Orchid Restoration through peoples' involvement in Gori Valley of Western Himalaya in India

Project Report

Submitted to Rufford Small Grants Foundation, UK

By

Dr. Jeewan Singh Jalal

May, 2008

Acknowledgments

I am extremely grateful to the Rufford Small Grants Foundation of the U.K. for having faith in my capabilities and for their generous financial support which has helped me fulfil my conservation goals for the second time. Next on my thank you list are Dr. G.S.Rawat, Dr. Y.P.S.Pangtey, Dr. S.S.Samant, Dr. B.S.Adikhari and Dr. U.C. Pradhan for their selfless support and academic help. I will always remember my wife Neha's unconditional encouragement during the entire project period. Last but not the least; I am indebted to all the participants, especially the kind-hearted local villagers for their involvement, understanding nature and their willingness to make this conservation program a success with a meaningful outcome.

Summary

Gori valley is a land that is entwined with the cream of nature in its unadulterated form. Orchids of this valley have a story of their own to tell as they drown you in their visual solution of beauty and simplicity. Hence, this project was aimed at restoration of epiphytic orchids in Gori valley of the western Himalayas in India with the help of multi-spectral group of communities living in and around this beautiful haven. The main focus of this project was to rehabilitate epiphytic orchids in the suitable habitat of Gori valley through *in-situ* and *ex-situ* approach. Capacity building and empowerment of the community will not only help the long lasting and sustainable utilization of the orchids of Gori valley but will also deeply carve the need for conservation of every rare plant and animal in the minds of the people . As a follow up of the conservation programme, local communities were glad to participate in the *in-situ* restoration of orchids in their localities and soon became extremely involved in this project. It was like breathing a fresh breath of life to see a total of 44 species being maintained in live condition in the two orchid rehabilitation centres and about 858 individuals that were relocated in the valley in the suitable host and habit in the striking vicinity opened a positive conservation window. This noble scheme was supplemented with a series of informative workshops. While half the people were already smitten by the idea and the work, the rest were shown the true picture through enlightening talks. The popularity of these talks can be judged by the fact that conservation and preservation have now become hobbies for these beatific people who have realised that conservation is like giving birth and the conservationist is like a holistic doctor who preserves the purity of souls.

Background

The word ‘orchid’ to the mind of an ordinary human being would bring back an aesthetic picture of a flower that symbolises rare beauty and mysterious royalty. Not many people bother to know its importance in nature let alone its biography. But things aren’t as simple as they seem. This angelic family has a lot of unexpected details hidden in its botanical closets.

Orchids are the member of the family Orchidaceae which is one of the largest families of flowering plants in the world. Its estimates range from 17000 to 35000 species. Orchids are a major group of epiphytes with about 73 percent of the species enjoying the epiphytic status. They are very widely distributed but the largest diversity occurs in the tropics. Orchids are an integral part of the forest ecosystem but unfortunately the significance of their conservation has not yet caught the conscious eye of the user groups. Orchids are not only a slow growing species in nature but they also take long time to establish better colonies for their survival in a host. Sometimes, a mature colony of orchid takes 40 to 60 years to fully establish. Gori valley is considered as one of the orchid hotspots of the Western Himalayas of India. At the same time, the landscape of Gori valley is subjected to human induced as well as natural calamity pressure of tremendous intensity.

The concept of restoration of epiphytic orchids in the Gori valley was conceived during our earlier community initiative for orchid conservation - a project supported by Rufford Small Grant Programme in this area. We have come across large number of epiphytic orchid species detached and fallen from the host trees. A number of dead host trees fully loaded with epiphytic orchids can fall any time which will lead to the loss of these precious orchids. The community living in this area use these host species for their fuel wood. They get rid of the orchid species attached to the dead log without realizing their importance. There are threats to orchids through lopping of the host species which mostly occurs to meet the needs of construction timber. Due to these activities, a number of epiphytic orchid species are facing greater and unexpected threats day by day. Hence, understanding the gravity of the situation, it is an urgent and timely need to collect these orchids and rehabilitate them in a suitable habitat within the valley.

