

Demarcation of Some Sacred Groves in Dapoli Taluka of Ratnagiri District in Maharashtra

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Abstract

Sacred groves are tracts of virgin forest with rich diversity, which have been protected by the local people for centuries for their cultural and religious beliefs and taboos that the deities reside in them and protect the villagers from different calamities. For conservation point of view, the clear demarcation of sacred forest is necessary and that helps to record long term changes in ecological structure and composition of forest species in the sacred groves. In present investigation, 11 sacred groves have been demarcated using GPS on the GoogleEarth. Other parameters have been derived with QGIS software. It is observed that five sacred groves showed reduction in the actual area over the area on record, one showed no difference while five others showed higher mapped area than the area on record.

Keywords: Sacred grove, mapping, GIS, remote sensing, landuse change

Introduction

India is home to thousands of community protected forests, called sacred groves. Sacred forests, mostly called as sacred groves, are sites that have cultural or spiritual significance to the people who live around them and they have been protected by the local people. These areas are also key reservoirs of biodiversity (Ormsby 2011). Sacred groves are islands of rich biodiversity in a landscape dominated by human manipulations (Dudley *et al.* 2010). Sacred groves are tracts of virgin forest with rich diversity, which have been protected by the local people for centuries for their cultural and religious beliefs

and taboos that the deities reside in them and protect the villagers from different calamities. Every sacred grove carries its own legends, lore, and myths which form the integral part of the sacred grove (Khan *et al.* 2008). Sacred groves are communally-protected forest fragments with significant religious connotations. These community lands attain significance due to biodiversity conservation and provide ecological services in local landscapes (Ray and Ramachandra 2010).

Sacred groves have immense potential as ecosystem service providing habitats. There have been gaps in their documentation. It is also necessary to bring them in a geographic perspective where in their information could be useful in taking landscape level decisions. They also need to be conserved and conservation cannot be targeted at abstract entities. They need to be identified, located and mapped. It needs to be taken further by associating attributes of sacred groves to the mapped land parcels. These attributes could be used as conservation parameters both in ethical and utilitarian approaches. Dapoli taluka is a potential hotspot of sacred groves in the Western Ghats with more than 100 sacred groves (Patil 2016). With this background, the present study was undertaken to demarcate some of the numerous sacred groves present in and around the Dapoli tehsil of Ratnagiri district, Maharashtra.

Material and Methods

This study was carried out in Dapoli taluka (17°34' to 17°56'; 73°03' to 73°20') of Ratnagiri district, Maharashtra. Total geographical area of Dapoli is 846 km². The landscape of Dapoli is dominated by forests, plateaus, agricultural patches and fruit orchards. As per the records of the revenue department, there are 110 sacred groves reported in Dapoli tehsil (Patil 2016). They range in size from 0.05 to 40 ha. They are known

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as Dev-rahati meaning the abode of the deity. For the present investigation, 11 sacred groves were selected on the basis of following size class viz., 0-5, 5-10, 10< ha. Mapping was conducted in selected sacred groves during October 2016 to January 2017 and information such as status, extent, floral elements was recorded.

Mapping

Preliminary work on demarcating of sacred groves of Dapoli has been done by Patil (2016). However, it is necessary to properly demarcate and ascertain the boundaries of major sacred groves. In present study demarcation was done by using Garmin GPS with the help of track method. Tracks were recorded by moving along the boundaries of sacred groves. Assistance from local people was sought to correctly demarcate the boundaries of sacred groves. GIS software was used for plotting and mapping sacred groves on the base map. Further information on sacred groves like mapped area, distance between pairs of sacred groves was obtained in the GIS atmosphere using open-source software QGIS. The maps were imposed on GoogleEarth for getting the contextual visualization.

Results and Discussion

Mapping of sacred groves

Mapping of sacred groves is an important exercise for

which need is being felt at various levels viz. Forest Survey of India, Maharashtra State Biodiversity Board etc. So far, researchers were working in isolation to document the values of sacred groves. However, over the years, awareness regarding cumulative value of sacred groves has increased and to assess this value, it is essential to locate the sacred groves in the landscape. This can be done by collecting the geographical coordinates of the sacred groves; and more specifically by demarcating their boundaries.

In the present study, it was decided to carefully demarcate the boundaries of selected sacred groves to get an idea about the status of sacred groves in terms of recorded and actual extent and status of forest within. Table 1 shows the area on record of revenue department, area as mapped in the present study and the direction and magnitude of the difference. Five sacred groves showed reduction in the actual area over the area on record, one showed no difference while five others showed higher mapped area than the area on record (Figure 1 & 2). As far as status of forest is concerned, most of the sacred groves under study have retained their forest cover; however, the quality of the forest is certainly degraded. Therefore, a detailed assessment of the extent of degradation was beyond the scope of this study, Arc GIS software gives the area of edited sacred grove (Table 1). Patil (2016) attempted to map sacred groves in Dapoli taluka. These

Table 1. Details of Study sites (Sacred groves) in Dapoli.

