

PRELIMINARY STUDIES ON FLORISTIC STATUS OF SOME SELECTED SACRED GROVES FROM SANGAMESHWAR TALUKA, DISTRICT RATNAGIRI, MAHARASHTRA

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A B S T R A C T

Western Ghat in Maharashtra has a large number of Sacred groves and Sangameshwar Taluka alone has more than 150 sacred groves. The author gives an account of the preliminary studies on the flora of some selected groves from Sangameshwar taluka. During the rainy season, about 352 species of Angiosperms and 13 species of Pteridophytes were collected. The present status of these groves are also discussed.

INTRODUCTION

Sangameshwar Taluka is situated at 16°13' N 18°0' N latitude and 73°02' E - 73°52' E longitude in Ratnagiri district of North-western Ghat. Being a coastal taluka it has high percentage of humidity. Climate is moist and humid. Proper monsoon season is from June to October. During this season the rainfall is very heavy (3650 mm) and temperature drops during the monsoon. Soil of this area is laterite. The forest here is moist deciduous type with tall trees, lofty lianas and dense undergrowth.

It has been observed that the sacred groves are more in Konkan region (Western side). Sangameshwar Taluka alone has more than 150 groves having a lot of variation in the floristic composition, ecological and preservation status, size than any other area. These cluster of sacred groves are one of the component of biodiversity of the region. Sometimes it is the last remain of the lost biodiversity. This increases the importance of vegetation protected by the community in the diverse ecological situation in the form of sacred groves. Most of these groves are on village common land under the control of Revenue Department, Marleshwar being the exception, belongs to temple trust.

To have a profile of the present status of various sacred groves of Sangameshwar Tehsil from Ratnagiri District the following eight groves for further study namely Vashi (0.64 Ha.), Hativ (0.47 Ha.), Kundi (5.6 Ha.), Bellari (5.14 Ha.), Marleshwar (5Ha.), Vigraveli (4Ha.), Kulye (13.44 Ha.), Karambele (4 Ha.) based on the difference in area and size, ecology and conservation status have been selected.

Since the publication of T. Cooke's "Flora of Bombay Presidency" (1901) many renowned taxonomists have contributed towards the taxonomic literature of Maharashtra. The floristic survey of Ratnagiri district was done by Mistry and Almeida (1986). Gadgil and Vartak

(1975) studied the sacred groves of Maharashtra. Recently Mundley and Deshmukh from the Bombay Natural History Society have started to prepare the status of sacred groves in Maharashtra. Archana Godbole has studied the sacred groves of Sangameshwar taluka to prepare the profile and preservation in these sacred groves with people's participation. But, none of these earlier researchers have given emphasis on the floristic studies, especially the ephemerals from these groves. Only a brief checklist of Monsoon ephemerals from Ratnagiri district is given in the Flora of Maharashtra (Almeida, 1:Xiiii.1996). Systematic study enlightens the knowledge of rare and endangered species of a particular area. Considering all the above facts, the present topic has been selected for detailed study.

METHODOLOGY

The preliminary study of this flora is based on periodical visits to these selected groves from July 2000 to November 2000. Devrukh, the nearest place from all the groves was chosen as headquarter for the field work. The plants were collected in triplicate in flowering/fruiting. Field notes, photographs of vegetation type and of few interesting plants were also taken during the field work. Local people have also accompanied for moving in the interior of the groves. About 352 species of plants including many ephemerals have been dealt.

Herbs

Acampe praemorsa (Roxb.) Blatter
Achyranthes aspera var. *bidentata* Hook.f
Aeginetia indica L.
Aeschynomene indica L.
Ageratum conyzoides L.
Alternanthera sessilis Br.
Alysicarpus monilifer DC.
A. vaginalis DC.
Amorphophallus commutatus Eng.
Aneilema nodiflorum Kunth.
Ariopsis peltata Nimmo
Arisaema murrayi Hook.
Arundinella lawii Hook.f.
Asystasia dalzelliana Sant.
Begonia crenata Dryand.
Bidens pilosa L.
Biophytum sensitivum DC.
Borreria stricta (L.f.) Schum.
Burmanna pusilla (Wall. ex Miers) Thw.
Canscora diffusa Br.
Cassia absus L.
C. mimosoides L.
C.tora L.

