

[Report and Opinion]

## An Overview of Potential Ecotourism Resources and Their Prospects in Valley of Flowers National Park, Uttarakhand, India

G.B.G. Pananjay, K. Tiwari<sup>1\*</sup>, G.B.G. Shashi, K. Tiwari<sup>2</sup> and S.C. Tiwari<sup>3</sup>

1-Department of Natural Resource Management, Debre Markos University, Ethiopia.

2-Department of Tourism, Amity University, Noida, India.

3-Department of Botany and Microbiology, HNB Garhwal University, Srinagar, India

\* Corresponding author's E-mail: pananjay\_gbg@rediffmail.com

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### ABSTRACT

Protected areas are major tourism assets for a nation, particularly for developing countries providing sustainable benefit to the local community while funding for the maintenance and rehabilitation of the protected areas themselves. Valley of flowers national park is naturally meant for the conservation and study of western Himalayan flora. It became National park in 1982 and after that livestock grazing ceased and restrictions were imposed on nearby villagers. The valley has an unusually rich flora of over 600 Himalayan species growing in an area of less than 2500 hectares with many rarities. Animals found are nationally rare or endangered. It is also a habitat of endangered Asiatic black bear, brown bear, Himalayan musk deer and snow leopard, blue sheep are rare. The common leopard is reported from lower parts of valley closer to the villages. Local people have also reported evidence of Himalayan brown bear. Other factors that are contributing to ecotourism are beautiful landscapes, peaks, lakes and tarns etc. Because of the heavy influx of tourists and improper management practices the problem of solid waste is increasing at an alarming rate. This paper is an overview of the present ecotourism resources of the area and their future prospects for sustainable ecotourism.

**Keywords:** Ecotourism, Fauna, Flora, Glaciers, National Park, Solid waste, Valley of Flowers.

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### 1. INTRODUCTION

Ecotourism has been developed following the environmental movement which appeared at the beginning of the seventies. Besides, the understanding and the agreement with the principles of nature preservation and durability for a growing portion of the population took part in the evolution of the term "ecotourism". Ecotourism is often considered as a form of tourism with "a strong motivation". Ecotourism can be described in a number of ways. International Society for Eco-Tourism (1991) defines Ecotourism as: "... a responsible tourism in natural environment which preserves it and participates to the well-being of local populations". According to the World Conservation Union (1996), it can be defined as "the visit of natural environments remained relatively intact... with a low negative impact... including a socio-economical implication for the local populations which is at the same time active and beneficial".

Ecotourism is a term that means different things to different people. However, it can best be defined as travel to natural attraction areas that both conserve the culture and the environment while sustaining the wellbeing of the local community. It offers nations the opportunity to get the most out of their natural attractions and to gain all the economic benefits without losing their rich biological resources (Cater, 1993).

With a growing concern for the conservation of biological resources through protected areas, coupled with a strong desire to escape from the traditional vacation, many travelers are beginning to discover the benefits and advantages of ecotourism, which has become the fastest growing tourism market in the world (Agrusa and Guidry, 1999). Recent global trends of tourism activities show an increasing fragmentation of the tourist market and an increased demand for

specialized types of tourism (Moghal & Agrusa, 1997). Tourists are moving away from the package holiday and instead, they want to engage in ecotourism activities such as recreational and sporting activities, learn about and participate in local cultures, and seek new destinations (Boo, 1990; Inskip, 1991). The benefits of ecotourism include increased foreign exchange receipts, infrastructure development, job creation, new markets for locally produced goods, increased government revenues through fees and taxes paid by visitors, and serves as insurance for the protected areas from being converted to other land use types (Sherman, 1991; Himberg, 2005). Another important aspect of ecotourism is the encouragement of active participation by the local population in the conservation and education dimensions. For effective and sustainable management of protected areas, development must start with the people first, as it is from this basis that the tourism industry will develop, and their involvement will allow them to avoid many undesirable engagement in the environment. At global level, tourism is significantly contributing to sustainable development, alleviating poverty and the management of natural resources.

