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RESEARCH ARTICLE

PLANT INTRODUCTIONS AND CHANGES IN THE FLORISTIC COMPOSITION: A CASE STUDY ON NAGOBASACRED GROVE FROM NORTHERN TELANGANA, INDIA

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Abstract

The “Nagobha” sacred grove is located at Keshlapur village in the Indervellimondal of Adilabad district in the Northern Telangana state. The grove is the deity (a god or goddess) of the primitive tribes of the mesram clan of the Raj Gonds. The deity represents “serpent god” (Shesh Nag) offers prayers by the entire Gonds community. Every year in the Pushyamasam in the months of January and February they celebrate the Nagoba carnival (Nagobajathara) one of the second biggest tribal carnival in the Telangana state. The sacred grove is located in the lap of natural forest area, which is adjoining to the one of the Kawal Tiger reserve corridors of Utnoor division. The sacred grove surround area (30 acres) declared as “Nagobavanam”. The present studies mainly focused on exploration of floristic diversity in the Nagobavanam. During the study a total of 88 species of flowering plants belongs to 37 families reported from the study area. Out of total 39 species are representing wild species naturally growing and 49 species are introduced (Native/exotics). The composition of native and exotic plants is almost equal number (Table 1). The floristic composition and the threats and pressure pertaining to Nagoba sacred grove and its adjoining natural forest discussed in detail.

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Introduction:-

The Sacred groves are indeed unique and vital ecosystems. They serve as a representation of natural vegetation in many regions. These groves are dedicated to local deities or ancestral spirits, which are deeply revered by indigenous tribes and communities (Oviedo, 2005). The significance lies not only in the spiritual aspect but also in their ecological importance. These groves function as self-contained ecosystems, carrying out essential ecological processes (Malhotra, 2001). They help in maintaining biodiversity by harbouring a variety of plants and wildlife, some of which may be rare and endangered (Anthwal, 2010). Sacred groves also play a crucial role in soil conservation, water retention, and the overall health of the environment in their surroundings (Karunakran, 2005). Preserving and respecting sacred groves is not just a matter of cultural significance but also an ecological imperative, as they contribute to the overall balance and health of our natural forest ecosystems (Chandran, 1998). The earlier studies on sacred groves on Telangana state is very limited and carried out long back (WWF, 1996). Since the studies there is a tremendous change has come in the virgin vegetation of sacred groves at many places with introduction of native and not native species and with other developmental activities. To find out the changes in the floral compositions and in the other aspects the work has taken up in the entire Telangana

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state. The studies are more focussed on the less know groves exist in the forest fringe areas. The studies mainly focused on the recognition of less know sacred groves, exploration of their floristic wealth, composition of introduced native and non-native species, and identification of threats by modernization of groves and with various developmental activities.

Nagoba, name derived from the “Marathi” language ‘Nag’ meaning snake, stands at the confluence of the River Pranahita and the River Godavari. This adds to the significance of the place. The “Nagobha” sacred grove is located at Keslapur village in the Indervellimondal of Adilabad district in the Northern Telangana. Keslapur, is a hamlet located at a distance of 32 km’s from Adilabad headquarters and 25 km’s from the Utnoor mandal. The study site is between Latitude 19°20.11.9436’N, Longitude 78°37.36.1344’ at about 447Ft., above Sea Level. The grove is the deity (God/Goddess) of the primitive tribes of mesram clan of the raj gonds. The deity represents “serpent god” (Shesh Nag) was in a small shed with a dry vegetation roof and offers prayers by the entire gonds community. There is a once in a year in the pushyamasam in the months of January and February they celebrate the Nagoba carnival (Nagobajathara) one of the second biggest tribal carnival in the Telangana state. The carnival attracts devotees from the entire Telangana state and neighboring states (Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Maharashtra, Orissa, and Chhattisgarh). The event evokes huge curiosity among urban dwellers also as tourists’ throng to Keslapur village from different parts of the state to witness this unique and interesting expression of their faith. The grove is located in the lap of natural forest, which is adjoining to the o Kawal Tiger reserve corridor of Utnoor division. The grove surrounding area ca.30 acres declared as a “Nagobavanam” and maintained by the local government authority (forest and revenue) and local Adivasi community. The present studies mainly concentrated on exploration and analysis of floristic wealth in the nagobavanam. With introductions and various developmental activities the threats pertaining to the native vegetation in around the grove discussed in detail.



