Role of Figs in Riparian Eco-Restoration

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Abstract

Riparian forests are one among the unique ecosystem supporting diverse plant and animal communities. The riparian ecosystem could be considered as an ecotone and are generally resilient to natural flood. But the recent abnormal rainfall and torrential flow in rivers made a disastrous effect on the riparian vegetation across the Kerala state. The riparian ecosystem must be properly restored for sustaining the diverse flora and fauna, that are depending on the riparian ecosystem for the survival. The members of the genus *Ficus* L., (Moraceae) commonly called 'figs' are keystone species, and the plants have a major role in sustaining the ecosystem. The figs are considered as a diverse genus with respect to their life forms and habitat patterns. Most of them are large trees, with a high growth rate and dominates the canopy in a short span of time. Figs could be one of the best plant group considered for the restoration of the riparian ecosystem. Many species of figs including *F. racemosa, F. tsjakela, F. drupacea* etc. are common along the riparian stretches of the river. Mostly being large trees with high growth rate, these plants could be a suitable species for ecorestoration along with the degraded riparian areas. The reckless growth rate of the figs will help to cover the open canopy at a faster rate than the other tree species. As the plants follow a wide range of growth habitats including rheophytes, it is preferred for ecorestoration even in rocky areas. Planting figs will not only restore the riparian forests but will sustain a large number of birds and animals; this will, in turn, help to maintain the functional aspects of the ecosystem.

Keywords: Ficus, Keystone species, Flood, Epiphytes, Eco-restoration methodology

1. Introduction

Riparian vegetation commonly refers to the plant community seen along the river banks. Riparian forests are unique ecotone, which is greatly influenced by water (Goebel *et al.,* 2003; Sunil *et al.*, 2016). The nature of the plant community is determined by the elevation, annual rainfall, duration of the rainy season, wind, and temperature along with soil characteristics influenced by climatic factors (Nair, 1994). The riparian ecosystem is considered as a functionally dominant component of a terrestrial landscape (Tabacchi *et al.,* 1998). Riparian zones have been reported as some of the most species-rich and most productive systems (Malanson, 1993). Riparian forests are having unique vegetation and species diversity (Bachan, 2010). Riparian zones help to maintain the continuity of the forests and act as a corridor for the migration of many animal groups. As the riparian ecosystems are much sensitive to human influence and are mainly degraded by human disturbances (NRC, 1992), they are considered as a potentially threatened ecosystem (Malanson, 1993). Restoration denotes to bring back to the original form (Goodwin *et al.,* 1997). Thus, it implies that simply planting a species may not be a good restoration strategy. The suitable species must be planted in the proper place, commonly referred to as the ecorestoration methodology.

The plants belonging to the family Moraceae are one of the most abundant and extensively distributed taxa among the angiosperms. They are considered a keystone species (Vanitharani *et al.,* 2009; Kumar *et al.,* 2011) in many ecosystems. The presence of minute seeds and multiple dispersers of the fruits could be one of the reasons for the dispersal and distribution of the species (Corner, 1965; Lambert and Marshall, 1991; Lomáscolo *et al.,* 2010). They possess a varied habit ranging from climbers, woody shrubs, epiphytic and hemi epiphytic trees. The different habit patterns these plants could survive may be the possible reason for the success rate of the plants over a diversified habitat. Most of the plants being large trees, with a high growth rate and supporting many other life forms, these plants are a good choice for ecorestoration practices. The current study emphasises the role and the suitability of the fig plants in the ecorestoration of riparian forests. The seasonal availability of figs as well as, the fruiting pattern makes Ficus one among the most suitable food source for most of the frugivores and other animals.

2. Materials and Methods

Study area

The Chalakkudy River extending for a stretch of 144 km is the 5th largest river in Kerala. It originates from the Anamala and Nelliyampathy hill ranges of Southern Western Ghats. The major tributaries are the Sholayar, Parambikulam Aar, Karappara Aar and the Kuriarkutty Aar, joins at Orukumbankutty and flow like the River Chalakkudy. The river has five large dams in its tributaries and another one after Orukumbankutty at Poringalkuthu in the main river. The remaining 70 km length of the river after Poringalkuthu dam is not having any large obstruction except a River Diversion Scheme at Thumboormuzhi to irrigate 14, 000 hector of land. The Chalakkudy river joins with another river Periyar at Elanthikkara just 6 km before they together end in the Lakshadweep sea. The Chalakkudy river stretch was filled with riparian forests along its margins (Fig. 1). The Kerala flood 2018 had a major impact on the riparian stretches