



Study of Floral Diversity From Banali Sacred Groves (Dist.- Sangli, MS, India)

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ABSTRACT

The study of Sacred Groves were carried out from Banali which is located in Banali village of Jath taluka in Sangli district. These Sacred groves are protected by local community through social traditions and taboos that incorporate spiritual and ecological values. These groves harbors many species of the plants and animals and rich in biodiversity. This is a small Sacred grove having an area of 27 acres with temple of Goddess Banashankari. The area around the temple is surrounded by small hills. The population of tree cover near the temple is fairly good and well managed by the trust. The soil is blackish and fertile. This area is also called Banashankuri Ban'. It is owned by "Banashankari Devsthan Trust". Banali village is located at a distance of 11 km from Jath city. This place in the drought village is a beautiful tourist spot. There are big trees around the temple with 20 to 25 acres are covered with large number of trees. The villagers perform annual rituals and ceremonies to appease the presiding deities and to ensure the well-being of the community. During the study area from this Sacred Grove we reported 41 species of plants from 27 families and 32 genera. It forms typical plant diversity within these sacred groves.

Keywords: Sacred Groves, plant diversity, Banshankari, Banali, Sangli.

INTRODUCTION

The Western Ghats are one of the globally recognized “hot spots” of biodiversity in India. In Maharashtra small patches of forest in the Ghats are protected by local people as “sacred groves.” They are called “Devrai” which have been managed by local people and are dedicated to the deity in the grove. The groves thus act as key benchmarks of less disturbed vegetation in a mosaic of other traditional and modern forms of land use. Sacred Groves are found all over India especially situated near the human settlements in those regions where indigenous communities inhabit. Sacred Groves are the relic forest segments preserved in the name of religion and culture. Sacred groves often contain plant and animal species that have become extinct in neighboring areas. They therefore harbor great genetic diversity. In India Sacred Groves are the protected forest

fragments with different sizes. The area of sacred groves ranges from a few square meters to several hectares. Gadgil and Vartak (1975) studied the Sacred Groves and reported that, the hunting and logging are not allowed in these patches, which are reservoirs of rare fauna and flora. According to Ramchandra (2000) and Malhotra *et.al* (2001), because of urbanization and over-exploitation of resources there are threats to the groves. Hughes and Chandran (1997) stated that, Sacred Groves are nothing but segments of landscape containing vegetation, life forms and geographical features. They keep them in a undisturbed state under the belief by human societies. This is important relationship of humans with the divine or with nature. The Sacred Groves are relic forest segments preserved in the name of religion and culture. According to Bachmann (1992) the sacred groves are patches of climax vegetation preserved by local communities on religious backgrounds. The important traditional uses of sacred groves was for various Ayurvedic medicines, fruits and honey. But in most of the sacred groves it was taboo to hunt or chop wood. Sacred Groves are responsible for to harbor great genetic diversity, as they associated with ponds and streams and meet water requirements for local communities. They sometimes help in recharging aquifers. Khiwetam and Ramkrishnan, (1989) stated that, the vegetation in sacred groves increases the atmospheric humidity and produce favorable microclimate for many organisms.

In India religious beliefs has respect for nature. food, fiber, shelter, or medicine peoples conserve a large number of wild plant species. However, there are some untouched patches of forest which bring the concept of “sacred groves”. Thus Sacred Groves are virgin forest that is protected traditionally by the local communities that harbor rich biodiversity. The first Indian record of Sacred Groves in India that of first inspector General of forest Brandis D. (1897). The area of the Sacred Groves ranges between few square kilometers to several hectares. The dominance of genus *Ficus* in sacred groves reported by (Gadgil *et al.*, (1996). *Ficus benghalensis* L. and *Ficus religiosa* L. provide a niche for large number of small animals. In ancient Europe (fourth to fifth century AD), sacred groves were destroyed with the arrival of Christianity (Matthews and Matthews 2002). All types of lives considered sacred by cultural taboos and restrictions are inviolable by a variety of primitive religions (Tetlock 2003). Ghalme *et al.* (2010) reported 25 un-noticed sacred groves of Dapoli Tahsil of Ratnagiri district. They also reported 14 threatened and 25 endemic plant species occurring in sacred groves. According to Sheridan, (2009) Onyekwelu, (2021), Sacred Groves the only remaining patches of natural or semi-natural habitats in several landscapes.