Plate 1:

Legend: a-c: The Nagoba deity; d-e: The newly constructed temple for nagoba deity; f-h: Natural forest area in around the nagoba; i: Nagobavanam developed by local govt. officials; j: Author (Narendar, T) collecting the data from the local people; k: The devotees during the nagoba carnival.

Materials and Methods:-

Exploration and documentation of the sacred groves and their floristic wealth in the state of Telangana initiated in the year 2021. Initially the studies focused on the sacred groves exist in the remote areas, in the forest fringe areas, they are the deities of the primitive people. The first and foremost we have taken up the nagoba sacred grove for study. The field visits made into the grove in different seasons to study the vegetation from 2021 to 2023. To find out the details of history, nagoba carnival, and the conservation practices interacted with the head and community members of the Keslapur hamlet. As part of the study visited a nagobacarnival to know the customary practices offers by the mesram clan of the raj gond community. Make the comprehensive documentation of plant wealth in the nagobavanam the plant specimens were collected, photographed and identified with the help of Floras (Gamble, 1915-1936). The collected specimens were processed and made into an herbarium in accordance with the methodology adopted by Jain and Rao (1977). The plant specimens collected for making herbarium only of the native plants not of the plantations and exotics in the nagobavanam. The studies resulted a total of 88 species of flowering plants belongs to 37 families reported. The plant species are arranged alphabetically (Table 1.) along with their scientific name, family, local/common names and status of native and exotic.

Table 1:- List of plants of Nagobavanam: With their family, local/common name and native and exotic status.

S.No.	Scientific Name	Family	Local name	Status
1	Acacia auriculiformis A.Cunn. ex Benth.	Fabaceae	Earleaf acacia	Exotic
2	Achyranthes aspera L.	Amaranthaceae	Uttareni	Wild
3	Argyria nervosa (Burm.f.) Bojer	Convolvulaceae	Elephant creeper	Native-Planted
4	Alternanthera tenella Moq.	Amaranthaceae	Weed	Exotic- Weed
5	Aegle marmelos (L.) Corrêa	Rutaceae	Bilva, Maredu	Native-Planted
6	Alstonia scholaris (L.) R.Br.	Apocynaceae	Eduakulapala	Native-Planted
7	Annona squamosa L.	Annonaceae	Seethaphal	Wild
8	Alysicarpus hamulosus Edgew.	Fabaceae	alysicarpus	Wild
9	Artocarpus heterophyllus Lam.	Moraceae	Panasa, Jackfruit	Native-Planted
10	Azadirachta indica A.Juss.	Meliaceae	Vepa, Neem	Native-Planted
11	Boerhavia diffusa L.	Nyctaginaceae	Punarnava	Wild
12	Bambusa bambos (L.) Voss	Poaceae	Veduru, Bamboo	Wild
13	Bougainvillea glabra Choisy	Nyctaginaceae	Paper flower	Exotic
14	Butea monosperma (Lam.) Kuntze	Fabaceae	Moduga, Palasha	Wild
15	Boswellia serrata Roxb.	Burseraceae	Andugu	Wild
16	Calotropis gigantea (L.) W.T.Aiton	Apocynaceae	Jilledu	Wild
17	Calotropis procera (Aiton) W.T.Aiton	Apocynaceae	Chinnajilledu	Wild
18	Carissa macrocarpa (Eckl.) A.DC.	Apocynaceae	Kalmikaya	Native-Planted
19	Cascabela thevetia (L.) Lippold	Apocynaceae	Pachhaganneru	Exotic
20	Cassia fistula L.	Fabaceae	Rela	Wild
21	Cassia roxburghii DC.	Fabaceae	Roxburg cassia	Native-Planted
22	Chloris barbata Sw.	Poaceae	Uppu gaddi	Wild
23	Cordia dichotoma G.Forst.	Boraginaceae	Iriki	Wild
24	Cyperus rotundus L.	Cyperaceae	Thunga	Wild
25	Cynodon dactylon (L.) Pers.	Poaceae	Garika	Wild
26	Cleome viscosa L.	Cleomaceae	Adityabhakta	Wild
27	Crotalaria verrucosa L.	Fabaceae	Tellaiswari	Native-Planted
28	Colocasia esculenta (L.) Schott	Araceae	Elephants Ear	Native-Planted
29	Diospyros melanoxylon Roxb.	Ebenaceae	Tuniki	Wild
30	Duranta erecta L.		Golden dewdrop	Exotic

