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Bioresource inventorization and utilization of Churdhar wildlife sanctuary, Himachal Pradesh - a preliminary survey

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Abstract

Churdhar wildlife sanctuary (CWLS) is rich in biological diversity, including higher plants, grasses, shrubs, medicinal and aromatic plants as well as wildlife. The present paper deals with the introduction of the sanctuary area, inventory of its flora and fauna and utility of various natural resources with special reference to herbs. Information has been gathered from different sources like forest officials, local village *panchayat* members, local inhabitants and through personnel observations of study area. Plants of traditional importance used by the local communities for treating different ailments in the study area have been the main focus of study.

Keywords: Churdhar wildlife sanctuary (CWLS), inventory, *panchayats*, traditional, ailments and flora and fauna.

Introduction

Churdhar wildlife sanctuary (CWLS) is situated in the higher region of Sirmour and Shimla Districts of Himachal Pradesh in north western Himalayas. The area lies in between $30^0$48.37 to 30^0 54.39 latitude and 77^0 23.32 to 77^0 29.49 longitude. Chur peak, the highest peak of the area, is 3647 m high, lies in the heart of sanctuary and is also the focal point of attraction. The area was declared as Wild Life Sanctuary in November 1985 and was transferred to the Wild Life Wing for management in 1986. The sanctuary area falls above motor road between villages of Chog and Choras. The sanctuary area falls above motor road between villages of Chog and near village Choras. From the northern side, the sanctuary can be approached from Sarain in Chopal Tehsil by a riddle path and on the southern side; it is easily approachable by Rajgarh-Haripurdhar motor road. Another focal point of the sanctuary is the famous temple of *Chureshwar Mahadev*, which is located near Chur peak of the sanctuary. Rich variety of flora is in the form of oaks, spruce, fir forests and alpine pastures and herbs. The vegetation includes trees like, *Juglans regia, Cassia fistula, Terminalia tomentosa*, *Quercus incana*, *Ficus bengalensis*, *Populus ciliata, Rhododendron arboretum*, *Pinus roxburghii*, *Cinnamomum tamala*, *Cedrus deodara*, *Juniperus macropoda*, *Pinus wallichiana*, *Aesculus indica*, *Betula utilis*, *Picea smithiana*, *Quercus dilatata*, *Taxus wallichiana* and shrubs and herbs like *Berberis lycium*, *Berberis aristata*, *Princepia utilis*, *Aconitum heterophyllum*, *Podophyllum hexandrum*, *Cotoneaster acuminata, Bergenia ciliata*, *Artemisia vulgaris*, *Dactylorhiza hatagirea*, *Allium sativum*, *Acorus calamus*, *Juniperus recurva*, *Dioscorea deltoides*, *Boenninghansenia albiflora*, *Selinum vaginatum*, *Calotropis procera*, *Valeriana jatamansi*, *Viola canescens* and grasses like *Cymbopogon martini*, *Dendrocalamus strictus*, *Cynodon dactylon* and *Themeda arundinacea* (Gupta, 1998 and Chauhan 1999).Fauna is typical of higher Himalyan region and includes Himalayan Black Bear (*Seleneretos thibetan*), Himalayan Goat or Ghoral (*Nemorhaedus goral*), Musk Deer – Kastura (*Moschus moschifernus*), Barking Deer-Kakar (*Muntiacus muntiak*), Koklas (*Pnerasia macrolopha*), Red Jungle fowl (*Gallus gullas*), Hill partridge-peora (*Arborophila francolinus*), Chakor (*Alectoris graeca*), Snow partridge Kapoor Monal (*Lerwa lerwa*), Blue Rock pigeon-Harial (*Treron sphenuraji*) and Himalyan pit vipor (*Ancistorodon himalayanus*) etc.

Physiographic features: Physiographically, the tract forms part of lesser Himalayan zone, which varies in altitude of 900m to 3000m. The major rock formations are as under:-

Jutogh Formation: It is exposed around Chur peak and extends to Nohra. The formation consists of carbonaceous schist, phyllitic with hands of carbonaceous limestone. It supports deep mica ions claying loam soils, which are

fertile and support dense oak, fir and spruce forests.

