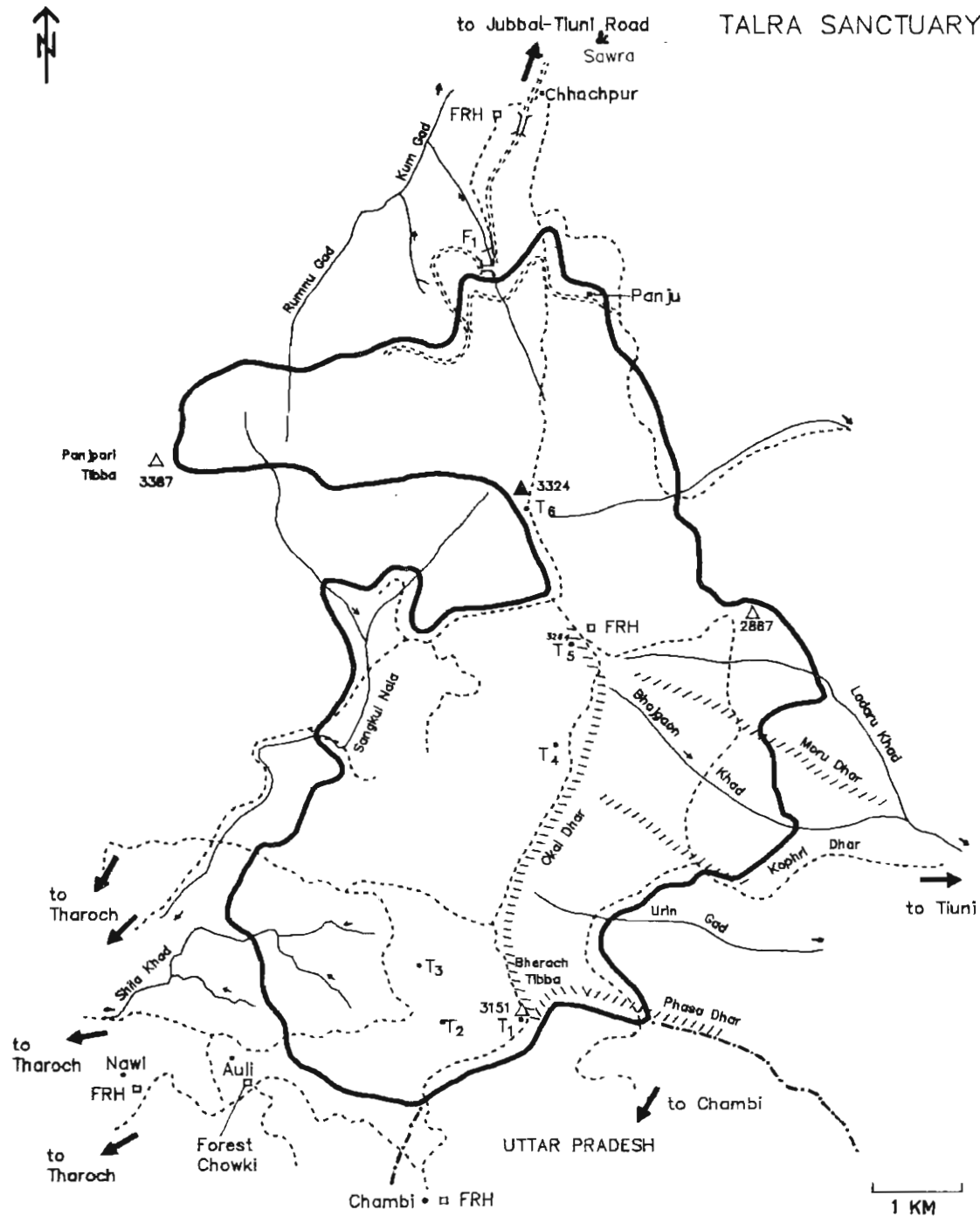


Western tragopan



to Jubbal-Tiuni Road

TALRA SANCTUARY



UTTAR PRADESH

Chambi • □ FRH

1 KM

THACHES

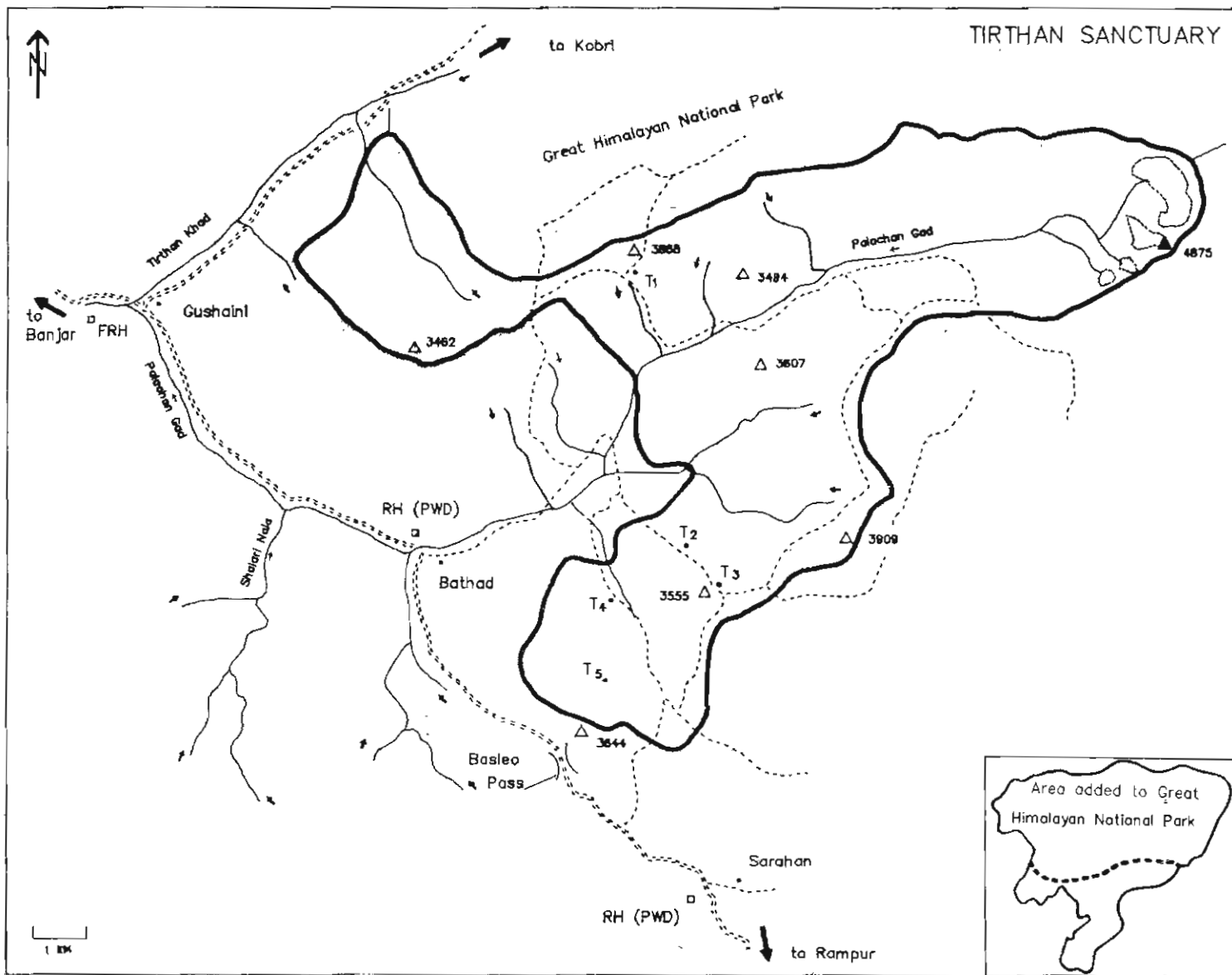
- T₁ - Bherach
- T₂ - Churon
- T₃ - Murhach

WATER FALL

- T₄ - Masirna
- T₅ - Talra
- T₆ - Pijj

F₁ - 15 Metres

TIRTHAN SANCTUARY



THACHES

- T₁ - Bedi
- T₂ - Mundrach
- T₃ - Munna
- T₄ - Bogori
- T₅ - Josu

TIRTHAN SANCTUARY

This high altitude sanctuary is quite rich in faunal and floral species. Part of the originally declared area has recently been deleted and included in the Great Himalayan National Park,* which is to the north.

LEGAL STATUS: Notified a sanctuary on June 17, 1976.

AREA AND ZONING: 6112.98 ha. (61.13 sq.km). The original area was 17,800 ha. No zoning.

LOCATION: District Kullu; *Latitudinal range* 31°34'13" to 31°39'45"N [tp]; *Longitudinal range* 77°27'30" to 77°37'23"E [tp]; *Nearest town* Banjar (25 km); *Nearest railhead* Jogindernagar (160 km); *Nearest airport* Bhuntar (Kullu) (80 km).

APPROACH: From Delhi to Kullu (512 km), then via Aut to Banjar (43 km), then to Gushaini (12 km) and on to Bathad (9 km) by jeepable road, and then on foot.

TOPOGRAPHY AND CLIMATE: *Altitude* 2100 to 4875 m [tp]; *Temperature* -5 to 30°C; *Mean annual rainfall* 1500 mm.

FLORA: Forest types include Ban Oak Forest 12/C1(a), Moist Deodar Forest 12/C1(c), Western Mixed Coniferous Forest 12/C1(d), Moist Temperate Deciduous Forest 12/C1(e), Kharsu Oak Forest 12/C2(a), and Alpine Pastures 15/C3.

Plantations have been carried out, but no details are available [fv]. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals [Q1, fv]

Bear, Brown	Macaque, Rhesus
Bear, Himalayan Black	Marten, Stone/Himalayan Yellowthroated ?
Cat, Jungle	Mouse-hare, Himalayan
Deer, Barking	Porcupine, Indian/Hodgson's ?
Deer, Musk	Serow
Fox, Indian/Red ?	Sheep, Blue
Goral	Squirrel, Common Giant Flying/Kashmir
Ibex	Flying ?
Jackal	Tahr, Himalayan
Langur, Common	Weasel, Himalayan
Leopard	Wolf
Leopard, Snow	

Birds (See Appendix 7)

Species believed to be locally threatened are Snow Leopard, Musk deer, Serow, Blue sheep, Western tragopan and Chir pheasant.

OCCURRENCE AND CONTROL OF DISEASE: Goral have reportedly suffered from frequent outbreaks of diseases, including a mange-like disease which decimated its population in a part of the

*Information under the following heads is for the sanctuary in its original extent: Legal Status, Flora (including forest types), Fauna, Occurrence and Control of Disease, Other Occurrences Affecting Habitat, and Human Presence (Adjacent population, Offences, and Clashes). Information for these, specific to the new limits of the sanctuary, was not available.

area, and about which nothing further is known [Garson and Gaston, 1985]. There are also unconfirmed reports of Himalayan tahr, Goral and other ungulates suffering ailments like foot and mouth disease. There is no information on diseases among plants. The nearest veterinarian is located at Gushaini, 12 km away.

OTHER FACTORS AFFECTING HABITAT: Forest fires, frost and hailstorms are known to occur, and there are avalanche-prone areas in the catchment of the Tirthan River.

WATER RESOURCES: There are four major perennial and several seasonal streams [tp]. There are also four glaciers in the north-eastern part of the sanctuary [tp].

BUDGET: None

MANAGEMENT PLAN: A management plan was drawn up in 1983, and was valid for the period 1983-84 to 1987-88. There is no plan for the present period.

PERSONNEL: One Range Officer, two Deputy Rangers, and 15 Forest Guards. The Range Officer posted at Gushaini, is locally in-charge

EQUIPMENT: None

RESEARCH AND MONITORING: Dr. P.J. Garson of the University of Newcastle-upon-Tyne, U.K. and Dr. A.J. Gaston of Canadian Wildlife Service have done studies in the sanctuary from 1979 to 1983 to assess the suitability of making parts of it into a national park [Garson and Gaston, 1985]

COMMUNITY INTERACTION PROGRAMMES: None. There is one Honorary Wildlife Warden appointed for the sanctuary.

HUMAN PRESENCE:

Rights and Leases: The people living in adjacent areas have rights in relation to grazing, collection of timber, fuelwood and minor forest produce, quarrying, and agriculture. Fodder extraction is also reported to be allowed in some areas [fv]. There are also rights in relation to religious *yatra*, to the source of the Tirthan River.

Habitation: There are five *thaches* within the sanctuary [tp]. However, there is no permanent habitation inside [fv]. Information on population in surrounding areas is not available.

Grazing: Local grazing rights exist. The number of livestock grazing inside is not known. Injury to livestock by leopards is reported but no cases for compensation have been filed.

Offences and Illegal Activities: There are reports of illegal grazing (in areas closed for grazing), poaching, fodder cutting, causing fire hazard, non-registration of arms, and destruction of habitat, though no cases have been registered [fv].

Miscellaneous: Two clashes have taken place so far between villagers and the wildlife staff, one in 1983 and the other in 1985, both involving allegations of poaching by villagers.

INFORMATION FOR VISITORS: The best time for visiting the sanctuary is from April to June when snow melt accounts for greater animal activity, and September to November when visibility is good. Entry into the sanctuary is not regulated.

There are seven rest houses in the outskirts with a total of 20 beds.

CONTACT ADDRESSES:

Range Officer (WL)
Tirthan Wildlife Range
Banjar - 175 123
District Kullu
Himachal Pradesh

DFO (WL)
Kullu Division
Kullu -175 101
Himachal Pradesh

TUNDAH SANCTUARY

A high altitude sanctuary with good, though disturbed, habitat for Himalayan tahr, Ibex and pheasants. The area also supports a small population of Musk deer. It is connected to Kugti Sanctuary by a forest corridor to the east.

LEGAL STATUS: First notified a sanctuary in 1962. Renotified on September 17, 1975.

AREA AND ZONING: 6422.08 ha. (64.22 sq.km). There is a proposal to combine this sanctuary with Kugti Sanctuary, by adding some area (see map). No zoning.

LOCATION: District Chamba; *Latitudinal range* 32°27' to 32°40'N; *Longitudinal range* 76°27' to 76°37'E; *Nearest town* Chamba (59 km); *Nearest railhead* Pathankot (184 km).

APPROACHES: From Delhi to Pathankot (Train/Road, 485 km), on to Chamba (80 km), and from Chamba to Durgathi (44 km), then on foot (15 km). Alternatively, from Shimla to Chamba (370 km), and on by same route as above.

TOPOGRAPHY AND CLIMATE: *Altitude* 2074 to 5532 m; *Temperature* -10 to 30°C; *Mean annual rainfall* 800 mm. Snowfall figures are not available.

FLORA: Forest types include Moist Deodar Forest 12/C1(c), Western Mixed Coniferous Forest 12/C1(d), Moist Temperate Deciduous Forest 12/C1(e), and Alpine Pastures 15/C3.

From 1979 to 1984, plantations are reported to have been carried out on 215 ha. Details of species planted are not available. For full flora lists see Appendices 3 and 5.

FAUNA:

Mammals

Bear, Brown	Macaque, Rhesus
Bear, Himalayan Black	Marmot, Longtailed
Cat, Jungle	Marten, Himalayan Yellowthroated
Civet, Common Palm/Himalayan	Mouse-hare, Himalayan
Palm ?	Porcupine, Indian
Deer, Barking	Rat, Indian Bush
Deer, Musk	Shrew, Grey
Fox, Red	Squirrel, Common Giant Flying
Goral	Serow
Ibex	Tahr, Himalayan
Jackal	Vole, Royle's
Langur, Common	Weasel, Himalayan
Leopard	Wolf

Birds (See Appendix 7)

Species believed to be locally threatened are Serow, Brown bear, Musk deer, Goral, Ibex, and Monal pheasant [fv].

OCCURRENCE AND CONTROL OF DISEASE: Goral in 1978-79 and Himalayan tahr in 1969-70 are reported to have been affected by disease in the past. There are also unconfirmed local reports of insect attacks on trees near Ban village [fv]. A veterinarian is located at Tundah village, inside the sanctuary.

OTHER FACTORS AFFECTING HABITAT: Forest fires have affected 69.5 ha. during the period 1979 to 1984. Hailstorms and frost also occur. The last few years have seen drought in the area [fv].

WATER RESOURCES: The River Ravi, and its tributary Trela Nala, flow along the southern boundary of the sanctuary [map]. There are ten other major perennial streams, and several minor perennial and seasonal streams.

BUDGET: Rs. 1,19,000.00 for 1987-88; Rs. 10,000.00 for 1986-87.

MANAGEMENT PLAN: None. Under preparation.

PERSONNEL: One Range Officer (with joint charge of Gamgul Siahbehi and Kugti Sanctuaries), one Deputy Range Officer, six Forest Guards, and one Chowkidar. The Deputy Range Officer, posted at Tundah Village, is the local in-charge.

EQUIPMENT: None

RESEARCH AND MONITORING: None

COMMUNITY INTERACTION PROGRAMMES: None

HUMAN PRESENCE:

Rights and Leases: Villagers from the sanctuary have rights in relation to collection of dead standing and fallen timber, collection of fuelwood and minor forest produce, cultivation, grazing, and fodder extraction. Rights also exist in relation to religious monuments and religious *yatra*.

Habitation: There are 4 villages and 8 Gujjar settlements inside the sanctuary, with a population of 1182. The surrounding area has 33 villages with a population of 5156.

Grazing: Villagers residing in the sanctuary have grazing rights. In addition, Gujjars are issued permits for bringing in their livestock. A total of 17,274 heads of livestock graze in the sanctuary.

Offences and Illegal Activities: A few cases of illegal hunting and habitat destruction have been registered. In addition, there are reports, but no further details, of illegal grazing in closed areas, encroachments, and possession of illegal weapons [fv].

Tourism: Approximately 1,000 tourists visited the sanctuary in 1983-84. In addition, over 6,000 pilgrims visit the Bani Mata Temple annually [fv].

Use by Other Government Departments: Various parts of the sanctuary are being used by government agencies for cultivation, housing, roads, and transmission lines; further details are not available. There are two Forest Department nurseries inside.

Miscellaneous: Mixed plantations have been raised by the Forest Department to meet the fuel and fodder requirements of the local people.

INFORMATION FOR VISITORS: The best periods for visiting the sanctuary are April-May, just after the snow melts, and September-October, when the whole area is accessible. The Bani Mata temple is located in the sanctuary. Entry into the sanctuary is not regulated.

There are three rest houses inside with a total of 5 beds, and two in the outskirts with a total of 4 beds.

CONTACT ADDRESSES:

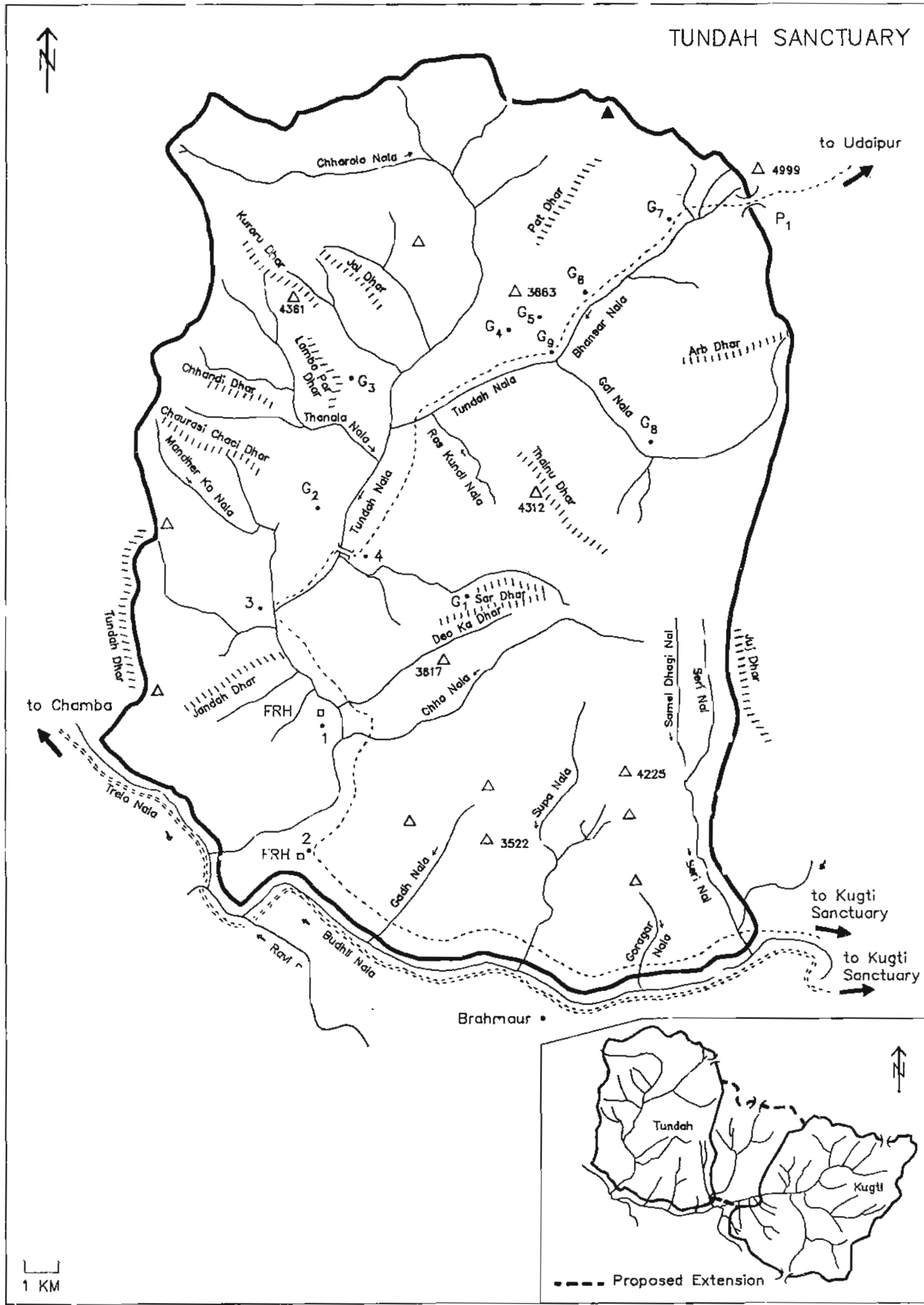
Deputy Range Officer (WL)
Tundah Village
Tehsil Brahmaur
District Chamba
Himachal Pradesh

DFO (WL)
Chamba Division
Chamba - 176 310
Himachal Pradesh










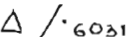




KEY TO SYMBOLS USED IN THE MAPS

- (P₂ Mountain pass
- ⊗ Old palace
- Metalled road
- - - Un-metalled road
- · - Path, track
- Bridge
- +—+ Railway line
- +—+ Railway line not in use
- ⊕ Airport
- ⊕ Hospital
- ⊕ Veterinary hospital
- ▬ Dam
- ⚡ Checkpost
- RHQ Range headquarters
- G.H. Guard hut
- D.O. Dairy office
- W.T. Watchtower
- Nur Nursery
- N.H. National highway
- .8 Village / Town
- .G Got
- .J Jot
- .D Dogri
- .T Thach
- .Guj Gujjar settlement
- · — · — Forest corridor
- ▬ Ridge

Contd.....



