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A NEW RECORD OF CRITICALLY ENDANGERED *CRINUM WOODROWII* BAKER (AMARYLLIDACEAE) FROM BHIMASHANKAR, DISTRICT: PUNE, MAHARASHTRA (INDIA)

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ABSTRACT

Crinum woodrowii Baker is a critically endangered bulbous plant belonging to family Amaryllidaceae found only at Kates point, Mahabaleshwar. It was considered as *Crinum brachynema* Herb but G. M. Woodrow first collected this species from Mahabaleshwar in 1899 and confirmed as a new species by Baker as *Crinum woodrowii*. It is also called as Woodrow's Crinum lily. It was rediscovered by Dr. Punekar from same location in 2004.There were only 150 individuals growing on hill slopes at Kates Points, Mahabaleshwar. It is endemic to Kates Points, Mahabaleshwar in Satara district of Maharashtra. It was rediscovered from Vahigaon in Thane district in 2012 and from Katraj in Pune district in 2013. In present findings there was new location of *Crinum woodrowii* Baker after 2004, 2012 and 2013 on hill slopes of Bhimashankar Wild Life Sanctuary in Pune district of Western Ghats of Maharashtra. There were 200-250 individuals along the water springs on the hill slopes of BWLS. All these places are part of Western Ghats of Maharashtra.

KEYWORDS: BWLS, Critically endangered, *Crinum woodrowii*, Endemic, Western Ghats.

INTRODUCTION

The genus Crinum L. is represented in India by 12 species, 3 varieties and 1form1of which 3 species and 1 form, viz. Crinum brachynema Herb., C. eleonorae Blatt.& Mc C. f. eleonorae,

C. eleonorae f. Purpurea Blatt. & McC. and C. woodrowii Baker are endemic to Mahabaleshwar and adjoining areas 2–7 in Maharashtra.[1-9a, 9b, 10a, 10b, 12]

The first one was recently recollected from the Kates Point, Mahabaleshwar after a lapse of 94 years 8 and the remaining three were assumed to be possibly Extinct 6, 7. During floristic exploration of the above-mentioned area between 2001and 2004, Dr. Punekar, collected and identified *C.woodrowii* Baker after a lapse of hundred years. G. M. Woodrow first collected this species from Mahabaleshwar. Several bulbs of this were sent to Kew (England) supposing them to be *C. brachynema* Herb., but when they flowered at Kew the plant proved to be a new species and was described by Baker 9 as *C. woodrowii*. It has been so far represented only by a single sheet in Calcutta Herbarium (CAL) collected by Woodrow7 in 1899; after that report it was not collected again from the type locality or elsewhere 7, 10–12. There were a total of about 150 individuals were seen growing on hill slopes of Kates Point, Mahabaleshwar. Now it has been assessed a critically endangered due to its narrow range of distribution and extreme rarity.[9]

A Bhimashankar Wild Life Sanctuary (BWLS) is located at 3250 ft. height above the sea level. Bhimashankar plateau is a semi-evergreen forest. The western to eastern regions has annual rainfall decreases from 2200 mm to 700 mm marked with July maximum.[13] The average rainfall is about 60 cm. Geographical distribution is Latitude 73.5^0 N and Longitude 19.06^0E. The plants were collected from Bhimashankar Wild Life Sanctuary area located at Pune district of Maharashtra in August, 2012. The sanctuary is situated on the crest of Western Ghats that is recognized as one of the 12-biodiversity hotspots of the world. In June, 2012 there were 200-250 individuals of *Crinum woodrowii* Baker seen along the water springs on the hill slopes of BWSL(Fig.1A and B). It was a new record after 2004.[9] After words there were new locations of *Crinum woodrowii* with 50 individuals at Vahigaon in Thane in (2012) and Katraj in Pune in (2013).[14,15] In present study we found a new location of distribution of *Crinum woodrowii* Baker in Bhimashankar Wild Life Sanctuary.