Cassia uniflora L.
Celosia argentea L.
Centranthera hispida R. Br.
Chlorophytum breviscopum Dalz.
Clitoria biflora Dalz.
Colocasia esculenta (L.) Schott
Commelina kurzi Clarke
Corchorus capsularis L.
C. olitorius L.
Costus speciosus Sm.
Crotalaria filipes Benth.
C. montana L.
Curculigo orchiioides Gaertn.
Curcuma pseudomontana Graham
Cyanotis axillaris Schult.
Cyathocline purpurea (Don) Kuntze
Cynodon dactylon Pers.
Desmodium triangulare (Retz.) Santapau
D. triflorum DC.
Desmostachya bipinnata Stapf.
Drosera indica L.
Elephantopus scaber L.
Emilia sonchifolia DC.

Epithema carnosum var. *hispida* Benth.
Eragrostis unioloides Nees
Eria dalzellii Lindl.
Eriocaulon thomsonii Koenig.
Euphorbia hirta L.
Exacum pumilum Griseb.
Fleurya interrupta Gaud.
Geissaspis tenella Benth.
Girardinia zeylanica Decne.
Hedychium scaposum Nimmo
Hibiscus hirtus L.
Impatiens balsamina L.
I. chinensis L.
I. pusilla Heyne
Indigofera trifoliata L.
Isachne lisboae Hk.f.
Justicia montana Wall.
J. simplex Clarke
Kyllinga monocephala Rottb.
Leucas ciliata Benth.
Lindernia oppositifolia (Retz.) Mukh.
Ludwigia perennis L.
Malaxis rheedei Heyne
Mimosa pudica L.
Ocimum basilicum L.
O. sanctum L.
Oplismenus compositus Beauv.
Orthosiphon glabratus Benth.
Physalis minima L.
Pimpinella monoica Dalz.
Pouzolzia zeylanica (L.) Benn.
Remusatia vivipara Schott
Rhynchoglossum obliquum Bl.
Rungia pectinata Nees
Rhynchospora wightiana Steud.
Senecio grahamii Hook.f.
Sida acuta Burm.f.
S. cordifolia L.
S. rhombifolia L.
Smithia conferta Sm.
S. sensitiva Ait.
Sopubia delphinifolia Don
Striga lutea Lour.

Striga orobanchoides Benth.
Tagetes patula L.
Tephrosia villosa Pers.
Torenia vagans Roxb.
Trichodesma indicum R.Br.
Triumfetta rhomboidea Jacq.
Uraria hamosa Desv.
Urena lobata L.
U. sinuata L.
Utricularia reticulata Sm.
U. striatula Sm.
Xyris indica L.
Zingiber nimmonii Dalz.
Zornia gibbosa Span.

Shrubs

Abelmoschus moschatus Medik.
Antidesma acidum Retz.
Barleria prionitis L.
Calotropis gigantea Br.
Carissa carandas L.
Carvia callosa Bremek.
Clerodendrum inerme Gaertn.
C. infortunatum L.
C. serratum Spr.
Colebrookea oppositifolia Sm.
Desmodium cephalotes Wall.
Ecbolium linneanum Kurz
Embelia basal DC.
Eupatorium divergens Dalz.
Flueggea leucopyrus Dalz.
Glochidion velutinum Wt.
Glycosmis mauritiana Corr.
Helicteres isora L.
Hemigraphis latebrosa Nees
Hibiscus rosa-sinensis L.
Holarrhena antidysenterica Wall.
Homonoia riparia Lour.
Ixora coccinea L.
I. parviflora Vahl
Jatropha curcus L.
Kirganelia reticulata (Poir.) Baill.