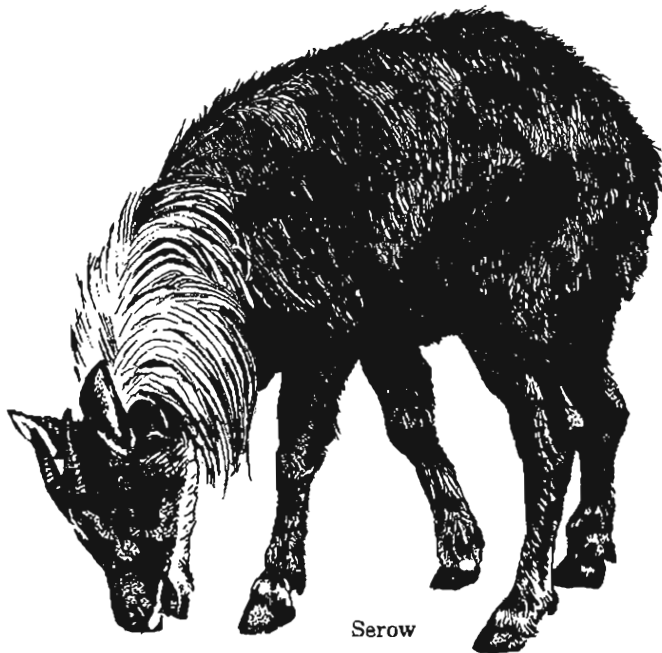
VILLAGES	GOTS	MOUNTAIN PASSES
1 -- Tundah	G ₁ -- Hidai Got	P ₁ -- Kali Chho Pass
2 -- Sirar	G ₂ -- Chhlot Got	(Open from July to September)
3 -- Manda	G ₃ -- Guddi Got	
4 -- Bhadra	G ₄ -- Jujar Got	
	G ₅ -- Dheri Got	
	G ₆ -- Bhagdot Got	
	G ₇ -- Alias Got	
	G ₈ -- Lakhot Got	
	G ₉ -- Bhansar Got	

-  Park / Sanctuary boundary
-  State boundary
-  Buffer belt boundary
-  River with dry bed and islands
-  River or stream (arrow shows direction of flow)*
-  Lake / Reservoir
-  Glacier
-  Spring
-  Highest point (altitude given in metres above sea level)
-  $\Delta / 6021$ Other high points and peaks (altitude given in metres above sea level)
-  Religious monument
-  FRH Accommodation [Forest Rest House / Rest House (Public Works Department) R.H.(PWD) / Tourist Bungalow]
- T.B.
-  Direction arrow (showing nearest town / habitation from the park sanctuary)
-  Waterfall

* Note: Maps show only perennial streams, except in the case of the following parks and sanctuaries for which toposheets were not available in part or in whole: Pin Valley National Park, and Chail, Daranghati, Gangul Siahbehi, Kalatop Khajjiar, Kugti, Lippa Asrang, Manali, Nargu, Pong Lake, Rakchham Chitkul, Rupi Bhaba, Sechu Tuan Nala, Shilli, and Tundah sanctuaries. For these areas it is not known whether all the rivers and streams shown are perennial or seasonal.

A small arrow, at the start of a stream or river, indicates that the earlier stretch is seasonal, and therefore not shown on the map. Where the arrow is at the downstream end of a river/stream, it indicates that this river/stream carries on outside the frame of the map.

MANAGEMENT STATUS



WILDLIFE MANAGEMENT IN HIMACHAL PRADESH

The state of Himachal Pradesh, with an area of 55,67,300 ha. (55,673 sq. km.), is mainly hilly with altitudes ranging from 300 to over 6000 metres above sea level. It adjoins Jammu and Kashmir on the North and North-West, Punjab on the West, Haryana on the South-West and South, and Uttar Pradesh on the South-East. A part of its Eastern boundary is contiguous with the Tibetan Plateau of China.

Two national parks and twenty nine sanctuaries have been set up so far in Himachal Pradesh. The total area under national parks is 1,29,500 ha., which is 2.33% of the state area. Sanctuaries account for another 2,65,288.65 ha., or 4.77% of the state area. The total area under both categories of protected areas is 3,94,788.65 ha. covering 7.10% of the state area. This is over double the percentage of area under national parks and sanctuaries in India as a whole (3.3%) [Rodgers and Panwar, 1988a]. (For a fuller profile of the state's parks and sanctuaries, see Appendix 1).

Biogeographically, the state can be divided into three distinct regions: the Trans Himalayas, which include the cold deserts of northern Lahul and Spiti, and Kinnaur; the Himalayas, which can be further sub-divided into the high and middle mountains that cover most of the state; and the Semi-Arid Zone, consisting of the hot dry foothills, primarily in the South, bordering Haryana and Uttar Pradesh [Rodgers and Panwar, 1988b].

STRUCTURE OF THE FOREST DEPARTMENT AND THE WILDLIFE WING

At the state level, there is a Minister in-charge of Forests, and a Forest Secretary, who is usually not a forest service officer. The Forest Department has, in descending hierarchical order, a Principal Chief Conservator of Forests, several Chief Conservators of Forests (CCF), Additional Chief Conservator of Forests (ACCF), Conservators of Forests (CF), Deputy Conservators of Forests (DCF) of whom many act as Divisional Forest Officers (DFO), Assistant Conservators of Forests (ACF), Range Officers (RO), Deputy Range Officers or Deputy Rangers, Foresters and Forest Guards.

The Forest Department has several wings, including Territorial and Wildlife Wings. The Wildlife Wing is headed by a Chief Wildlife Warden (CWLW), who is currently of the rank of ACCF. The CWLW reports to the CCF (Development).

Under the CWLW there are four DFO's (Wildlife), each in charge of the one of the four wildlife divisions (Chamba, Shimla, Kullu, and Sarahan). Each division has a number of ROs, Dy.ROs, Foresters and Forest Guards. There is also one post of ACF for the Great Himalayan National Park.

In Himachal Pradesh, a park or sanctuary is usually under the charge of an R.O. (except for the Great Himalayan NP), who might hold concurrent charge of more than one area, and reports to the DFO of the wildlife division.

State Wildlife Advisory Board: The state has constituted a Wildlife Advisory Board, chaired by the Forest Minister, having both officials and non-officials as members.

HUNTING

The Government of Himachal Pradesh imposed a total ban on hunting in the state from 1983-84 for a period of five years, which has in 1988 been extended for another five years. This means that no hunting licenses would be given, during this period, in the entire state.

Though this is of help in protecting the species listed under Schedule II, III, IV of the Wild Life (Protection) Act 1972, it does not affect the species listed under other schedules as either they are not to be hunted in any case (Schedule I) or can be hunted without a license (Schedule V).

COMMERCIAL FELLING

The Himachal Pradesh Government has also prohibited the felling of trees for commercial purposes (except as part of the existing rights of villagers) within twenty one of the twenty nine sanctuaries, and in both the national parks.

MANAGEMENT STATUS —A PROFILE

The declaration of a wildlife habitat as a national park or sanctuary is only one of the steps towards its effective protection. A number of other measures are needed, including implementation of the various provisions of the Indian Wild Life (Protection) Act of 1972, building up and implementation of management plans, and provision of adequate staff, funds, equipment, and research inputs. Given below is a statement of the management status of parks and sanctuaries in Himachal Pradesh, describing the actual situation with regards to these and other important parameters.

Table 1 gives a quick overview of the status of various critical management aspects in each of the national parks and sanctuaries of Himachal Pradesh. Greater details on these parameters are given in the individual directory sheets. The table also gives a consolidated statement for the whole state. The picture that emerges is categorised into four heads: legal status, ecological factors, human presence and management.

Legal Status : The completion of legal procedures, as laid down in the Wild Life (Protection) Act, is essential for the proper management of a national park or sanctuary. It must be kept in mind that the set of procedures applicable to a national park is different to that applicable to a sanctuary. In the latter case, an area is first declared a sanctuary (under Section 18 of the Act), and then steps are taken to determine, extinguish, acquire or otherwise adjust the existing rights of people in the area (Sections 19 to 26 of the Act). In the case of a national park, an intention to constitute an area as a national park is first declared (Section 35 of the Act), then all the steps prescribed for a sanctuary (Sections 19 to 26) are followed, and only then is the area notified a national park (Section 35 (4) of the Act).

Legal procedures are, therefore, considered completed for a sanctuary if all the rights and leases have been settled, either under the 1972 Act or under any previous act under which the sanctuary was declared. For a national park, however, completion is achieved only when the final notification is issued.

In Himachal Pradesh, neither of the two national parks have been finally notified, and only two of the 29 sanctuaries have completed legal procedures (see Table 1).

Ecological Factors: Of the many physical and biological factors which have a bearing on the management of an area, some critical ones are periodic occurrences like fire and drought, and outbreaks of disease among the wildlife. These factors can often reach serious proportions, threatening the habitat and the wild flora and fauna, and therefore often need to be prevented or controlled.

Forest fires have been reported from one of the two national parks and 21 of the 29 sanctuaries. Of those reporting such occurrence, neither the park nor any of the sanctuaries reported taking any preventive or control measures.

Drought was not reported from either of the parks, but 11 of the 29 sanctuaries were affected by it. Of these, preventive or control measures were being taken in only two sanctuaries.

It must be noted that without a deeper analysis, it is not possible either to judge the impact of fire and drought on the ecosystem and its constituents, or to assess the adequacy of the preventive or control measures.

Disease among animals has been reported from one of the two parks and five of 29 sanctuaries. Since grazing by domestic livestock (a potential source of disease among wild ungulates), exists in both the parks and 28 of the 29 sanctuaries of the state (see below, *Human Presence*), vaccination of livestock is an important management input. However, such vaccination has been reported from neither of the parks and only five of 29 sanctuaries.

Disease among plants is reported from four of the 29 sanctuaries.

It must be stressed that surveillance regarding disease among flora and fauna is neither regular nor adequate in India's wildlife areas. In Himachal Pradesh this is especially so. No information on disease among fauna was available for one of the parks and as many as 18 of the sanctuaries. Similarly, no information was available on disease among flora for both the parks and 19 of the sanctuaries. It is, therefore, quite likely that the incidence of both is higher than reported above. It is also not possible to comment, with this level of analysis, either on the impact of disease on flora-fauna populations, or on the adequacy of the preventive or control measures taken.

Human Presence : Very few wildlife habitats in India, and none in Himachal Pradesh, are completely free of human presence. Adequate protection to these areas can therefore only be given if human pressures are eliminated in national parks, and in sanctuaries human activities are allowed only if they harmonise with the requirements of habitat and wildlife management. But at the same time, it is essential to ensure that the people displaced or otherwise affected are given a fair deal. Apart from this being necessary in order to be just, wildlife protection in disregard of human interests cannot succeed for long, especially if it results in alienating local communities.

The situation with regard to human presence in Himachal Pradesh's national parks and sanctuaries appears, at least *prima facie*, to be alarming. Both the national parks and 28 of the 29 sanctuaries reported the existence of *rights, leases, or concessions* within them. In fact, one of the parks and 20 of the sanctuaries have permanent *human habitation* inside. Human activities in these, therefore, persist through the year.

Both parks and 28 of the 29 sanctuaries reported *grazing* by livestock — livestock belonging either to communities living inside or to those living outside and seasonally coming in. This includes both legal and illegal grazing.

Since one of the major pressures on wildlife areas is the fuel and fodder needs of the local and migratory communities, *plantations of fuel and fodder* species could be an effective way of reducing this pressure. However, in Himachal Pradesh, neither of the two parks and only five of the 29 sanctuaries reported the existence of such plantations.

Perhaps most worrying is the presence of *illegal activities* in one of the two parks and as many as 27 of the 29 sanctuaries in the state. Of course, the range and intensity of such activities differs considerably from area to area, but the fact that only three areas are free of them is fairly significant in itself.

Tourist Activity was reported from one of the national parks and 16 of the 29 sanctuaries. Available information suggests that there are very few facilities for educating the visitors or, indeed, to ensure that their impact on the area is minimised. Tourism must, therefore, be considered a pressure on these parks and sanctuaries. No information was available on the existence and extent of tourism from one park and 10 sanctuaries.

One of the glaring anomalies of wildlife management in India is the existence of activities by *government departments and agencies other than the wildlife authorities* inside the national parks and sanctuaries (for country-wide details, see Kothari, Pande, Singh, and Variava, 1989). Such activities are forbidden in national parks and illegal, without the permission of the Chief Wildlife Warden, in sanctuaries. Even in sanctuaries, they have to be in consonance with wildlife management. Fortunately, both the national parks in Himachal Pradesh are free of such activities, but as many as 25 of the 29 sanctuaries have them. These activities range from road maintenance to target practice by the military.

Conflicts between wildlife and local human communities, illegal activities, or tension with wildlife authorities are factors that can lead to physical *clashes* between local people and wildlife officials. Such clashes have been reported from one of the two national parks, and four of the 29 sanctuaries.

Management Activities and Facilities : Amongst the first steps towards managing parks and sanctuaries is the development of a *management plan*. Such a plan "should identify the major objectives of the park/sanctuary, assemble comprehensive background data, establish the relationship of different factors to each other, identify the priority areas and strategies for protection and management, and indicate locations for buildings and facilities" (Kothari, Pande, Singh, and Variava, 1989).

Only one of the two parks, and seven of the 29 sanctuaries in Himachal Pradesh have a management plan. Of these, one park and three sanctuaries reported that their plan had been approved, while information for the others was not available.

For proper long-term planning and for relative independence in the functioning of the park or sanctuary authorities, it is necessary that each area have a *separate budget*. In Himachal Pradesh, both the national parks have separate budgets, but only 14 of the 29 sanctuaries are thus endowed.

Though every one of the parks and sanctuaries has *personnel* stationed in it, the number and level of staff members varies considerably. *Equipment* for use by the staff is available in only one of the two national parks and eight of the 29 sanctuaries. There is, again, considerable variation in the kind and quantity of equipment.

Zonation of the area of a national park or sanctuary is considered essential for its proper protection and management. A report of the Indian Board for Wildlife on eliciting public support for wildlife conservation states: "Of over-riding and primary importance is the need for each individual reserve to adopt a 'core-buffer-multiple use surrounds' structure, wherein a restricted forest i.e. buffer surrounds the core insulating it from an outer multiple use area, the last comprising forests and villages where land use practices are compatible with wildlife conservation." (Indian Board for Wildlife, 1983)

In Himachal Pradesh, zoning within the notified boundaries of a park or sanctuary (please see *Area and Zoning* in the chapter *Key to the Directory Sheets*) has been done in neither of the national parks and in only one of the 29 sanctuaries. However, both the parks and four sanctuaries have a buffer zone or buffer belt notified *around* them. In addition, two sanctuaries had been divided into zones by earlier notification, but not under the present notification.

Proper management of a wildlife reserve requires an adequate data base, which can be obtained only by appropriate research. Also essential is the monitoring of habitat changes, of flora and fauna, and of management activities themselves. *Research and monitoring* have usually been given very little attention in Indian wildlife reserves; in Himachal Pradesh, these are reported from only 1 park and 9 of the 29 sanctuaries.

It is at this stage important to clarify that in the absence of more detailed analysis, it is not possible to judge the quality and adequacy of the above-mentioned management inputs. How good or bad are the management plans, how adequate are the budgets, how qualified and adequate is the staff, and how appropriate is the equipment, cannot be determined at this level of analysis.

One final parameter of importance to management is the interaction of the wildlife authorities with the local people. As mentioned earlier, some of Himachal Pradesh's parks and sanctuaries have tension and clashes between officials and people. Building up a relationship of harmony and mutual support requires not only a sensitivity to the needs of the local communities, but also an active extension programme amongst them. Of vital importance in this would be the involvement of non-governmental organisations and individuals who could mediate between officials and local people. Such NGOs and NGIs could also help in research, and in monitoring the success or failure of management strategies.

In Himachal Pradesh, neither of two national parks and only three of 29 sanctuaries reported having *community extension/interaction programmes*, and none of the parks or sanctuaries had the *involvement of NGOs/NGIs*.

TABLE 1: MANAGEMENT STATUS OF NATIONAL PARKS AND SANCTUARIES IN HIMACHAL PRADESH: SOME PARAMETERS

	GRF	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL	SHIM	SIM	TAL	TIR	TUN	TOTAL NO		OTHERS				
																													YI S		TOTAL NO		OTHERS					
																													NP	S	NP	S	NP	S				
LEGAL STATUS																																						
Completion of legal procedures	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N ¹	N	N	N	N	0	2	2	27			
ECOLOGICAL FACTORS																																						
Fire occurrence	Y	?	Y	Y	?	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y	?	N	Y	Y	N	Y	Y	1	21	0	6	1	2	
Fire counter-measures	N	?	N	N	?	N	N	N	I	N	N	N	N	I	N	N	N	N	N	I	N	N	N	N	?	I	N	N	I	N	N	0	0	1	21	1	8	
Drought occurrence	N	?	Y	Y	?	N	Y	N	N	N	Y	N	Y	N	N	Y	N	Y	Y	N	N	N	Y	N	N	N	N	N	N	Y	Y	0	11	1	17	1	1	
Drought counter-measures	I	?	Y	Y	?	I	N	I	I	I	N	I	N	I	N	I	N	N	N	I	I	N	I	I	I	I	I	I	I	N	Y	Y	0	2	0	9	2	18
Disease among fauna	Y	?	?	N	?	?	?	N	?	?	?	Y	?	N ¹²	N	?	Y	?	?	?	?	N	?	Y	?	?	?	N	?	Y	Y	1	5	0	6	1	18	
Disease among flora	?	?	?	N	?	?	?	N	?	?	?	?	?	N	N	?	?	Y	?	?	?	N	?	Y	?	?	Y	N	?	?	Y ¹³	0	4	0	6	2	19	
Vaccination programmes	N	?	N	N	N	N	N	Y	N	N	Y	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	N	N	N	N	N	N	N	0	5	1	24	1	0	
HUMAN PRESENCE																																						
Rights/leases/concessions	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2	28	0	1			
Human habitation inside	Y	N ⁸	Y	Y	Y	Y	Y	Y	N	N ⁸	Y	Y	Y	Y	N ⁸	Y	N ⁸	Y	Y	N	N	Y	Y	Y	Y	Y	N	N	Y	Y	N ⁸	1	20	1	9			
Grazing	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2	28	0	1			
Offences/illegal activities	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1	27	1	2			
Tourism	Y	?	Y	Y	Y	Y	?	Y	Y	Y	Y	Y	?	Y	N	?	Y	?	Y	?	?	Y	?	?	Y	?	N	Y	?	N	Y	1	16	0	3	1	10	
Use by other government agencies	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	0	25	2	4			
Fuel/fodder plantations	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	N	N	N	Y	N	N	N	N	Y	N	N	N	N	N	N	Y	Y	0	5	2	24			
Clashes	Y	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	N	Y	N	1	4	1	25				
MANAGEMENT																																						
Management plan	Y	N ⁷	N	N	N ⁷	Y	N	N ⁷	N	N	Y	Y	N	N	N	N	N	N	N	Y	N	N	Y	N	N ¹⁰	N	N ¹⁰	Y	N	Y	N	1	7	1	22			
Separate budget	Y	Y	N	Y	Y	Y	Y	Y	N	N	Y	N	N	Y	N	N	N	Y	N	Y	N	Y	N	Y	N	N	N	Y	N	Y	2	14	0	15				
Personnel	23	3.5 ⁶	5	25	8	10	9	5.33	0.5	1.5	15	6	4	7.33	1.5	5	1.5	13	10	8	1.5	9 ⁹	13	2	13	3.5	5	8	5	18	8.33	2	29	0	0			
Equipment	Y	N	N	Y	N	Y	Y	N	N	N	Y	Y	N	N	N	N	Y	N	N	Y	N	Y	N	N	N	N	N	N	N	N	1	18	1	21				
Zoning	Y ¹¹	Y ⁵	N	N	N	N	N	N	N	N	N ²	N ³	N	N	N	N	N	N	N	Y ⁴	N	Y ⁵	Y	Y ⁵	Y ⁵	N	N	N ²	N	N	0	1	0	24	2	4		
Research and monitoring	Y	N	N	Y	N	Y	N	N	N	N	Y	Y	N	N	N	Y	Y	N	N	Y	N	N	N	N	N	N	Y	N	N	Y	N	1	9	1	20			
Extension/interaction programmes	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	N	N	N	0	3	2	26			
NGO/NGI involvement	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	0	0	2	29				

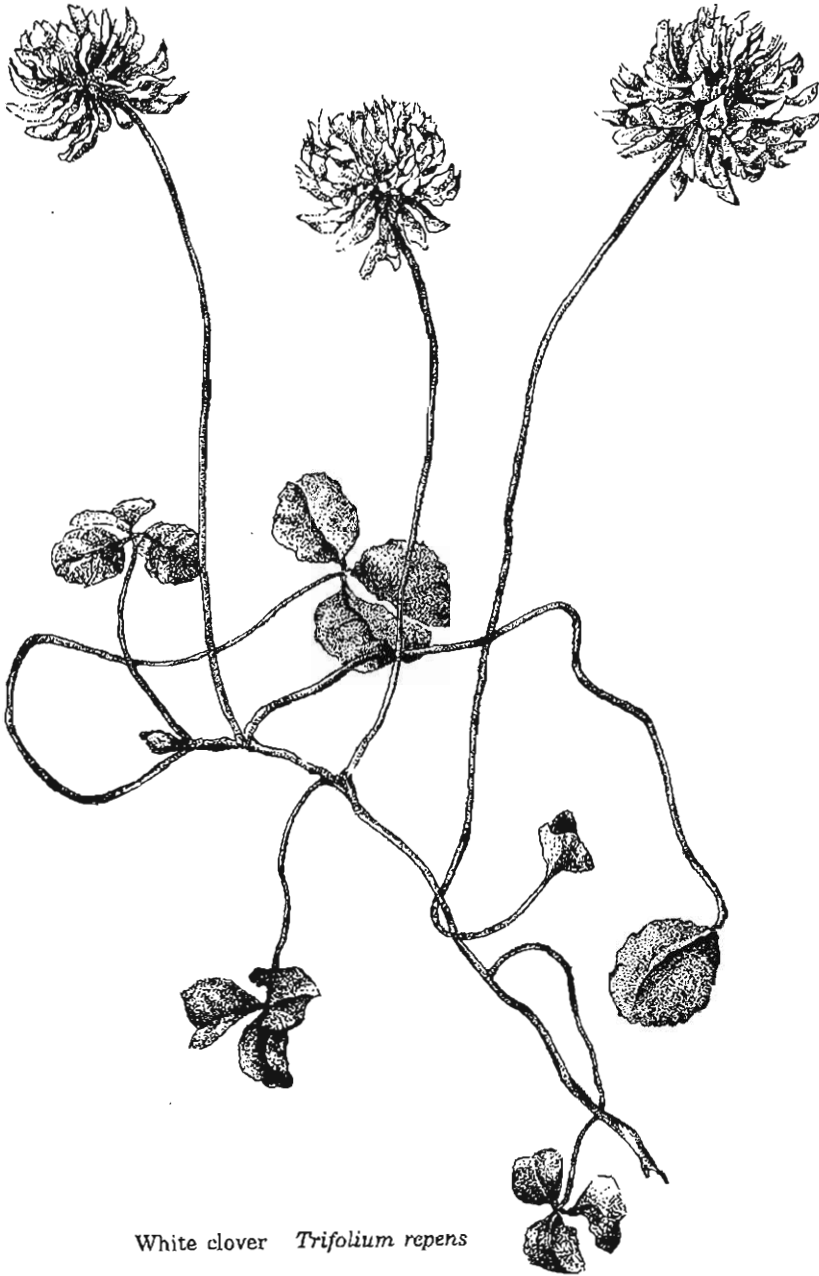
Note: Y = Yes N = No I = Irrelevant ? = No information NP = National Park S = Sanctuary

1 No rights exist in the area, hence legal steps beyond declaration have not been considered necessary. However, the Wild Life (Protection) Act 1972 does not allow for such an exemption, so procedures must be considered incomplete.
 2 Under a previous notification the sanctuary was divided into a Sanctum sanctorum and a Buffer Belt or Zone, but the new notification has no such demarcation.
 3 There is a proposal for a tourist zone.
 4 A buffer zone around the lake area was notified, but has not come under the control or management of the wildlife authorities.

