



## BIOLOGICAL-CONTROL OF *LANTANA CAMARA* THROUGH CROP COMPETITION USING NATIVE SPECIES

SANJAY SINGH<sup>1\*</sup>, PAVAN KUMAR KHATRI<sup>2</sup>, DHEERENDRA KUMAR<sup>3</sup>, V. RAMU NAIK<sup>2</sup>

<sup>1</sup>Biodiversity and Climate Change Division,

Indian Council of Forestry Research and Education, Dehradun

<sup>2</sup>Biodiversity and Sustainable Management Division, Tropical Forest Research Institute, Jabalpur

<sup>3</sup>Botany Division, Forest Research Institute, Dehradun

\*Corresponding author: sanjaysingh83@gmail.com

**ABSTRACT:** Managing forest invasive species is one of the major challenges in the forest management. Mechanical, chemical, tillage, crop competition, crop rotation, biological controls are among the various methods/techniques used for control of Invasive species. These methods have failed individually. All these methods have their own limitations. This study identifies native species having potential for restoration of *Lantana camara* invaded forest communities. A total of 13 native species were recorded to be growing as associate with *Lantana camara* in Kundam, Bargi and Patan Range of Jabalpur forest division of Madhya Pradesh. Six species were found to have a negative correlation with density of *Lantana camara*. Field experiments showed that *Oxalis scandens*, *Petalidium barlerioides* and *Helicteres isora* has potential to out-compete *Lantana camara*. Eco-restoration of the invaded forest/plantation communities through artificial introduction of native species will help in strengthening the management of Forest Invasive Species in protected areas and plantation.

**Key words:** Forest invasive species, *Lantana camara*, eco-restoration, native-species

**Citation:** Singh S, Khatri PK, Kumar D, Naik VR (2018) Biological-control of *lantana camara* through crop competition using native species. Indian J Trop Biodiv 26(1): 81-86

Received on : 11 May 2018

Accepted on : 30 May 2018

Published on : 30 Jun 2018

Over the previous few decades, a number of Forest Invasive Species (FIS) have been

introduced in India knowingly or unknowingly without realizing the consequences. Invasive species have spread to colonize almost all the habitat, posing threat to the native biodiversity. Impact of invasive on native species, communities and ecosystem has been recognized for decades. The invasive species alters the species diversity and thus structural and functional diversity of the ecosystem. Forest invasive species decrease the productivity of the plantations by competing with forest crop, while in protected areas it poses threat to the life-support system by replacing native species.

Managing forest invasive species is one of the major challenges in the forest management. Risk and impact assessments, inspection, early detection, monitoring and implementation of effective control measures are therefore highly dependent on the availability of sufficient, up-to-date information which keeps pace with new invasion threats. Mechanical, chemical, tillage, crop competition, crop rotation, biological controls are among the various

methods/techniques used for control of Invasive species. These methods have failed individually. All these methods have their own limitations (Kohli et al., 2006).

Tillage destroyed the root system of weeds, and buries small weeds. However in forest, tillage is not practically possible due to uneven terrain. Further tillage causes considerable damage to the regeneration and native annual herbs and medicinal plants. Crop-rotation is not a viable option in managed forests due to long rotation periods involved.

Various mechanical, cultural, chemical and biological methods have been tried to minimize the spread of *Lantana* in forests and pastoral lands. In forests, administration of chemicals for control of invasive species may have negative impact on biodiversity and there are chances of contamination of soil and water. Applying chemical weedicides have detrimental effect on human and cattle populations, casualties in wild animals due to weedicide poisoning go largely unmonitored. Excessive poisoning of non-target organisms and transfer of poisons up food chains (Innes and Barker, 1999) are problems associated with chemical control method (Cory and Myers, 2000; Simberloff and Sitling, 1996; Luken et al., 1997).