Lantana camara L.
Leea indica (Burm.) Merrill
Mappia foetida Miers.
Mussaenda glabrata (Hook.f.) Hutch.
Pavetta crassicaulis Bremek.
Pogostemon parviflorus Benth.
Randia dumetorum Lam.
Ricinis communis L.
Solanum indicum L.
Tabernaemontana heyneana Wall.
Thespesia lampas Dalz. & Gibs.
Vitex negundo L.
Woodfordia floribunda Salisb.

Trees

Acacia catechu Willd.
Acacia concinna DC.
Adina cordifolia Hook. f.
Aglaia lawii (Wt.) Ramam.
Albizia amara Boiv.
A. lebbeck (L.) Benth.
Alseodaphne semicarpifolia Nees
Alstonia scholaris (L.) R.Br.
Amoora lawii (Wt.) Bedd.
Anacardium occidentale L.
Anamirta cocculus Wt. & Arn.
Antiaris toxicaria (Pers.) Leschen
Aporosa lindleyana (Wt.) Baill.
Artocarpus integrifolia L.
Atlantia racemosa W. & A.
Bombax ceiba L.
Borassus flabellifer L.
Bridelia retusa Spreng.
B. squamosa Gehrm.
B. squamosa Gehrm.
Butea monosperma (Lamk.) Taub.
Callicarpa tomentosa (L.) Murr.
Canthium dicoccum DC.
Carallia brachiata DC.
Careya arborea Roxb.
Caryota urens L.
Casearia graveolens Dalz
Cassia fistula L.

Catunaregum spinorum (L.) Tiruveng.
Celtis cinnamomea Lindl.
Clausena wildenovii Wt. & Arn.
Cordia dichotoma Forst.
Dalbergia latifolia Roxb.
Dillenia pentagyna Roxb.
Embelia ribes Burm.f.
Erinocarpus nimmonii J.Grah.
Ficus arnottiana Miq.
F. bengalensis L.
F. gibbosa Bl. var. *parasiticus* Koen.
F. glomerata Roxb.
F. hispida L.f.
F. infectoria Roxb.
F. mysorensis Bl.
F. religiosa L.
F. tsiela Roxb.
Firmiana colorata (Roxb.) R.Br.
Flacourtia montana Grah.
Garcinia indica Chois.
G. talbotii Raiz. ex Sant.
Garuga pinnata Roxb.
Gliricidia sepium (Jacq.) Walp.
Gmelina arborea L.
Grewia laevigata Wt. & Arn.
G. tiliaefolia Bedd.
Hydnocarpus wightiana Bl.
Hymenodictyon excelsum (Roxb.) Wall.
Ixora arborea Roxb.
I. brachiata Roxb.
Knema attenuata (Wall.) Warb.
Lannea coromandelica (Houtt.) Merr.
Lasiosiphon chelidinoides DC.
Lepisanthes tetraphyllus (Vahl) Rddlk.
Litsea chinensis Sonn.
Macaranga peltata (Roxb.) Muell.
Mallotus philippinensis (Lamk.) Muell.
Mangifera indica L.
Mesua ferrea L.
Microcos paniculata L.
Mimusops elengi L.
Mitragyna parvifolia (Roxb.) Korth.
Morinda citrifolia L.