5 The sanctuary or park area is considered the core zone, with a specified area outside it as buffer.
 6 Some staff members are stationed for more than one sanctuary; where an officer is looking after two sanctuaries he is counted as half a member for each of these sanctuaries, similarly as one-third if looking after three sanctuaries.
 7 Under preparation.
 8 There are temporary settlements of graziers.
 9 In addition there are an unspecified number of animal attendants at the zoo.
 10 A plan existed for an earlier period, but there is none now.

11 A buffer belt has been notified outside the park, and there is a proposal to demarcate a Tourism Zone.
 12 Epidemic reported in 1969-70, but no recurrence.
 13 Unconfirmed reports by local people.

APPENDICES



White clover *Trifolium repens*

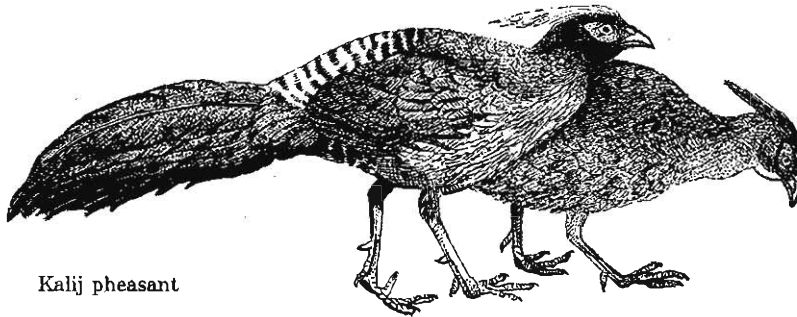
APPENDIX 1

AREA AND DATES OF NOTIFICATION OF NATIONAL PARKS AND SANCTUARIES IN HIMACHAL PRADESH

Name	Officially notified area (ha.)	Computer generated area (ha.) ¹	Notification ²		
			dateA	dateB	dateC
NATIONAL PARKS					
Great Himalayan	62000.00	60561.00			1984
Pin Valley	67500.00	80736.00 ³			1987
Total Parks Area	129500.00⁴				
SANCTUARIES					
Bandli	4133.00			1962	1974
Chail	10854.36				1976
Churdhar	5615.00				1985
Daranghati	16740.00	2701.00 ⁵		1962	1974
Darlaghat	9226.80			1962	1974
Gangul Siahbehi	10885.40			1949	1974
Gobind Sagar	10034.00	12067.00		1962	1974
Kais	1419.03				1954
Kalatop Khajjiar	2026.89	3069.00 ⁵	1949	1958	1982
Kanawar	6070.00				1954
Khokhan	1405.00	1760.00			1954
Kugti	37886.68			1962	1974
Lippa Asrang	3089.90			1962	1974
Majathal	3938.86	3164.00		1962	1974
Manali	3180.00				1954
Naina Devi	12268.00	3719.00 ³		1962	1974
Nargu	27837.00			1962	1974
Pong Lake	30729.00				1983
Rakchham Chitkul	3411.00	3827.00		1962	1974
Renuka	402.80	478.00		1964	1987
Rupi Bhaba	26914.50	85414.00 ³		1982	1982
Sechu Tuan Nala	10295.00	65532.00 ⁵		1962	1974
Shikari Devi	7200.00			1962	1974
Shilli	213.32			1963	1974
Shimla Water Catchment	1025.30			1958	1982
Simbalbara	1903.44		1958	1972	1974
Talra	4049.31			1962	1974
Tirthan	6112.98				1976
Tundah	6422.08	41948.00 ⁵		1962	1975
Total Sanctuaries Area	265288.65⁶				
Total Area	394788.65⁷				

1. These areas have been generated on computer, from maps of the parks/sanctuaries, which were drawn using a digitizer. Only areas where the difference is greater than 10% have been listed here.
2. Many of the national parks and sanctuaries in H.P. were declared prior to 1972 under Acts other than the Wild Life (Protection) Act 1972. The years given here refer to these declarations as well as those under the 1972 Act, date A being the earliest of 3 notifications, date B being the second of 3 or first of 2, and date C being the latest.

3. These substantial discrepancies, between the area as given by the wildlife authorities and that measured on the map, are probably due to incorrect reporting of boundaries, or of the area, by the wildlife authorities. For Pin Valley National Park and Rupri Bhaba Sanctuary, Survey of India toposheets were available, so the scale of the map could be verified. However, the notifications of these areas were not specific enough to verify the boundaries as well. For Naina Devi Sanctuary, the notification was not available at all, hence here too boundaries could not be verified.
4. 2.33% of total area of state (55,67,300 ha.)
5. These substantial discrepancies, between the area as given by the wildlife authorities and that measured on the map, could be either because the boundaries, as indicated by the wildlife authorities, were wrong, or because the scales on the maps they sent were incorrect. For these areas Survey of India toposheets were not available, so the areas could not be independently verified.
6. 4.77% of total area of state (55,67,300 ha.)
7. 7.10% of total area of state (55,67,300 ha.)



Kalij pheasant

APPENDIX 2

**REFERENCE NUMBERS OF SURVEY OF INDIA TOPOSHEETS@
RELEVANT TO PARKS AND SANCTUARIES IN HIMACHAL PRADESH**

<i>Name of N/S</i>	<i>Toposheet Numbers</i>
GREAT HIMALAYAN NATIONAL PARK	53E/5,6,9,10,13,14
PIN VALLEY NATIONAL PARK	53E/13, 53I/1*, 52H/16*, 52L/4*
BANDLI SANCTUARY	53A/15
CHAIL SANCTUARY	53E/4, 53F/1,5
CHURDHAR SANCTUARY	53F/5
DARANGHATI SANCTUARY	53E/15
DARLAGHAT SANCTUARY	53A/15,16
GAMGUL SIAHBEHI SANCTUARY	43P/13*,14*, 52D/1*,2*
GOBIND SAGAR SANCTUARY	53A/7,11,15,16
KAIS SANCTUARY	52H/4*, 53E/1
KALATOP KHAJJAR SANCTUARY	43P/14*, 52D/2*
KANAWAR SANCTUARY	52H/8*, 53/E5
KHOKHAN SANCTUARY	53E/1
KUGTI SANCTUARY	52D/14*, 52D/10*,11*,15*
LIPPA ASRANG SANCTUARY	53I/2*,6*
MAJATHAL SANCTUARY	53A/15, 53E/3
MANALI SANCTUARY	52H/3*,4*
NAINA DEVI SANCTUARY	53A/7,11
NARGU SANCTUARY	53A/13, 53E/1, 52D/16*
PONG LAKE SANCTUARY	43P/16*, 44M/13*, 52D/4*, 53A/1
RAKCHHAM CHITKUL SANCTUARY	53I/7*
RENUKA SANCTUARY	53F/6
RUPI BHABA SANCTUARY	53E/13,14, 53I/1*,2*
SECHU TUAN NALA SANCTUARY	52C/8*,12*, 52D/5*,9*
SHIKARI DEVI SANCTUARY	53E/2,3
SHILLI SANCTUARY	53F/1
SHIMLA WATER CATCHMENT SANCTUARY	53E/4,8
SIMBALBARA SANCTUARY	53F/7,11
TALRA SANCTUARY	53E/12,16, 53F/9,13
TIKTHAN SANCTUARY	53E/6,10
TUNDAH SANCTUARY	52D/6*,7*,10*,11*

● Scale 1:50,000

* Restricted Sheets

Appendix 3

LIST OF TREES REPORTED FROM THE NATIONAL PARKS AND SANCTUARIES IN HIMACHAL PRADESH

NAME OF THE TREE	NATIONAL PARKS											SANCTUARIES											NAME OF THE TREE									
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN		RUP	SEC	SHIK	SHIL	SHIM	SIM	TAL	TIR	TUN
Abies pindrow ² (Tosh)	*				*	*			*			*		*		*		*		*		*	*	*		*		*	*	*		Abies pindrow ² (Tosh)
Abies spectabilis ² (Rai)				*			*						*																	*	Abies spectabilis ² (Rai)	
Abies spp.				*																											Abies spp.	
Acacia catechu (Khair)			*				*		*								*										*				Acacia catechu (Khair)	
Acacia dealbata (Black wattle)																	*									*					Acacia dealbata (Black wattle)	
Acacia leucophloea (Reur)				*															*												Acacia leucophloea (Reur)	
Acacia spp.				*																											Acacia spp.	
Acer caesium (Chirandu, Mandar, Rikhandu)	*						*				*	*	*	*									*	*	*				*	*	Acer caesium (Chirandu, Mandar, Rikhandu)	
Acer cappadocicum (Maple)											*			*			*														*	Acer cappadocicum (Maple)
Acer caudatum (Mandar)											*			*																	*	Acer caudatum (Mandar)
Acer oblongum																									*						*	Acer oblongum
Acer pictum (Mandar, Mandlu, Rikhandu, Rikhandu)	*				*		*		*	*	*	*	*	*							*			*	*		*	*	*	*	*	Acer pictum (Mandar, Mandlu, Rikhandu, Rikhandu)
Acer thomsonii (Mandar)							*		*	*	*	*	*	*										*							*	Acer thomsonii (Mandar)
Aegle marmelos (Bel, Bil)							*		*	*	*	*	*	*			*								*						*	Aegle marmelos (Bel, Bil)
Aesculus indica (Pangar, Goon, Gum, Jungli Khanoor, Khanor)	*				*		*		*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Aesculus indica (Pangar, Goon, Gum, Jungli Khanoor, Khanor, Pangar)
Aesculus spp.																								*							*	Aesculus spp.
Albizia lebbek (Siris)							*		*	*	*	*	*	*								*					*				*	Albizia lebbek (Siris)
Albizia odoratissima (Kali siris)							*		*	*	*	*	*	*																	*	Albizia odoratissima (Kali siris)
Albizia spp.																															*	Albizia spp.
Alnus nepalensis (Piak)							*		*	*	*	*	*	*																	*	Alnus nepalensis (Piak)
Alnus nitida (Kosh, Piak)							*		*	*	*	*	*	*								*	*	*							*	Alnus nitida (Kosh, Piak)
Alnus spp.											*	*	*	*																	*	Alnus spp.
Anogeissus latifolia (Chaal, Chhal)								*			*	*	*	*			*										*				*	Anogeissus latifolia (Chaal, Chhal)
Azadirachta indica ³ (Neem, Darek, Drek)							*		*	*	*	*	*	*			*														*	Azadirachta indica ³ (Neem, Darek, Drek)
Bauhinia purpurea								*	*	*	*	*	*	*			*														*	Bauhinia purpurea
Bauhinia racemosa (Koryale)																	*														*	Bauhinia racemosa (Koryale)
Bauhinia spp.				*																											*	Bauhinia spp.
Bauhinia variegata (Kachnar, Kral)			*				*		*	*	*	*	*	*																	*	Bauhinia variegata (Kachnar, Kral)
Betula alnoides (Bhuj, Bhujji pattara, Kathbhoj)					*	*	*		*	*	*	*	*	*																	*	Betula alnoides (Bhuj, Bhujji pattara, Kathbhoj)
Betula spp.											*	*	*	*																	*	Betula spp.
Betula utilis (Bhiy, Bhoj, Bhojpatra, Bhuj)	*	*					*		*	*	*	*	*	*		*							*	*				*	*	*	*	Betula utilis (Bhiy, Bhoj, Bhojpatra, Bhuj)
Bombax spp.				*																					*						*	Bombax spp.
Bombax ceiba ² (Semal, Simbal)				*			*		*	*	*	*	*	*			*							*	*		*				*	Bombax ceiba ² (Semal, Simbal)
Butea monosperma ² (Dhak)				*																				*	*		*				*	Butea monosperma ² (Dhak)
Buxus wallichiana (Samshad)							*		*	*	*	*	*	*																	*	Buxus wallichiana (Samshad)
Carpinus faginea (Chakri)							*		*	*	*	*	*	*																	*	Carpinus faginea (Chakri)
Carpinus viminea (Chakri)							*		*	*	*	*	*	*																	*	Carpinus viminea (Chakri)
Casearia elliptica ² (Goela)																	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Casearia elliptica ² (Goela)
Cassia fistula (Alis, Amaltas)							*		*	*	*	*	*	*		*									*	*	*	*	*	*	*	Cassia fistula (Alis, Amaltas)
Cedrela serrata (Darle, Dauri, Kharak)	*						*		*	*	*	*	*	*			*							*	*	*	*	*	*	*	*	Cedrela serrata (Darle, Dauri, Kharak)
Cedrela spp.			*	*			*		*	*	*	*	*	*			*							*	*	*	*	*	*	*	*	Cedrela spp.
Cedrus deodara (Deodar, Diar, Diyar)	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Cedrus deodara (Deodar, Diar, Diyar)

NAME OF THE TREE	NATIONAL PARKS																										NAME OF THE TREE					
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL		SHIM	SIM	TAL	TIR	TUN
<i>Celtis australis</i> (Kharak, Khirak)	*				*			*			*	*		*										*							*	<i>Celtis australis</i> (Kharak, Khirak)
<i>Celtis</i> spp.																															*	<i>Celtis</i> spp.
<i>Cornus capitata</i> ¹ (Thumi)																															*	<i>Cornus capitata</i> ¹ (Thumi)
<i>Cornus macrophylla</i> (Haleu)								*			*	*		*																	*	<i>Cornus macrophylla</i> (Haleu)
<i>Corylus colurna</i> (Thangi)								*			*			*											*						*	<i>Corylus colurna</i> (Thangi)
<i>Cotoneaster affinis</i> (Renus)																								*							*	<i>Cotoneaster affinis</i> (Renus)
<i>Cotoneaster racemiflora</i> (Renus)																								*							*	<i>Cotoneaster racemiflora</i> (Renus)
<i>Cotoneaster vulgaris</i> (Renus)																								*							*	<i>Cotoneaster vulgaris</i> (Renus)
<i>Crataegus oxyacantha</i> (Pangyar)																								*							*	<i>Crataegus oxyacantha</i> (Pangyar)
<i>Cupressus torulosa</i> (Devi diyar)								*			*	*		*																	*	<i>Cupressus torulosa</i> (Devi diyar)
<i>Dalbergia sissoo</i> (Shisham, Tali)								*			*			*						*											*	<i>Dalbergia sissoo</i> (Shisham, Tali)
<i>Deutzia staminea</i>												*																			*	<i>Deutzia staminea</i>
<i>Diospyros cordifolia</i> (Dakanan)																															*	<i>Diospyros cordifolia</i> (Dakanan)
<i>Ehretia laevis</i> (Chamror)																															*	<i>Ehretia laevis</i> (Chamror)
<i>Ehretia acuminata</i> ² (Punna)								*			*			*																	*	<i>Ehretia acuminata</i> ² (Punna)
<i>Emblica officinalis</i> ³ (Aonla, Amla)																															*	<i>Emblica officinalis</i> ³ (Aonla, Amla)
<i>Erythrina suberosa</i>			*																												*	<i>Erythrina suberosa</i>
<i>Eucalyptus</i> spp.				*																											*	<i>Eucalyptus</i> spp.
<i>Euonymus fimbriatus</i> (Tritu)								*			*			*																	*	<i>Euonymus fimbriatus</i> (Tritu)
<i>Euphorbia royleana</i>																															*	<i>Euphorbia royleana</i>
<i>Feronia limonia</i> (Barnah)																															*	<i>Feronia limonia</i> (Barnah)
<i>Feronia</i> spp. (Baranasi)							*																								*	<i>Feronia</i> spp. (Baranasi)
<i>Ficus benghalensis</i> (Bar)																															*	<i>Ficus benghalensis</i> (Bar)
<i>Ficus nemoralis</i> (Anzir, Phagoora)								*			*			*																	*	<i>Ficus nemoralis</i> (Anzir, Phagoora)
<i>Ficus palmata</i> (Phagoora)								*			*			*																	*	<i>Ficus palmata</i> (Phagoora)
<i>Ficus racemosa</i> ² (Phagoora)								*			*			*																	*	<i>Ficus racemosa</i> ² (Phagoora)
<i>Ficus religiosa</i> (Peepal)								*			*			*																	*	<i>Ficus religiosa</i> (Peepal)
<i>Ficus</i> spp.																															*	<i>Ficus</i> spp.
<i>Flacourtia indica</i> ² (Kangu)																															*	<i>Flacourtia indica</i> ² (Kangu)
<i>Flacourtia</i> spp. (Kangu)								*			*			*																	*	<i>Flacourtia</i> spp. (Kangu)
<i>Fraxinus floribunda</i> (Angah, Sunnu, Sunuh)						*		*			*			*																*	*	<i>Fraxinus floribunda</i> (Angah, Sunnu, Sunuh)
<i>Fraxinus micrantha</i> (Angu)											*			*																	*	<i>Fraxinus micrantha</i> (Angu)
<i>Fraxinus</i> spp.	*													*																	*	<i>Fraxinus</i> spp.
<i>Fraxinus xanthoxyloides</i> (Sanjal)																															*	<i>Fraxinus xanthoxyloides</i> (Sanjal)
<i>Grevillea robusta</i> (Grevalia)											*			*																	*	<i>Grevillea robusta</i> (Grevalia)
<i>Grewia elastica</i> (Dhamman)								*			*			*																*	<i>Grewia elastica</i> (Dhamman)	
<i>Grewia optiva</i> ² (Betul, Beul, Dham nan)								*	*		*			*																*	<i>Grewia optiva</i> ² (Betul, Beul, Dhamman)	
<i>Grewia</i> spp. (Biul)						*					*			*																	*	<i>Grewia</i> spp. (Biul)
<i>Haldina cordifolia</i> ¹																														*	<i>Haldina cordifolia</i> ¹	
<i>Hippophae rhamnoides</i> (Chug)																															*	<i>Hippophae rhamnoides</i> (Chug)
<i>Holarrhena antidysenterica</i> (Keor)																														*	<i>Holarrhena antidysenterica</i> (Keor)	
<i>Ilex dipyrrena</i> (Kandru)											*			*																*	<i>Ilex dipyrrena</i> (Kandru)	
<i>Juglans regia</i> (Akhrot, Khor, Than)	*				*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	<i>Juglans regia</i> (Akhrot, Khor, Than)
<i>Juniperus macropoda</i> (Bhutal)		*																													*	<i>Juniperus macropoda</i> (Bhutal)
<i>Juniperus recurva</i>											*			*																	*	<i>Juniperus recurva</i>
<i>Juniperus</i> spp.					*																										*	<i>Juniperus</i> spp.
<i>Lagerstroemia</i> spp.				*																											*	<i>Lagerstroemia</i> spp.
<i>Lansea coromandelica</i> ³ (Jhingam)								*			*			*																*	<i>Lansea coromandelica</i> ³ (Jhingam)	

NAME OF THE TREE	NATIONAL PARKS										SANCTUARIES																NAME OF THE TREE										
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL		SHIM	SIM	TAL	TIR	TUN					
Litsea sebifera																											*									Litsea sebifera	
Litsea spp.																					*												*			Litsea spp.	
Litsea umbrosa (Chirindi)					*			*			*		*		*																		*			Litsea umbrosa (Chirindi)	
Lonicera quinquelocularis	*										*		*														*							*		Lonicera quinquelocularis	
Lyonia ovalifolia (Ailan)								*			*		*														*							*		Lyonia ovalifolia (Ailan)	
Machilus duthiei (Bhadrol)								*			*	*	*																					*		Machilus duthiei (Bhadrol)	
Machilus odoratissima (Bhadrol, Saincha)								*			*	*	*																					*		Machilus odoratissima (Bhadrol, Saincha)	
Mallotus philippensis																												*						*		Mallotus philippensis	
Malus baccata (Lewar)								*			*		*																				*		Malus baccata (Lewar)		
Malus pumila (Chun, Seo)								*			*		*																				*		Malus pumila (Chun, Seo)		
Mangifera indica (Aam, Amb)																			*		*													*		Mangifera indica (Aam, Amb)	
Meliosma dillenaeifolia												*																						*		Meliosma dillenaeifolia	
Mitragyna parvifolia ¹																																*			Mitragyna parvifolia ¹		
Moringa oleifera ²			*																															*		Moringa oleifera ²	
Morus alba (Karun, Shahtoot, Shatoot)								*			*		*																				*			Morus alba (Karun, Shahtoot, Shatoot)	
Morus serrata (Chimu, Karun)								*			*	*	*																				*			Morus serrata (Chimu, Karun)	
Myrica esculenta (Khaphal)			*																																	Myrica esculenta (Khaphal)	
Myrsine semiserrata												*																								Myrsine semiserrata	
Nyctanthes arbor-tristis (Harsingar)																																		*		Nyctanthes arbor-tristis (Harsingar)	
Olea ferruginea (Kau)								*			*		*																				*			Olea ferruginea (Kau)	
Ougeinia oojenensis ² (Sandan)																																	*			Ougeinia oojenensis ² (Sandan)	
Parrotiopsis jacquemontiana	*										*																						*			Parrotiopsis jacquemontiana	
Pereskia spp.																																		*		Pereskia spp.	
Philadelphus coronarius											*																									Philadelphus coronarius	
Phoenix humilis (Khajoor)																																		*		Phoenix humilis (Khajoor)	
Picea smithiana ² (Rai, Tosh)	*				*	*			*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Picea smithiana ² (Rai, Tosh)	
Picea spinulosa (Tosh)											*		*																				*			Picea spinulosa (Tosh)	
Picea spp.																																		*		Picea spp.	
Picrasma quassioides											*		*																					*		Picrasma quassioides	
Pinus gerardiana (Neoza, Miri, Chilgoza)								*			*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Pinus gerardiana (Neoza, Miri, Chilgoza)	
Pinus roxburghii ² (Chil, Chir)			*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Pinus roxburghii ² (Chil, Chir)
Pinus wallichiana ² (Kail)	*			*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Pinus wallichiana ² (Kail)
Pistacia integerrima (Kakkar, Kakeran, Kakare)			*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Pistacia integerrima (Kakkar, Kakeran, Kakare)
Populus alba (Safeda)											*		*																						*		Populus alba (Safeda)
Populus ciliata (Chalauj, Chaaloon, Pahari peepal)								*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Populus ciliata (Chalauj, Chaaloon, Pahari peepal)
Populus spp.	*			*							*		*																					*		Populus spp.	
Prunus armeniaca (Chihri, Chir, Chuli)								*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Prunus armeniaca (Chihri, Chir, Chuli)
Prunus cornuta (Bird cherry, Jammu)								*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Prunus cornuta (Bird cherry, Jammu)
Prunus domestica (Aloocho)								*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Prunus domestica (Aloocho)
Prunus persica (Aru)								*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Prunus persica (Aru)
Prunus spp.	*																																	*		Prunus spp.	
Pterospermum spp.																																			*		Pterospermum spp.
Punica granatum (Daroo)			*																																		Punica granatum (Daroo)
Punica spp.				*																																	Punica spp.
Pyrus communis (Nakh)								*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Pyrus communis (Nakh)
Pyrus pashia (Kainth, Shegal, Shagal)								*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Pyrus pashia (Kainth, Shegal, Shagal)
Pyrus spp.											*		*																						*		Pyrus spp.
Quercus dilatata (Mohru, Moru)	*			*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		Quercus dilatata (Mohru, Moru)

