

Reintroduction of *Hubbardia heptaneuron* Bor, a critically endangered endemic grass in Western Ghats

Hubbardia Bor, a monospecific, critically endangered and endemic genus on the verge of extinction has been reintroduced and successfully restored in its natural home, the Western Ghats.

Hubbardia heptaneuron was considered to be endemic in Karnataka, restricted to Jog Falls, a famous waterfall

in Shimoga District. The species was declared to be possibly extinct because it was not recollected even from its type locality for over eight decades after intensive search by botanists. This unique grass species was then collected from Tillari Ghat (15°48'83"N and 73°10'42"E), a location other than the type locality in

Kolhapur District, Maharashtra. Initially the grass was located in the ghat region along the roadside on about 1 m² wet rock, in a shady place at about 500 m altitude. Intensive search during consequent years in other ghats as well as the type locality failed to locate the grass species. However, it was found growing in some other locations in the Tillari region. Taking into account the rarity of the species, a research programme supported by Department of Biotechnology (DBT), New Delhi was initiated in 2006 on the restoration of the species in collaboration with Shivaji University, Kolhapur; ATREE, Bangalore, and Forest Department, Pune.

Critical observations were made on habitat, rock type, phenology, seed germination, seedling establishment, mode of propagation, etc. and methodology was established for restoration of the species after about one and half year's of research. Following the methodology, the species was reintroduced in 16 ghat regions at 108 locations (Figure 1), covering a stretch of 677 km (air distance) from Jog Falls in the South to Malshej Ghat in the north, and over 5000 individuals have been established so far in the Western Ghats. Continuous monitoring of the newly established populations is in progress. The newly established populations showed good growth and seed setting. The species showed self-perpetuation at new sites and the number of individuals is also increasing in most of the places where it has been introduced. Conventional method of seed propagation was found to be best suited for restoration of the species. This perhaps, is the first case in India of successful reintroduction and restoration of critically endangered species in the Western Ghats, involving efforts by the Government (DBT), University, Forest Department and NGO, leading to delisting of the species from the Red Data List of the world.

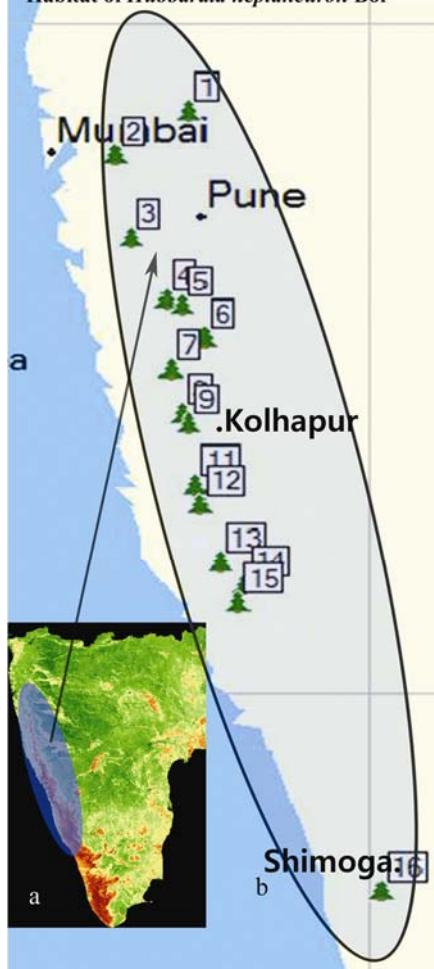
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Habitat of *Hubbardia heptaneuron* Bor



Reintroduction Programme



No.	Ghats
1	Malshej ghat (MS) N19° 19'-20' E73° 46'-47'
2	Matheran ghat (MS) N19° 00' E73° 17'
3	Tamhini ghat (MS) N18° 22'-27' E73° 23'-25'
4	Ambenali ghat (MS) N17° 54'-55' E73° 37'-39'
5	Medha ghat (MS) N17° 52' E73° 44'
6	Thoseghar (MS) N17° 37' E73° 53'
7	Kumbharli ghats (MS) N17° 23' E73° 40'
8	Marleshwar (MS) N17° 04' E73° 44'
9	Amba ghat (MS) N16° 58'-59' E73° 46'
10	Bhuiwawada ghat (MS) N16° 32'-33' E73° 49'
11	Karuli ghats (MS) N16° 31' E73° 49'
12	Phonda ghats- (MS) N16° 21'-22' E73° 49'-51'
13	Amboli ghat (MS) N15° 56'-57' E73° 59'
14	Tillari ghats (MS) N15° 47' E74° 09'-10'
15	Chorla ghat (Goa) N15° 38' E74° 06'
16	Agumbe ghats (KA) N13° 29' E75° 04'

Figure 1. Image showing GPS marked reintroduction sites of *Hubbardia heptaneuron* Bor along Western Ghats.