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Ecology and Conservation of Rare *Hygroryza aristata* (Retz.) Nees ex Wight & Arn.

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ABSTRACT: *Hygroryza aristata* (Retz.) Nees ex Wight & Arn. is a rare aquatic grass of small fragmented population in Western Uttar Pradesh. The authors have observed and reported that anthropogenic pressures and habitat loss are the main causes of rarity of this species.

Key Words: Rare, Anthropogenic, Conservation, Western Uttar Pradesh.

INTRODUCTION

A rare species is a group of organisms that are very uncommon or scarce and which may have fragmented habitat. This designation may be applied to either a plant or animal. The IUCN does not normally make designations for rare species. A rare species is those elements which occurs very infrequently or exists in small number less of than 20,000. Rare species has small stable population of very restricted or wider distribution. These species may not be under threat (Nayar and Sastry, 1987). Western part of Uttar Pradesh includes Saharanpur and Muzaffarnagar districts which come under Saharanpur Forest Division. It lies in the upper Indo-gangetic plain. The whole area is fertile and sugarcane, wheat and rice are the principal crops of this region. Saharanpur is located at 29°58' N Latitude and 77°33' E Longitude. Rainfall is the most important climatic factor which affects vegetation of this area. 80-90% rainfall occurs during monsoon season from mid June to mid September and temperature varies from very high to very low in summer and winter respectively. In the month of May and June maximum temperature shoots up to 45°C and falls to a minimum up to 1°C in December and January.

The Poaceae (also called Gramineae or true grasses) are a large and nearly ubiquitous family of monocotyledonous flowering plants and comprises about 11,290 species in approximately 707 genera (Clayton *et al*., 2012; IPNI).

In India, Poaceae family represents the fifth-largest plant family and comprises ca. 1350 species. In India, Poaceae were studied by several botanists like Bor (1960) etc. However a lot of work in N. W. Indian on grasses was made by Duthie, 1888; Raizada and Jain, 1966; Stewart, 1945; Vardhana, 2010 etc. In Uttar Pradesh Poaceae represent 110 genera and 301 species (Srivastava, 2011).

DESCRIPTION

Hygroryza aristata is unique from a morphological point of view; a floating annual grass; leaf blades ovate-lanceolate with inflated sheaths and parallel veins on sheaths (Fig. 1), nodes bearded; inflorescence panicle, 3.5-6.0 cm long, lax; mature pedicels with red band below the middle; spikelets hermaphrodite, floret one. Glumes absent. Lemma 6-8 × 1-3 mm, lanceolate, acuminate chartaceous, awned, awns 0.7-1.2 cm long, scabrid. Palea 6–8 × 1.2 mm, elliptic, lanceolate, keels scabrid or ciliate. Stamen 6 (Fig. 2). Grain oblong.

Fig. 1.

Fig. 2.

Phenology: October- January**.**
Nativity: China, India and Indochina**.**
Distribution: Ceylon, Myanmar and South-east Asia**.**
Ecology: In the study area it is found in fresh water ponds and slow floating fresh water bodies. *Nelumbium speciosum, Utricularia* species, *Panicum palludosum* and *Panicum repens* are important associates of this species in the study area.
Status: Very rare in the study area. IUCN status not known. It has been reported and seen in very few localities in Western Uttar Pradesh including Saharanpur forest division.
Important Notes: Habitat loss, anthropogenic pressures and fragmentation are the main causes of its rarity. Several anthropogenic pressures have caused the conversion of water bodies and wetlands into cultivated lands for growing Sugarcane and Rice in the study area. This has resulted not only in the losses of ecosystem characteristics but also has posed serious challenges for conservation of this species. Besides, increased competition with different hydrophytes and decreasing reproductive capacity due to decreased gene pool may be the causes of the rarity of this species in the study area.
Uses: Several studies reveal that Cattle feed this grass and grain is said to be eaten by the poorer people in West Bengal. Medicinally it is used as diuretic, emollient, galactagogue, strangury, diarrhea, otopathy, fatigue, general debility.

RESULTS AND DISCUSSION

Water bodies and Wetland's plants have played fascinating role in the life of mankind since ancient time as food, fodder and medicine.

But with the changes in the life style, utility of wetland plants have been ignored by mankind. So they are treated as weeds. Habitat loss, anthropogenic pressures, increased competition with different hydrophytes and decreasing reproductive capacity due to decreased gene pool may be the causes of the rarity of this species in the study area. Though the wetlands of Western Uttar Pradesh including Saharanpur have been rich repositories of various aquatic plants species but no inventorization has been made to enumerate the food values and medicinal uses of them. There is an urgent need to document the present status of this species and its conservation and utilization for sustainable development in this floristically rich and unique area.

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