NAME OF THE TREE	NATIONAL PARKS			SANCTUARIES																								NAME OF THE TREE						
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL	SHIM		SIM	TAL	TIR	TUN		
Quercus glauca (Bani)	*				*	*		*			*	*				*			*				*		*	*	*							Quercus glauca (Bani)
Quercus incana (Ban, Ban oak)	*		*		*	*		*			*	*				*			*				*		*	*	*		*	*			Quercus incana (Ban, Ban oak)	
Quercus semecarpifolia (Kharsu)	*				*	*		*			*	*				*			*				*		*	*	*		*	*			Quercus semecarpifolia (Kharsu)	
Quercus spp.				*																													Quercus spp.	
Rhododendron arboreum (Baras, Burash, Chco)	*		*		*	*		*			*	*				*			*				*		*	*	*						Rhododendron arboreum (Baras, Burash, Chco)	
Rhododendron spp.				*	*	*		*			*	*			*			*					*		*	*							Rhododendron spp.	
Rhus chinensis (Arkhar)					*			*			*	*			*			*					*		*	*							Rhus chinensis (Arkhar)	
Rhus punjabensis (Tittri)					*			*			*	*			*			*					*		*	*							Rhus punjabensis (Tittri)	
Rhus spp.					*			*			*	*			*			*					*		*	*							Rhus spp.	
Robinia pseudoacacia				*				*			*	*			*			*					*		*	*							Robinia pseudoacacia	
Salix alba (Badda)								*			*	*			*			*					*		*	*							Salix alba (Badda)	
Salix babylonica (Badda majnu)								*			*	*			*			*					*		*	*							Salix babylonica (Badda majnu)	
Salix daphnoides (Bes)								*			*	*			*			*					*		*	*							Salix daphnoides (Bes)	
Salix denticulata (Bhashal)								*			*	*			*			*					*		*	*							Salix denticulata (Bhashal)	
Salix elegans (Bes)								*			*	*			*			*					*		*	*							Salix elegans (Bes)	
Salix fragilis (Bes)								*			*	*			*			*					*		*	*							Salix fragilis (Bes)	
Salix spp.		*		*				*			*	*			*			*					*		*	*							Salix spp.	
Salix tetrasperma (Beuns)								*			*	*			*			*					*		*	*							Salix tetrasperma (Beuns)	
Salix wallichiana (Badda majnu)								*			*	*			*			*					*		*	*							Salix wallichiana (Badda majnu)	
Sapindus mukorossi (Ritha)			*					*			*	*			*			*					*		*	*							Sapindus mukorossi (Ritha)	
Sapindus spp.				*				*			*	*			*			*					*		*	*							Sapindus spp.	
Sapium insigne (Balodhar)								*			*	*			*			*					*		*	*							Sapium insigne (Balodhar)	
Sarcococca saligna								*			*	*			*			*					*		*	*							Sarcococca saligna	
Shorea robusta (Sal)								*			*	*			*			*					*		*	*							Shorea robusta (Sal)	
Sorbus aucuparia (Jhanwar)								*			*	*			*			*					*		*	*							Sorbus aucuparia (Jhanwar)	
Sorbus lanata (Amlok, Mohal)								*			*	*			*			*					*		*	*							Sorbus lanata (Amlok, Mohal)	
Staphylea emodi								*			*	*			*			*					*		*	*							Staphylea emodi	
Symplocos paniculata (Lodhar)								*			*	*			*			*					*		*	*							Symplocos paniculata (Lodhar)	
Syzygium cumini ² (Jamnoa, Jamun)								*			*	*			*			*					*		*	*							Syzygium cumini ² (Jamnoa, Jamun)	
Taxus baccata (Barhmi, Barmi)					*			*			*	*			*			*					*		*	*							Taxus baccata (Barhmi, Barmi)	
Terminalia alata ² (Alson, Sain)								*			*	*			*			*					*		*	*							Terminalia alata ² (Alson, Sain)	
Terminalia bellirica (Bahera, Harar)								*			*	*			*			*					*		*	*							Terminalia bellirica (Bahera, Harar)	
Terminalia chebula (Harar)								*			*	*			*			*					*		*	*							Terminalia chebula (Harar)	
Terminalia spp.				*				*			*	*			*			*					*		*	*							Terminalia spp.	
Toona ciliata ² (Toon)								*			*	*			*			*					*		*	*							Toona ciliata ² (Toon)	
Ulmus villosa								*			*	*			*			*					*		*	*							Ulmus villosa	
Ulmus wallichiana (Maral, Marn, Moral)	*							*			*	*			*			*					*		*	*							Ulmus wallichiana (Maral, Marn, Moral)	
Wendlandia exserta (Ratela)								*			*	*			*			*					*		*	*							Wendlandia exserta (Ratela)	
Xanthophyllum spp.			*					*			*	*			*			*					*		*	*							Xanthophyllum spp.	
Zanthoxylum armatum ² (Timber)								*			*	*			*			*					*		*	*							Zanthoxylum armatum ² (Timber)	
Ziziphus mauritiana ² (Ber)								*			*	*			*			*					*		*	*							Ziziphus mauritiana ² (Ber)	
Ziziphus oxyphylla (Ber)								*			*	*			*			*					*		*	*							Ziziphus oxyphylla (Ber)	
Ziziphus spp.				*				*			*	*			*			*					*		*	*							Ziziphus spp.	

Sources:

Great Himalayan National Park: mp, Gaston et. al. 1981.
Pin Valley National Park: Q1.
Bandli Sanctuary: dh, Q1, wp.

Chail Sanctuary: Q1, dh, Gaston & Singh 1980.
 Churdhar Sanctuary: wp, Info. sheet.
 Daranghati Sanctuary: qa, wp.
 Darlaghat Sanctuary: wp.
 Gamgul Siahbehi Sanctuary: Q1.
 Gobind Sagar Sanctuary: wp, Q1.
 Kais Sanctuary: Q1, qa, IUCN.
 Kalatop Khajjiar Sanctuary: ZSI 1987.
 Kanawar Sanctuary: Q1.
 Khokhan Sanctuary: qa, fv.
 Kugti Sanctuary: Narang et. al. 1987.
 Lippa Asrang Sanctuary: Q1.
 Majathal Sanctuary: dh, wp.
 Manali Sanctuary: Q1.
 Naina Devi Sanctuary: Q1, wp.
 Nargu Sanctuary: Hist. file, fv.
 Pong Lake Sanctuary: Q1.
 Rakchham Chitkul Sanctuary: Q1.
 Renuka Sanctuary: Q1, Hist. file.
 Rupi Bhaba Sanctuary: Q1, mp, fv.
 Sechu Tuan Nala Sanctuary: Q1.
 Shikari Devi Sanctuary: mp, dh.
 Shilli Sanctuary: Q1.
 Shimla Water Catchment Sanctuary: wp, mp, dh, fv.
 Simbalbara Sanctuary: mp, qa.
 Talra Sanctuary: Q1, qa, IUCN.
 Tirthan Sanctuary: mp.
 Tundah Sanctuary: Q1.

KEY

Species whose :

- 1 Generic name has changed (see List 1)[@]
- 2 Specific name has changed (see List 2)[@]
- 3 Generic and specific names have changed (see List 3)[@]

LIST 1

CURRENT NAME	OBSOLETE NAME
Cornus capitata	Benthamidia capitata
Haldina cordifolia	Adina cordifolia
Mitragyna parvifolia	Nauclea parvifolia

LIST 2

CURRENT NAME	OBSOLETE NAME
Abies pindrow	Abies webbiana var. pindrow
Abies spectabilis	Abies webbiana
Bombax ceiba	Bombax malabaricum
Butea monosperma	Butea frondosa
Casearia elliptica	Casearia tomentosa
Ehretia acuminata	Ehretia serrata

Ficus racemosa
Flacourtia indica
Grewia optiva
Moringa oleifera
Ougeinia oojeinensis
Picea smithiana
Pinus roxburghii
Pinus wallichiana
Syzygium cumini
Terminalia alata
Zanthoxylum armatum
Ziziphus mauritiana

Ficus glomerata
Flacourtia ramontchi or *Flacourtia sepiaria* *
Grewia oppositifolia
Moringa pterygosperma
Ougeinia dalbergiodes
Picea morinda
Pinus longifolia
Pinus excelsa
Syzygium jambolanum
Terminalia tomentosa
Zanthoxylum alatum
Ziziphus jujuba

LIST 3

Azadirachta indica
Embllica officinalis
Lannea coromandelica
Toona ciliata

Melia azadirachta
Phyllanthus emblica
Odina wodier
Cedrela toona

* Two species, previously thought to be distinct, have been merged into one.

@ Sources for name changes :

Champion and Seth, 1968; Chandra and Gaur, 1988; Council of Scientific and Industrial Research, 1986; Dhar and Kachroo, 1983; Pant, 1986; Saldanha, 1984; Saldanha and Nicolson, 1976

APPENDIX 4

SCIENTIFIC, ENGLISH, AND FAMILY NAMES OF TREES
LISTED IN APPENDIX 3¹

Scientific Name	Common/English name	Family
<i>Abies pindrow</i>	Himalayan Silver Fir	Pinaceae
<i>Abies spectabilis</i>	East Himalayan Silver Fir	Pinaceae
<i>Acacia catechu</i>	Cutch Tree	Fabaceae
<i>Acacia dealbata</i>	Silver Wattle	Fabaceae
<i>Acacia leucophloea</i>	White Barked Acacia	Fabaceae
<i>Acer caesium</i>	Maple	Aceraceae
<i>Acer cappadocicum</i>	Maple	Aceraceae
<i>Acer caudatum</i>	Maple	Aceraceae
<i>Acer oblongum</i>	Himalayan Maple	Aceraceae
<i>Acer pictum</i>	Maple	Aceraceae
<i>Acer thomsonii</i>	Maple	Aceraceae
<i>Aegle marmelos</i>	Bael Tree	Rutaceae
<i>Aesculus indica</i>	Indian Horse Chestnut	Sapindaceae
<i>Albizia lebbeck</i>	East Indian Walnut	Fabaceae
<i>Albizia odoratissima</i>	Black Siris	Fabaceae
<i>Alnus nepalensis</i>	Indian Alder	Betulaceae
<i>Alnus nitida</i>	Alder	Betulaceae
<i>Anogeissus latifolia</i>	Axle-wood Tree	Combretaceae
<i>Azadirachta indica</i>	Margosa Tree, Persian Lilac	Meliaceae
<i>Bauhinia purpurea</i>	Purple Bauhinia	Fabaceae
<i>Bauhinia racemosa</i>	White Bauhinia	Fabaceae
<i>Bauhinia variegata</i>	Variegated Bauhinia	Fabaceae
<i>Betula alnoides</i>	Indian Birch	Betulaceae
<i>Betula utilis</i>	Himalayan Silver Birch	Betulaceae
<i>Bombax ceiba</i>	Silk Cotton Tree	Bombacaceae
<i>Butea monosperma</i>	Flame of the Forest	Fabaceae
<i>Buxus wallichiana</i>	Box Wood	Buxaceae
<i>Carpinus faginea</i>	Horn Beam	Betulaceae
<i>Carpinus viminea</i>	Horn Beam	Betulaceae
<i>Casearia elliptica</i>		Samydaceae
<i>Cassia fistula</i>	Indian Laburnum	Fabaceae
<i>Cedrela serrata</i>	Hill Toon	Meliaceae
<i>Cedrus deodara</i>	Deodar	Pinaceae
<i>Celtis australis</i>	Nettle Tree	Ulmaceae
<i>Cornus capitata</i>		Cornaceae
<i>Cornus macrophylla</i>	Dog Wood	Cornaceae
<i>Corylus colurna</i>	Turkish Hazelnut	Betulaceae
<i>Cotoneaster affinis</i>		Rosaceae
<i>Cotoneaster racemiflora</i>		Rosaceae
<i>Cotoneaster vulgaris</i>		Rosaceae
<i>Crataegus oxyacantha</i>	English Hawthorn	Rosaceae
<i>Cupressus torulosa</i>	Himalayan Cypress	Pinaceae
<i>Dalbergia sissoo</i>	Shisham	Fabaceae
<i>Deutzia staminea</i>		Saxifragaceae
<i>Diospyros cordifolia</i>		Ebenaceae
<i>Ehretia acuminata</i>		Boraginaceae
<i>Ehretia laevis</i>	Ehretia	Boraginaceae

Scientific Name	Common/ English Name	Family
<i>Emblica officinalis</i>	Indian Gooseberry	Euphorbiaceae
<i>Erythrina suberosa</i>		Fabaceae
<i>Eucalyptus</i> spp.	Eucalypt	Myrtaceae
<i>Euonymus fimbriatus</i>		Celastraceae
<i>Euphorbia royleana</i>		Euphorbiaceae
<i>Feronia limonia</i>	Elephant Apple, Wood Apple	Rutaceae
<i>Ficus benghalensis</i>	Banyan	Moraceae
<i>Ficus nemoralis</i>	Wild Fig	Moraceae
<i>Ficus palmata</i>	Wild Fig	Moraceae
<i>Ficus racemosa</i>	Wild Fig	Moraceae
<i>Ficus religiosa</i>	Peepal	Moraceae
<i>Flacourtia indica</i>		Flacourtiaceae
<i>Fraxinus floribunda</i>	Ash	Oleaceae
<i>Fraxinus micrantha</i>		Oleaceae
<i>Fraxinus xanthoxyloides</i>	Ash	Oleaceae
<i>Grevillea robusta</i>	Silver Oak	Proteaceae
<i>Grewia elastica</i>		Tiliaceae
<i>Grewia optiva</i>		Tiliaceae
<i>Haldina cordifolia</i>	Haldu	Rubiaceae
<i>Hippophae rhamnoides</i>	Common Seabuckthorn	Elaeagnaceae
<i>Holarrhena antidysenterica</i>	Conessia Holarrhena	Apocynaceae
<i>Ilex dipyrrena</i>		Aquifoliaceae
<i>Juglans regia</i>	Common Walnut, Persian Walnut, European Walnut	Juglandaceae
<i>Juniperus macropoda</i>	Himalayan Pencil Cedar	Pinaceae
<i>Juniperus recurva</i>	Weeping Blue Juniper	Pinaceae
<i>Lagerstroemia</i> spp.		Lythraceae
<i>Lannea coromandelica</i>	Wodier Tree	Anacardiaceae
<i>Litsea sebifera</i>		Lauraceae
<i>Litsea umbrosa</i>		Lauraceae
<i>Lonicera quinquelocularis</i>	Himalayan Honey Suckle	Caprifoliaceae
<i>Lyonia ovalifolia</i>		Ericaceae
<i>Machilus duthiei</i>		Lauraceae
<i>Machilus odoratissima</i>	Machilus	Lauraceae
<i>Mallotus philippensis</i>	Kamala Tree	Euphorbiaceae
<i>Malus baccata</i>	Siberian Crab Apple	Rosaceae
<i>Malus pumila</i>	Cultivated Apple	Rosaceae
<i>Mangifera indica</i>	Mango	Anacardiaceae
<i>Meliosma dilleniaefolia</i>		Sabiaceae
<i>Mitragyna parvifolia</i>	Kalm	Rubiaceae
<i>Moringa oleifera</i>	Drumstick Tree	Moringaceae
<i>Morus alba</i>	White Mulberry	Moraceae
<i>Morus serrata</i>	Himalayan Mulberry	Moraceae
<i>Myrica esculenta</i>	Box Myrtle	Myricaceae
<i>Myrsine semiserrata</i>		Myrsinaceae
<i>Nyctanthes arbor-tristis</i>	Night Jasmine	Oleaceae
<i>Olea ferruginea</i>	Indian Olive	Oleaceae
<i>Ougeinia oojainensis</i>	Sandan	Fabaceae
<i>Parrotiopsis jacquemontiana</i>		Hamamelidaceae
<i>Pereskia</i> spp.		Cactaceae
<i>Philadelphus coronarius</i>	Mock Orange	Saxifragaceae
<i>Phoenix humilis</i>	Hill Date Palm	Arecaceae

Scientific Name	Common/English Name	Family
<i>Picea smithiana</i>	West Himalayan Spruce	Pinaceae
<i>Picea spinulosa</i>	Spruce	Pinaceae
<i>Picrasma quassioides</i>		Simaroubaceae
<i>Pinus gerardiana</i>	Chilgoza Pine	Pinaceae
<i>Pinus roxburghii</i>	Chir Pine, Himalayan Long Leaved Pine	Pinaceae
<i>Pinus wallichiana</i>	Blue Pine, Bhutan Pine	Pinaceae
<i>Pistacia integerrima</i>		Anacardiaceae
<i>Populus alba</i>	White Poplar	Salicaceae
<i>Populus ciliata</i>	Himalayan Poplar	Salicaceae
<i>Prunus armeniaca</i>	Common Apricot	Rosaceae
<i>Prunus cornuta</i>	Himalayan Bird Cherry	Rosaceae
<i>Prunus domestica</i>	Common Plum	Rosaceae
<i>Prunus persica</i>	Peach, Nectarine	Rosaceae
<i>Pterospermum</i> spp.		Sterculiaceae
<i>Punica granatum</i>	Pomogranate	Punicaceae
<i>Pyrus communis</i>	Common or European Pear	Rosaceae
<i>Pyrus pashia</i>	Wild Madlar	Rosaceae
<i>Quercus dilatata</i>	Green Oak, Moru Oak	Fagaceae
<i>Quercus glauca</i>	Blue Japanese Oak	Fagaceae
<i>Quercus incana</i>	Grey Oak, Ban Oak	Fagaceae
<i>Quercus semecarpifolia</i>	Brown Oak of Himalaya, Kharshu Oak	Fagaceae
<i>Rhododendron arboreum</i>	Red Rhododendron, Tree Rhododendron, Rose-Tree	Ericaceae
<i>Rhus chinensis</i>	Small Pox Tree	Anacardiaceae
<i>Rhus punjabensis</i>		Anacardiaceae
<i>Robinia pseudoacacia</i>	Robinia, False-Acacia, Black-Locust	Fabaceae
<i>Salix alba</i>	European Willow	Salicaceae
<i>Salix babylonica</i>	Weeping Willow	Salicaceae
<i>Salix daphnoides</i>	Violet Willow	Salicaceae
<i>Salix denticulata</i>		Salicaceae
<i>Salix elegans</i>		Salicaceae
<i>Salix fragilis</i>	Kashmir Willow, Crack Willow, Red-Wood Willow	Salicaceae
<i>Salix tetrasperma</i>	Indian Willow	Salicaceae
<i>Salix wallichiana</i>		Salicaceae
<i>Sapindus mukorossi</i>	Northern Soapnut Tree	Sapindaceae
<i>Sapium insigne</i>		Euphorbiaceae
<i>Sarcococca saligna</i>		Buxaceae
<i>Shorea robusta</i>	Sal	Dipterocarpaceae
<i>Sorbus aucuparia</i>	Mountain Ash, Rowan Tree	Rosaceae
<i>Sorbus lanata</i>		Rosaceae
<i>Staphylea emodi</i>	Snakewood, Snake-Stick	Staphyleaceae
<i>Symplocos paniculata</i>	Sapphire Berry	Symplocaceae
<i>Syzygium cumini</i>	Black Plum, Java Plum	Myrtaceae
<i>Taxus baccata</i>	Common Yew	Taxaceae
<i>Terminalia alata</i>	Laurel	Combretaceae
<i>Terminalia bellirica</i>	Belliric Myrobalan	Combretaceae
<i>Terminalia chebula</i>	Chebulic Myrobalan, Gallnut	Combretaceae

Scientific Name	Common/English Name	Family
<i>Toona ciliata</i>	Toon, Red Cedar, Moul Mein Cedar	Meliaceae
<i>Ulmus villosa</i>		Ulmaceae
<i>Ulmus wallichiana</i>	Big Leaved Elm	Ulmaceae
<i>Wendlandia exserta</i>		Rubiaceae
<i>Xanthophyllum</i> spp.		Polygalaceae
<i>Zanthoxylum armatum</i>		Rutaceae
<i>Ziziphus mauritiana</i>	Indian Jujube, Common Jujube	Rhamnaceae
<i>Ziziphus oxyphylla</i>		Rhamnaceae

1. Sources for English and Family Names :

Council of Scientific & Industrial Research 1986; Dhar and Kachroo 1983; Saldanha 1984; Saldanha and Nicholson 1976; Sharma *et al* 1984; Singh *et al* 1983; Venkatesh 1976.

