Himalayan tract from East to West between the altitudinal range of about 550–1000 m. Its present record from Uttarakhand suggests its once continuous distribution across the Himalayan foothills. Singh[20] considered the major earthquakes, that rocked Assam towards the close of the nineteenth and mid-twentieth century, as the possible cause for its total annihilation from the state. Depletion from other localities was assigned to biotic factors, like developmental activities and destruction of habitat[20]. The entire range of its distribution from Assam in the east to HP in the west, including the Imphal Valley in Manipur, is under considerable anthropogenic pressure, be it for destruction of habitat for developmental activities or expansion of agriculture. In addition, the 'hide and seek' of the species in Indian bryoflora can also be ascribed to the lack of awareness and intensive bryological explorations in the country. The chronology of its collections in India reveals a progressively narrowing gap between two encounters, which is directly related to intensification of bryological activities in recent years.

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Ex situ conservation of *Alectra chitrakutensis* (Rau) R. Prasad & R.D. Dixit

Alectra chitrakutensis (Rau) R. Prasad & R.D. Dixit (Scrophulariaceae) is a root parasite on white-flowered *Vitex negundo* L. (Verbenaceae). It is an endemic and critically endangered plant locally known as 'Nirgundi' found in confined localities of Chitrakoot region, Madhya Pradesh, and also in Uttar Pradesh, India.

The species grows as a parasite on the thread-like roots of white-flowered *V. negundo* L. It is a small parasitic herb of 15–30 cm height, stem rhizomatous, well developed, orange–yellow, black on drying; leaves linear or oblong, up to 6 mm long, obtuse at apex; flowers in terminal racemes, yellow with purple streaks; capsules globose, ca. 5 mm across; seeds minute, cuneiform, black. Plants grow from October to April mainly on sandy soils.

Chitrakoot is a holy town of pilgrimage for the Hindus. It is situated at the border of Satna District, Madhya Pradesh and Chitrakoot District, Uttar Pradesh. According to the epic *Ramayana* Lord Rama, Sita and Lakshmana had stayed in this region on Kamadgiri hill during their 14 years of exile. This region is rich in medicinal plants since antiquity, as mentioned in the most ancient epic, *Valmiki Ramayana*.

The genus *Alectra* Thunb., family Scrophulariaceae is represented by more than 50 species of parasitic herbs which are distributed in tropical regions of Africa, South America and Asia. Three species are so far known from India, viz. *Alectra sessiliflora* (Vahl) Kuntze, *A. thompsoni* Hook. *f.* and *A. chitrakutensis* (Rau) R. Prasad & R.D. Dixit.

A. chitrakutensis (Rau) R. Prasad & R. D. Dixit, was first described by Rau[1] in 1961 from Chitrakoot as a variety of *A. parasitica* A. Rich. Prasad and Dixit[2] carried out a detailed taxonomic study and raised the status of the plant from varietal to species level.

The plant came to light after Prasad[3] obtained encouraging results in preliminary clinical trials of the rhizome in the treatment of leprosy. Rajgopalan and Seshadri[4] worked out its chemical composition. Bedi[5] published detailed information on its availability, collection and local uses. Saxena *et al.*[6] studied the soil properties of the habitat of the plant.

Ethnobotanically the species is used for treatment of leprosy, constipation, malaria, oedemic swelling, piles, paralysis and as a tonic, anthelmintic and blood

Figure 1. *Alectra chitrakutensis* growing on *Vitex negundo* in herbal garden.

purifier[7]. The species is fast vanishing from its natural habitat due to over-exploitation of the rhizomes[8]. The local people collect the entire plants in bulk quantity from natural habitat and sell them to the local traders @ Rs 150/kg, which is ultimately sold to traders @ Rs 1500/kg in trade markets. Added to this, the host plant, *V. negundo* L. ('Medhaki' in Chitrakoot region) is also being exploited by the indigenous people and its population has also declined from the natural habitats.

A. chitrakutensis is a total root parasite and therefore, it is difficult to grow the plant using *ex situ* methods. However, to conserve *A. chitrakutensis* in herbal gardens, the roots of *V. negundo* with a few minute seedlings of *A. chitrakutensis* attached, were collected from natural habitat and planted in herbal garden. Within 20 days *A. chitrakutensis* started growing simultaneously with the sprouting of *V. negundo* plants. In the first year (2004) few plants of *A. chitrakutensis* were observed. However, in subsequent years (2005 and 2006) the number of plants increased (20–80 per plant) on all *V. negundo* plants. Thus, this critically endangered and endemic plant has been saved using *ex situ* methods (Figure 1).

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Arenaria curvifolia Majumdar (Caryophyllaceae): An endangered and endemic Himalayan herb rediscovered

It is estimated that about 17,000–17,500 flowering plants grow within the Indian territory[1–4]. Nearly half of this floristic diversity is contributed by the Himalaya alone sustaining about 8000 species[5,6], including more than 40% endemic elements mainly concentrated in the eastern and northwestern Himalaya[7].

The alpine zone of Garhwal Himalaya forming a part of western Himalaya, is comparatively poorer in endemic elements; most of the known endemic elements are newly described species[8]. *Arenaria curvifolia* Majumdar, family Caryophyllaceae, is one of the endemic species of the alpine zone of Garhwal Himalaya recorded from a small area in the central part of Chamoli District. The species was described[9] in 1980 on the basis of three old specimens collected by J. F. Duthie in 1885, housed at the Herbarium of Forest Research Institute (FRI), Dehradun (nos 3863, 3863a and 3858). Since the type collection in 1885 by Duthie, the species has not been collected from anywhere in the Himalaya[10], including Chamoli District[11] and type locality[12]. On account of its narrow geographical range (<100 sq. km) and herbarium history, it had been categorized as 'Endangered' in Indian *Red Data Book*[13]. The species is considered among the three most threatened alpine species of Garhwal[14] and falls under the '7th cell' (restricted geographical range, narrow ecological amplitude and low anthropogenic pressure) in the eight-celled matrix for prioritization of endemics in the Himalaya suggested by Dhar[15].

We have been trying to locate its populations for the last 15 years in and around its type locality, which ultimately culminated in the discovery of its population on 15 August 2006 after 121 years of its type collection from an alpine slope near Kuari Pass at an altitude of 3400–3600 m asl (Figures 1–3). Few individuals at three locations were recorded. On account of its endangered status only few