In the last twenty years India has opened its door to the international tourists and is now fostering tourism largely to gain

an increase in the foreign earnings to help its economy. Garhwal Himalaya presents an example where tourism reached some of the most sensitive ecosystem of the high Himalayan region unprepared and unguarded.

Valley of Flowers (VOF) National Park nearby protects one of the most beautiful mountain wildernesses of the Western Himalayas. Together, the parks preserve a transition zone between the eastern and western Himalayan flora, the Zaskar mountains and the Great Himalayas, long praised in Hindu mythology and for over a century by botanists and mountaineers (UNEP Report). The biological significance of VOF lies in its exquisite floral and faunal biodiversity with myriads of alluring flowers. To rescue the protected areas and to boost economic development, appropriate conservation strategy must be put in place. This paper presents an overview of potential ecotourism resources of the study area and their management criteria for sustainable ecotourism.

## 2. THE STUDY AREA

The Valley of Flowers National Park is located in Chamoli Garhwal, Uttarakhand. It covers an area of 87.50 sq. km. Geographically, it lies at an latitude of 30° 41' - 30° 48' N and longitude of 79° 33' - 79° 46' E) and altitudinally it ranges from 3,200 m asl to 6,675m asl. (Figure 1).

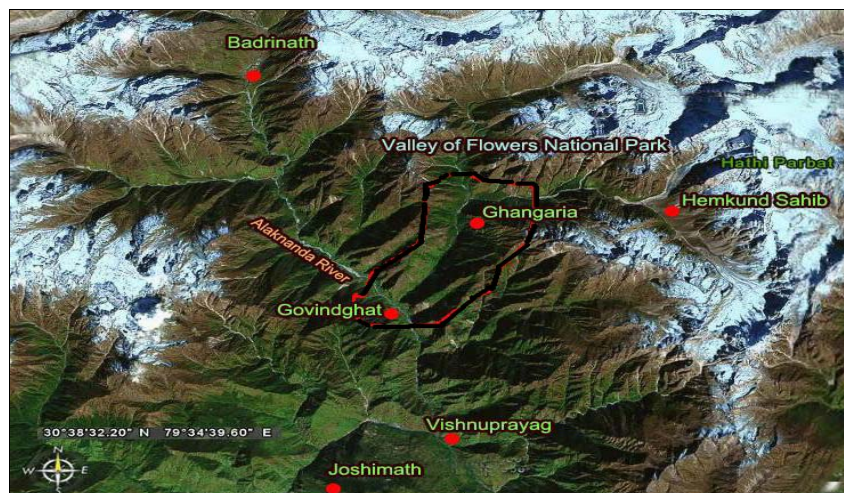


Fig 1. The Study site.

The Valley has a highly heterogeneous landscape, ranging from low lying flat and gentle slopes to steep slopes, unstable

glacial moraines, stream banks, forest meadow edges and snow bound areas. Such a geomorphologic heterogeneity has

resulted in a rich diversity of flowering plants, which attracts a number of botanists and tourists across the world. The valley also has the microclimate of an enclosed inner Himalayan valley, and is shielded from the full impact of the southwest summer monsoon by the Greater Himalaya range to its south. There is often dense fog and rain especially during the late summer monsoon. It is usually snow-bound for six to seven months between late October and late March (Lavkumar, 1979; Lamba, 1987).