Appendix 5

LIST OF OTHER PLANTS REPORTED FROM THE NATIONAL PARKS AND SANCTUARIES IN HIMACHAL PRADESH

NAME OF THE PLANT	NATIONAL PARKS		SANCTUARIES																									NAME OF THE PLANT						
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL	SHIM		SIM	TAL	TIR	TUN		
Abrus precatorius (Raktan)																		*																Abrus precatorius (Raktan)
Aconitum chasmanthum (Mohri)								*			*			*																			*	Aconitum chasmanthum (Mohri)
Aconitum heterophyllum (Patis, Patish)								*			*			*	*						*		*	*									*	Aconitum heterophyllum (Patis, Patish)
Aconitum spp.																																		Aconitum spp.
Aconitum violaceum (Tilla)							*																	*										Aconitum violaceum (Tilla)
Adhatoda spp.																																		Adhatoda spp.
Adhatoda zeylanica ² (Basauti, Basuti)			*					*			*			*				*				*									*			Adhatoda zeylanica ² (Basauti, Basuti)
Agave americana (Ram ban, Ramban)								*			*			*								*											*	Agave americana (Ram ban, Ramban)
Agave spp.																																		Agave spp.
Agropyron canaliculatum																								*										Agropyron canaliculatum
Agropyron semicostatum																								*										Agropyron semicostatum
Agropyron spp.																																		Agropyron spp.
Ainsliaea aptera		*																																Ainsliaea aptera
Ampelocissus latifolia ¹ (Pani Bel)					*			*			*			*																			*	Ampelocissus latifolia ¹ (Pani Bel)
Andrachne cordifolia														*										*										Andrachne cordifolia
Andropogon spp. ⁴							*																											Andropogon spp. ⁴
Anemone obtusiloba		*																																Anemone obtusiloba
Anemone rivularis					*																													Anemone rivularis
Angelica glauca (Chora)								*			*			*										*								*		Angelica glauca (Chora)
Aralia cachemirica											*																							Aralia cachemirica
Arisaema helleberifolium (Kikuri)																								*										Arisaema helleberifolium (Kikuri)
Arisaema propinquum (Cobra plant)																																		Arisaema propinquum (Cobra plant)
Arisaema spp. (Ki-kukri)								*			*			*																			*	Arisaema spp. (Ki-kukri)
Aristida adscensionis ² (Ludabru)																																		Aristida adscensionis ² (Ludabru)
Artemisia maritima (Gandha, Seski)																							*	*							*	*		Artemisia maritima (Gandha, Seski)
Artemisia nilagirica ² (Charmar, Charmor, Seski)	*		*					*			*	*		*											*						*	*		Artemisia nilagirica ² (Charmar, Charmor, Seski)
Artemisia spp.		*													*																			Artemisia spp.
Arundinaria falcata					*						*																							Arundinaria falcata
Arundinaria spp.																																		Arundinaria spp.
Asparagus spp.														*																				Asparagus spp.
Asplenium spp.																																		Asplenium spp.
Astragalus cicerifolius																							*											Astragalus cicerifolius
Atropa belladonna (Shafoo)								*			*			*																			*	Atropa belladonna (Shafoo)
Bambusa arundinacea (Nari)								*			*			*																			*	Bambusa arundinacea (Nari)
Bauhinia spp.																																		Bauhinia spp.
Bauhinia vahlii (Tor, Taur)								*	*		*			*								*											*	Bauhinia vahlii (Tor, Taur)
Benthamidia capitata (Halen)								*			*			*																			*	Benthamidia capitata (Halen)
Berberis angulosa																																		Berberis angulosa
Berberis aristata (Kashmal, Kasmal, Kemal)			*								*			*								*	*	*	*	*						*		Berberis aristata (Kashmal, Kasmal, Kemal)
Berberis asiatica																																*		Berberis asiatica
Berberis chitria												*																						Berberis chitria
Berberis coriaria (Kahmal)																									*									Berberis coriaria (Kahmal)

NAME OF THE PLANT	NATIONAL PARKS										SANCTUARIES										NAME OF THE PLANT													
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON		RAK	REN	RUP	SEC	SHIK	SHIL	SHIM	SIM	TAL	TIR	TUN		
Berberis lycium (Kashmal, Kemal)							*			*					*																		Berberis lycium (Kashmal, Kemal)	
Berberis spp.	*			*	*	*			*		*										*												Berberis spp.	
Berberis umbellata (Kahmal)																							*										Berberis umbellata (Kahmal)	
Berberis vulgaris (Kahmal, Kemal)			*					*		*													*										Berberis vulgaris (Kahmal, Kemal)	
Berchemia edgeworthii																							*										Berchemia edgeworthii	
Bergenia ciliata ³ (Pathartor)											*														*								Bergenia ciliata ³ (Pathartor)	
Bergia ligulata (Pathar-Tor)											*																						Bergia ligulata (Pathar-Tor)	
Bothriochloa intermedia (Palman)																																	Bothriochloa intermedia (Palman)	
Bothriochloa ischaemum																								*									Bothriochloa ischaemum	
Brachypodium sylvaticum																								*									Brachypodium sylvaticum	
Bromus asper																								*									Bromus asper	
Bromus japonicus																								*									Bromus japonicus	
Bromus oxyodon																								*									Bromus oxyodon	
Buddleja paniculata (Safed chindwa)													*			*								*									Buddleja paniculata (Safed chindwa)	
Caesalpinia decapetala ² (Bara durghar)																								*									Caesalpinia decapetala ² (Bara durghar)	
Calamagrostis pseudophragmites																								*									Calamagrostis pseudophragmites	
Caltha palustris		*																															Caltha palustris	
Cannabis sativa (Bhang)								*		*				*																			Cannabis sativa (Bhang)	
Carex nubigena											*																						Carex nubigena	
Carissa opaca (Garņa, Karaunda, Karonda)			*				*										*		*														Carissa opaca (Garņa, Karaunda, Karonda)	
Chrysopogon fulvus ² (Dhauu)							*								*		*																Chrysopogon fulvus ² (Dhauu)	
Cissampelos pareira (Bhatindu)																																	Cissampelos pareira (Bhatindu)	
Clematis buchananiana (Garol)								*		*				*										*									Clematis buchananiana (Garol)	
Clematis connata (Garol)																								*	*								Clematis connata (Garol)	
Clematis gouriana (Chibru)																		*															Clematis gouriana (Chibru)	
Clematis grata																								*									Clematis grata	
Clematis montana (Garol)							*			*				*									*										Clematis montana (Garol)	
Clematis orientalis (Garol)																							*										Clematis orientalis (Garol)	
Clematis spp.														*																			Clematis spp.	
Cocculus laurifolius (Nag daun)								*		*				*																				Cocculus laurifolius (Nag daun)
Coriaria nepalensis (Richh-ka-Ancha)								*		*				*																			Coriaria nepalensis (Richh-ka-Ancha)	
Cotinus coggygria																							*										Cotinus coggygria	
Cotoneaster acuminata (Banang)																							*										Cotoneaster acuminata (Banang)	
Cotoneaster bacillaris (Banang, Renus; Ruins)					*			*		*	*			*											*								Cotoneaster bacillaris (Banang, Renus; Ruins)	
Cotoneaster microphylla (Chamror, Raonsh)								*		*	*		*	*		*							*	*									Cotoneaster microphylla (Chamror, Raonsh)	
Cotoneaster spp.	*								*	*	*			*																			Cotoneaster spp.	
Cotoneaster vulgaris (Renus)								*		*	*			*																			Cotoneaster vulgaris (Renus)	
Crataegus oxycantha		*																															Crataegus oxycantha	
Cryptolepis buchananii (Dudhli)																																	Cryptolepis buchananii (Dudhli)	
Cuscuta reflexa (Akasbel, Amarbel)								*		*	*			*																			Cuscuta reflexa (Akasbel, Amarbel)	
Cuscuta spp.																																	Cuscuta spp.	
Cymbidium spp.						*																											Cymbidium spp.	
Cymbopogon martinii (Labb)						*									*																		Cymbopogon martinii (Labb)	
Cymbopogon spp.						*														*	*												Cymbopogon spp.	
Cyperus spp.																																	Cyperus spp.	
Dactylis glomerata																							*										Dactylis glomerata	
Danthonia jacquemontii ²																							*										Danthonia jacquemontii ²	
Daphne oleoides (Jiko, Niggi)								*		*	*			*									*										Daphne oleoides (Jiko, Niggi)	

NAME OF THE PLANT	NATIONAL PARKS		SANCTUARIES																							NAME OF THE PLANT							
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK		SHIL	SHIM	SIM	TAL	TIR	TUN	
<i>Daphne papyracea</i> (Kaula, Niggi)	*							*			*		*																			*	<i>Daphne papyracea</i> (Kaula, Niggi)
<i>Debregeasia hypoleuca</i>								*			*		*																		*	<i>Debregeasia hypoleuca</i>	
<i>Delphinium denudatum</i> (Nirvisi)																							*									<i>Delphinium denudatum</i> (Nirvisi)	
<i>Dendrocalamus strictus</i> (Banj)																																<i>Dendrocalamus strictus</i> (Banj)	
<i>Desmodium</i> spp.	*									*				*																	*	<i>Desmodium</i> spp.	
<i>Desmodium tiliaefolium</i> (Pre, Mortoi)								*			*		*											*							*	<i>Desmodium tiliaefolium</i> (Pre, Mortoi)	
<i>Deutzia compacta</i> (Bathi)					*																										*	<i>Deutzia compacta</i> (Bathi)	
<i>Deutzia corymbosa</i> (Bakhru, Batti)											*		*																		*	<i>Deutzia corymbosa</i> (Bakhru, Batti)	
<i>Deutzia</i> spp.	*										*		*																		*	<i>Deutzia</i> spp.	
<i>Deutzia staminea</i> (Batti)											*		*																		*	<i>Deutzia staminea</i> (Batti)	
<i>Digitaria</i> spp.					*																										*	<i>Digitaria</i> spp.	
<i>Dioscorea deltoidea</i> (Kins, Kunj, Calendi, Tardi)									*														*	*	*							*	<i>Dioscorea deltoidea</i> (Kins, Kunj, Calendi, Tardi)
<i>Dioscorea</i> spp.											*																					<i>Dioscorea</i> spp.	
<i>Dodonaea viscosa</i> (Mendu, Mhendu)									*		*		*																		*	<i>Dodonaea viscosa</i> (Mendu, Mhendu)	
<i>Dryopteris</i> spp.											*		*																		*	<i>Dryopteris</i> spp.	
<i>Duchesnea indica</i> ¹											*		*																		*	<i>Duchesnea indica</i> ¹	
<i>Elaeagnus umbellata</i> (Chindar)																								*							*	<i>Elaeagnus umbellata</i> (Chindar)	
<i>Eleusine</i> spp.					*																										*	<i>Eleusine</i> spp.	
<i>Elsholtzia fruticosa</i> ³ (Dharoos)									*		*		*																		*	<i>Elsholtzia fruticosa</i> ³ (Dharoos)	
<i>Ephedra gerardiana</i> (Somlata)		*							*		*		*								*			*							*	<i>Ephedra gerardiana</i> (Somlata)	
<i>Eremurus himalaicus</i> (Chukri)																															*	<i>Eremurus himalaicus</i> (Chukri)	
<i>Erianthus</i> spp.					*																										*	<i>Erianthus</i> spp.	
<i>Eriophorum comosum</i> (Ghor bagar)																															*	<i>Eriophorum comosum</i> (Ghor bagar)	
<i>Eulaliopsis binata</i> (Babhar grass, Bagar)																															*	<i>Eulaliopsis binata</i> (Babhar grass, Bagar)	
<i>Euonymus fimbriatus</i>																															*	<i>Euonymus fimbriatus</i>	
<i>Euonymus hamiltonianus</i> (Pappar)																															*	<i>Euonymus hamiltonianus</i> (Pappar)	
<i>Euphorbia royleana</i> (Chhoin, Chor, Thor)						*		*			*		*																	*	*	<i>Euphorbia royleana</i> (Chhoin, Chor, Thor)	
<i>Fagopyrum cymosum</i>											*		*																		*	<i>Fagopyrum cymosum</i>	
<i>Fagopyrum dibotrys</i>											*		*																		*	<i>Fagopyrum dibotrys</i>	
<i>Festuca rubra</i>																															*	<i>Festuca rubra</i>	
<i>Ficus pumila</i>																															*	<i>Ficus pumila</i>	
<i>Fragaria nubicola</i>											*		*																		*	<i>Fragaria nubicola</i>	
<i>Fragaria</i> spp.	*									*		*																			*	<i>Fragaria</i> spp.	
<i>Fragaria vesca</i>					*			*		*		*																			*	<i>Fragaria vesca</i>	
<i>Fraxinus floribunda</i>											*		*																		*	<i>Fraxinus floribunda</i>	
<i>Geranium wallichianum</i>					*						*		*																		*	<i>Geranium wallichianum</i>	
<i>Girardinia diversifolia</i> (Bichchu Buti)											*		*									*									*	<i>Girardinia diversifolia</i> (Bichchu Buti)	
<i>Girardinia heterophylla</i> (Ain)									*		*		*																		*	<i>Girardinia heterophylla</i> (Ain)	
<i>Hedera nepalensis</i> (Kurai, Grumru, Grumuru)					*			*		*	*	*	*		*	*														*	*	<i>Hedera nepalensis</i> (Kurai, Grumru, Grumuru)	
<i>Hedera</i> spp.									*		*	*	*		*	*														*	<i>Hedera</i> spp.		
<i>Heteropogon montanus</i> (Makora)						*										*															*	<i>Heteropogon montanus</i> (Makora)	
<i>Hordeum</i> spp.					*																										*	<i>Hordeum</i> spp.	
<i>Hydrangea anomala</i>											*		*																		*	<i>Hydrangea anomala</i>	
<i>Hypericum oblongifolium</i> ²					*						*		*																		*	<i>Hypericum oblongifolium</i> ²	
<i>Ichnocarpus frutescens</i> (Bakarbel)											*		*																		*	<i>Ichnocarpus frutescens</i> (Bakarbel)	
<i>Ilex dipyrena</i> (Kanderu)											*		*																	*	<i>Ilex dipyrena</i> (Kanderu)		
<i>Impatiens</i> spp.					*						*		*																	*	<i>Impatiens</i> spp.		
<i>Indigofera atropurpurea</i> ² (Kathi)								*		*	*	*	*																	*	<i>Indigofera atropurpurea</i> ² (Kathi)		

NATIONAL
PARKS

SANCTUARIES

NAME OF THE PLANT	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL	SHIM	SIM	TAL	TIR	TUN	NAME OF THE PLANT		
<i>Indigofera gerardiana</i> (Kathi)								*			*	*		*																	*	<i>Indigofera gerardiana</i> (Kathi)		
<i>Indigofera hebeptala</i> (Ban shagal)																								*								*	<i>Indigofera hebeptala</i> (Ban shagal)	
<i>Indigofera hirsuta</i> (Kathi)								*			*			*																	*	<i>Indigofera hirsuta</i> (Kathi)		
<i>Indigofera</i> spp.																			*												*	<i>Indigofera</i> spp.		
<i>Iris kumaonensis</i>												*																				*	<i>Iris kumaonensis</i>	
<i>Iris</i> spp.	*									*																						*	<i>Iris</i> spp.	
<i>Jasminum humile</i> ² (Ban chameli, Malti, Sune, Jungli chambeli)								*			*		*	*									*	*							*	<i>Jasminum humile</i> ² (Ban chameli, Malti, Sune, Jungli chambeli)		
<i>Jasminum officinale</i> ² (Chambeli, Chameli, Jungli chambeli, Malti)	*				*			*			*	*	*	*									*	*							*	<i>Jasminum officinale</i> ² (Chambeli, Chameli, Jungli chambeli, Malti)		
<i>Juniperus communis</i> (Bithal, Bither)								*			*		*	*										*							*	<i>Juniperus communis</i> (Bithal, Bither)		
<i>Juniperus recurva</i> (Bither)								*			*		*	*																	*	<i>Juniperus recurva</i> (Bither)		
<i>Juniperus</i> spp.						*											*															<i>Juniperus</i> spp.		
<i>Juniperus squamata</i>																								*								*	<i>Juniperus squamata</i>	
<i>Juniperus wallichiana</i>																								*								*	<i>Juniperus wallichiana</i>	
<i>Jurinea dolomiaea</i> (Dhup)																																	<i>Jurinea dolomiaea</i> (Dhup)	
<i>Jurinea macrocephala</i> (Dhup)																								*								*	<i>Jurinea macrocephala</i> (Dhup)	
<i>Koeleria cristata</i>																								*								*	<i>Koeleria cristata</i>	
<i>Lamium</i> spp.												*																					<i>Lamium</i> spp.	
<i>Lantana camara</i> ² (Pardesi buti)													*																			*	<i>Lantana camara</i> ² (Pardesi buti)	
<i>Lantana indica</i>								*			*		*																			*	<i>Lantana indica</i>	
<i>Lantana</i> spp.				*							*		*																			*	<i>Lantana</i> spp.	
<i>Lonicera angustifoliacum</i> (Kantias)								*			*		*											*								*	<i>Lonicera angustifoliacum</i> (Kantias)	
<i>Lonicera hispida</i>								*			*		*											*								*	<i>Lonicera hispida</i>	
<i>Lonicera obovata</i>											*		*											*								*	<i>Lonicera obovata</i>	
<i>Lonicera orientalis</i>											*		*											*								*	<i>Lonicera orientalis</i>	
<i>Lonicera parvifolia</i>											*		*											*								*	<i>Lonicera parvifolia</i>	
<i>Lonicera purpurascens</i>											*		*											*								*	<i>Lonicera purpurascens</i>	
<i>Lonicera quinquelocularis</i> (Bakhru, Kantias)								*			*		*																*	*		<i>Lonicera quinquelocularis</i> (Bakhru, Kantias)		
<i>Lonicera</i> spp.		*		*							*		*																			*	<i>Lonicera</i> spp.	
<i>Loranthus</i> spp. ⁴																					*											*	<i>Loranthus</i> spp. ⁴	
<i>Lupinus</i> spp.					*								*																				*	<i>Lupinus</i> spp.
<i>Mahonia nepaulensis</i> ¹ (Kemal)								*			*		*																			*	<i>Mahonia nepaulensis</i> ¹ (Kemal)	
<i>Mallotus philippensis</i> (Kamal)													*										*										*	<i>Mallotus philippensis</i> (Kamal)
<i>Mentha longifolia</i>													*												*								*	<i>Mentha longifolia</i>
<i>Mimosa himalayana</i> (Durghari)											*		*																				*	<i>Mimosa himalayana</i> (Durghari)
<i>Morchella esculanta</i> (Guchhi)											*		*											*								*	<i>Morchella esculanta</i> (Guchhi)	
<i>Murraya koenigii</i> (Gadhelu, Gandhelu, Ghandela)							*				*		*									*										*	<i>Murraya koenigii</i> (Gadhelu, Gandhelu, Ghandela)	
<i>Murraya paniculata</i> ²			*								*		*																				*	<i>Murraya paniculata</i> ²
<i>Myrsine africana</i>				*				*			*		*		*																	*	<i>Myrsine africana</i>	
<i>Nyctanthes arbor-tristis</i> (Koori, Kuri)							*				*		*																		*	<i>Nyctanthes arbor-tristis</i> (Koori, Kuri)		
<i>Oplismenus</i> spp.											*		*																				*	<i>Oplismenus</i> spp.
<i>Otostegia limbata</i> (Boo)								*			*		*																			*	<i>Otostegia limbata</i> (Boo)	
<i>Panicum</i> spp.					*						*		*																			*	<i>Panicum</i> spp.	
<i>Parrotiopsis jacquemontiana</i> (Kilar, Killar)								*			*		*											*							*	<i>Parrotiopsis jacquemontiana</i> (Kilar, Killar)		
<i>Parthenocissus himalayana</i>												*	*																			*	<i>Parthenocissus himalayana</i>	
<i>Parthenocissus semicordata</i> ¹											*		*																			*	<i>Parthenocissus semicordata</i> ¹	
<i>Pergularia daemia</i> ³ (Trotu)											*		*											*								*	<i>Pergularia daemia</i> ³ (Trotu)	
<i>Perovskia atriplicifolia</i>											*		*											*								*	<i>Perovskia atriplicifolia</i>	
<i>Phyllanthus</i> spp.												*	*															*				*	<i>Phyllanthus</i> spp.	

NAME OF THE PLANT	NATIONAL PARKS																											NAME OF THE PLANT					
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL	SHIM		SIM	TAL	TIR	TUN	
Picrorhiza kurrooa (Kaur, Karu)								*			*			*							*			*								*	Picrorhiza kurrooa (Kaur, Karu)
Pimpinella spp.					*																											*	Pimpinella spp.
Plectranthus rugosus (Kuthal)								*			*			*																		*	Plectranthus rugosus (Kuthal)
Poa spp.		*																														*	Poa spp.
Podophyllum hexandrum (Ban-kakri)								*			*			*										*								*	Podophyllum hexandrum (Ban-kakri)
Polygonum amplexicaule											*																					*	Polygonum amplexicaule
Polygonum chinense											*																					*	Polygonum chinense
Polygonum sibiricum											*																					*	Polygonum sibiricum
Polygonum spp.					*					*								*														*	Polygonum spp.
Polystichum spp.											*																					*	Polystichum spp.
Potentilla argyrophylla		*																														*	Potentilla argyrophylla
Potentilla fruticosa ² (Dora)																								*								*	Potentilla fruticosa ² (Dora)
Potentilla salesoviana																								*								*	Potentilla salesoviana
Primula denticulata (Phantigoo)																								*								*	Primula denticulata (Phantigoo)
Primula spp.		*																						*								*	Primula spp.
Prinsepia spp.											*									*												*	Prinsepia spp.
Prinsepia utilis (Bhekal, Bhekhal, Kangora)				*	*		*			*	*	*	*												*		*					*	Prinsepia utilis (Bhekal, Bhekhal, Kangora)
Prunus jacquemontii																								*								*	Prunus jacquemontii
Prunus prostrata																								*								*	Prunus prostrata
Pteris spp.											*																					*	Pteris spp.
Pueraria tuberosa (Slod)																		*														*	Pueraria tuberosa (Slod)
Rabdosia rugosa																	*															*	Rabdosia rugosa
Randia tetrasperma																*																*	Randia tetrasperma
Ranunculus spp.		*																														*	Ranunculus spp.
Rhamnus virgatus ²																								*								*	Rhamnus virgatus ²
Rhododendron anthopogon																		*						*								*	Rhododendron anthopogon
Rhododendron campanulatum (Sarngar, Kashmiri patha)							*			*	*		*				*							*							*	*	Rhododendron campanulatum (Sarngar, Kashmiri patha)
Rhododendron lepidotum (Sumral)																	*							*								*	Rhododendron lepidotum (Sumral)
Rhus cotinus (Tung)							*			*			*												*							*	Rhus cotinus (Tung)
Ribes alpestre (Tara amlu)																								*								*	Ribes alpestre (Tara amlu)
Ribes orientale (Thala arulu)																								*								*	Ribes orientale (Thala arulu)
Ribes rubrum (Nabhar)																								*								*	Ribes rubrum (Nabhar)
Ribes spp. (Rajae)							*			*			*											*								*	Ribes spp. (Rajae)
Rosa centifolia (Gulab)										*														*								*	Rosa centifolia (Gulab)
Rosa foetida (Pila gulab)										*													*									*	Rosa foetida (Pila gulab)
Rosa macrophylla (Ban gulab, Karer, Pahari gulab)		*					*			*			*										*	*							*	*	Rosa macrophylla (Ban gulab, Karer, Pahari gulab)
Rosa moschata (Ban gulab, Kuin, Kuja)	*				*		*			*	*		*										*	*	*	*	*					*	Rosa moschata (Ban gulab, Kuin, Kuja)
Rosa sericea (Ban gulab)																								*								*	Rosa sericea (Ban gulab)
Rosa spp.				*	*										*			*						*								*	Rosa spp.
Rosa webbiana (Gulab)											*													*								*	Rosa webbiana (Gulab)
Rubus biflorus (Akhre)							*			*			*											*								*	Rubus biflorus (Akhre)
Rubus ellipticus (Lal anchu akhi, Hinsar)					*					*	*	*	*											*							*	*	Rubus ellipticus (Lal anchu akhi, Hinsar)
Rubus niveus ² (Akhre)							*			*	*	*	*											*								*	Rubus niveus ² (Akhre)
Rubus paniculatus (Akhre)							*			*	*	*	*											*								*	Rubus paniculatus (Akhre)
Rubus spp.							*			*	*	*	*						*					*								*	Rubus spp.
Rumex hastatus (Amlora, Bhilmpra)							*			*	*	*	*											*			*					*	Rumex hastatus (Amlora, Bhilmpra)
Rumex nepalensis (Jungli palak)										*	*	*	*											*			*					*	Rumex nepalensis (Jungli palak)
Rumex spp.										*	*	*	*										*			*						*	Rumex spp.

NAME OF THE PLANT	NATIONAL PARKS		SANCTUARIES																				NAME OF THE PLANT									
	GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN		RUP	SEC	SHYK	SHIL	SHIM	SIM	TAL	TIR	TUN
Viola odorata (Banafsha)								*			*			*																	*	Viola odorata (Banafsha)
Viola pilosa (Banksha)					*						*			*																*	Viola pilosa (Banksha)	
Vitex negundo (Banna)			*								*			*																*	Vitex negundo (Banna)	
Vitex trifolia (Pola)																														*	Vitex trifolia (Pola)	
Vitis spp. ⁴					*	*				*				*															*	Vitis spp. ⁴		
Wikstroemia canescens								*			*			*																*	Wikstroemia canescens	
Woodfordia fruticosa ²								*			*			*															*	Woodfordia fruticosa ²		
Zea spp.				*																										*	Zea spp.	
Ziziphus mauritiana ² (Ber)			*																											*	Ziziphus mauritiana ² (Ber)	
Ziziphus nummularia ¹ (Ber)																														*	Ziziphus nummularia ¹ (Ber)	
Ziziphus oenoplia (Kokla ber)																														*	Ziziphus oenoplia (Kokla ber)	
Ziziphus spp.																														*	Ziziphus spp.	