		Verbenaceae		
31	Eucalyptus tereticornis Sm.	Myrtaceae	Neelagiri	Exotic
32	Evolvulus alsinoides (L.) L.	Convolvulaceae	Vishnu crantha	Wild
33	Evolvulus nummularius (L.) L.	Convolvulaceae	Weed	Exotic-Weed
34	Euphorbia heterophylla L.	Euphorbiaceae	Mexican fireplant	Exotic-Weed
35	Euphorbia hirta L.	Euphorbiaceae	Pachhabotlu	Wild
36	Erythrina abyssinica Lam.	Fabaceae	Munumoduga	Wild
37	Ficus benghalensis L.	Moraceae	Marri, banyan tree	Native-Planted
38	Ficus religiosa L.	Moraceae	Raavi, Peepal tree	Native-Planted
39	Ficus racemosa L.	Moraceae	Medi	Wild
40	Ficus virens Aiton	Moraceae	Juvvi	Wild
41	Ficus hispida L.f.	Moraceae	Bommamedi	Wild
42	Gomphrena serrata L.	Amaranthaceae	Weed	Exotic-Weed
43	Hibiscus rosa-sinensis L.	Malvaceae	Mandhara	Native-Planted
44	Ipomoea pes-tigridis L.	Convolvulaceae	Tigers foot print	Wild
45	Limonia acidissima L.	Rutaceae	Velaga	Wild
46	Lantana camara L.	Verbenaceae	lantana	Exotic-Weed
47	Manilkara hexandra (Roxb.) Dubard	Sapotaceae	Pala chettu	Native-Planted
48	Madhuca longifolia (L.) J.F. Macbr.	Sapotaceae	Ippa, Mouha	Wild
49	Mangifera indica L.	Anacardiaceae	Mango, Mamidi	Native-Planted
50	Mimosa pudica L.	Fabaceae	Touch me not	Exotic
51	Muntingia calabura L.	Muntingiaceae	Singapore cherry	Exotic
52	Mesosphaerum suaveolens (L.) Kuntze	Lamiaceae	hyptis	Exotic-Weed
53	Monoon longifolium (Sonn.) B.Xue & R.M.K. Saunders	Annonaceae	Naramamidi	Native-Planted
54	Neolamarckia cadamba (Roxb.) Bosser	Rubiaceae	Kadamba	Native-Planted
55	Nerium oleander L.	Apocynaceae	Ganneru	Exotic-Planted
56	Nyctanthes arbor-tristis L.	Oleaceae	Parijatham	Native-Planted
57	Oureta lanata (L.) Kuntze	Amaranthaceae	Pindikura	Wild
58	Ocimum tenuiflorum L.	Lamiaceae	Thulasi	Native-Planted
59	Phyllanthus emblica L.	Phyllanthaceae	Amla, Usiri	Native-Planted
60	Plumeria rubra L.	Apocynaceae	Nidraganneru	Exotic-Planted
61	Plumeria obtusa L.	Apocynaceae	White Frangipani	Exotic-Planted
62	Punica granatum L.	Lythraceae	Pomegranate	Native-Planted
63	Parthenium hysterophorus L.	Asteraceae	Weed	Exotic-Weed
64	Physalis angulata L.	Solanaceae	Weed	Exotic-Weed
65	Phyllanthus amarus Schumacher & Thonn.	Phyllanthaceae	Nelausiri	Wild
66	Pongamia pinnata (L.) Pierre	Fabaceae	Kanuga	Native-Planted
67	Syzygium cumini (L.) Skeels	Myrtaceae	Allaneredu, Jamoon	Wild
68	Santalum album L.	Santalaceae	Sri chandanam	Native-Planted
69	Senna tora (L.) Roxb.	Fabaceae	Weed	Exotic-Weed
70	Senna uniflora (Mill.)	Fabaceae	Weed	Exotic-Weed