### 3. ECOTOURISM RESOURCES

#### *Vegetation (flora) of Valley of Flowers*

The valley has an unusually rich flora of over 600 species with many rarities. It comprises 25% of the vascular plants found in the Chamoli district though the valley is only 1.3% of its area. The Forest Research Institute (1992) recorded 600 species of angiosperms and 30 pteridophytes in the valley and surroundings, discovering 58 new records for the valley. Of these plants, 5 out of 6 species globally threatened are not found in Nanda Devi National Park or elsewhere in Uttaranchal: *Aconitum falconeri*, *A. balfourii*, Himalayan maple *Acer caesium*, the blue Himalayan poppy *Mecanopsis aculeate* and *Saussurea atkinsoni* (Green & Peard, 2005). 31 species are classified as nationally rare. The dominant family is the Asteraceae with 62 species. 45 medicinal plants are used by local villagers and several species, such as *Saussurea obvallata* (Brahmakamal) are collected as religious offerings to Nanda Devi and other deities. Characteristic of the sub-alpine zone (3200m-3500m) are Himalayan maple *Acer caesium*, west Himalayan fir *Abies pindrow*, Himalayan white birch *Betula utilis*, and Rhododendron campanulatum with Himalayan yew *Taxus wallichiana*, *Syringa emodi* and *Sorbus lanata*. Some of the common herbs are *Arisaema jacquemontii*, *Boschniakia himalaica*, *Corydalis cashmeriana*, *Polemonium caeruleum*, *Polygonum polystachyum* (a rampant tall weed), *Impatiens sulcata*, *Geranium wallichianum*, *Helinia elliptica*, *Galium aparine*, *Morina longifolia*, *Inula grandiflora*, *Nomochoris oxypetala*, *Anemone rivularis*, *Pedicularis pectinata*, *P. bicornuta*, *Primula denticulate* and *Trillidium govanianum*. In trampled areas where past livestock congregated,

Himalayan knotweed *Polygonum polystachyum* is a rampant weed.

Lower alpine zone (3500m-3700m) is characterized by Common and singleseed junipers *Juniperus communis* and *J. squamata*, *Rhododendron anthopogon*, *Salix spp.*, *Lonicera myrtillus*, *Cotoneaster microphyllus*, and *Rubus ellipticus* are the major shrub species in this zone. The dominant herbs of this zone are *Potentilla atrosanguinea*, *Geranium wallichianum*, *Fritillaria roylei*, *Impatiens sulcata*, *Polygonum polystachyum*, *Angelica archangelica*, *Selinum vaginatum*. The common grasses of the zone are *Danthonia cachemyriana*, *Calamagrostis emodensis*, *Agrostis pilosula* and *Trisetum spicatum*; the main sedge species are *Kobresia roylei* and *Carex nubigena*.

The higher alpine zone (Above 3700m) is an area of pioneer species characterized by *Rhododendron lepidotum*, *Cassiope fastigiata* and *Juniperus communis*. The zone's dominant species are *Kobresia royleana*, *Trachydium roylei* and *Danthonia cachemyriana*. There are also several colourful herbs like *Saussurea simpsoniana*, *Potentilla argyrophylla*, *Geum elatum*, *Senecio spp.*, *Bistorta affinis*, *Bergenia stracheyi* and the flagship species blue Himalayan poppy *Mecanopsis aculeate*. (UNEP World Conservation Monitoring center 2005). The new records were added to the existing lists of plants viz., *Saussurea att*, *Duthiea bremoides*, *Lycopodium Selago*, *Salix calyculata*. Although the valley constitutes 1.3% of the total geographical area of the Chamoli district, yet it contributes 25% of the total flora. People's perception shows that species diversity is decreased in valley of flowers. However, in the absence of the qualitative data from the past studies it is not possible to infer whether species diversity has decreased or increased after the declaration of the ark and resultant ban on livestock grazing since 1982. Considering the existing pattern of floristic distribution measures should be taken for long term conservation of floral diversity and following points should be considered:

- i. Need for further ecological research on threatened species.
- ii. Identification and restoration of rare plants.
- iii. Tourists should learn some steps for conservation of Valley of flowers.

- iv. According to villagers to some extent grazing should be allowed to reduce polygonium seeds.