Sources:-

Great Himalayan National Park: mp, Gaston et. al. 1981, Gaston 1986.
 Pin Valley National Park: Q1.
 Bandli Sanctuary: dh, Q1, wp.
 Chail Sanctuary: dh, Gaston 1979.
 Churdhar Sanctuary: wp, Info. sheet.
 Daranghati Sanctuary: qa, mp, wp.
 Darlaghat Sanctuary: wp.
 Gamgul Siahbehi Sanctuary: Q1.
 Gobind Sagar Sanctuary: wp.
 Kais Sanctuary: Q1.
 Kalatop Khajjiar Sanctuary: Q1.
 Kanawar Sanctuary: mp, Gaston et. al. 1981.
 Khokhan Sanctuary: Q1.
 Kugti Sanctuary: Q1, Narang et. al. 1987.
 Lippa Asrang Sanctuary: Q1.
 Majathal Sanctuary: Q1.
 Manali Sanctuary: qa, Gaston et. al. 1981, Green 1987.
 Naina Devi Sanctuary: Q1.
 Nargu Sanctuary: Q1.
 Pong Lake Sanctuary: Q1.
 Rakchham Chitkul Sanctuary: qa, wp.
 Renuka Sanctuary: Q1.
 Rupi Bhaba Sanctuary: Q1.
 Sechu Tuan Nala Sanctuary: Q1.
 Shikari Devi Sanctuary: Q1.
 Shilli Sanctuary: Q1.
 Shimla Water Catchment Sanctuary: wp, mp, dh, fv.
 Simbalbara Sanctuary: Q1.
 Talra Sanctuary: Q1.
 Tirthan Sanctuary: mp.
 Tundah Sanctuary: Q1.

KEY

Species whose :

- 1 : Generic name has changed (see List 1)[@]
- 2 : Specific name has changed (see List 2)[@]
- 3 : Generic and specific names have changed (see List 3)[@]
- 4 : Genus is now obsolete and split into several genera[@]

[@] Sources for name changes :

Champion and Seth, 1968; Chandra and Gaur, 1988; Council of Scientific and Industrial Research, 1986; Dhar and Kachroo, 1983; Pant, 1986; Saldanha, 1984; Saldanha and Nicolson, 1976; Santapau and Henry, 1984

LIST 1

CURRENT NAME	OBSOLETE NAME
<i>Ampelocissus latifolia</i>	<i>Vitis latifolia</i>
<i>Duchesnea indica</i>	<i>Fragaria indica</i>
<i>Mahonia nepaulensis</i>	<i>Berberis nepaulensis</i>
<i>Parthenocissus semicordata</i>	<i>Vitis semicordata</i>
<i>Ziziphus nummularia</i>	<i>Rhamnus nummularia</i>

LIST 2

<i>Adhatoda zeylanica</i>	<i>Adhatoda vasica</i>
<i>Aristida adscensionis</i>	<i>Aristida depressa</i>
<i>Artemisia nilagirica</i>	<i>Artemisia vulgaris</i>
<i>Caesalpinia decapetala</i>	<i>Caesalpinia sepiaria</i>
<i>Chrysopogon fulvus</i>	<i>Chrysopogon montanus</i>
<i>Danthonia Jacquemontii</i>	<i>Danthonia cachemyriana</i>
<i>Hypericum oblongifolium</i>	<i>Hypericum cernuum</i>
<i>Indigofera atropurpurea</i>	<i>Indigofera pulchella</i> or <i>Indigofera cassioides</i> *
<i>Jasminum grandiflorum</i>	<i>Jasminum officinale</i>
<i>Lantana camara</i>	<i>Lantana aculeata</i>
<i>Murraya paniculata</i>	<i>Murraya exotica</i>
<i>Potentilla fruticosa</i>	<i>Potentilla nepalensis</i>
<i>Rhamnus virgatus</i>	<i>Rhamnus dahuricus</i>
<i>Rubus niveus</i>	<i>Rubus lasiocarpus</i>
<i>Solanum violaceum</i>	<i>Solanum indicum</i>
<i>Spatholobus parviflorus</i>	<i>Spatholobus roxburghii</i>
<i>Valeriana jatamansi</i>	<i>Valeriana wallichii</i>
<i>Viburnum mullaha</i>	<i>Viburnum stellulatum</i>
<i>Jasminum humile</i>	<i>Jasminum bignoniaceum</i>
<i>Woodfordia fruticosa</i>	<i>Woodfordia floribunda</i>
<i>Ziziphus mauritiana</i>	<i>Ziziphus jujuba</i>

LIST 3

<i>Bergenia ciliata</i>	<i>Saxifraga ligulata</i>
<i>Elsholtzia fruticosa</i>	<i>Colebrookia oppositifolia</i>
<i>Pergularia daemia</i>	<i>Daemia extensa</i>
<i>Spatholobus parviflorus</i>	<i>Butea parviflora</i>

* Two species, previously thought to be distinct, have been merged into one.

APPENDIX 6

SCIENTIFIC, ENGLISH, AND FAMILY NAMES OF PLANTS
LISTED IN APPENDIX 5¹

Scientific Name	Common/English Name	Family
<i>Abrus precatorius</i>	Indian Liquorice, Jequirity	Fabaceae
<i>Aconitum chasmanthum</i>	Indian Napellus	Ranunculaceae
<i>Aconitum heterophyllum</i>	Atis Root	Ranunculaceae
<i>Aconitum violaceum</i>		Ranunculaceae
<i>Adhatoda zeylanica</i>		Acanthaceae
<i>Agave americana</i>	Century Plant	Agavaceae
<i>Agropyron canaliculatum</i>		Poaceae
<i>Agropyron semicostatum</i>		Poaceae
<i>Ainsliaea aptera</i>	Aerons Rod	Asteraceae
<i>Ampelocissus latifolia</i>		Vitaceae
<i>Andrachne cordifolia</i>		Euphorbiaceae
<i>Andropogon</i> spp.		Poaceae
<i>Anemone obtusiloba</i>		Ranunculaceae
<i>Anemone rivularis</i>		Ranunculaceae
<i>Angelica glauca</i>		Apiaceae
<i>Aralia cachemirica</i>		Araliaceae
<i>Arisaema helleberifolium</i>	Cobra Plant	Araceae
<i>Arisaema propinquum</i>		Araceae
<i>Aristida adscensionis</i>		Poaceae
<i>Artemisia maritima</i>	Worm Seed	Asteraceae
<i>Artemisia nilagirica</i>	Indian Worm Wood	Asteraceae
<i>Arundinaria falcata</i>		Poaceae
<i>Asparagus</i> spp.		Liliaceae
<i>Asplenium</i> spp.		Aspleniaceae
<i>Astragalus cicerifolius</i>		Fabaceae
<i>Atropa belladonna</i>	Belladonna	Solanaceae
<i>Bambusa arundinacea</i>	Thorny Bamboo	Poaceae
<i>Bauhinia vahlii</i>	Vahl's Bauhinia	Fabaceae
<i>Benthamidia capitata</i>	Dogwood Shrub	Cornaceae
<i>Berberis angulosa</i>		Berberidaceae
<i>Berberis aristata</i>	Indian Barberry	Berberidaceae
<i>Berberis asiatica</i>		Berberidaceae
<i>Berberis chitria</i>		Berberidaceae
<i>Berberis coriaria</i>		Berberidaceae
<i>Berberis lycium</i>		Berberidaceae
<i>Berberis umbellata</i>		Berberidaceae
<i>Berberis vulgaris</i>		Berberidaceae
<i>Berchemia edgeworthii</i>		Rhamnaceae
<i>Bergenia ciliata</i>		Saxifragaceae
<i>Bergia ligulata</i>		Saxifragaceae
<i>Bothriochloa intermedia</i>		Poaceae
<i>Bothriochloa ischaemum</i>		Poaceae
<i>Brachypodium sylvaticum</i>		Poaceae
<i>Bromus asper</i>		Poaceae
<i>Bromus japonicus</i>		Poaceae
<i>Bromus oxyodon</i>		Poaceae
<i>Buddleja paniculata</i>		Buddlejaceae

Scientific Name	Common/English Name	Family
Caesalpiniaecae decapetala		Caesalpiniaecae
Calamagrostis pseudophragmites		Poaceae
Caltha palustris	Marsh Marigold	Ranunculaceae
Cannabis sativa	True Hemp	Cannabinaceae
Carex nubigina		Cyperaceae
Carissa opaca		Apocynaceae
Chrysopogon fulvus		Poaceae
Cissampelos pareira	False Pareira Brava	Menispermaceae
Clematis b Buchananiana	Traveller's Joy	Ranunculaceae
Clematis connata	Traveller's Joy	Ranunculaceae
Clematis gouriana		Ranunculaceae
Clematis grata	Traveller's Joy	Ranunculaceae
Clematis montana	Traveller's Joy	Ranunculaceae
Clematis orientalis	Traveller's Joy	Ranunculaceae
Cocculus laurifolius	Snake Wood	Menispermaceae
Coriaria nepalensis		Coriariaceae
Cotinus coggygia	Indian Sumach	Anacardiaceae
Cotoneaster acuminata		Rosaceae
Cotoneaster bacillaris		Rosaceae
Cotoneaster microphylla		Rosaceae
Cotoneaster vulgaris		Rosaceae
Crataegus oxycantha	English Hawthorn	Rosaceae
Cryptolepis b Buchananii		Asclepiadaceae
Cuscuta reflexa		Convolvulaceae
Cymbidium spp.		Orchidaceae
Cymbopogon martinii	Rusa Grass	Poaceae
Cyperus spp.		Cyperaceae
Dactylis glomerata	Cocksfoot Grass	Poaceae
Danthonia jacquemontii		Poaceae
Daphne oleoides		Thymelaeaceae
Daphne papyracea		Thymelaeaceae
Debregeasia hypoleuca		Urticaceae
Delphinium denudatum		Ranunculaceae
Dendrocalamus strictus	Male Bamboo, Solid Bamboo	Poaceae
Desmodium tiliacifolium		Fabaceae
Deutzia compacta		Saxifragaceae
Deutzia corymbosa	Wild Syringe	Saxifragaceae
Deutzia staminea		Saxifragaceae
Digitaria spp.		Poaceae
Dioscorea deltoidea		Dioscoreaceae
Dodonaea viscosa	Dodonaea	Sapindaceae
Dryopteris spp.		Polypodiaceae
Duchesnea indica		Rosaceae
Elaeagnus umbellata		Elaeagnaceae
Eleusine spp.		Poaceae
Elsholtzia fruticosa		Lamiaceae
Ephedra gerardiana		Gnetaceae
Eremurus himalaicus	Himalayan Desert Candle	Liliaceae
Erianthus spp.		Poaceae
Eriophorum comosum	False Bhabar	Cyperaceae
Eulaliopsis binata	Sabai Grass	Poaceae
Euonymus fimbriatus		Celastraceae

Scientific Name	Common/English Name	Family
<i>Euonymus hamiltonianus</i>		Celastraceae
<i>Euphorbia royleana</i>		Euphorbiaceae
<i>Fagopyrum cymosum</i>		Polygonaceae
<i>Fagopyrum dibotrys</i>		Polygonaceae
<i>Festuca rubra</i>		Poaceae
<i>Ficus pumila</i>		Moraceae
<i>Fragaria nubicola</i>		Rosaceae
<i>Fragaria vesca</i>	Alpine Strawberry	Rosaceae
<i>Fraxinus floribunda</i>		Oleaceae
<i>Geranium wallichianum</i>	Wallich Cranesbill	Geraniaceae
<i>Girardinia diversifolia</i>		Urticaceae
<i>Girardinia heterophylla</i>	Himalayan Nettle	Urticaceae
<i>Hedera nepalensis</i>	Nepal Ivy	Araliaceae
<i>Heteropogon montanus</i>		Poaceae
<i>Hordeum</i> spp.		Poaceae
<i>Hydrangea anomala</i>		Saxifragaceae
<i>Hypericum oblongifolium</i>		Hypericaceae
<i>Ichnocarpus frutescens</i>		Apocynaceae
<i>Ilex dipyrena</i>		Aquifoliaceae
<i>Impatiens</i> spp.		Balsaminaceae
<i>Indigofera atropurpurea</i>	Indigo	Fabaceae
<i>Indigofera gerardiana</i>	Himalayan Indigo	Fabaceae
<i>Indigofera hebeptala</i>		Fabaceae
<i>Indigofera hirsuta</i>	Hairy Indigo	Fabaceae
<i>Iris kumaonensis</i>		Iridaceae
<i>Jasminum humile</i>	Yellow Jasmine, Italian Jasmine, Nepal Jasmine	Oleaceae
<i>Jasminum officinale</i>	Common Jasmine, Spanish Jasmine	Oleaceae
<i>Juniperus communis</i>	Common Juniper	Pinaceae
<i>Juniperus recurva</i>	Weeping Blue Juniper	Pinaceae
<i>Juniperus squamata</i>	Weeping Blue Juniper	Pinaceae
<i>Juniperus wallichiana</i>	Black Juniper	Pinaceae
<i>Jurinea dolomiaea</i>		Asteraceae
<i>Jurinea macrocephala</i>		Asteraceae
<i>Koeleria cristata</i>	Crested Hair Grass	Poaceae
<i>Lamium</i> spp.		Lamiaceae
<i>Lantana camara</i>	Lantana, Wild Sage	Verbenaceae
<i>Lantana indica</i>	Lantana	Verbenaceae
<i>Lonicera angustifoliacum</i>	Honey Suckle	Caprifoliaceae
<i>Lonicera hispida</i>	Honey Suckle	Caprifoliaceae
<i>Lonicera obovata</i>		Caprifoliaceae
<i>Lonicera orientalis</i>		Caprifoliaceae
<i>Lonicera parvifolia</i>		Caprifoliaceae
<i>Lonicera purpurascens</i>		Caprifoliaceae
<i>Lonicera quinquelocularis</i>	Himalayan Honeysuckle	Caprifoliaceae
<i>Loranthus</i> spp.		Loranthaceae
<i>Lupinus</i> spp.		Fabaceae
<i>Mahonia nepaulensis</i>		Berberidaceae
<i>Mallotus philippensis</i>	Kamala Tree	Euphorbiaceae
<i>Mentha longifolia</i>	Horsemint	Lamiaceae
<i>Mimosa himalayana</i>		Fabaceae

Scientific Name	Common/English Name	Family
<i>Morchella esculanta</i>	Morel	Helvellaceae
<i>Murraya koenigii</i>	Curry Leaf Plant	Rutaceae
<i>Murraya paniculata</i>	Orange Jessamine	Rutaceae
<i>Myrsine africana</i>		Myrsinaceae
<i>Nyctanthes arbor-tristis</i>	Night Jasmine	Oleaceae
<i>Oplismenus</i> spp.		Poaceae
<i>Otostegia limbata</i>		Lamiaceae
<i>Panicum</i> spp.		Poaceae
<i>Parrotiopsis jacquemontiana</i>	Witchhazel	Hamamelidaceae
<i>Parthenocissus himalayana</i>		Vitaceae
<i>Parthenocissus semicordata</i>		Vitaceae
<i>Pergularia daemia</i>		Asclepiadaceae
<i>Perovskia atriplicifolia</i>		Lamiaceae
<i>Phyllanthus</i> spp.		Euphorbiaceae
<i>Picrorhiza kurroa</i>		Scrophulariaceae
<i>Pimpinella</i> spp.		Apiaceae
<i>Plectranthus rugosus</i>		Lamiaceae
<i>Poa</i> spp.		Poaceae
<i>Podophyllum hexandrum</i>	Indian Podophyllum	Berberidaceae
<i>Polygonum amplexicaule</i>		Polygonaceae
<i>Polygonum chinense</i>		Polygonaceae
<i>Polygonum sibiricum</i>		Polygonaceae
<i>Polystichum</i> spp.		Polypodiaceae
<i>Potentilla argyrophylla</i>		Rosaceae
<i>Potentilla fruticosa</i>		Rosaceae
<i>Potentilla salesoviana</i>		Rosaceae
<i>Primula denticulata</i>		Primulaceae
<i>Prinsepia utilis</i>		Rosaceae
<i>Prunus jacquemontii</i>		Rosaceae
<i>Prunus prostrata</i>		Rosaceae
<i>Pteris</i> spp.		Pteridaceae
<i>Pueraria tuberosa</i>	Indian Kudzu	Fabaceae
<i>Rabdosia rugosa</i>		Rubiaceae
<i>Randia tetrasperma</i>		Rubiaceae
<i>Ranunculus</i> spp.		Ranunculaceae
<i>Rhamnus virgatus</i>	Indian Buckthorn	Rhamnaceae
<i>Rhododendron anthopogon</i>		Ericaceae
<i>Rhododendron campanulatum</i>	White Rhododendron	Ericaceae
<i>Rhododendron lepidotum</i>		Ericaceae
<i>Rhus cotinus</i>		Anacardiaceae
<i>Ribes alpestre</i>		Grossulariaceae
<i>Ribes orientale</i>		Grossulariaceae
<i>Ribes rubrum</i>	Red Currant	Grossulariaceae
<i>Rosa centifolia</i>	Cabbage Rose, Hundred-Leaved Rose, Provence Rose	Rosaceae
<i>Rosa foetida</i>	Austrian Briar Rose	Rosaceae
<i>Rosa macrophylla</i>		Rosaceae
<i>Rosa moschata</i>	Wild Rose	Rosaceae
<i>Rosa sericea</i>		Rosaceae
<i>Rosa webbiana</i>		Rosaceae
<i>Rubus biflorus</i>	Raspberry Red	Rosaceae
<i>Rubus ellipticus</i>		Rosaceae

Scientific Name	Common/English Name	Family
<i>Rubus niveus</i>	Mysore Raspberry, Mahabaleshwar Raspberry	Rosaceae
<i>Rubus paniculatus</i>	Raspberry Yellow	Rosaceae
<i>Rumex hastatus</i>		Polygonaceae
<i>Rumex nepalensis</i>		Polygonaceae
<i>Saccharum munja</i>		Poaceae
<i>Sageretia thea</i>		Rhamnaceae
<i>Salix lindleyana</i>	Willow	Salicaceae
<i>Salix viminalis</i>	Basket Willow	Salicaceae
<i>Salvia moorcroftiana</i>		Lamiaceae
<i>Salvia nubicola</i>	Dog Flower	Lamiaceae
<i>Sarcococca saligna</i>		Buxaceae
<i>Saussurea lappa</i>	Costus	Asteraceae
<i>Sedum roseum</i>		Crassulaceae
<i>Senecio</i> spp.		Lasteraceae
<i>Setaria</i> spp.		Poaceae
<i>Skimmia arborescens</i>		Rutaceae
<i>Smilax glaucophylla</i>		Smilacaceae
<i>Solanum violaceum</i>	Poison Berry	Solanaceae
<i>Sorbaria tomentosa</i>	Hardhack Steeple Bush	Rosaceae
<i>Spatholobus parviflorus</i>		Fabaceae
<i>Spiraea bella</i>		Rosaceae
<i>Spiraea canescens</i>		Rosaceae
<i>Staphylea emodi</i>	Snakewood, Snake-Stick	Staphyleaceae
<i>Stellaria monosperma</i>		Caryophyllaceae
<i>Stipa himalaica</i>		Poaceae
<i>Strobilanthes</i> spp.		Acanthaceae
<i>Syringa emodi</i>	Himalayan Lilac	Oleaceae
<i>Thalictrum foliolosum</i>		Ranunculaceae
<i>Themeda anathera</i>		Poaceae
<i>Thymus serpyllum</i>	Wild Thyme	Lamiaceae
<i>Trifolium dubium</i>	Yellow Suckling Clover	Fabaceae
<i>Trifolium minus</i>	Yellow Suckling Clover	Fabaceae
<i>Trifolium pratense</i>	Purple Clover	Fabaceae
<i>Trifolium repens</i>	White Clover	Fabaceae
<i>Triticum</i> spp.		Poaceae
<i>Valeriana hardwickii</i>		Valerianaceae
<i>Valeriana jatamansi</i>	Indian Valerian	Valerianaceae
<i>Verbascum thapsus</i>	Common Mullein	Scrophulariaceae
<i>Viburnum cotinifolium</i>		Caprifoliaceae
<i>Viburnum foetens</i>		Caprifoliaceae
<i>Viburnum grandiflorum</i>		Caprifoliaceae
<i>Viburnum mullaha</i>		Caprifoliaceae
<i>Viola canescens</i>	Sweet Violet	Violaceae
<i>Viola odorata</i>		Violaceae
<i>Viola pilosa</i>		Violaceae
<i>Vitex negundo</i>		Verbenaceae
<i>Vitex trifolia</i>		Verbenaceae
<i>Vitis</i> spp.		Vitaceae
<i>Wikstroemia canescens</i>		Thymelaeaceae
<i>Woodfordia fruticosa</i>	Fire-flame Bush	Lythraceae
<i>Zea</i> spp.		Poaceae

Scientific Name	Common/English Name	Family
<i>Ziziphus mauritiana</i>	Indian Jujube, Common Jujube	Rhamnaceae
<i>Ziziphus nummularia</i>	Wild Jujube	Rhamnaceae
<i>Ziziphus oenoplia</i>	Jackal Jujube	Rhamnaceae

1. Sources for English and Family Names :

Council of Scientific & Industrial Research 1986; Dhar and Kachroo 1983; Saldanha 1984; Saldanha .. Nicolson 1976; Sharma *et al* 1984; Singh *et al* 1983; Venkatesh 1976; Santapau and Henry 1984

