



A REVIEW ON TREE DIVERSITY OF SELECTED AREA OF RAJKOT CITY

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Abstract:

Rajkot is located at 22.3°N 70.78°E. It has an average elevation of 128 metres (420 ft). Rajkot city was founded by Thakorji vibhaji in the year of 1620. Rajkot is Fourth largest urbane city of Gujarat also learns the distinction of being the fastest growing city of state. This study design to establish an understanding of the tree diversity of some areas of Rajkot city. Tree diversity index was used to determine the trees and also used to evaluate and everness of tree species. Tree species diversity, distribution and population structure provide baseline information for conservation and management of the present study site. The town also has rich diversity of trees which support a variety of birds, insects and animals.

Keywords: Tree diversity, Rajkot

Introduction:

The term 'biodiversity' was coined by Walter G. Rosen in 1985 as a catchy replacement for 'biological diversity' (Sarkar 2002). India is the seventh largest country in the world and Asia's second largest nation with an area of 3,287,263 square km. About 6.55 million trees grow in 167 urban areas (municipal corporations and municipalities) with average tree density of 18.9 trees/ha. The canopy cover (53.9%) and tree density (152 trees/ha) in Gandhinagar , the capital

city of Gujarat, are the highest in India; thus Gandhinagar may be listed amongst the greenest cities in the world. (H.S. Singh 2013)

Gujarat in the western part of India is one of the major states out of 28 states and 7 Union Territories in India. The tree enumeration and survey have been done in all urban areas in Gujarat in 2011, which cover about 1.77% of the state's geographical area against about 3% of earth's urbanized terrestrial surface in the world. India's 41 % population expected to be concentrated in urban cities by the year 2030 (UNDP). In India, 8 lakh people killed annually due to air pollution (WHO) which is second largest after China in the world. About 96.3 % of pollution removal from trees occurred on rural land. Trees remove air pollution primarily by uptake of pollutants via leaf stomata. Some gaseous pollutants are also removed via the plant surface.(Rohit Kumar Pandey and Hemant Kumar, 2018).

Existing plantation and gardens, as an important component of urban green infrastructure, could make significant contributions to urban biodiversity. Beside environmental services urban forests and trees have positive impacts on the physical and psychological healthiness of the human being, provide healthy environment for stressed residents of city (Schroeder and Anderson, 1984; Hunter, 2001).

Trees are the important species providing shelter to many species and also shape the landscapes. Trees forming woodland are the abode for many plants, insects, animals and epiphytes. They provide many ecosystem services such as conservation of water, species, soil erosion, and habitat for living of other species (Connell, 1971). They also regulate the temperature, humidity, soil fertility and nutrient cycle in the ecosystem. They are important sources of fruits, timber, medicines, spices, condiments, fodder, fuel, essential oils, fumigators and masticatories, sugar, starches, paper and pulp, fibers, tannins and dyes (Seth, 2004; Armenteras, et al. 2009).

Knowledge of species composition and diversity of tree species is of utmost importance not only to understand the structure of a forest community but also for planning and implementation of conservation strategy of the community (Malik et al., 2014, Malik and Bhatt, 2015). Trees have undergone different levels of disturbance due to unprecedented increase in human population which have led to cutting of trees for firewood collection, charcoal production, and infrastructural developments (Omoro et al. 2010)

Review of literature :

According to state forest report(2018) , Gujarat has only 11.18% of its geographical area declare as forest , which is much below the national average. Forest and trees cover is in the extent of 11.46% (7.46% forest cover and 4.00% tree cover outside forest-TOF) of its geographical area.

In 2nd of august 2019 , the Hon'ble chief minister of Gujarat shri vijaybhai rupani releases “ climate resilient city action plan ” (CRCAP) for Rajkot. Through this project they addresses both climate mitigation and adaption has the potential to reduce a total of 263,823 tonnes of Co2 and GHG emission by year 2022-23.

Rajkot city council adopted CRCAP in February 2019 and has committed to reduce 14% of GHG emission by 2022-23 as compared to 2015-16 baseline of the city.

Rajkot has also come forward to address the issues of increasing in temperature and heat island effect in the city. The city emphasised the need of improving green cover to reduce heat island effect in the city.

The CapaCITIES project supported Rajkot city in preparing a vegetative cover study to analyse ward level tree density in the city.

Understanding that a greater species diversity ensure natural sustainability for all life form , Rajkot municipal corporation has initiated the ‘ Urban Forest Program ’ to develop 47 acre area as urban forest near Aji , which will not only increase the green cover of the city through native tree species , variety of shrubs , bird nesting plant , bird feeder plant , ayurvedic plant , arboriculture , cactarium , ficus plant but will also improve ecosystem for animals , birds and other living things such as insect , fungi and bacteria. The ‘ Urban Forest Program ’ will also raise people’s awareness on many larger issues such as pollution , deforestation and land use.

Conclusion :

The current work is the result of ongoing field research, during which time 71 plant species from 32 families were identified. Based on the habit research, trees outnumber plants and shrubs in terms of dominance. From the perspective of genera, Ficus and Terminalia were prominent, whereas the most dominant families were

Caesalpiniaceae and Apocynaceae. The majority of the plants included in the current study had some significance in ethnobotany and/or pharmacology.

Box 1: Typical tree species for plantations

Mangifera indica, *Polyalthia longifolia*, *Alstonia scholaris*, *Terminalia bellirica*, *Terminalia catappa*, *Cassia fistula*, *Cassia javanica*, *Dalbergia sissoo*, *Peltophorum pterocarpum*, *Magnolia champaca*, *Azadirachta indica*, *Ficus amplissima*, *Ficus benghalensis*, *Ficus religiosa*, *Ficus virens*, *Ficus amplissima*, *Ficus benghalensis*, *Ficus religiosa*, *Ficus virens*, *Morus alba*, *Moringa oleifera*; *Syzygium cumini* *Citrus aurantifolia*, *Ailanthus excels*, *Phoenix sylvestris*, *Holoptelea integrifolia*, *Gmelina arborea*, *Wrightia tinctoria*, *Laagerstroemia speciose*, *Mimusops elengi*, *Monosperma butea*; *Pongamia pinnata*

Box 2: Common herbs and shrubs which should be planted *Combretum latifolium*; *Cymbopogon* sp.; *Eragrotis* sp.; *Pennisetum* sp., *Strobilanthes* sp.; *Musa paradisiaca*. *Ricinus communis*; *Bambusa* sp.; *Costus speciosus*; *Curcuma* sp.; *Achyranthes aspera*; *Stachyphrynium spicatum*; *Zingiber officinalis*; *Dioscorea alata*; *Dioscorea oppositifolia*; *Dioscorea wallichii*; *Ziziphus rugosa*; *Ixora* sp.; *Derris scandens*; *Crotalaria* sp.; *Antidesma acidum*; *Clerodendrum inerme*; *Bryophyllum* sp.; *Tragia involucrata*; *Cryptolepis buchananii*; *Hemidesmus indicus*; *Phyla nodiflora*; *Mimosa pudica*; *Justicia procumbens*; *Sida rhombifolia*; *Hibiscus* sp., *Tylophora indica*; *Cynodon dactylon*; *Abutilon* sp.; *Murraya koenigii*; *Capparis zeylanica*; *Capparis sepiaria*.

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