#### *Fauna of Valley of Flowers*

Animals found are nationally rare or endangered. 13 species of mammals are recorded for the Park and its vicinity although only 9 species have been sighted directly: common langur *Presbytes entellus*, flying squirrel *Petaurista petaurista*, Himalayan black bear *Selenarctos thibetanus* (VU), red fox *Vulpes vulpes*, Himalayan weasel *Mustela sibirica*, and Himalayan yellow marten *Martes flavigula*, Himalayan musk deer *Moschus chrysogaste*, Indian mouse deer *Moschiola meminna*, Himalayan thar *Hemitragus jemlahicus* (VU) and serow *Capricornis sumatrensis* (VU). The tahr is common, the serow, goral, musk deer and bharal, blue sheep are rare. The common leopard *Panthera pardus* is reported from lower parts of the valley closer to the villages. Local people have also reported evidence of Himalayan brown bear *Ursus arctos* and bharal or blue sheep *Pseudois nayaur*. A recent faunal survey in October 2004 has established the presence of snow leopard *Uncia uncia* (EN) in the National Park. 114 species were seen in 1993 in Nanda Devi Park. Species frequently seen in the valley include lammergeier *Gypaetus barbatus*, Himalayan griffon *Gyps himalayensis*, yellow billed and red billed choughs *Pyrrhocorax graculus* and *P. pyrrhocorax*, koklass pheasant *Pucrasia macrolopha*, the nationally listed monal pheasant *Lophophorus impejanus*, found in rhododendron thickets, scaly-bellied woodpecker *Picus squamatus*, greater yellow naped woodpecker *P. flavinucha*, great barbet *Megalaima virens*, blue throated barbet *M. asiatica*, snow pigeon *Columba leuconota* and spotted dove *Streptopelia chinensis*. The area is relatively poor in reptiles: most often seen are the high altitude lizard *Agama tuberculata*, Himalayan ground skink *Leiolopisma himalayana* and Himalayan pit viper *Gloydius himalayanus*. Along with the flowers are wild bees and many species of butterfly which need to be more researched. A few of the more evident species are lime butterfly *Papilio demoleus demoleus*, common yellow swallowtail *Papilio machaon*, common mormon *Papilio*

*polytes romulus*, spangle *Papilio protenor protenor* and common blue apollo *Parnassius hardwickei*. (UNEP World Conservation Monitoring center 2005).

#### *Valley of Flowers and Cultural Heritage*

According to UNEP World Conservation Monitoring center 2005 about 400,000-500,000 pilgrims visit Hemkund Sahib shrine sacred to Sikhs, and the Hindu temple to Lord Lakshman, (brother of Lord Rama), beside Lake Lokpal every year.

#### *Landscape and Peaks*

The chains of the high mountain peaks are divided into different mountain groups by the mighty rivers of Garhwal. The high peak of Bunderpunch (6302m asl), Kalanag (6387m asl) lie between the tons and Bhagirathi rivers, Matri (6721 m asl), Chirbas (6525m asl), Trimukh Parvat (6422m asl) lie between Jadh ganga and the Bhagirathi rivers. Another cluster of peaks lie between Bhagirathi and Saraswati river. Famous among the peaks are Chaukhamba situated on the west of Badribath temple, Neelkanth (6600 m asl) and the Sameru Parvat (6350m asl).

#### *Glaciers*

There are numerous glaciers in the area. Valleys between 2000m asl and 3000m asl show the glacial feature wherever knot blot out by fluvial action. Some of the glaciers, which need mention at this point, are: Doonagiri Glacier, Tibrabamak Glacier, Satopanth, Bhagirathi-Khark Glacier.

#### *Lakes and Tarns*

Upper Garhwal Himalaya is famous for its tranquil tarns, which are found around 3000m asl. The landslide and heaps of debris, partly blocking the rivers or streams forms most of these tarns, though some are fed by the underground sources. Unfortunately, some of the lakes have dried due to improper management practices like Ghona Lake in Chamoli district is the latest example of such happening. Some of the Tals of the area are: Hemkund Lokpal, Satopanth, Vasundhara fall, Deotal, Roopkund, Vednikund.