These species are classified as “keystone mutualist” for the maintenance of tropical biological diversity (J. Terborgh, 1986 and J.E.D. Oliver King *et al*, 1997). Phytodiversity survey of sacred groves in Odisha was carried out T. Panda *et al* (2020) and reported 42 plant species belonging to 39 genera under 26 families from 20 selected sacred groves of the district. Kühnert *et al.* (2019) reported that, sacred groves play an important role in holding birds and animal populations. Nganso *et al*, (2012) collected ethnomedicinal property of plants from the indigenous communities. In religious case the functions are provided by Sacred Groves for propitiation of deity/spirits and ancestral spirits. However, psychological services and functions of Sacred Groves are provided for moral support and guidance (Malhotra, 1998, Malhotra *et al.*, 2001, 2007). The nature's worship

practices are mainly viewed through socio-religious and anthropological aspects. According to Gokhale *et al.*, (1998) in India the sacred groves constitute 0.01 % of the total area of the country, i.e. about 33,000 hectares. Malhotra (1998), Malhotra *et.al* (2001), and Ramachandra Guha (2000) reported that, the total number of sacred groves could be as high as 100,000 to 1,50,000. Of these most of the Sacred Groves were found in the Himalayan region, Western Ghats and Eastern Ghats, Coastal regions, Central Indian Plateau and Western desert (Gadgil and Vartak, 1976, Burman, 1992, Rodgers, 1994, Khumbongmayum *et al.*, 2005). According to Ghate and Sane (2006a) in different 28 festivals and traditions of Maharashtra, 80 different plant parts are offered or used.. The number of sacred groves in Maharashtra was 233 documented by Gadgil and Vartak (1980) from Kolaba, Jalgaon, Pune, Satara, Kolhapur, Yavatmal, Bhandara and Chandrapur. A total of 2820 sacred groves have been documented from Maharashtra by Deshmukh (1999). The pioneering of scientific studies on sacred groves are done by Gadgil and Vartak (1973, 1975, 1976, 1980, 1981) in Maharashtra are they reported Sacred Groves in tribal and non tribal areas. They are called as 'Devrai' in Maharashtra while 'Devgudi' in Eastern parts Madiya tribal. In India, the sacred groves existence most likely dates back to an ancient pre-agrarian hunting- gathering era of civilization and known to thrive in India (Kosambi, 1962). In India, between 100000 and 150000 sacred groves have been reported. The Himalayan region, Western and Eastern Ghats, Coastal Region, Central Indian Plateau, and Western Desert are all home to Sacred groves in India (Singh *et al.*, 2017). Kandari *et al.*, (2014) studied the role of sacred groves in ecosystem, such as air, soil, and water conservation, flora and fauna conservation, carbon capture and storage, temperature management, and traditional knowledge conservation run smoothly .

Ankur Patwardhan *et al* 2021 studied the 66 sacred groves in the Maharashtra State of Western Ghats biodiversity hot-spot in India which shows different facets of human-nature relationships. They found that about 52% of the groves have an area less than one-half hectare, of these 7% of groves have male deities, 29% female and 26% were dedicated to spirit. Tobias *et al* (2020) reported that, Sacred Groves important for the conservation of biodiversity and aims to identify the most important social values, taboos and perceived threats around sacred groves in the Kurdistan province of Iran. The research aims to explore and document changes in floristic diversity. Sacred groves are found in many countries globally, especially common in parts of Asia and Africa (Verschuuren *et al.*, 2010). The sacred groves; play a valuable role in the preservation of biodiversity, Because of their long history, local tradition and the desire of local people to protect and preserve the natural sites. (Doffana & Were 2019). Samul *et al* (2021) studied comparative study of three sacred groves in southwest Nigeria. It is evident from the literature that, sacred groves are studied with reference to biodiversity point of view (Gadgil 1985, Khan *et al.* 2008, Godbole *et al.*, 1998, Britto *et al.* 2001, Bhagwat *et al.* 2005, Kushlappa and Bhagwat, 2001, Khumbongyayum *et al.*, 2006, Nair *et al.*, 1997, Ramkrishnan 1996, Tripathi 2001, Sunitha and Rao, 1999) and many others. Jagdale (2021) studied role of Sacred Groves in Conservation of Biodiversity and stated that, the sacred patches of forest were houses for several indigenous and endemic plants having nutritional and medicinal importance. The ethnic people preserve a part of forest land for their respective gods. Thus cutting of trees or plucking of flowers and fruits are strictly prohibited in

