



## A Note on Population Status of *Incarvillea emodi* (Royle ex Lindl.) Chatterjee - A Threatened Plant Species

Anup Chandra, Praveen Kumar Verma and Anil Kumar Kewat  
Systematic Botany Discipline, Botany Division,  
Forest Research Institute, Dehradun-248 006, (Uttarakhand), INDIA.

(Corresponding author: Anup Chandra)

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**ABSTRACT:** Study was carried out to assess the population status of threatened species *Incarvillea emodi* (Royle ex Lindl.) Chatterjee in the Tehri Garhwal areas of Uttarakhand. Line transect method was used to assess the population. It is revealed from the study that population of threatened species is quite low. Only 5 individuals were recorded from the site. Loss of habitat due to different anthropological pressure may be cause of decline of population of the species. Hence, it is imperative to adopt suitable measures for conservation of the species.

**Key Words:** Threatened, density, population status

### INTRODUCTION

*Incarvillea* genus with 16 species of flowering plants belongs to family Bignoniaceae. It is native to central and eastern Asia. Amongst these species, two (*Incarvillea forrestii* and *Incarvillea altissima*) probably have been extinct (Chen *et al.*, 2005). Most of these species grows at high altitudes in the Himalaya and Tibet. *Incarvillea emodi* (Royle ex Lindl.) Chatterjee is a wild herbaceous plant found mainly at high altitudes of the western Himalayas. Species is distributed in India, Afghanistan, Nepal and Pakistan (Verma *et al.*, 2008). Its vertical distribution ranges from 600-2700 m (Ihtesham *et al.* 2016). It is locally known as Kaud, Bhoot Kansi, Kadu, Lahsu, Karoliya (Srivastava *et al.*, 2016). It prefers to grow in rock crevices. Species is sparsely found due to erosion of its natural habitat. Species is listed as rare of Himalayan region (Goel and Bhattacharaya, 1983; Singh and Sharma, 2006).

### TAXONOMIC DESCRIPTION

Perennial, glabrous or pubescent herbs. Rootstock short, leafy. Leaves imparipinnate; leaflets opposite or sub-opposite, 8-9, ovate-oblong, 10-32 × 7-22 mm, undersurface glandular, punctate. Racemes terminal, 4-12 flowered, pendent. Scape fairly stout. Bract lanceolate, 4-9 mm long; bracteoles smaller and

narrower, glabrous. Pedicels 5-22 mm long. Calyx truncate or 5-fid, campanulate, 4.5-6 mm long, 5-ribbed, persistent. Corolla rosy-pink with a yellow throat, deciduous; tube 3-3.5 cm long, abruptly dilated towards base; lobes 5, spreading; obtuse. Stamens 4, with a fifth staminode; filaments arched, of longer stamens c. 20 mm long; anther lobes oblong, c. 2.5 mm long, spreading, villous, connective produced into an obtuse short appendage. Ovary broad-linear, 5-6 mm long; style filiform, 24-26 mm long; stigma patelliform, 2-2.5mm long. Capsule broad-linear, 12-18(-20) × 0.4-0.45 cm. Seeds many, linear-oblong, 2-2.5 mm long, produced and fibrillate at both ends horizontally, rugose-papillate.

### MATERIALS AND METHODS

The survey for estimation of density of species was conducted during first week of March 2017 at Byasi and adjoining area, Tehri Garhwal, Uttarakhand, India (Lat: 30° 4 9.56" N and Lon: 78° 28 15.36" E, Alt: 494 m). Line transect sampling method (Buckland *et al.*, 2001) was used for estimating the population status of the species. Width of the belt was kept 20 m. (10 m. either side of the road). The total length of the belt was 10 km. All the individuals coming across in the area were enumerated.

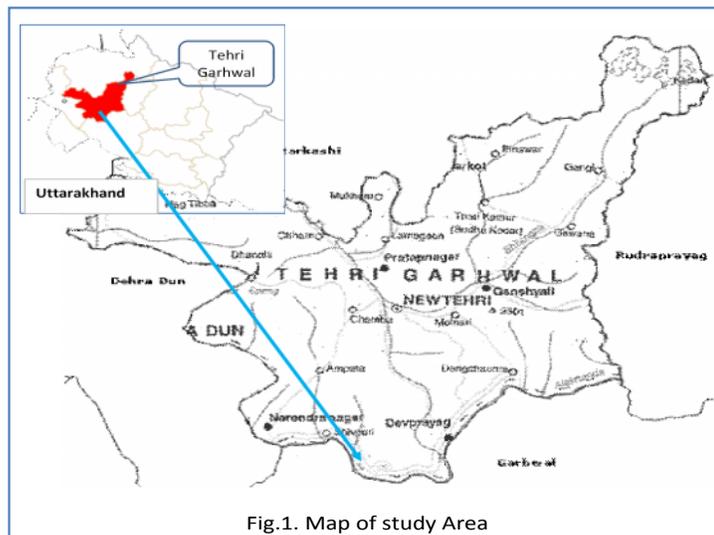


Fig.1. Map of study Area

**RESULTS AND DISCUSSION**

The population status of *Incarvillea emodi* around Byasi and adjoining area is presented in Table 1. The population of the species was very scanty.

Only 3 individuals were encountered during survey from the area. Per hectare density ( $P\ ha^{-1}$ ) was estimated to be 0.15.

**Table 1: Population status of *Incarvillea emodi* (Royle ex Lindl.) Chatterjee ( $P\ ha^{-1}$ ) near Byasi and adjoining areas.**

Belt width (m)	Belt length (km)	Total no. of individuals	Plants $ha^{-1}$
20	10	5	0.25





**Fig. 2.** *Incarvillea emodi* in its natural landscape.

Verma *et al.* (2008) reported a population of 35 plants on rocky terrain with steep mountain in Nandani, Jammu. Qureshi *et al.* (2008) observed decreasing population of species in Abbottabad, Northern Pakistan. Shanmugun *et al.* (2011) reported an attack of *Alternaria* sp. causing blight on *Incarvillea emodi*. In the present study reveals that population of *Incarvillea emodi* was very less and scattered. Massive attack in future of *Alternaria* blight may further reduce population of the species. Therefore, it is essential to take suitable conservation measures to save the species from extinction in near future. This can be achieved through conducting mass awareness program to the local villagers, researchers, students etc. Development of appropriate micro-propagation techniques is also required urgently for multiplication and conservation of species.

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