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REVIEW ARTICLE

ALTERNANTHERA PHILOXEROIDES (MART.) GRISEB. ON UPHILL JOURNEY IN UTTARAKHAND, INDIA

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ABSTRACT

Alligator weed (*Alternanthera philoxeroides* (Mart.) Griseb.) has been spread all over the India, especially in tropical and warm temperate regions. Recently, its occurrence was recorded in tropical parts and foot hills of Uttarakhand state. The uphill journey of the alligator weed in the state is a serious matter of concern. The weed may reach to alpine region of Himalaya soon by taking route along water courses, as it can readily survive in cold winter and severe frost.

INTRODUCTION

We came across an *Alternanthera* species during the recent floristic explorations in district Chamoli. Critical examination of it in the herbarium (BDS) and through literature surveys revealed the plant as *Alternanthera philoxeroides* (Mart.) Griseb of Amaranthaceae. The voucher specimen has been deposited at the herbarium (GUH 20735). It has not been mentioned by earlier workers (Duthie, 1903-1929; Duthie, 1906; Raizada and Saxena, 1978; Kala and Gaur, 1982, Naithani and Tiwari, 1982-83; Sharma and Gaur, 1983; Naithani, 1984-85; Gaur, 1999, Singh, 2010, etc.) from Uttarakhand. Recently, it recorded in tropical parts and in foot hills of the state (Negi and Hajra, 2007; Uniyal *et al.,* 2007; Adhikari and Babu, 2008, Pangtey *et al.,* 2012). Thus, *Alternanthera philoxeroides* (Mart.) Griseb. is being reported here as new distributional record to temperate region of Uttarakhand and as well as addition to the flora of Chamoli. Three populations were observed under present study, *i.e.* Gairsain town (*ca.* 1600 m asl), Chaurani, Gairsain (*ca*. 2200 m), and Bandwara, Gopeshawar (*ca.* 1300 m) in District Chamoli. These were growing along the water courses, marshy locality and around irrigated agricultural land. It was growing either in pure population or in association with aquatic species of *Cyperus*, *Polygonum*, *Rumex*, *Rananculus*, etc.

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Alligator weed ranks among the most problematic aquatic weeds in the world, being a pest in at least 30 countries including India (Geng *et al.,* 2007). It has been spread all over the India, especially in tropical and warm temperate parts. The uphill journey of the alligator weed in Uttarakhand, from tropical to foot hills and now in temperate is a serious matter of concern. It is predicted that the species can reach to alpine region of Himalaya soon by taking route along water courses. Since, it can readily survive in cold winter, including severe frost. It sheds leaves during extreme winter cold condition but the underground parts of the plant survive and regrow on the following spring (Groves *et al.,* 1995). May, it would be another potential threat to the native flora after, *Eupatorium adenophorum* Sprengel, *Lantana camara* L. and *Parthenium hysterophorus* L. in the Himalayan region. These alien invasive species are able to form large carpet of themselves on the land surface and change the natural habitats which may eradicate several habitat specific native species from the area (Singh, 2010).

This alligator is known for its rapid multiplication capacity (vegetative and seed), wide range of adaptability and as well as the ability to produce several allelochemicals. Besides control and management plan for *Alternanthera philoxeroides* (Mart.) Griseb., several reports are available on the its morphology, ecology and physiology. Thus, its eradication at infant stage of spreading in uphill of Himalaya suggested.

Figure: *Alternanthera philoxeroides* (Mart.) Griseb A. Inflorescence, B. Herbarium, C. Habitat

The present explored area of district Chamoli comes under Kedarnath forest Division (KFD). It harbours a rich plant wealth (Rawat *et al.,* 2013) and is characterized by a comparatively lush flora representing the sub montane and montane Himalayan plants (Tiwari *et al.,* 2014). A large number of economically important plant species are indigenously used by the local inhabitants to meet out their basic needs (Ballabha *et al.,* 2013a, b). There is need to conserve the plant diversity of the area and especial concern on the expansion of unwanted exotic species like *Alternanthera philoxeroides*, *Eupatorium adenophorum*, etc.

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