

Sikkim silver brake fern at risk

The limestone silver brake fern, *Pteris subquinata* Wall. ex J. Agardh is distributed in the Kumaon region in the Himalaya and in China¹. In Sikkim, in addition to the above-mentioned normal plant, a unique silver-streaked or centrally variegated form of this species is also found¹⁻³. Based on the collections of H. C. Levinge from Lachen Valley, the detailed distinguishing features between the normal plant and the variegated form have been highlighted by Beddome. He also postulated that this variegated Sikkim plant '... would be a very pretty plant for cultivation'². The variegated form has not been introduced in horticulture so far and hence there are no data available on its cultivation. Generally, *P. subquinata* grows in the valley at lower to mid altitudes (600–1500 m) as a lithophyte on limestone rocks in the Himalaya. Levinge has perhaps mentioned the locality of this plant as Lachen Valley in a broader sense, because of the higher altitude and the cold climatic conditions of Lachen village (2800 m) are not conducive for the growth of this limestone fern. Previously, this variegated form was found growing at Chungthang, the deepest point of Lachen Valley³. During an exploration survey in November 2008, it was found growing abundantly below Chungthang, 2 km from Pegong to



Toong in the Teesta River Valley¹. Owing to its beauty and horticultural potential, we cultivated this fern in the experimental garden of Botanical Survey of India (BSI), Gangtok in November 2008. However, the plant did not survive because of off-season cultivation or difficulties in cultivation of limestone ferns⁴. Due to resemblance of this variegated plant with the common Indian silver brake, *Pteris argyraea*, its horticultural potential was highlighted, and a new horticultural name, 'Sikkim silver brake fern' was proposed. The local people and nurserymen were encouraged to cultivate the fern¹.

Keeping these facts in view, the present author attempted *ex situ* conservation of this rare fern in the BSI experimental garden at Gangtok, during the rainy season, where the chances of survival are maximum. For this, in first week of August 2010, the area was again surveyed. After a thorough search from Toong to Chungthang and further up both in Lachen-chu Valley up to the forest hi-tech nursery before Bansoi and Lachung-chu Valley up to the suspension bridge on Lachung River about 3 km from Chungthang, the plant was not found growing in this peak monsoon season.

The major cause of depletion of this rare plant is due to habitat destruction. At present, there is construction work going on in the area for widening the road between Toong and Chungthang and also of a dam and hydroelectric power project at Chungthang, where the habitat of this plant falls. Moreover, due to excavatory work by heavy machines and use of dynamite, the area is prone to landslides which also threaten the survival of many plants, including this fern in the wild.

Based on these observations, it is clear that this variegated fern is under threat of extinction due to habitat destruction for developmental works. Furthermore, there is no report on the occurrence of this fern elsewhere. Nevertheless, the present author is hopeful that after a thorough search, few populations of this form may occur in some of the inaccessible rocky areas in the Teesta Valley, Sikkim or similar habitats in Arunachal Pradesh, Meghalaya, Manipur and adjacent Bhu-

tan Himalaya. Thus, there is an urgent need for a thorough search in hitherto unknown localities both inside and outside Sikkim, to know the status and formulate conservation strategies for this unique and horticulturally important fern. The plant should be conserved under both *ex situ* (introducing in botanic gardens and in horticulture trade) and *in situ* conditions by implementing species restoration and recovery programmes.

On the other hand, it is a well-known fact that lower-group plants are not given much importance during the environmental impact assessment (EIA) studies of mega hydroelectrical power projects. Even at the time of documentation of biodiversity of such project sites, these lower groups of plants are overlooked. Hence, many rare plants like this fern are driven towards extinction during the implementation of megaprojects. However, these hydroelectric power project sites are most conducive for pteridophytes and bryophytes, which form part and parcel of the ecosystem and biodiversity. Therefore, the concerned agencies during EIA studies of mega projects should give importance to lower group of plants also.

1. Kholia, B. S., *Ferns and Fern-Allies of Sikkim, A Pictorial Handbook Part-I*, Sikkim State Biodiversity Board and Botanical Survey of India, Gangtok, 2010.
2. Beddome, R. H., *Handbook to the Ferns of British India, Ceylon and the Malay Peninsula with Supplement, 1883–1892*, reprinted by Today and Tomorrow Printers and Publishers, New Delhi, 1969.
3. Fraser-Jenkins, C. R., *New Species Syndrome in Indian Pteridology and Ferns of Nepal*, International Book Distributors, Dehra Dun, 1997.
4. Fraser-Jenkins, C. R., *Taxonomic Revision of the Three Hundred Indian Subcontinental Pteridophytes with Revised Census List*, Bishen Singh Mahendra Pal Singh, Dehra Dun, 2008.

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