Sacred groves	Location		Area on record (ha)	Area mapped (ha)	Difference (ha)
	Latitude	Longitude			
Karde	17.75	73.13	3.88	0.62	-3.26
Kadivali	17.87	73.22	1.80	1.8	0.00
Shivnari	17.69	73.27	0.74	0.92	0.18
Gavtale	17.70	73.28	4.41	4.9	0.49
Dhankoli	17.84	73.23	7.77	9.4	1.63
Vanzloli	17.90	73.13	8.17	8.0	-0.17
Shirkhal	17.74	73.18	7.20	6.5	-0.70
Sakhloli	17.72	73.26	5.54	5.1	-0.44
Douli	17.88	73.15	11.00	10.1	-0.90
Sadavali	17.70	73.22	13.20	14.3	1.10
Kudawale	17.86	73.24	40.00	40.4	0.40

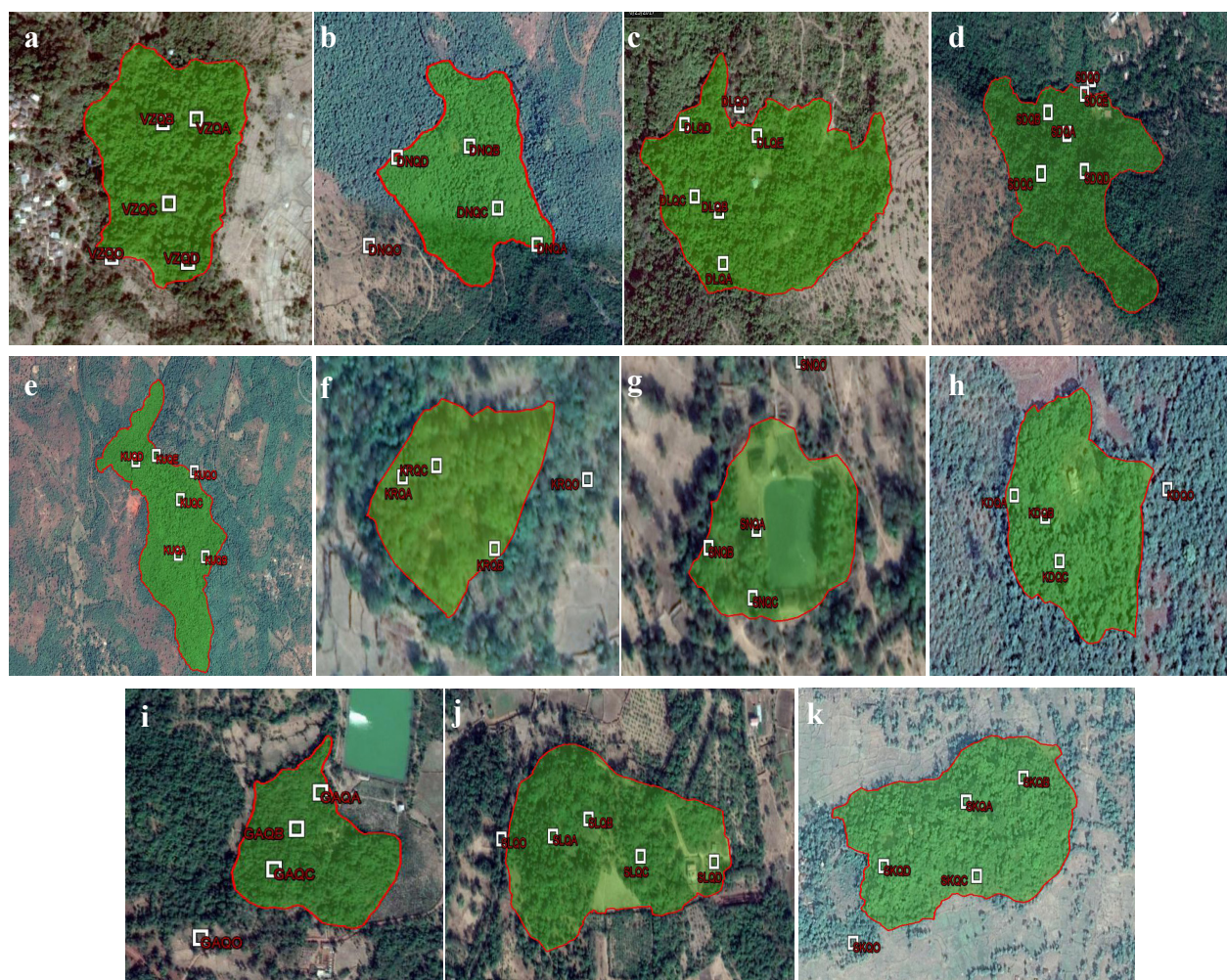


Figure 1. Maps of studied sacred groves imposed on GoogleEarth. a) Vanzloli, b) Dhankoli, c) Douli, d) Sadavali, e) Kudavale, f) Karde, g) Shivnari, h) Kadivali, i) Gavgale, j) Sakhloli, k) Shirkhal.

have been mapped in two ways – as point features and as polygons showing the boundaries of sacred groves. In his results he has presented geographical location attributes (latitude, longitude, altitude) of more than 100 sacred groves.

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