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STUDIES ON EFFECT OF RESTORATION TECHNIQUES (DIRECT SEEDING) ON GERMINATION AND SURVIVAL IN *LOPHOPETALUM WIGHTIANUM*

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ABSTRACT: The present investigation was carried out on the bank of the restoration site (Amminalli stream) in Upghat region (Janmane range) of Uttara Kannada district to recover and restore species population in its natural habitat through direct seeding. Seeds were directly sown 5, 10, 15 and 20m away from stream and also in different sowing depths *viz.*, above litter, below litter and 2cm depth in soil. Seed germination per cent, seedling survival per cent and seedling growth parameters *viz.,* seedling height, collar diameter and number of leaves were recorded at the interval of seven days. Among the distances like 10m and 15m and sowing depths like below litter and 2cm depth in soil were found to be more adequate and effective in enhancing germination, survivability and seedling growth. Sowing distance from stream and depth of sowing can be considered as the factors responsible for successful recovery of riparian tree species in its natural habitat under restoration techniques.

Key words: *Direct seeding, recovery, restoration, survivability.*

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The high level of diversity and endemism in the Western Ghats has conferred on them the hot spots status. The southern section of Western Ghats is by far the richest area in context to floristic composition and concentration of endemic taxa. Nearly 4000 or 27 per cent of the total plant species in India, have been recorded from the Western Ghats. The evergreen forests of the Western Ghats are characterized by a very high percentage of species endemic to the region. The total number of endemic plant species is estimated to be 1500. Among the evergreen tree species, 56 per cent are endemic. Therefore, the Western Ghats are considered as one of the biodiversity hot spots of the world. Species richness and endemism are, however, not uniformly distributed along the Ghats. The southernmost regions which have the most favourable climatic conditions with high, but not excessive, rainfall and short dry season are the ones with the highest biodiversity and contain the highest number of endemic species. Southern Western Ghats is one of the two mega endemic centres in Western Ghats (Volga *et al*., 2013). Population of riparian tree species in the evergreen forests of Western Ghats is in declining trend due to lack of proper of management, conservation strategies and monitoring, drying of streams, thick forest litter and predation by wild animals. One of such endangered and threatened and red list category species is *Lophopetalum wightianum* (Anon, 1998).

The genus *Lophopetalum* commonly known as Banate belongs to the family Celastraceae. The genus of this evergreen trees and shrubs distributed from India to New Guinea. Two species are found in India namely *Lophopetalum wightianum* and *Lophopetalum fimbriatum*. *Lophopetalum wightianum* is an important riparian species in the evergreen forests of the Western Ghats at low elevations and extending up to 900 m from South Kanara southwards and in central Sahyadris. It is an invariable component of endangered Myristica swamps and a riparian species. It is one of the nesting trees of the near threatened Great Hornbill and is a common fodder tree of Hanuman Langur and Bonnet Macaque (Keshava Chandra *et al.,* 2014). All the members of the genus *Lophopetalum* are exploited for perupok timber and the species is under threat (Anon, 1998), seeds have a very short life span, seed viability is very less and survival and establishment is very poor. This is an important tree species of the rain forest ecosystem of the Western Ghats, particularly of the Myristica swamps and riparian ecosystems and need to be protected and monitored for its successful regeneration (Keshava Chandra *et al.,* 2014). So in order to recover the species population by restoration techniques and to identify the problem relating to the natural regeneration and establishment, this study was undertaken. The main focus of this study is to recover and restore the species population which inturn leads to conservation of the threatened species.