Chur Granite: It consists of coarse granite to prophysitic and granetiferous granites and gneiss. It is exposed along the Chur. Soil resulting from granite terrain is clayey loam and supports fir, spruce forests and alpine pastures.

Soil: The soil is clayey loam, depth varying usually with slope. The well developed soil profiles are met with only at higher reaches under spruce and fir forests. The soil on ridges, precipitous slopes and southern aspects tends to be shallow and dry whereas on easier slopes and sheltered places, it is deep, fertile and moist enough to support tree growth. The lower areas devoid of tree cover, suffer from intense erosion. In spruce and fir forests, heavy accumulations of raw humus are a characteristic feature and constitute the main inhibiting factor to their natural regeneration.

Terrain: Terrain is moderate, towards the northern aspect, to very steep towards the southern aspect, peaks and cliffs.

Climate

Rainfall pattern and distribution: The area receives most of its annual precipitation from southeast monsoons, which begins by end of June and last till end of September. The extent of precipitation during mid December to March in the shape of snow is more on higher elevations and decrease with decrease in elevation, the lower reaches receiving only rains. The average annual rainfall is about 1200 mm out of which ¾ is received from monsoons.

Temperature: The tract lies between sub-tropical to temperate zone. Summers are pleasant and winters severe with temperature going down to below freezing point for considerable length of time. Snow lasts upto April and at higher and shady places for about a fortnight more. Areas above 3000 metre through confined to surrounding of peaks has alpine climate. Frost is experienced from November onwards to March.

Summary of year round seasonal pattern: The seasons are well defined, winter lasts from middle of December to middle of March and sometimes extends up to April; spring from Mid March to April; summer from May end to June or beginning of July; rainy season from July to Sept. and autumn from October to mid December. Dry winds are common during May and June which lifts lot of dust from surface creating drought conditions. Occasional hailstorms during mid April to mid June are common. Droughts are rare in the region.

Water Supply: The tract drains into Giri and Tons rivers through smaller streams, which are snow fetch for most part of the year. For the rest of the year, water is taken from perennial springs, which are common due to continuous stretches of forests. The water supply in the tract is enough except in summer months. Agriculture lands are mostly rain fed except at lower elevations where *kuhals* have been drawn from adjoining *nallas*. The water supply in habitations has been arranged with the execution of water supply schemes with proper water management through which the irrigation and drinking water requirements of the tract can be fully met.

Material and Methods

A study in CWLS was carried out during the year 2004 with an objective to study its physiographic features and inventories the floral and faunal diversity of the region and plant associated indigenous traditional knowledge (ITK). All the information was gathered through extensive surveys and through personal contacts developed with forest and revenue officials by way of taking interviews of elderly people, herbal healers and local *Vaids* (traditional ayurvedic practitioners). Information on traditional knowledge related to herbal plants, their parts used, ailments treated and mode of administration was gathered from them. The specimens were collected during the surveys in flowering and fruiting period and have been preserved for future research purposes.

Results

The sanctuary harbours a number of herbs which are used by the local communities for treating different ailments. Some of the important medicinal herbs used by the local people are eneumerated below along with the details of their medicinal properties.

Plants of Traditional importance

Achillea millefolium Linn. (Asteraceae) Tikhgaton: The leaves are chewed to relieve toothache. The aroma of the leaves produces freshening flavour in the mouth.

Aconitum heterophyllum Wall (Ranunculaceae) Atish: The leaves and the extract from the roots is given to the patient suffering from malaria fever.

Acorus calamus Linn. (Araceae) Boach, Bare: Rhizomes are often used to check the chest pain

caused due to severe cold, both in human being and cattle. Root is inhaled in coryza as an antihistamine. The decoction of the leaves is also used to cure fever. Juice of the leaves is also used to cure malarial fever.

Allium govanianum Linn. (Alliaceae) Doona: The whole part of the plant is used as spice/ condiment and flavouring agent. Leaves and bulbs of the herb are used as a substitute for onion.

Angelica glauca Edgew. (Apiaceae) Gandchora, Chora: Root powder is used for flavouring dishes.

Arisaema flavum (Araceae) Sampbuti: Bulbs are ground and applied to raise blisters.