these regions. The first study on sacred groves in Western Ghats of Maharashtra was carried out by Gammie (1903) in Lonawala and Karla groves the floristic research identified 84 species across both groves, but according to Saste Kishor Himmat and Bhagat Rani Babanrao (2024) our present study reveals a significant decline. The research aims to explore and document changes in floristic diversity. The sacred groves also help in maintaining and preserving the rich and diverse biological wealth; balance the ecosystem; reduce habitat destruction; conserve viable population of pollinators and predators; protect the indigenous plants and animals; conserve traditional knowledge; promote species coexistence Biological diversity of sacred groves and their conservation need have been well recognized. and highlight the significant role and potential of the sacred groves

MATERIALS AND METHODS

The study was conducted and taxonomic list of flora is recorded during various seasons from the year of June 2021 to July 2023. The survey will be conducted on the basis of field visits. Primary checklists and identifications were made by prepared by using photographic and visual basis and previously available literature such as, Flora of Baramati by R. B. Bhagat et al (2008), Flora of presidency of Bombay by Cooke (1903), Flowers of Sahyadri by Shrikant Ingahalikar (2015), Awale and Bachulkar (2014) and Singh & Karthikeyan (2000, 2001).

Study Area

Banshankari sacred grove is situated in Sangli district of Jath tahsil, which is just near the Banali village. With Latitude 17.1430° N, Longitude 75.2144° E. it spread over the 27 acres of area. The area around the Banshankari temple is surrounded by thick tall trees. This area is with low humidity, low water availability, low precipitation and high temperature. The average rain fall is about 580 mm per year due to South-West Monsoon. The average temperature of this area ranges from 18°C to 45°C. Important field aspects of each species such as scientific name, habitat, flowering–fruiting seasons, status were studied. *Ficus* (*Ficus bengalensis*) the most prevalent tree species has a dense growth. *Ficus* is always a sacred tree of tribal's and under its shade their deities are worshipped. (Plate No.1).



Banashankari Goddess

*Syzygium cumini**Ficus benghalensis**Mangifera indica**Tamarindus indica*

Satellite image of Banashankari Sacred grove

RESULTS

From the study area of Banshankari we reported 41 species of plants from 27 families and 32 genera. It forms typical plant diversity within these sacred groves are follows

Sr.No.	Botanical Name	Family	Common Name
1	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Jambhul
2	<i>Azadirachta indica</i> Juss	Meliaceae	Neem
3	<i>Alangium salvifolium</i> (L.f.) Wangerin	Cornaceae	Ankol
4	<i>Tamarindus indica</i> L.	Fabaceae	Chinch
5	<i>Butea monosperma</i> (Lam.) K. Taub.	Fabaceae	Palas
6	<i>Ficus racemosa</i> L.	Moraceae	Umbar
7	<i>Ficus benghalensis</i> L.	Moraceae	Vad
8	<i>Ficus religiosa</i> L.	Moraceae	Pimpal
9	<i>Mangifera indica</i> L.	Anacardiaceae	Amba
10	<i>Aegle marmelos</i> (L.) Corr	Rutaceae	Beal
11	<i>Ziziphus jujuba</i> (L.) Lam.	Rhamnaceae	Bor
12	<i>Ziziphus nummularia</i> Wight & Arn	Rhamnaceae	Gangra
13	<i>Ziziphus xylopyrus</i> Wight & Arn	Rhamnaceae	Ghatbor
13	<i>Bauhinia racemosa</i> Lam.	Caesalpiniaceae	Aapta
14	<i>Cassia auriculata</i> L.	Caesalpiniaceae	Tarwad
15	<i>Cassia fistula</i> L.	Caesalpiniaceae	Bahava
16	<i>Cassia occidentalis</i> L.	Caesalpiniaceae	Rantakala
17	<i>Delonix regia</i> (Hook.) Raf.	Caesalpiniaceae	Gulmohar
18	<i>Vitex negundo</i> L.	Verbenaceae	Nirgudi
19	<i>Annona squamosa</i> L.	Annonaceae	Sitaphal
20	<i>Annona reticulata</i> L.	Annonaceae	Ramphal
21	<i>Boswellia serrata</i> Roxb.	Burseraceae	Dhupali
22	<i>Dolichandrone falcata</i> (Wall. ex DC.) Seem.	Bignoniaceae	Madeshingi
23	<i>Wrihtia tinctoria</i> Roxb.	Apocynaceae	Kala kuda
24	<i>Acacia catechu</i> Willd	Mimosaceae	Khair
25	<i>Thespesia populnea</i> (L.) Sol.	Malvaceae	Gulbhendi
26	<i>Ailanthus excels</i> Roxb.	Simaroubaceae	Maharuk
27	<i>Rotheca serrata</i> (L.) Steane & Mabb.	Lamiaceae	Bharangi
28	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Gokharu
29	<i>Agave americana</i> L.	Asparagaceae	Kekati