Appendix 7

LIST OF BIRDS REPORTED FROM THE NATIONAL PARKS AND SANCTUARIES IN HIMACHAL PRADESH¹

COMMON NAME	SCIENTIFIC NAME	NATIONAL PARKS														SANCTUARIES														COMMON NAME					
		GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAR	NAI	PON	RAK	REN	RUP	SEC	SHIK	SHIL	SHIM	SIM		TAL	TIR	TUN		
Accentor, Alpine	Prunella collaris																				*			*	*	*	*								
Babbler, Common	Turdoides caudatus																				*														
Babbler, Jungle	Turdoides striatus																				*		*			*									
Babbler, Redbilled	Stachyris pyrrhops	*								*				*																					*
Babbler, Rustycheeked Scimitar	Pomatorhinus erythrogeus	*								*				*								*													*
Babbler, Slatyheaded Scimitar	Pomatorhinus horsfieldii	*																			*			*											
Babbler, Spotted	Pellorneum ruficeps																				*														
Babbler, Striated	Turdoides earlei																				*														
Babbler, Yelloweyed	Chrysomma sinense																				*														
Barbet, Bluethroated	Megalaima asiatica																					*													
Barbet, Crimsonbreasted	Megalaima haemacephala																				*														
Barbet, Crimsonthroated	Megalaima rubricapilla																																		
Barbet, Great Hill	Megalaima virens	*		*		*		*					*																						*
Barbet, Green	Megalaima zeylanica									*			*								*														*
Baya	Ploceus philippinus																				*														
Bee-eater, Bluetailed	Merops philippinus																				*														
Bee-eater, Chesnutheaded	Merops leschenaulti																				*														
Bee-eater, Green	Merops orientalis									*				*							*														*
Blackbird	Turdus merula	*									*											*													
Blackbird, Greywinged	Turdus boulboul	*		*								*					*																		
Blackbird, Whitecollared	Turdus albocinctus	*										*																							
Bluebird, Fairy	Irena puella							*																											
Bluethroat	Erithacus svecicus																					*													
Bulbul, Black	Hypsipetes madagascariensis	*		*		*		*			*		*								*				*										*
Bulbul, Redvented	Pycnonotus cafer								*				*							*		*			*										*
Bulbul, Redwhiskered	Pycnonotus jocosus								*				*							*		*			*										
Bulbul, Whitecheeked	Pycnonotus leucogenys	*		*	*	*		*			*		*					*		*		*		*											*
Bullfinch, Brown	Pyrrhula nipalensis	*									*		*						*		*		*												
Bullfinch, Redheaded	Pyrrhula erythrocephala	*		*		*					*		*						*		*		*												
Bunting, Crested	Melophus lathamii	*							*				*					*		*		*		*											*
Bunting, Greyheaded	Emberiza fucata								*				*							*		*		*											*
Bunting, Rock	Emberiza cia	*									*		*							*		*		*											*
Buzzard, Honey	Pernis ptilorhynchus								*				*							*		*		*											*
Buzzard, Longlegged	Buteo rufinus																																		
Buzzard, Upland	Buteo hemilasius																																		
Buzzard-eagle, White-eyed	Butastur teesa								*				*																						*
Chat, Blue	Erithacus brunneus								*				*							*		*		*											*
Chat, Brown Rock	Cercomela fusca																				*		*		*										*
Chat, Dark-grey Bush	Saxicola ferrea	*									*		*						*		*		*		*										*
Chat, Pied Bush	Saxicola castrata																			*		*		*											*
Chat, Stone	Saxicola torquata			*	*																*		*		*										*
Chough, Redbilled	Pyrrhocorax pyrrhocorax	*	*								*		*																						*

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COMMON NAME	SCIENTIFIC NAME	NATIONAL PARKS																								SANCTUARIES												COMMON NAME
		GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL	SHIM	SIM	TAL	TIR	TUN						
Flycatcher, Yellowbellied Fantail	Rhipidura hypoxantha	*																															*	Flycatcher, Yellowbellied Fantail				
Flycatcher-shrike, Pied	Hemipus picatus																															*	Flycatcher-shrike, Pied					
Flycatcher-warbler, Blackbrowed	Seicercus burkii																															*	Flycatcher-warbler, Blackbrowed					
Flycatcher-warbler, Greyheaded	Seicercus xanthoschistos	*																														*	Flycatcher-warbler, Greyheaded					
Forktail, Little	Enicurus scouleri	*																														*	Forktail, Little					
Forktail, Spotted	Enicurus maculatus	*				*															*													Forktail, Spotted				
Gadwall	Anas strepera																																*	Gadwall				
Godwit, Blacktailed	Limosa limosa																																*	Godwit, Blacktailed				
Goldcrest	Regulus regulus	*																																Goldcrest				
Goldfinch	Carduelis carduelis																															*	Goldfinch					
Goose, Barheaded	Anser indicus																																*	Goose, Barheaded				
Grandala, Hodgson's	Grandala codicolor	*																															*	Grandala, Hodgson's				
Grebe, Great Crested	Podiceps cristatus																																*	Grebe, Great Crested				
Grebe, Little	Podiceps ruficollis																																*	Grebe, Little				
Grebe, Rednecked	Podiceps grisegena																																*	Grebe, Rednecked				
Greenfinch, Himalayan	Carduelis spinoides	*				*																											*	Greenfinch, Himalayan				
Greenshank	Tringa nebularia																																*	Greenshank				
Griffon, Himalayan	Gyps himalayensis	*																															*	Griffon, Himalayan				
Grosbeak, Allied	Coccothraustes affinis	*				74																											*	Grosbeak, Allied				
Grosbeak, Black-and-Yellow	Coccothraustes icteroides	*				74																											*	Grosbeak, Black-and-Yellow				
Grosbeak, Spottedwinged	Coccothraustes melanozanthos	*																															*	Grosbeak, Spottedwinged				
Gull, Blackheaded	Larus ridibundus																																*	Gull, Blackheaded				
Gull, Great Blackheaded	Larus ichthyaeus																																*	Gull, Great Blackheaded				
Gull, Herring	Larus argentatus																																*	Gull, Herring				
Harrier, Marsh	Circus aeruginosus																																*	Harrier, Marsh				
Hawk-cuckoo, Large	Cuculus sparverioides	*																															*	Hawk-cuckoo, Large				
Hawk-eagle, Booted	Hieraetus pennatus	*																															*	Hawk-eagle, Booted				
Hawk-eagle, Crested	Spizaetus cirrhatus																																*	Hawk-eagle, Crested				
Hawk-eagle, Hodgson's	Spizaetus nipalensis																																*	Hawk-eagle, Hodgson's				
Hen-harrier	Circus cyaneus	*																															*	Hen-harrier				
Heron, Grey	Ardea cinerea																																*	Heron, Grey				
Heron, Night	Nycticorax nycticorax																																*	Heron, Night				
Heron, Pond	Ardeola grayii																																*	Heron, Pond				
Heron, Purple	Ardea purpurea																																*	Heron, Purple				
Hobby	Falco subbuteo	*																															*	Hobby				
Hoopoe	Upupa epops	*																															*	Hoopoe				
Hornbill, Common Grey	Tockus birostris																																*	Hornbill, Common Grey				
Iora, Common	Aegithina tiphia																																*	Iora, Common				
Jacana, Pheasant-tailed	Hydrophasianus chirurgus																																*	Jacana, Pheasant-tailed				
Jay, Blackthroated	Garrulus lanceolatus																																*	Jay, Blackthroated				
Junglefowl, Red	Gallus gallus																																*	Junglefowl, Red				
Kestrel	Falco tinnunculus	*	*			*	*	*																									*	Kestrel				
Kingfisher, Common	Alcedo atthis																																*	Kingfisher, Common				
Kingfisher, Lesser Pied	Ceryle rudis																																*	Kingfisher, Lesser Pied				
Kingfisher, Whitebreasted	Halcyon smyrnensis																																*	Kingfisher, Whitebreasted				
Kite, Blackwinged	Elanus caeruleus																																*	Kite, Blackwinged				
Kite, Brahminy	Haliastur indus																																*	Kite, Brahminy				
Kite, Pariah	Milvus migrans	*																															*	Kite, Pariah				

COMMON NAME	SCIENTIFIC NAME	NATIONAL PARKS																								COMMON NAME								
		GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	VAR	PON	RAK	REN	RUP	SEC		SHIK	SHIL	SHIM	SIM	TAL	TIR	TUN	
Koel	<i>Eudynamis scolopacea</i>								*						*						*		*										*	Koel
Lapwing	<i>Vanellus vanellus</i>																				*		*										Lapwing	
Lapwing, Redwattled	<i>Vanellus indicus</i>				*																*		*										Lapwing, Redwattled	
Lapwing, Spurwinged	<i>Vanellus spinosus</i>																				*		*										Lapwing, Spurwinged	
Lark, Crested	<i>Galerida cristata</i>																				*		*										Lark, Crested	
Lark, Eastern Calandra	<i>Melanocorypha bimaculata</i>																				*		*										Lark, Eastern Calandra	
Lark, Redwinged Bush	<i>Mirafra erythroptera</i>																				*		*										Lark, Redwinged Bush	
Lark, Sand	<i>Calandrella raytal</i>																				*		*										Lark, Sand	
Lark, Short-toed	<i>Calandrella cinerea</i>																				*		*										Lark, Short-toed	
Lark, Singing Bush	<i>Mirafra javanica</i>																				*		*										Lark, Singing Bush	
Magpie, Green	<i>Cissa chinensis</i>				*																*		*										Magpie, Green	
Magpie, Redbilled Blue	<i>Cissa erythrorhyncha</i>				*				*						*								*									*	Magpie, Redbilled Blue	
Magpie, Yellowbilled Blue	<i>Cissa flavirostris</i>																				*		*										Magpie, Yellowbilled Blue	
Magpie-robin	<i>Copsychus saularis</i>																				*		*										Magpie-robin	
Mallard	<i>Anas platyrhynchos</i>										*										*		*										Mallard	
Martin, Dusky Crag	<i>Hirundo concolor</i>				*																												Martin, Dusky Crag	
Martin, House	<i>Delichon urbica</i>	*							*			*		*										*									Martin, House	
Martin, Plain Sand	<i>Riparia paludicola</i>																						*										Martin, Plain Sand	
Minivet, Longtailed	<i>Pericrocotus ethologus</i>	*				*			*				*																			*	Minivet, Longtailed	
Minivet, Scarlet	<i>Pericrocotus flammeus</i>						*				*		*								*		*										Minivet, Scarlet	
Minivet, Small	<i>Pericrocotus cinnamomeus</i>																				*		*										Minivet, Small	
Moorhen	<i>Gallinula chloropus</i>																				*		*										Moorhen	
Moorhen, Purple	<i>Porphyrio porphyrio</i>																				*		*										Moorhen, Purple	
Munia, Red or Avadavat	<i>Estrilda amandava</i>																				*		*										Munia, Red or Avadavat	
Munia, Spotted	<i>Lonchura punctulata</i>								*				*								*		*									*	Munia, Spotted	
Munia, Whitethroated	<i>Lonchura malabarica</i>																				*		*										Munia, Whitethroated	
Myna, Bank	<i>Acridotheres ginginianus</i>																				*		*										Myna, Bank	
Myna, Brahminy	<i>Sturnus pagodarum</i>																				*		*										Myna, Brahminy	
Myna, Common	<i>Acridotheres tristis</i>	*			*		*		*			*		*							*		*			*							Myna, Common	
Myna, Hill	<i>Gracula religiosa</i>																				*		*										Myna, Hill	
Myna, Jungle	<i>Acridotheres fuscus</i>								*				*								*		*									*	Myna, Jungle	
Myna, Pied	<i>Sturnus contra</i>																				*		*										Myna, Pied	
Nightjar, Common Indian	<i>Caprimulgus asiaticus</i>																				*		*										Nightjar, Common Indian	
Nightjar, Franklin's	<i>Caprimulgus affinis</i>				*																*		*										Nightjar, Franklin's	
Nightjar, Indian Jungle	<i>Caprimulgus indicus</i>	*			*																*		*										Nightjar, Indian Jungle	
Niltava, Rufousbellied	<i>Muscicapa sundara</i>	*											*								*		*										Niltava, Rufousbellied	
Nutcracker	<i>Nucifraga caryocatactes</i>	*				*															*		*										Nutcracker	
Nuthatch, Chestnutbellied	<i>Sitta castanea</i>																				*		*										Nuthatch, Chestnutbellied	
Nuthatch, Common	<i>Sitta europaea</i>								*												*		*										Nuthatch, Common	
Nuthatch, Whitecheeked	<i>Sitta leucopsis</i>	*							*				*								*		*									*	Nuthatch, Whitecheeked	
Nuthatch, Whitetailed	<i>Sitta himalayensis</i>	*				*															*		*										Nuthatch, Whitetailed	
Oriole, Blackheaded	<i>Oriolus xanthornus</i>																				*		*										Oriole, Blackheaded	
Oriole, Golden	<i>Oriolus oriolus</i>								*				*								*		*									*	Oriole, Golden	
Oriole, Maroon	<i>Oriolus traillii</i>																				*		*										Oriole, Maroon	
Osprey	<i>Pandion haliaetus</i>																				*		*										Osprey	
Owl, Great Horned or Eagle-owl	<i>Bubo bubo</i>				*																*		*										Owl, Great Horned or Eagle-owl	
Owl, Scops	<i>Otus scops</i>																				*		*										Owl, Scops	
Owl, Spotted Scops	<i>Otus spilocephalus</i>	*			*								*								*		*										Owl, Spotted Scops	

COMMON NAME	SCIENTIFIC NAME	NATIONAL PARKS														SANCTUARIES														COMMON NAME				
		GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK	SHIL	SHIM	SIM		TAL	TIR	TUN	
Owl, Tawny Wood	<i>Strix aluco</i>	*												*																			*	Owl, Tawny Wood
Owlet, Barred	<i>Glaucidium cuculoides</i>	*												*																		*	Owlet, Barred	
Owlet, Collared Pigmy	<i>Glaucidium brodiei</i>	*												*																	*	Owlet, Collared Pigmy		
Owlet, Jungle	<i>Glaucidium radiatum</i>																															*	Owlet, Jungle	
Owlet, Spotted	<i>Athene brama</i>																															*	Owlet, Spotted	
Parakeet, Alexandrine	<i>Psittacula eupatria</i>				*									*																	*	Parakeet, Alexandrine		
Parakeet, Blossomheaded	<i>Psittacula cyanocephala</i>	*												*						*											*	Parakeet, Blossomheaded		
Parakeet, Roseringed	<i>Psittacula krameri</i>																					*										*	Parakeet, Roseringed	
Parakeet, Slatyheaded	<i>Psittacula himalayana</i>	*			*									*								*										*	Parakeet, Slatyheaded	
Partridge, Black	<i>Francolinus francolinus</i>	*		*	*		*	*	*					*						*		*									*	Partridge, Black		
Partridge, Chukor	<i>Alectoris chukar</i>	*	*	*	*		*	*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Partridge, Chukor	
Partridge, Common Hill	<i>Arborophila torqueola</i>	*					*	*	*					*						*		*	*	*	*	*	*	*	*	*	*	*	Partridge, Common Hill	
Partridge, Grey	<i>Francolinus pondicerianus</i>				*			*	*											*		*	*	*	*	*	*	*	*	*	*	*	Partridge, Grey	
Partridge, Snow	<i>Lerwa lerwa</i>		*					*	*					*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Partridge, Snow	
Peafowl, Common	<i>Pavo cristatus</i>	*					*	*	*					*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Peafowl, Common
Pheasant, Chir	<i>Catreus wallichii</i>	*		*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Pheasant, Chir
Pheasant, Kalij	<i>Lophura leucomelana</i>	*		*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Pheasant, Kalij
Pheasant, Koklas	<i>Pucrasia macrolopha</i>	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Pheasant, Koklas
Pheasant, Monal	<i>Lophophorus impejanus</i>	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Pheasant, Monal
Piculet, Speckled	<i>Picumnus inornatus</i>	*																															*	Piculet, Speckled
Pigeon, Ashy Wood	<i>Columba pulchricollis</i>	*																															*	Pigeon, Ashy Wood
Pigeon, Blue Rock	<i>Columba livia</i>				*																												*	Pigeon, Blue Rock
Pigeon, Hill	<i>Columba rupestris</i>		*																														*	Pigeon, Hill
Pigeon, Snow	<i>Columba leuconota</i>		*																														*	Pigeon, Snow
Pigeon, Speckled Wood	<i>Columba hodgsonii</i>	*																															*	Pigeon, Speckled Wood
Pigeon, Wedgetailed Green	<i>Treron sphenura</i>	*												*																			*	Pigeon, Wedgetailed Green
Pigeon, Wood	<i>Columba palumbus</i>					*			*					*																			*	Pigeon, Wood
Pintail	<i>Anas acuta</i>								*																								*	Pintail
Pipit, Brown Rock	<i>Anthus similis</i>																																*	Pipit, Brown Rock
Pipit, Indian Tree	<i>Anthus hodgsoni</i>	*							*					*																		*	Pipit, Indian Tree	
Pipit, Paddyfield	<i>Anthus novaeseelandiae</i>																																*	Pipit, Paddyfield
Pipit, Redthroated	<i>Anthus cervinus</i>																																*	Pipit, Redthroated
Pipit, Tawny	<i>Anthus campestris</i>																																*	Pipit, Tawny
Pipit, Upland	<i>Anthus sylvanus</i>	*														*																	*	Pipit, Upland
Pitta, Indian	<i>Pitta brachyura</i>																																*	Pitta, Indian
Plover, Great Stone	<i>Esacus magnirostris</i>																																*	Plover, Great Stone
Plover, Little Ringed	<i>Charadrius dubius</i>																																*	Plover, Little Ringed
Pochard, Common	<i>Aythya ferina</i>																																*	Pochard, Common
Pratincole, Small Indian	<i>Glareola lactea</i>																																*	Pratincole, Small Indian
Quail, Jungle Bush	<i>Perdica asiatica</i>																																*	Quail, Jungle Bush
Raven	<i>Corvus corax</i>													*																			*	Raven
Redshank, Common	<i>Tringa totanus</i>																																*	Redshank, Common
Redstart, Black	<i>Phoenicurus ochruros</i>					*			*					*																		*	Redstart, Black	
Redstart, Bluefronted	<i>Phoenicurus frontalis</i>	*															*															*	Redstart, Bluefronted	
Redstart, Blueheaded	<i>Phoenicurus caeruleocephalus</i>				*																											*	Redstart, Blueheaded	
Redstart, Guldenstadt's	<i>Phoenicurus erythrogaster</i>																*															*	Redstart, Guldenstadt's	
Redstart, Plumbeous	<i>Rhyacornis fuliginosus</i>	*					*							*							*	*	*	*	*	*	*	*	*	*	*	*	Redstart, Plumbeous	
Redstart, Whitecapped	<i>Chaimarrornis leucocephalus</i>	*					*							*							*	*	*	*	*	*	*	*	*	*	*	*	Redstart, Whitecapped	

COMMON NAME	SCIENTIFIC NAME	NATIONAL PARKS														SANCTUARIES											COMMON NAME								
		GRE	PIN	BAN	CHA	CHU	DARA	DARL	GAM	GOB	KAI	KAL	KAN	KHO	KUG	LIP	MAJ	MAN	NAI	NAR	PON	RAK	REN	RUP	SEC	SHIK		SHIL	SHIM	SIM	TAL	TIR	TUN		
Warbler, Pallas's Leaf	Phylloscopus proregulus	*																		*															Warbler, Pallas's Leaf
Warbler, Plain Leaf	Phylloscopus neglectus																				*													Warbler, Plain Leaf	
Warbler, Rufouscapped Bush	Cettia brunnifrons	*										*																						Warbler, Rufouscapped Bush	
Warbler, Striated Marsh	Megalurus palustris																																	Warbler, Striated Marsh	
Warbler, Strongfooted Bush	Cettia montana	*																																Warbler, Strongfooted Bush	
Warbler, Tickell's	Phylloscopus affinis																																	Warbler, Tickell's	
Warbler, Tytler's Leaf	Phylloscopus tytleri																																	Warbler, Tytler's Leaf	
Warbler, Yellowbrowed Leaf	Phylloscopus inornatus	*																			*											*		Warbler, Yellowbrowed Leaf	
Waterhen, Whitebreasted	Amaurornis phoenicurus																				*												*	Waterhen, Whitebreasted	
Wheatear	Oenanthe oenanthe																				*												*	Wheatear	
Wheatear, Desert	Oenanthe deserti				*																												*	Wheatear, Desert	
White-eye	Zosterops palpebrosa	*		*		*		*						*								*									*			White-eye	
Whitethroat, Lesser	Sylvia curruca																																	Whitethroat, Lesser	
Wigeon	Anas penelope																																	Wigeon	
Woodcock	Scolopax rusticola	*																																Woodcock	
Woodpecker, Blacknaped Green	Picus canus								*					*																		*		Woodpecker, Blacknaped Green	
Woodpecker, Brownfronted Pied	Picoides auriceps	*		*		*		*																										Woodpecker, Brownfronted Pied	
Woodpecker, Grey-crowned Pigmy	Picoides canicapillus																																	Woodpecker, Grey-crowned Pigmy	
Woodpecker, Himalayan Pied	Picoides himalayensis	*			*	*																												Woodpecker, Himalayan Pied	
Woodpecker, Lesser Goldenbacked	Dinopium benghalense																																	Woodpecker, Lesser Goldenbacked	
Woodpecker, Scalybellied Green	Picus squamatus	*		*		*		*					*							*												*	Woodpecker, Scalybellied Green		
Woodpecker, Yellowfronted Pied	Picoides maharattensis																					*												Woodpecker, Yellowfronted Pied	
Wren	Troglodytes troglodytes	*											*																					Wren	
Wren-babbler, Scalybreasted	Pnoepyga albiventer	*							*				*																				*	Wren-babbler, Scalybreasted	
Wren-warbler, Ashy	Prinia socialis																																	Wren-warbler, Ashy	
Wren-warbler, Franklin's	Prinia hodgsonii																																	Wren-warbler, Franklin's	
Wryneck	Jynx torquilla																																	Wryneck	
Yuhina, Yellownaped	Yuhina flavicollis	*											*																					Yuhina, Yellownaped	

- 1 There was considerable variation in the common names of birds reported from various parks and sanctuaries of H.P. These names have been standardised from 'A Synopsis of the Birds of India and Nepal' (Ripley 1982). Scientific names are also taken from this book. The distribution of each species has been checked with 'Handbook of the Birds of India and Pakistan' (Ali and Ripley 1983) to verify its occurrence in the broad region from where it has been reported.
- 2 A 'Buzzard' was reported; it is not clear if this is the Longlegged or the Upland Buzzard.
- 3 It is unclear if the 'Chough' reported is Redbilled or Yellowbilled.
- 4 A 'Grosbeak' was reported; whether it is the Allied or the Black-and-Yellow is unclear.

SOURCES

The following sources have been used in compiling the above lists (please see A Note on Methodology and References and Bibliography for full references).