Looking at the kind of degradation and destruction that such orchid colonies face, a strong approach is required not only for the restoration but also for long term benefit of Mother Nature. Therefore, this project aims at the conservation of orchids and their host trees

through empowerment of the local community. This can be achieved as soon as they take responsibility for proper management of their natural resources for a long and sustainable utilization which I must say has begun on the right note. The outcome of this project will support the declaration of Gori valley as a Community Reserve by the federal as well as union Government of India in the near future thus benefiting both the community and orchids. In the long run, the local community will also acquire benefits from many avenues such as the restoration and the rehabilitation programme which will mean starting tourism based orchid preservation units and rare live orchid gardens, generate better revenue through innovative programmes using orchid as the resource etc. These will contribute to better standard of living, improved education and transport facilities, exposure to the outside world etc.

Objectives:

- Construction of orchid rehabilitation centres at suitable sites.
- Technical training programme for community target group *viz*. Volunteers, students etc.
- Community involvement in orchid restoration and rehabilitation programmes.
- Awareness amongst local community for orchids conservation, restoration and rehabilitation techniques through capacity building workshop and educational programmes

Project site:

Gori Valley is located in the northern part of Pithoragarh District of state Uttarakhand (29° 5'-30° 10'N latitudes and 79° 45'- 81°5'E longitudes). The total catchment's area is 2230 sq. km. (Fig. 1). Wide altitudinal gradient, habitat diversity and close affinity with Eastern Himalaya make Gori valley an important orchid hotspot in the Western Himalayas. Much of the Gori valley lies in the sub-tropical belt. It has a rich and moist riverine forest which is essential for the growth of orchids. This valley supports as many as 121 species of orchids out of 239 species reported from Western Himalayas which means than more than 50%

orchids of Western Himalayas are distributed in the Gori valley itself. Hence the title of orchid hotspot in the Western Himalayas has been conferred upon this natural retreat. Maximum epiphytic orchids are mainly concentrated in the lower part of the valley which happens to be around the human settlement areas. The epiphytic orchids are mainly distributed between Jauljibi and Madkote. However, in this stretch some localities are very rich e.g., Lumti, Ghosigad and Baram. These epiphytic orchids are generally seen on the host species such as *Toona ciliata*, *Engelhadrtia spicata*, *Quercus leucotrichophora* and *Mangifera indica.* Amazingly enough, few sites show a unique beauty of 27 species of epiphytic orchids on a single host tree.

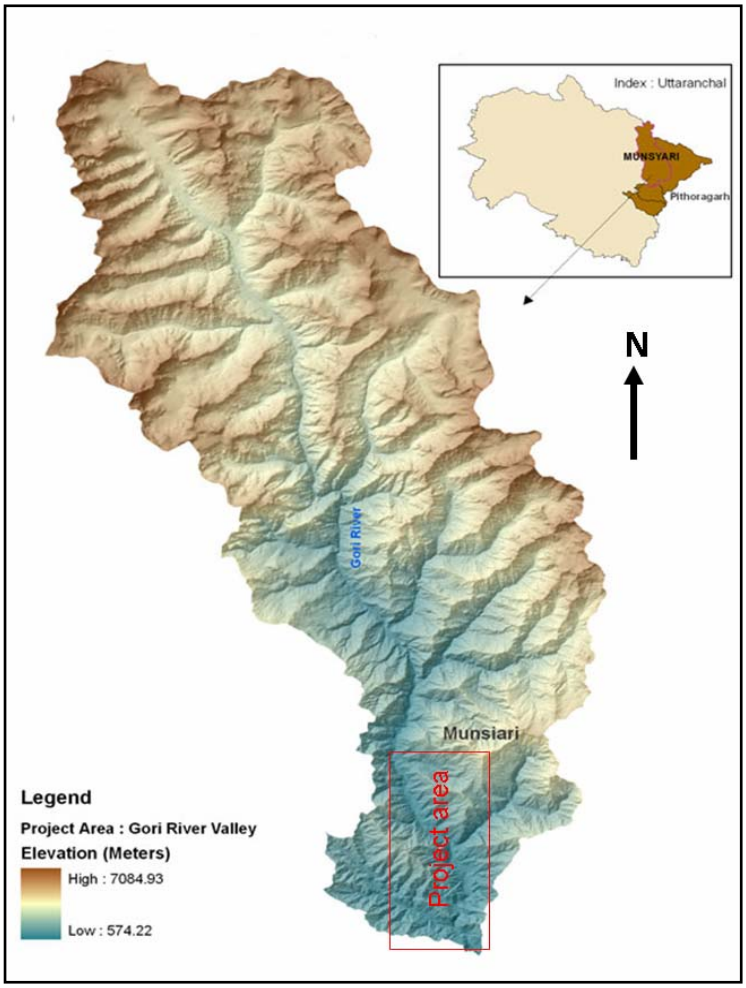

Figure 1. Location map of project site

Work timescale:

The project had the duration of one year. The date of the initiation of the project was April 1st 2007 and grant received on 11th May 2007. During the first two months time, a reconnaissance visit made to the selected sites in Gori valley on the recommendation of the phase one project on this area. Suitable locations were identified for construction of orchid rehabilitation centres. One site was selected in the village Bangapani and other in Lumti village. A series of workshop and technical training was conducted during the following four month time period. Remaining months were enveloped in a confluence of productive actions such as obtaining results from all the restoration and rehabilitation units, comprehension of

practical observations, analysis of the inferences and summarizing the final report for the funding agency.

Project activities:

To achieve the project's broad goal, the following activities were implemented:

Orchid rehabilitation centres:

Orchid Rehabilitation Centre

Two localities were selected for making orchid rehabilitation centres - one in the village of Bangapani and other in the village of Lumti. Both the orchid rehabilitation centres were made using fallen logs covered with recyclable plastic sheets and jute bags. A small water sink was constructed inside the centre so that right humidity level can be maintained. These centres or popularly called as ORC houses were used to keep the entire detached epiphytic orchid. The Local community and the volunteers used these orchid rehabilitation centres as an orchid rescue centre. Two assistants were specifically trained for handling these orchids and were appointed in the restoration house so as to maintain these live specimens. A total of 44 species were maintained in live condition in the two orchid rehabilitation centres and about 858 individuals were relocated in the valley in the suitable host and habit in the vicinity (Table 1). The restoration house was also used to conduct community training programs such as plant identification workshops for locals where they were taught to recognise and identify what plants they were exactly dealing with. Several keen and enthusiastic persons visited these orchid rehabilitation centres and our O.R.C. houses were also successful in attracting some tourists passing by. Many of them managed to bring some more fallen and detached orchids for special care at the orchid

rehabilitation centres. Names of these volunteers, contributors and also most importantly the stars of attraction – the orchids have been entered in a register at the centre which came in handy during the conservation campaigns conducted later on. It was nice to know that the local people were quite receptive about the simple conservation work and awareness seemed to be on the rise day by day.

Technical training program:

As expected, this was the most significant part of this project. We selected a team of 20 villagers and educated volunteers. Most of these volunteers were already involved in our earlier project. They belong to different age groups. Special capacity building workshops were conducted for these volunteers. This group which later on went on to be called TCV (Team of Conservation Volunteers) studied the following points during training programs: Identification of orchids, Identification of host trees, Visit to orchid rich localities and Restoration and rehabilitation training. With the help of these trained volunteers a conservation campaign was successfully carried out in different villages.

Delivering talk to the villagers and school children during a workshop

Activities for school children:

A total four schools were involved in the conservation project. These include two primary schools and two middle level schools. On the World Environment day we delivered simple and informative interactive talks to these respectful school children. Posters on orchids were

Head of the school is delivering conservation talk to the students

displayed. Some art competitions were organized for the students of these schools. While the 10 meritorious students were awarded, others were facilitated for their participation. During this exercise a total 110 children and 9 teachers involved. Some paintings that had environment conservation as their core subject were like eye-openers as they represented the view the environmentally constructive rural population in comparison with the urban 'I don't give a damn about nature' population.

Recommendations:

- Every alternate year this type of orchid conservation awareness should be organised in this valley so that the upcoming young generation should be made aware and educated about the importance of their forest ecosystem.

- Urgent need of plantation of suitable orchid host tree species and protection of the naturally growing saplings of these host species.

- State government should develop this valley for eco-tourism so that the local stake holders can earn some kind of revenue.

- The locals can be helped to propagate some viable species and market them appropriately in order to bridge their monetary gaps with the help of the aesthetic and other values of these beautiful orchids.

Conclusion:

Thanks to the superficial awareness about global warming, people have become conscious about plant and animal conservation. But most of us have our own definition of conservation and usually this includes either biological entities that we are familiar with and know their medicinal, culinary or aesthetic value or the ones we have been asked to blindly conserve by some biologically wise human. But unless people really understand our connection with the functioning of the massive environmental extinction drain and all the natural wealth that it flushes away every year, no common man will be ready to spare his time let alone his money to even think about conserving plants that he has never heard about.