Artemisia nilagirica Willd. (Asteraceae) Damnak, Chammer: Leaves of this plant are crushed and the paste is applied on the cuts and wounds to check bleeding. The wound is fastened with a cloth and after a few minutes, bleeding stops. Healing starts after two-three days.

Bergenia ciliata (How.)_Sternb. (Saxifragaceae) Patharphar: Rhizomes are crushed and mixed with jaggery and the paste is fed to the person suffering from diarrhoea. It is also used to cure cough, cold and removal of kidney stones.

Betula utilis D. Don (Betulaceae) Bhojpatra: The decoction made from the bark is used to cure jaundice.

Boenninghausenia albiflora (Hook.) Reichb. Ex Meissner Pishoidi: Its use as an insect repellent is very common among the people of this area. Aerial part is usually spread beneath the bed sheet and allowed to remain for few days. This practice keeps the beds off from the fleas and other insects.

Cedrus deodara (Roxb.) Loud. (Pinaceae) Devdaru, Kailon: The oil is used as an effective insect repellent in cattle, especially in sheep's and goats.

Dioscorea deltoidea Wall ex Kunth. (Dioscoreaceae) Singli-mingli: Rhizomes are used as fish poison and to kill lice. Women use these in washing their hair.

Fagopyrum esculentum Moench (Polygonaceae) Ogla: The seeds are used to make flour, which is especially used during winters as staple food. In intense cold conditions, the chapatti made of flour is preferred, because it provides internal heat. It is also used in acute diarrhoea for human beings as well as cattle.

Juniperus recurva Buch. Ham. (Cuppressaceae) Pahari chandan, Hapusha: People regard this tree as a repellent of evil spirits. The twigs are commonly used as incense in Havans.

Mentha longifolia (L.) Huds. (Lamiaceae) Jangli podina: The leaves are used to cure vomiting, headache, improve digestion and are chewed in case of prolonged indigestion.

Picrorhiza kurrooa Royle ex Benth. (Scrophulareaceae) Kaur: The roots are used in influenza and diarrhoea in human as well as animals.

Polygonatum verticillatum (L.) (Polygonaceae) Methajarh: The tuberous roots being sweet in taste are eaten by the people and used as an aphrodisiac.

Rhododendron arboreum Sm. (Ericaceae) Bura: Its flowers are used by the people of the area for various purposes. Petals are used to prepare jams and local drinks. The juice of the flowers is used to cure dysentery and diarrhoea. The flowers are also ground with sugar or jaggery and fed to the persons suffering from nose bleeding.

Selinum vaginatum C.B. Clarke (Apiaceae) Garh: The rhizomes and the fibrous roots are used in preparing local drinks by putting them in the liquor and allowed to ferment for some days till the desired flavour is developed.

Swertia purpurascens Buch.Ham. Ex D.Don (Gentianaceae), Charata: The leave extract is given to the person suffering from fever especially in malaria.

Thalictrum foliolosum DC. (Ranunculaceae), Sarpharh, Pilijari: The roots are used as tonic. Paste made from the roots is applied on the boils.

Thymus serpyllum Linn. (Lamiaceae) Jangli-ajwain: The flowering tops and the leaves are used to cure stomachache. Two-three flowering tops are boiled along with tea and consumed to relieve pain. It is also useful in indigestion.

Valeriana jatamansi Jones (Valerianaceae) Gandhola: Used in hysteria. Plant juice is also used against the sting of honeybee and scorpion bite.

Viola canescens Wallich. (Violaceae), Banaksha: The flowers are collected by the local inhabitants during July-August, then dried and stored. Then these are used to cure cough, cold during winter as decoction.

Conclusion

It was revealed that Churdhar wildlife sanctuary is a rich depository of various natural bioresources particularly plants having timber, fodder and medicinal and aromatic value. But, many plant species especially the medicinal and

aromatic plants are at the verge of extinction due to their unscientific extraction and over exploitation in the past and present time (Chauhan, 1999 and Choudhary *et al.*, 2005). It is, therefore, a compelling obligation on the society and the state that this valuable treasure responsible for our health and longevity is protected, replenished, and properly managed.

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