	H.S.Irwin&Barneby			
71	Sida acuta Burm.f.	Malvaceae	Athi bhala	Wild
72	Stephanotis volubilis (L.f.) S.Reuss, Liede&Meve	Apocynaceae	Peddagurijaku	Wild
73	Tabernaemontana divaricata (L.) R.Br. ex Roem. &Schult.	Apocynaceae	Nandhivardhanam	Native-Planted
74	Trichosanthes tricuspidata Lour.	Cucurbitaceae	Foetid fruit	Wild
75	Tecoma stans (L.) Juss. ex Kunth	Bignoniaceae	Yellow bells	Exotic-Planted
76	Tecoma castanifolia (D.Don) Melch.	Bignoniaceae	Trumpet bush	Exotic-Planted
77	Tectona grandis L.f.	Lamiaceae	Teak	Wild
78	Tephrosia purpurea subsp. purpurea	Fabaceae	Vempali	Wild
79	Tribulus terrestris L.	Zygophyllaceae	Palleru	Wild
80	Terminalia catappa L.	Combretaceae	Indian almond	Wild
81	Terminalia elliptica Willd.	Combretaceae	Nallamaddi	Wild
82	Terminalia bellirica (Gaertn.) Roxb.	Combretaceae	Thanikaya	Wild
83	Tridax procumbens L.	Asteraceae	Gaddichamanthi	Exotic-Weed
84	Urochloa ramosa (L.) T.Q.Nguyen	Poaceae	Browntop millet	Wild
85	Vachellia nilotica (L.) P.J.H.Hurter&Mabb.	Fabaceae	Nallathumma	Wild
86	Vitex negundo L.	Lamiaceae	Vavili	Wild
87	Wrightia tinctoria (Roxb.) R.Br.	Apocynaceae	Ankudu	Wild
88	Ziziphus mauritiana var. mauritiana	Rhamnaceae	Regu	Wild

Results and Discussions:-

The studies reveal a total of 88 species of flowering plants belongs to the 37 families. Among those 39 species represents wild (naturally growing) in the study area and remaining 49 species represents introductions either indigenous or exotic plantations. In the introductions 25 species belongs to indigenous elements and 24 belongs to purely exotic elements (Table 1). The nagoba sacred grove is an ancient grove, which is located in the natural forest fringe area but the studies reveals the presence of 30% the floral elements only naturally growing as a wild and 70 % of the floral elements are introductions either indigenous or exotics. There is also a widely spreading alien weeds reported, they are spreading rapidly and suppressing the native vegetation, its regeneration and growth (**Alternanthera tenella**, **Evolvulus nummularius**, **Gomphrena serrata**, **Mesosphaerum suaveolens**, **Physalis angulata**, **Senna uniflora**, **Senna tora**, **Lantana camara** etc.). A few exotic ornamental members of bignoniaceae such as **Tecomastans** and **Tecoma castanifolia** with their thin, flat and winged profusely regenerating and rapidly spreading also noticed. Many of the plant introductions from various places also bringing the pests and diseases and another threat for the natural vegetation in around the nagoba grove is noticed.

Conclusions:-

The Sacred groves serves as a representation of virgin forests and conserved by the local community (Archana, 1996). They help in maintaining biodiversity by harbouring a variety of native plants and wildlife (Rajendraprasad, 1995; Oviedo G, 2005; Karunakran, 2005, Chandrashekara, 2011). Modernization and with various developmental activities many of the virgin sacred groves are losing their naturality. The developmental activities for well being of pilgrims, however the groves with the untouched vegetation since decades is under threat and replacing by the introductions native or exotics. The other problems during the carnivals dumping of waste and plastic in around the groves, the natural places turning into a garbage dumping sites is another threat mainly for wildlife. In view of all these the ancient groves located in the natural forest fringe areas are untouched and left free from developmental activities to retain them for the continuation of an ancient tradition of nature conservation by the local community.

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