30	<i>Cereus peruvianus</i> Mill.	Cactaceae	Tindhari nivdung
31	<i>Opuntia elatior</i> Mill.	Cactaceae	Nivdung
32	<i>Argemone Mexicana</i> L.	Papaverceae	Pivala dhotara
33	<i>Capparis zeyaniaca</i> L.	Capparaceae	Waghati
34	<i>Gliricidia sepium</i> Jacq.	Fabiaceae	Undirmari
35	<i>Acacia polyacantha</i> Willd	Mimosaceae	Sonkhir
36	<i>Lantanacamara</i> L.	Verbenaceae	Ghaneri
37	<i>Tinospora cordifolia</i> (Thunb.) Miers	Menispermaceae	Gulvel
38	<i>Bauhinia recemosa</i> Lam.	Caesalpiniaceae	Aapta
39	<i>Acacia torta</i> (Roxb.) Crab.	Mimosaceae	Hivar
40	<i>Acacia nilotica</i>	Fabaceae	Babul
41	<i>Prosopis juliflora</i> (Sw.) DC.	Fabaceae	Ballar

DISCUSSION

During study we reported , *Ficus (Ficus bengalensis)* the most prevalent tree species has a dense growth. *Ficus* is always a sacred tree of tribal's and under its shade their deities are worshipped. The diameter of trunk of *Ficus* is about nine meter. Commonly found trees are *Syzygium cumini* (Jambhul), *Tamarindus indica* (Chinch), *Butea monosperma* ((Palas) and *Ficus benghalensis* (Vad). The villagers offering vegetarian food to Banasankari devi therefore the entire village is vegetarian. None of the villagers eat meat here, so let's learn about this interesting village's different aspects. There are two big wells in this area and water is supplied to Banali village from one well, and from the second well, water is supplied to the trees and other uses in the temple premises.. Therefore it constitute an important aspect of the cultural life of various communities throughout the world. The biodiversity keeps the ecological processes in balanced state, which is necessary for human survival. Groves were associated with religious rites, festivals and recreation. The village people believe in the tradition of the groves more than the younger generation So there is urgent need to document and recognize these groves and initiating dialogues with the community members on the social, cultural, and ecological value of these groves. These groves are protected and often shelter plants and animal species There has been a reduction in forest cover because of increasing population and rapid industrialization, this resulted in threat and loss of species and has damaged the biodiversity. (Misra et al., 2014). Any loss of these species could result in ecological and economic consequences (Warrier and Warrier, 2019; Sharma and Kumar, 2021). These sacred groves provide an ideal sites not only to preserve the plant and animal species but also to study the biology of those plants species which have not been explored before. Creating awareness about the social and ecological benefits of maintaining sacred groves among local people, especially youth, can help in reviving these practices and conserving them as a natural heritage for future generations is the need of the hour. Sacred groves are influenced by urbanization, it leads to decline in awareness about the importance of

preserving these groves by constructing concrete temples by clearing natural vegetation and planting ornamental and other economically useful trees. . The respondents affirmed that the plants inside these sites are never cut or harmed and some plant like neem (*Azadirachta indica* A. Juss.), banyan (*Ficus benghalensis* L.) and peepal (*Ficus religiosa* L.) present in the sacred groves are more than a century old. The present study indicates the role of sacred groves in biodiversity conservation through faith, belief, religious activity and community participation

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