Great Himalayan National Park: mp, Gaston et. al. 1981, Gaston 1986
 Pin Valley National Park: Q1
 Bandli Sanctuary: Q1
 Chail Sanctuary: Q1, fv, Garson & Singh 1983, Gaston 1979
 Churdhar Sanctuary: wp, fv
 Daranghati Sanctuary: Q1, qa, fv, Q3

Darlaghat Sanctuary: Q1
 Gamgul Shiahbehi Sanctuary: Q1
 Gobind Sagar Sanctuary: Q1
 Kais Sanctuary: Q1, fv
 Kalatop Khajjilar Sanctuary: Q1, fv, Gaston 1979a
 Kanawar Sanctuary: mp, Q1, Gaston et. al. 1981

Khokhan Sanctuary: Q1
 Kugti Sanctuary: Q1
 Lippa Sanctuary: Q1
 Majathal Sanctuary: Q1
 Manali Sanctuary: Q1, fv
 Naina Devi Sanctuary: Q1, wp

Nargu Sanctuary: Q1, fv
 Pong Lake Sanctuary: Pandey 1986
 Rakchham Chitkul Sanctuary: Q1
 Renuka Sanctuary: Q1, Hist. file, fv
 Rupi Bhaba Sanctuary: Q1, dh, mp
 Sechu Tuan Nala Sanctuary: Q1

Shikar. I evi Sanctuary: Q1, mp, fv
 Shilli Sanctuary: Q1
 Shimla Water Catchment Sanctuary: Q1
 Simbalbara Sanctuary: mp
 Talra Sanctuary: Q1
 Tirthan Sanctuary: Q1
 Tundah Sanctuary: Q1

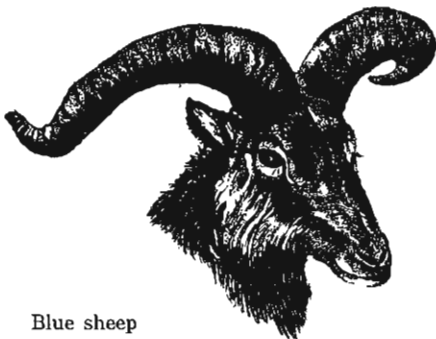
APPENDIX 8

COMMON AND SCIENTIFIC NAMES OF MAMMALS
AND REPTILES REPORTED FROM NATIONAL PARKS
AND SANCTUARIES IN HIMACHAL PRADESH

Common Name	Scientific Name
MAMMALS*	
Bear, Himalayan Black	<i>Selenarctos thibetanus</i>
Bear, Brown	<i>Ursus arctos</i>
Boar, Indian Wild	<i>Sus scrofa</i>
Cat, Jungle	<i>Felis chaus</i>
Cat, Leopard	<i>Felis bengalensis</i>
Civet, Common Palm	<i>Paradoxurus hermaphroditus</i>
Civet, Himalayan Palm	<i>Paguma larvata</i>
Deer, Barking	<i>Muntiacus muntjak</i>
Deer, Musk	<i>Moschus moschiferus</i>
Deer, Red	<i>Cervus elaphus</i>
Deer, Spotted	<i>Axis axis</i>
Flying Fox	<i>Pteropus giganteus</i>
Fox, Indian	<i>Vulpes bengalensis</i>
Fox, Red	<i>Vulpes vulpes</i>
Gazelle, Indian	<i>Gazella gazella</i>
Gazelle, Tibetan	<i>Procapra picticaudata</i>
Goral	<i>Nemorhaedus goral</i>
Hare, Indian	<i>Lepus nigricollis</i>
Hare, Woolly	<i>Lepus oiostolus</i>
Hedgehog, Longeared	<i>Hemiechinus auritus</i>
Hedgehog, Pale	<i>Paraechinus micropus</i>
Hyena, Striped	<i>Hyaena hyaena</i>
Ibex	<i>Capra ibex</i>
Jackal	<i>Canis aureus</i>
Langur, Common (Hanuman)	<i>Presbytis entellus</i>
Leopard	<i>Panthera pardus</i>
Leopard, Snow	<i>Panthera uncia</i>
Lynx	<i>Felis lynx</i>
Macaque, Rhesus	<i>Macaca mulatta</i>
Markhor	<i>Capra falconeri</i>
Marmot, Longtailed	<i>Marmota caudata</i>
Marten, Stone	<i>Martes foina</i>
Marten, Himalayan Yellowthroated	<i>Martes flavigula</i>
Mongoose, Common	<i>Herpestes edwardsi</i>
Mongoose, Small Indian	<i>Herpestes auropunctatus</i>
Mouse, House	<i>Mus musculus</i>
Mouse-hare, Himalayan	<i>Ochotona roylei</i>
Nilgai	<i>Boselaphus tragocamelus</i>
Pangolin, Indian	<i>Manis crassicaudata</i>

* The common names for all mammals, except for the Himalayan Water Shrew and the Grey Shrew, are standardised according to Prater's *Book of Indian Animals* [Prater 1980]. The names of these shrews were verified by Dr. J.S. Serrao of the Bombay Natural History Society [Serrao, Pers. comm.].

Porcupine, Hodgson's	<i>Hystrix hodgsoni</i>
Porcupine, Indian	<i>Hystrix indica</i>
Rat, Indian Bush	<i>Golunda ellioti</i>
Sambar	<i>Cervus unicolor</i>
Serow	<i>Capricornis sumatraensis</i>
Sheep, Blue	<i>Pseudois nayaur</i>
Shrew, Grey	<i>Suncus murinus</i>
Shrew, Himalayan Water	<i>Crossopus himalaicus</i>
Squirrel, Common Giant Flying	<i>Petaurista petaurista</i>
Squirrel, Kashmir Flying	<i>Eupetaurus cinereus</i>
Stag, Kashmir	<i>Cervus elaphus hanglu</i>
Tahr, Himalayan	<i>Hemitragus jemlahicus</i>
Tiger	<i>Panthera tigris</i>
Vole, Royle's	<i>Alticola roylei</i>
Weasel, Himalayan	<i>Mustela sibirica</i>
Wolf	<i>Canis lupus</i>
Yak	<i>Bos grunniens</i>
REPTILES **	
Cobra, Indian	<i>Naja naja</i>
Gecko, Brook's	<i>Hemidactylus brooki</i>
Gecko, Northern House	<i>Hemidactylus flaviviridis</i>
Krait, Common Indian	<i>Bungarus caeruleus</i>
Monitor, Common Indian	<i>Varanus bengalensis</i>
Python, Indian	<i>Python molurus</i>
Ratsnake, Common	<i>Ptyas mucosus</i>
Viper, Russel's	<i>Vipera russeli</i>
Viper, Himalayan Pit	<i>Agkistrodon himalayanus</i>



Blue sheep

** The common names for reptiles are standardised according to Daniel's *Book of Indian Reptiles* [Daniel 1983].

APPENDIX 9

THREATENED PLANTS OF HIMACHAL PRADESH

The following three lists have been prepared of plants considered threatened* in the state of Himachal Pradesh:

<i>Name</i>	<i>Status</i>
<i>Acer caesium</i>	Vulnerable
<i>Acer oblongum</i>	Endangered
<i>Aconitum falconeri</i>	Vulnerable
<i>Aconitum ferox</i>	Vulnerable
<i>Berberis apiculata</i>	Rare
<i>Campanula wattiana</i>	Rare
<i>Carex munroii</i>	Indeterminate
<i>Cypripedium cordigerum</i>	Rare
<i>Delphinium uncinatum</i>	Vulnerable
<i>Dioscorea deltoidea</i>	Vulnerable
<i>Dipcadi reidi</i>	Presumed extinct
<i>Eremurus himalaicus</i>	Rare
<i>Hedysarum astragaloides</i>	Rare
<i>Hedysarum microcalyx</i>	Vulnerable
<i>Nardostachys grandiflora</i>	Vulnerable
<i>Picrorhiza kurrooa</i>	Vulnerable
<i>Puccinellia kashmiriana</i>	Rare
<i>Rubia edgeworthii</i>	Vulnerable
<i>Rubia himalayensis</i>	Vulnerable
<i>Saussurea bracteata</i>	Rare
<i>Saussurea costus</i>	Endangered
<i>Selaginella adunca</i>	Endangered
<i>Silene kunawarensis</i>	Rare

Source: Nayar and Sastry 1987

<i>Name</i>	<i>Name</i>
<i>Aconitum heterophyllum</i>	<i>Jurinea macrocephala</i>
<i>Cyperipedium elegans</i>	<i>Primula macrophylla</i>
<i>Ephedra gerardiana</i>	<i>Rhododendron lepidotum</i>

Source: Jain and Rao 1983

Name	
<i>Agropyron duthiei</i>	<i>Goodyera biflora</i>
<i>Allium auriculatum</i>	<i>Habenaria arcuata</i>
<i>Asphodelus comosus</i>	<i>Hedysarum astragaloides</i>
<i>Astragalus malacophyllus</i>	<i>Heracleum thomsonii</i>
<i>Bupleurum dalhousieanum</i>	<i>Herminium duthiei</i>
<i>Bupleurum maddenii</i>	<i>Indigofera simlensis</i>
<i>Bupleurum thomsonii</i>	<i>Iris unilesii</i>
<i>Caragana gerardiana</i>	<i>Kobresia duthiei</i>
<i>Carex munroi</i>	<i>Oreorchis indica</i>
<i>Cautleya petiolata</i>	<i>Oryzopsis stewartiana</i>
<i>Deyeuxia simlensis</i>	<i>Pleurospermum stylosum</i>
<i>Elymus thomsonii</i>	<i>Poa falconeri</i>
<i>Eulophia hormusjii</i>	<i>Primula drumondiana</i>
<i>Euphrasia foliosa</i>	<i>Saussurea atkinsoni</i>
<i>Euphrasia microcarpa</i>	<i>Scutellaria prostrata</i>
<i>Euphrasia multiflora</i>	<i>Thalictrum rostellatum</i>
<i>Galium confertum</i>	<i>Thermopsis inflata</i>
<i>Gastrodia orobanchoides</i>	

Source: Nayar and Giri 1988



Marsh marigold *Caltha palustris*

* The term 'threatened' has been used here in accordance with the internationally accepted usage coined by the International Union for Conservation of Nature and Natural Resources (IUCN). This term is used for species which are in one of the following categories (Jain and Sastry 1980):

Endangered: Species/taxa in danger of extinction and whose survival is unlikely if factors threatening them continue to operate.

Vulnerable: Species/taxa likely to move into the endangered category in the near future if threatening factors continue to operate.

Rare: Species/taxa with small world populations that are not at present endangered or vulnerable, but are at risk of becoming so.

APPENDIX 10

THREATENED* ANIMALS OF HIMACHAL PRADESH

Mammals

Ass, Tibetan Wild (Kiang)	Hyena, Striped
Badger, Honey (Ratel)	Ibex
Bear, Himalayan Brown	Jackal
Bear, Sloth	Leopard
Caracal	Leopard, Snow
Cat, Fishing	Markhor
Cat, Jungle	Nayan
Cat, Leopard	Pangolin, Indian
Deer, Musk	Tahr, Himalayan
Dog, Indian Wild	Tiger
Fox, Red	Wolf
Hangul	Yak

Birds

Eagle, Golden	Quail, Mountain
Falcon, Shahin	Tragopan, Western
Pheasant, Chir	Vulture, Bearded
Pheasant, Monal	

Reptiles

Lizard, Common Indian Monitor	Python, Indian Rock
Lizard, Yellow Monitor	

Source: Tikader, 1983



Leopard cat

* The definition of the term 'threatened' as used here is given in a footnote in Appendix 9.

APPENDIX 11

**DENSITY OF HUMAN POPULATION INSIDE, AND LIVESTOCK
GRAZING WITHIN, NATIONAL PARKS AND SANCTUARIES
IN HIMACHAL PRADESH**

<i>N/S</i>	<i>Area</i>	<i>Human Population*</i>	<i>Human Density (Persons per ha.)</i>	<i>Livestock Numbers Grazing Inside</i>	<i>Livestock** Density (Heads per ha.)</i>
HP/N/GRE	62000.00			8136	0.13
HP/N/PIN	67500.00	0	0.00	280	0.04
HP/S/BAN	4133.00				
HP/S/CHA	10854.36	8627	0.79		
HP/S/CHU	5615.00				
HP/S/DARA	16740.00			7500	0.45
HP/S/DARL	9226.80	15008	1.63		
HP/S/GAM	10885.40	400	0.04	20639	1.90
HP/S/GOB	10034.00	0	0.00	0	0.00
HP/S/KAJ	1419.03	0	0.00		
HP/S/KAL	2026.89	1766	0.87	1331	0.66
HP/S/KAN	6070.00	460	0.08	23512	3.87
HP/S/KHO	1405.00	526	0.37	11710	8.33
HP/S/KUG	37886.68	651	0.02	32384	0.85
HP/S/LIP	3089.90	0	0.00	23429	7.58
HP/S/MAJ	3938.86	700	0.18	2615	0.66
HP/S/MAN	3180.00	0	0.00	10000	3.14
HP/S/NAI	12268.00			6402	0.52
HP/S/NAR	27837.00	26360	0.95	51585	1.85
HP/S/PON	30729.00	0	0.00		
HP/S/RAK	3411.00	0	0.00	33000	9.67
HP/S/REN	402.80	360	0.89		
HP/S/RUP	26914.50	2420	0.09	27194	1.01
HP/S/SEC	10295.00	1049	0.10	3188	0.31
HP/S/SHIK	7200.00			6792	0.94
HP/S/SHIL	213.32	563	2.64	378	1.77
HP/S/SHIM	1025.30	0	0.00		
HP/S/SIM	1903.44	0	0.00		
HP/S/TAL	4049.31	250	0.06	4500	1.11
HP/S/TIR	6112.98	0	0.00		
HP/S/TUN	6422.08	1182	0.18	17274	2.69

Note: A blank space indicates the absence of information

* Not including migratory population which comes in seasonally.

** Livestock includes cattle, buffaloes, sheep, goats, and feral cattle, from both within and adjacent areas, which graze inside the park/sanctuary.

PROPOSALS FOR AN IMPROVED WILDLIFE PROTECTED AREA NETWORK IN HIMACHAL PRADESH

In 1984, the Government of India commissioned the Wildlife Institute of India, Dehradun, to evaluate the adequacy of the existing network of wildlife protected areas and to propose a network that covers the range of biological diversity in the country. The Institute's report, released in 1988, includes recommendations for an improved protected area network in each state [Rodgers and Panwar 1988b]. This is based on a bio-geographical classification of the country's ecosystems into several distinct zones and provinces [Rodgers and Panwar 1988a].

For Himachal Pradesh, the report recommends the creation of two new national parks, the upgradation of a sanctuary into a national park, the creation of one new sanctuary, and an extension of the area of six existing sanctuaries. These proposals are given below in greater detail. If these recommendations are accepted, Himachal Pradesh would have five national parks as against the present two, and 29 sanctuaries. These parks and sanctuaries would cover 5,41,200.00 ha. as against the present 3,94,788.65 ha, which would be 9.6% of the state's area as compared to 7.10% at present.

(Editorial note: The text given below is reproduced almost verbatim from the report; any changes made are only for the sake of clarity. Our own comments are given in footnotes.)

Summary of Recommendations

This report strongly recommends three national parks:

An area of 500 sq km in north east Spiti - zone 1A (Trans-Himalayan Tibetan Highlands), which needs much more survey. The further notification and declaration of legal status for Great Himalayan NP and the upgrading of Saichu Tuan Nalla* WLS of 103 sq km to NP, both in zone 2A (North West Himalaya). There is a need for a national park in zone 2B (West Himalaya), probably in Kinnaur District, but we had insufficient information to make a decision as to which existing area should be upgraded.

Several WLS should be extended:

In zone 2A (North West Himalaya), Nargu-Winch WLS + should extend to and enclose tiny Khokan WLS of 14 sq km. Shikari Devi WLS to increase to 314 sq km, Manali WLS to 250 sq km, Kugti WLS to increase to 150 sq km, Kalatop and Khajjar WLS to 97 sq km and, in zone 2B (West Himalaya), Rupi Bhava WLS ** to extend to 189 sq km.

Details of Proposed Protected Areas

Zone 1—Trans-Himalayas

Province 1A—Tibetan Highlands

Spiti NP 500 sq km

Spiti WLS 500 sq km

A proposal for a major protected area in north east Spiti in an area of typical Tibetan cold desert, with occasional presence of Tibetan ass, gazelle and antelope, as well as snow leopard, bharal etc. Rich in plant species of this steppe formation. Survey will be needed to identify optimal boundaries of core-buffer zones. The 500-500 sq km split is provisional.

Zone 2—Himalayas

Province 2A—North West Himalaya

Saichu Tuan Nalla NP

130 sq km

Upgrading this existing WLS in Chamba District to full park status. This protected area borders Ladakh, and still has potentially viable snow leopard, brown bear, tahr, bharal, ibex, pheasant etc.

Shikari Devi WLS @
From 214 to 314 sq km

This WLS covers the middle altitudinal range from 1800-3400m of the Himalayas, showing the transition from pine through oak to alpine meadow. Some surrounding forest land can be incorporated into the sanctuary to allow the development of a central disturbance free core zone. The western ridge with alpine pastures should be included.

Manali WLS
From 30 to 250 sq km

This tiny area to be extended to include the still viable wildlife and forest lands to the north, including the Solang Nala watershed to the source of the Beas River.

Kugti WLS #
From 118-150 sq km

This small WLS borders Lahul District and an area of buffer forest can be incorporated to increase long term viability. An area famous for shikar in the past. Has brown bear, bharal, tahr, ibex, musk deer etc.

Nargu-Khokan WLS
(Incorporating Nargu-Winch
and Khokan) to 320 km

Tiny Khokan WLS (14 sq km) is north of Nargu-Winch WLS (278 sq km). The two can be amalgamated by incorporating intervening buffer forest, to a composite 320 sq km.

Kalatop & Khajiar WLS
From 47 to 97 sq km

This tiny WLS of low to medium altitude Himalayas (poorly represented in the state) is to be extended by incorporating adjacent forest eastwards in Sholadkar Range.

Zone 2—Himalaya
Province 2B—West Himalaya

Rupi-Bhava WLS**
From 125 to 189 sq km

Himachal Pradesh Govt. has proposed to extend this WLS by incorporating 64 sq km of western forest, a proposal strongly endorsed here.

* This is named Sechu Tuan Nala as per our information.

+ This is named just Nargu according to our information.

** According to our information, this is spelt Rupi Bhaba, and the Sanctuary extends over 269.15 sq km.

@ The area of Shikari Devi is 72 sq km as per our information.

As per our information Kugti Sanctuary spreads over 378.87 sq km.

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- Map: Map of park/sanctuary sent by the wildlife authorities
- met: Records of the Meteorological Department, Government of India
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List of Management Plans (mp) Referred to

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- Kalatop-Khajjiar Sanctuary:** Department of Forest Farming and Environmental Conservation: 'Scheme for Intensive Management of Kalatop-Khajjiar Wildlife Sanctuary 1984-85 to 1988-89' Government of Himachal Pradesh
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List of NGO Questionnaires (Q3) Received

- Daranghati Sanctuary, Kalatop Sanctuary, Kanawar Sanctuary, Manali Sanctuary and Shimla Water Catchment Sanctuary.
- All were filled in and sent by Dr. A.J.Gaston, Canadian Wildlife Service.

Sources of Information for Maps

The map of each national park and sanctuary of Himachal Pradesh has been made from one or more sources. The two main sources used are Survey of India toposheets relevant for each area, and hand-drawn maps sent by the park/sanctuary authorities. Some of the required Survey of India toposheets (for full list see Appendix 2) were not available, or could not be used as they depicted restricted areas. The following list of sources is therefore split into three sections: areas completely unrestricted, those partially restricted, and those completely restricted.

The following short forms have been used for the sources:

- Tp** — Survey of India toposheets
Map — Undated map sent by park/sanctuary authorities
Trek Map — Survey of India Trekking Route Map of H.P.

Unrestricted Areas**Great Himalayan National Park**

1. Tp nos. :-
 53E/5 - 1st ed. 1970. 53E/10 - 1st ed. 1970.
 53E/6 - 1st ed. 1974. 53E/13 - 1st ed. 1966.
 53E/9 - 1st ed. 1968 53E/14 - 1st ed. 1966.

2. Map

Bandli Sanctuary

1. Tp no.:-
 53A/15 - 1st ed. 1973.

2. Map

Chail Sanctuary

1. Tp no.:-
 Pin Valley National Park

2. Map

Churdhar Sanctuary

1. Tp no.:-
 53F/5 - 1st ed. 1968.

2. Map

Daranghati Sanctuary

1. Map

Darlaghat Sanctuary

1. Tp nos.:-
 53A/15-1st ed. 1973.
 53A/16-1st ed. 1974.

2. Map

Gobind Sagar Sanctuary

1. Tp nos. :-
 53A/15 - 1st ed. 1973 53A/16 - 1st ed. 1974.
 53A/11 - 1st ed. 1974. 53A/7 - 1st ed. 1974.

2. Map

Khokhan Sanctuary

1. Tp no. :-
 53E/1 - 1st ed. 1969.

2. Map

Majathal Sanctuary

1. Tp nos.:-
 53A/15 - 1st ed. 1973.
 53E/3 - 1st ed. 1973.

2. Map

Naina Devi Sanctuary

1. Tp nos.:-
 53E/7 - 1st ed. 1974.
 53A/11 - 1st ed. 1974.

2. Map

Renuka Sanctuary

1. Tp no.:-
 53F/16 - 1st ed. 1971.

2. Map

Shikari Devi Sanctuary

1. Tp nos.:-
 53E/2 - 1st ed. 1970.
 53E/3 - 1st ed. 1973.

2. Map

Shilli Sanctuary

1. Map

Shimla Water Catchment Sanctuary

1. Tp nos.:-
 53F/4 - 1st ed. 1974.
 53E/8 - 1st ed. 1967.

Simbalbara Sanctuary

1. Tp nos. :-
 53F/7 - 1st ed. 1969.
 53F/11 - 1st ed. 1969.

Talra Sanctuary

1. Tp nos.:-
 53F/13 - 1st ed. 1964.
 53F/9 - 1st ed. 1970.
 53E/16 - 1st ed. 1966.

Tirthan Sanctuary

1. Tp nos. :-
 53E/6 - 1st ed. 1974.
 53E/10 - 1st ed. 1970.

2. Map

Partly Restricted Areas**Pin Valley National Park**

1. Tp nos:-
53E/13 - 1st ed. 1966
(unrestricted sheet)
2. Map
3. Trek Map, Sheet no.2 - 1st ed 1976
(unrestricted publication)

Kais Sanctuary

1. Tp nos.:
53E/1 - 1st ed. 1969
(unrestricted sheet)
52H/4 - 2nd ed. 1976
(restricted sheet)
2. Map

Kanawar Sanctuary

1. Tp nos.:-
53E/5 - 1st ed. 1970
(unrestricted sheet)
52H/8 - 2nd ed. 1975
(restricted sheet)
2. Map

Nargu Sanctuary

1. Tp nos.:-
53E/1 - 1st ed. 1969
(unrestricted sheet)
53A/13 - 1st ed. 1970
(unrestricted publication)
2. Map

Rupi Bhaba Sanctuary

1. Tp nos.:-
53E/13 - 1st ed. 1966
(unrestricted sheet)
53E/14 - 1st ed. 1966
(unrestricted sheet)
2. Map

Restricted Areas**Gamgul Siahbehi Sanctuary**

1. Map
2. Trek Map, Sheet no. 1 - 1st ed. 1976
(unrestricted publication)

Kalatop-Khajjiar Sanctuary

1. Map

Kugti Sanctuary

1. Map
2. Trek Map, Sheet no.1 - 1st ed. 1976
(Unrestricted publication)

Lippa Asrang Sanctuary

1. Map

Manali Sanctuary

1. Map

Pong Lake Sanctuary

1. Map

Rakcham Chitkul Sanctuary

1. Map

Sechu Tuan Nala Sanctuary

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Pratibha Pande, apart from being a member of the IIPA Survey team, is a wildlife artist who has widely exhibited her paintings. Some of these have been used for the Bombay Natural History Society greeting cards, and others for postage stamps.

The editors have been assisted by an editorial team consisting of biologists, social scientists, field workers, and wildlife enthusiasts.

OTHER RELATED PUBLICATIONS OF IIPA

Management of National Parks and Sanctuaries in India: A Status Report by Ashish Kothari, Pratibha Pande, Shekhar Singh, and Dilnavaz Variava, 1989 (Hard cover — Rs. 250; Paperback — Rs. 150)

- * A valuable reference for government officials, conservationists, activists, and researchers.
- * Contains a comprehensive compilation of data on India's national parks and sanctuaries, with a fold-out map showing their locations, and 171 pages of tables.
- * Gives specific recommendations for conservation action by Governments, wildlife managers, conservation agencies and concerned individuals.

Forthcoming

Directory of National Parks and Sanctuaries in Andaman and Nicobar Islands

Directory of National Parks and Sanctuaries in Gujarat

Directory of National Parks and Sanctuaries in Karnataka