- Murraya koenigii* (L.) Spreng.
Nothopegia racemosa (Dalz.) Raman
Ochrocarpus longifolius Benth. & Hook.f.
Oroxylum indicum Vent.
Persea micrantha (Nees) Kosterm.
Plumeria acutifolia Poir.
Pongamia pinnata (L.) Pierre
Pterocarpus marsupium Roxb.
Pterospermum acerifolium Willd.
Pterygota alata R.Br.
Radermachera xylocarpa (Roxb.) K. Schum.
Sageraea laurina Dalz. & Gibs.
Saraca asoca (Roxb.) de Wilde
Sideroxylon tomentosum Roxb.
Sterculia guttata Roxb.
Strychnos potatorum L.f.
Syzygium cumini (L.) Skeels
Terminalia bellirica (Gaertn.) Roxb.
T. crenulata Roth
Tectona grandis L.f.
Terminalia paniculata Roth
Tetrameles nudiflora R.Br.
Trema orientalis (L.) Bl.
Trewia nudiflora L.
Turreya villosa Benn.
Vangueria spinosa Roxb.
Vitex altissima L.f.
Wrightia tinctoria R.Br.
Zanthoxylum rhetsa DC.
Ziziphus mauritiana Lamk.
Z. oenoplia (L.) Mill.
- Vines**
- Abrus precatorius* L.
A. pulchellus Wall.
Allophylus cobbe (L.) Raeuch
Ampelocissus arnottiana Planch.
Argyreia nervosa (Burm.f.) Boj.
Aspidopteris cordata Juss.
Bauhinia vahlii Wt. & Arn.
Butea superba Roxb.
Calycopteris floribunda Lam.
Celastrus paniculata Willd.
Cissampelos pariera L.
Cissus carnosa Lamk.
C. discolor Bl.
Clematis hedysarifolia DC.
Combretum ovalifolium Roxb.
Cosmostigma cordatum (Dennst.) Almeida
Cryptolepis buchanani R. & S.
Cyclea peltata Miers
Dalbergia sympathetica Nimmo
D. volubilis Roxb.
Derris scandens Benth.
Dioscorea belophylla Voigt
D. bulbifera L.
D. pentaphylla L.
D. aculeata L.
Dimorphocalyx lawianus Hook. f.
Diploclisia glaucescens (Bl.) Miers
Entada pursaetha DC.
Gloriosa superba L.
Gouania leptostachya Wt.
Hemidesmus indicus Br.
Hiptage madabolata Dalz. & Gibs.
Jasminum malabaricum Wt.
Melothria maderaspatana Cogn.
Merremia vitifolia (Burm.f.) Hall.f.
M. umbellata Hallier
Mezoneuron cucullatum Wt. & Arn.
Mucuna pruriens (L.) DC.
Naravelia zeylanica DC.
Olex imbricata Roxb.
Paramignya monophylla Wt.
Pothos scandens L.
Smilax zeylanica L.
Stephania hernandifolia Walp.
Symphorema polyandrum Wt.
Thunbergia laevis Nees
Tinospora malabarica Miers
Toxicarpus kleinii Wt. & Arn.
Trichosanthes cucumarina L.
Ventilago calycina Tul.
V. bombaiensis Dalz.
Wagatea spicata Dalz.

Ziziphus rugosa Lamk.**Gymnosperm***Gnetum ula* Brongn.**Pteridophytes***Adiantum caudatum* L.*Athyrium hohenackerianum* (Kunze)

Moore

Bolbitis subcrenata (Hook. & Grev.)Ching *Cheilanthes albomarginata* Clarke*Drynaria quercifolia* (L.) J.Sm.*Lygodium flexuosum* (L.) Sw.*Microsorium membranaceum* (D. Don) Ching*Nephrolepis* sp.*Pityrogramma calomelanos* (L.) Link*Pteris quadriaurita* Retz.*Selaginella miniatispora* (Dalz.) Baker*Tectaria cicutaria* (L.) Copel

Table 1: Floristic analysis of plants found in 8 selected sacred groves.

	Vashi	Kundi	Kulye	Hativ	Bellari	Marlesh-war	Vighra-veli	Karam-bele
Trees	19	33	48	26	20	33	34	20
Shrubs	13	23	18	12	15	19	10	8
Herbs	57	35	29	52	38	43	62	45
Vines	22	32	26	21	15	21	23	20
Gymnosperm	1	0	1	1	0	1	1	1
Ferns	10	9	5	8	4	9	3	4
Total :	122	132	127	120	92	126	133	98

Table 2 : Bird eye view of plant count found in study areas.