Sampling

Fresh samples of *Crinum woodrowii* Baker were collected from Bhimashankar Wild Life Sanctuary, Dist., Pune region of Western Ghats of Maharashtra (Fig. 1A-F) in July 2012. These plants were identified and authenticated using herbarium collection at Dept. of Botany, DST-FIST School of Life Science, SRTM University, Nanded (MS), India, Department of

Botany Dr.Babasaheb Ambedkar Marathwada University, Aurangabad and Department of Botany Walchand College, Solapur, (MS), India.

Habit

Herbs: Tall herbs; bulbs 8.6–16.2 cm in dia., globose–spheroidal, outer tunics brown, membranous. ***Leaves:*** contemporary with the flowers, sometimes appear after flowering, many (8–17), 45.5–80 cm ×4.5–14 cm, uniform, flat, bright green, slightly glaucous beneath, glabrous, apex acute, white waxy, scabrous along margin; leaf sheaths forming a pseudo stem. ***Scapes:*** one, rarely two, arising from bulb outside the tuft of leaves, stout, compressed, 53.5–82.5 cm ×1–3 cm, green at base and apex, purple in middle, faintly channeled. ***Flowers:*** 10–20 in umbel, fragrant; pedicels 1–3 cm long, green with purple tinge. Spathe valves (involucral bracts) two, opposite, 8.7–10 cm ×2.7–3.9 cm, deltoid, obtuse or acute at apex, margin inflexed, often green, purple tinged, nervate, coriaceous. Bracteoles many, 3–8 cm long, filiform, pale yellow or green. ***Perianth:*** hypocrateriform (salver-shaped); tube 4–8 cm long, terete, curved, green with purple tinge in flowers, purple in buds; segments spreading equally, white, lanceolate, acute at apex, longer than perianth tube, 8.6–10 cm ×1–1.8 cm, purple tinged on dorsal median line, shining. ***Stamens:*** 6; filaments 6– 7.2 cm long, filiform, white in lower half and at tip, red in upper half, shorter than perianth lobes; anther lobes versatile, linear, crescent, 1.2–1.5 cm long, yellow, grey when wet. ***Ovary***: oblong, 8–10 mm × 3–4 mm, three-celled, with numerous ovules in axile placentation; ovules sessile; style terete, filiform overtopping the stamens, 15–15.6 cm long, white in lower half, red in upper half; stigma lobed. ***Fruits:*** irregular in shape,3–7 cm across, trilocular, finally bursting, eduncle 3 cm long. ***Seeds:*** 0.9- 1.3 cm across, large, rounded, testa thick, albumen copious.

Flowering and fruiting: May–July.[3]

DISTRIBUTION

India, North Western Ghats of Maharashtra State, Endemic to Kates Point, Mahabaleshwar, Satara District and to Katraj Ghat and Bhimashankar Wild Life Sanctuary in Pune District, Vahigaon in Thane district, Maharashtra State, India.

Ecology

Growing at an elevation of *c.*1275 m (latitude 17°56′. 270″N and gitude 73°41′. 488□E) on hill slopes of semi evergreen forest outskirts in association with *Ceropegia panchganiensis*,

Crinum brachynema, *Cuculigo orchioides*, *Euphorbia panchganiensis*, *Hitchenia caulina*, *Nilgirianthus reticulatus*, *Pindacon canensis* and *Scilla hyacinthina*. Distribution of *Crinum woodrowii* Baker. Specimens examined: India, Maharashtra, Bombay (Presidency), May 1899,*G. M. Woodrow s.n.* (CAL); Satara District, Mahabaleshwar, Kates Point, 9 June 2001, *Punekar, Kavade* and *Datar* 178344 (BSI, K); same locality, 12 June 2004, *Punekar* and *Kavade* 187843(BSI).*C.*[9]

Threats

1. The use of bulbs in folk care medicine by local tribal people and Use of flowers in perfume and pharmaceutical industry

2. Selling bulbs by locals to treat respiratory diseases(especially in asthma).

3. Digging and eating raw bulbs by males to increase physical strength.

4. Damage caused by natural pests, such as moth caterpillars and nocturnal herbivores.

5.Repeated forest fires in dry seasons and deforestation.

