Mechanism of Facilitation by Non-Leguminous Plant Revealed At Aurangabad (India)

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Abstract
Study of ecology is important as it plays role in development of restoration ecology. With the advent of technologies the study of ecosystem structure and changes in it are remaining unnoticed. The ecological succession is the sequential replacement of plant species following changes in the environment. Studies are important with conservation point of view. The present study depicts the primary ecological succession in an area levelled up to the height of five feet. The five quadrates of equal size were observed during the study period of six months. Rain water being the only source of water in the area increased its ecological importance. The primary successor was non- leguminous plant *Balonitesroxburgii* during the peak drought periods in the region of the summer 2013.

Keywords: Succession, *Balonitesroxburgii*, non- leguminous plant etc.

1. Introduction
Disturbances in ecology are important as they determine frequency and extent of reset [1]. Succession is the sequential replacement of plant species following disturbance [2]. Study of succession in an ecosystem is very important as it can improve our understanding of other ecological phenomenon, can help in predicting biodiversity loss, climate change, invasive species, and ecological restoration ecosystem services thus is a central concept in ecology [3-4]. The relation between soil chemical variables and species richness along successional sere has been strongly correlated [5]. Mechanism of facilitation is also equally important as organisms add to improvement of their neighbour's performance by modifying the environment [6]. This increases the importance of study of interaction for a better understanding of ecosystem and ecological restoration process with increasing anthropogenic disturbances [3]. Leguminous plants are successful primary successors and proved nurse plants for the other successors at many places [7] as those provide nitrogen needed for plant growth. In the present study mechanism of nitrogen fixation by non-leguminous plant *Balonitesroxburgii* have been depicted.

2. Material Methods
Five study quadrates of approximately 1sq. Meter were chosen for the study near Hanuman Tekadi Hills of Aurangabad, Maharashtra, with geographical location 9.54N 75.19w. The quadrates were important with ecological point of view as the area was levelled up to the height of 2 meters by levelling machines during October 2012. On the attempt the land was lacking any signs of plant vegetation. The quadrates were observed with the equal interval of two months for the signs of life. Quadrates with signs of life were designated as experimental and without plant vegetation were as controlled.
The nitrogen content of soil was examined every time on commercial level at MIT soil analysis laboratory. The first plant occurred during March 2013. The occurring plant was common in four quadrates of the five examined. The plant was classified using the Bentham and Hooker keys.
The samples with plant growth were designated as experimental whereas those with no signs of plant growth were designated as controlled. The nitrogen content of soil was estimated in soil analysis laboratory before and after succession. Significant increase in values of nitrogen content of soil was found in the experimental quadrates to 150 kg/ha (+-5%) Compared to controlled ones which was 100kg/ha (+-8%).
As the area received no water from any other part of lands was mostly unaffected by agricultural run offs. The geographical location of the area was taken by Google Earth. The location of the study area was 19.54^0N 75.19^0W. Classification was done using Bentham and Hooker's (1865) [8] Methods.

Kingdom	:	Plantae
Subkingdom	:	Tracheobionta
Division	:	Magnoliophyta
Class	:	Magnoliopsida
Subclass	:	Rosidae
Order	:	Zygophyllales
Family	:	Zygophyllaceae
Genus	:	Balanites
Species	:	B. roxburghii

3. Result
The results of the present study indicated the plant vegetation occurring in four quadrates of all five. The classified plant was *Balonitesroxburgii.* The plant has been reported to be causing nitrogen fixation in desert areas even though it is non-leguminous plant [9]. Antifertility utility of the plant increases its medicinal importance. The reduced leaves size and presence of thorns give it good desert adaptations.

4. Discussion
The location of the study area was 19.54N 75.19w. The results of the present study indicated the plant vegetation occurring in four quadrates of all five. The classified plant was *Balonitesroxburgii.* The plant has been reported to be

causing nitrogen fixation in desert areas even though it is non-leguminous plant [9]. The plant can thus help in ecosystem management in the areas and world over. Antifertility utility of the plant increases its medicinal importance. The reduced leaves size and presence of thorns give it good desert adaptations.

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