	Dicoty-ledons	Monocoty-ledons	Total
Herbs	87	37	124
Shrubs	51		51
Trees	112	1	113
Vines	56	8	64
Ferns			13
Gymnosperm			1

Endemic plants found in the groves

Erinocarpus nimmonii J.Grah. (Tiliaceae), *Moullava spicata* Adans (Caesalpiaceae), *Ervatamia heyneana* (Wall.) Cooke (Apocynaceae), *Adelocaryum coelestimum* (Lindl.) Brand. (Boraginaceae), *Curcuma pseudomontana* Grah. (Zingiberaceae). These are the endemic plants of Western Ghats, also found in these sacred groves.

Rare plants seen in these groves

Erinocarpus nimmonii J.Grah. (Tiliaceae) Rare (Ref.- Red Data Book of Indian Plants, Vol.3, 1990) Depletion of forest for various developmental activities is mainly responsible for its rarity. This is a monotypic, endemic genus. Hence, it is of botanical and phytogeographical interest. This species can be protected by safeguarding its natural habitat. Conservation measures have not been taken so far. Bark of this plant yields good quality of fibre which is useful for cordage. Wood is soft.

Entada pursaetha DC. (Mimosaceae) Ref.-(An assessment of Threatened plants of India, B.S.I., 1983) This species is on the verge of extinction in this area due to the elimination of lofty trees from the forest.

Present status of the selected sacred groves

Most of these groves are very close to the main village and are preserved for deity or as the crematory ground (eg.- Kulye sacred grove). The main deities here are *Sonba*, *Kedar*, *Jugai*, *Waghjai*, *Vithlai*, *Chandki*, *Aakar* and *Shiva*. There is a priest nominated by the villagers to do the 'puja' and is paid in kind. Main festivals are *Holi*, *Shimga*, *Ageda*, *Sankranti*, and *Navratri*. Local inhabitants are *Maratha*, *Kunbi*, *Gurav*, *Baudha* and *Muslims*. Agriculture is their main occupation. Sacred groves serve various functions in the village like a place for religious ceremonies, crematory ground, pilgrim places, of perennial source non timber forest product including fuel wood.

Most of the groves are surrounded by agricultural land. Rice is their main crop. Large timber is not cut from the groves. People are scared to cut any plants. If illegally cut, offender is liable to a fine of Rs. 51 onwards which is decided by village community. However, this is not followed as strictly as in the past, though still there is a deep faith in their tradition and deity. Species like *Semecarpus anacardium* (Bibba), *Anacardium occidentale* (Kaju), *Xanthoxylum rhetsa* (Triphal), *Acacia concinna* (Shikakai), *Acacia catechu* (Kattha) are generally kept for sale in the local market. In some villages like Hativ, the grove was partly cut and timber was sold in 1984, and instead *Acacia auriculiformis* was raised. According to some villagers, there is nothing to take away from these groves as they house only 'jangli' (wild) things which are useless. Villagers have removed the so-called 'useless' species they felt and planted 'economically important species' like spices along with some timber and fodder species as a part of social forestry programme. But in some grove like Kundi, presence of huge trees of *Antiaris toxicaria* (gbh 10m), large lofty lianas like *Entada* sp., *Anamirta cocculus*, entangled to form a dense mat, indicate the presence of large unbroken tract of the undisturbed forest. Now

forest cover is reduced everywhere due to human interference like cattle grazing, etc. During Navratri and other festivals a large number of people, local as well as outsiders visit the temple in the groves. During this period a part of the forest is cleared to make the access road for the people.

CONCLUSIONS

Earlier people used to get scared to cut or use any plant products from the sacred groves. Now not only they utilize them for their own purpose but, also they sell various products from these groves like Kattha, Shikakai and various Berries to the local market. The profit obtained from these sale are utilized for their personal uses.

Many people are ignorant about the biodiversity and their utility, mainly the medicinal and other useful plants found here. The elders in the village have knowledge about the groves and biodiversity within it. Gap in children's knowledge are very clear due to lack of knowledge transfer from older generation to younger and lack of concern about the wild plant resources in adults (parents, teachers). People even started felling the original forest and planting the exotic species instead. Not only this, Govt. is also supporting them in such activities. If this practice is not controlled on a very urgent basis, it is very difficult to save this last remain of the biodiversity in these localities.

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