As a child who has grown up in the Himalayan Mountains, I have always seen the educated people around me tell the not so lucky crowd how even saving a so-called useless plant can help save the world someday. While it always seemed so farfetched, now I know it is true. Saving an orchid or any plant or animal for that matter to me feels like I just paid back an important debt. Neither are the Himalayas out of the tourism arena of the common man anymore nor are the rare orchids out of the ‘forever searching for something new’ public eye. Hence, the need to make sure that my future generations have the pleasure of meeting their future generations. While the medicinal plants have been returned their crowns of glory once again, the orchids of the Himalayas are still waiting for their turn – some to decorate your home, some to be a part of your garden, some to become tourism attractions, some to be used in daily life and the rest to be left alone to enjoy a quite existence in the mountains in order to preserve some rare genetic essences of a botanical group that in the dark future may be called the old Himalayan flora.

Orchids which are already considered the key stone species can be referred to as ecological smiles as their presence indicates a healthy ecosystem and a rich green family around us. In our journey to save this florid wealth, we had the pleasure of saving many other plants and animals as well as learn about them in detail. This mission therefore feels extremely divine as it not only fulfils the task to save endangered plants but also ends up being a saving grace for all those poor Himalayan people who see a vision of a better future as they climb aboard our mission wagon.

Table 1: List of orchid species which are relocated in the different sites

S.N.	Species	Number of individual relocated	Relocation sites
1	*Acampe rigida*	25	Vasabgad
2	*Aerides multiflora*	65	Baram, Lumti, Bangapani, Sera
3	*Aerides odorata*	21	Baram, Lumti, Vasabgad
4	*Bulbophyllum affine*	35	Baram, Lumti, Chami
5	*Bulbophyllum careyanum*	31	Baram, Lumti
6	*Bulbophyllum cariniflorum*	21	Baram, Lumti
7	*Bulbophyllum polyrhizum*	5	Above Lumti
8	*Bulbophyllum reptans*	60	Above Lumti
9	*Bulbophyllum secundum*	8	Vasabgad
10	*Bulbophyllum triste*	75	Baram to Bansbager
11	*Bulbophyllum umbellatum*	18	Baram, Lumti
12	*Coelogyne cristata*	45	Baram, Lumti, Chami, Tallamori
13	*Coelogyne ovalis*	31	Baram, Lumti, Chami
14	*Coelogyne stricta*	19	Mallamori, Lumti
15	*Cymbidium aloifolium*	15	Gargia tham, Basoda, Chifaltara
16	*Cymbidium iridoides*	9	Gargia tham, Basoda, Chifaltara
17	*Dendrobium amoenum*	15	Khartoli
18	*Dendrobium bicameratum*	8	Khartoli, Lumti
19	*Dendrobium monticola*	24	Khartoli, Bangapani
20	*Dendrobium primulinum*	4	Choribager
21	*Eria pubescens*	60	Gargia, Baram, Bansbager
22	*Eria spicata*	10	Lumti
23	*Flickingera hesperis*	4	Sera, Mallamori
24	*Gastrochilus acutifolius*	3	Tallamori
25	*Gastrochilus inconspicum*	5	Bangapani
26	*Kingidium taenialis*	12	On the way to Khartoli
27	*Liparis caespitosa*	10	Khartoli
28	*Liparis viridifolia*	2	Khartoli
29	*Luisia zelyanica*	6	Baram to Bangapani
30	*Oberonia ensiformis*	8	Khartoli
31	*Oberonia falconeri*	5	Bangapani
32	*Oberonia myosurus*	4	Mawani Dwani
33	*Oberonia pachyrachis*	11	Bangapani to Lumti
34	*Oberonia prainiana*	7	Lumti
35	*Oberonia pyrulifera*	3	Lumti
36	*Ornithochilus difformis*	2	Bangapani
37	*Pholidata articulata*	55	Madkot, Sera, Bangapani
38	*Pholidota imbricata*	43	Lumti to Seraghat
39	*Pteroceras suveolens*	10	Lumti
40	*Rhynchostylis retusa*	7	Baram, Bangapani, Lumti
41	*Smithandia micrantha*	19	Baram to Bangapani
42	*Thunia alba*	32	Baram to Lumti
43	*Vanda testacea*	4	Garjia
44	*Vanda cristata*	2	Near Bangapani
	Total	**858**	