6. Habitat degradation due to anthropogenic pressures.

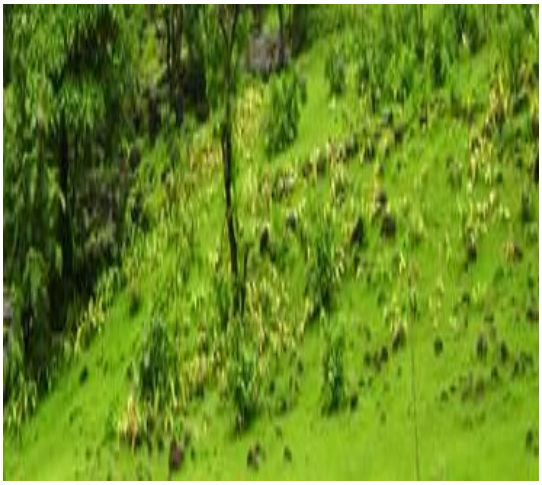
7. Losses caused due to over grazing by animals.

IUCN Status

Based on assessment and field observations from year 2007 to 2012, *Crinum woodrowii* is currently and properly, categorised as Critically Endangered [B2b (ii,v)c (ii,iv); C2b].[15]

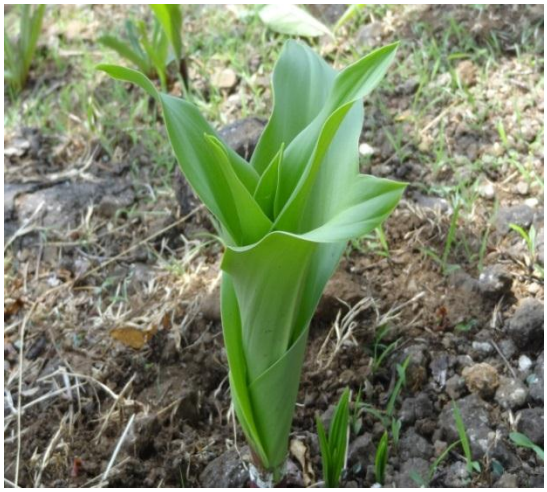
Economic importance

Crinum woodrowii is used as ornamental as well as medicinal herb. The scented flowers may be used in perfume and pharmaceutical industry.



A

B



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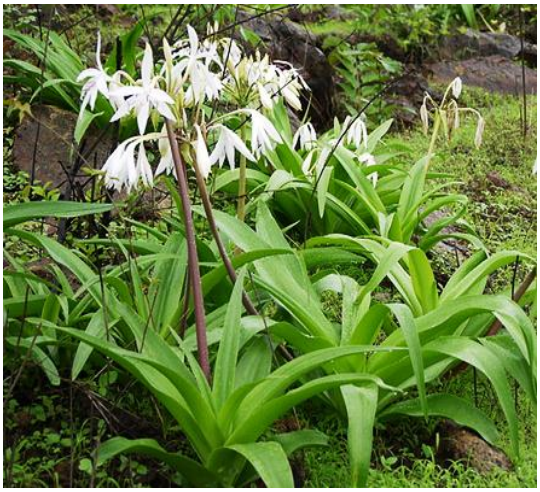

D

E

F

Fig.A; View of natural habitat of *Crinum woodrowii* Baker. B; Close up of individuals of *Crinum woodrowii* Baker. C; Young plant of *Crinum woodrowii* Baker. D; Flowering of *Crinum woodrowii* Baker. (Photo: Wikipedia) E; Single plant with bulb. F; Bulbs of *Crinum woodrowii* Baker.

CONCLUSION

Due to enormous threats by local peoples and its uses in folk medicine by Tribals. The critically endangered and medicinally important *Crinum woodrowii* should be conserved by propagating in nursery conditions. The conservation and reintroduction of this species to suitable habitats is an urgent need.

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