## 4. CONSERVATION VALUE

The valley is well known for its endangered and rar species of flora and fauna. The whole area lies within a conservation

International-designated conservation Hotspot, in a WWF Global 200 Eco-region, is in a WWF/IUCN Center of plant diversity and in one of the worlds Endemic Bird areas. It is also a UNECO Biosphere Reserve.

## 5. MANAGEMENT PRACTICES FOR SUSTAINABLE ECOTOURISM

*Following objectives should be undertaken for managing the existing natural resources and for sustainable ecotourism:*

- Protection, in-situ and ex-situ conservation and monitoring of flora and fauna.
- Emphasis on high quality research.
- Management of habitats of the park for endangered flora and fauna.
- Educating local people about the biodiversity conservation.
- The status of rare and endangered flora.

### *Constraints for management*

*The main management issues are:*

- Control of invasive knotweed within the valley. Its eradication and regular monitoring is expected to be a major expense (Srivastava, 1999).
- Solid waste is another important issue for management. The litter piles up by tones generated by thousands of tourists that visit the shrines; 300,000 plastic bottles a year and 5-600 kg of human and mule dung per day. The local people have now combined to clean this.
- A past threat to the forest surrounding the pilgrim route was the destruction of tress for firewood but now this is forbidden
- There is threat from local poachers, especially to snow leopard, when they come down to valley in winters.

## 6. CONCLUSION

Valley of Flowers is known for its pristine beauty. Today, tourism has emerged in form of industry for generating revenue. The number of tourists visiting Valley is increasing every season. Ecotourism in VOF depend on all the above mentioned natural resources. Management of these resources has become one of the important issues and every step considered important should be taken as soon as possible. On the other hand, educating local people has its own importance for sustainable ecotourism.

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## نظری بر منابع بالقوه اکوتوریستی و جنبه های آن در دره گل‌های پارک ملی، Uttaranchal، هندوستان

ج. ب. ج. پناجی، ک. تیواری، ج. ب. ج. ششی، ک. تیواری، س. س. تیواری

### چکیده:

مناطق محافظت شده مکان های توریستی عمده برای یک ملت به ویژه برای کشورهای در حال توسعه هستند که سود قابل توجهی را برای جوامع محلی فراهم می‌آورد تا خود برای نگهداری و نوسازی مناطق محافظت شده سرمایه گذاری کنند. دره گل های پارک ملی بطور طبیعی با هدف حفاظت و مطالعه فلور کوه های غربی هیمالیا دیده می شود. در سال ۱۹۸۲ به عنوان پارک ملی شناخته شد و بعد از آن چریدن چهارپایان متوقف شد و محدودیت ها نزدیک مناطق روستایی اعمال شد. دره دارای یک فلور گیاهی فوق العاده غنی بیش از ۶۰۰ گونه رشد یافته در منطقه ای با وسعت کمتر از ۲۵۰۰ هکتار با بسیاری از گونه های نادر است. حیواناتی در آنجا یافت می شوند که از لحاظ ملی نادر هستند و یا در معرض خطرند. همچنین زیستگاه خرس سیاه آسیایی و خرس قهوه ای در معرض خطر، آهوی هیمالیایی و یوزپلنگ برفی و گوسفند آبی کمیاب می باشد. یوزپلنگ معمولی از بخش های کم ارتفاع دره نزدیک به روستا گزارش شده است. همچنین افراد بومی شواهدی را مبنی بر وجود خرس قهوه ای هیمالیایی گزارش کرده اند. فاکتورهای دیگری که در صنعت اکوتوریسم دخالت دارد چشم اندازهای زیبا، قله ها، دریاچه ها و دریاچه های کوهستانی و غیره می باشند. به دلیل سیل عظیم توریست و شیوه های مدیریتی نادرست مشکل ضایعات جامد با نرخ وحشتناکی در حال افزایش است. این مقاله نگاهی بر منابع فعلی اکوتوریسم در منطقه و چشم اندازهای آینده آنها برای یک اکوتوریسم پایدار دارد.