

Standing tree biomass of Sitarampeth village, Bhadravati .

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ABSTRACT

Sitarampeth is the first village of Bhadravati Taluka having 'Community Forest Rights' under the forest Acts (2006). Being a village adjoining to the world famous Tadoba national park, it is needed to check the environmental status of Sitarampeth village. We used Belt Transact method which is one of the best method used by researchers to measure biomass and biodiversity of a given area. The biomass of predominant species decides the pattern of nutrient cycle, availability of water and solar radiation of the site. Taking this in view the paper also measures the predominant tree species of the area. The Standing tree Biomass of Sitarampeth village forest area is found to be 3032.12 tons /hectare. And Sagwan, Palas, Karai, Tendu, Bija, Mahuwa, Kuda, Ghoti, Dhawada, Ain etc. are the predominant species of the area.

Keywords: Community Forest Right , Standing tree biomass ,Belt Transact, Predominant tree species , Sitarampeth.

INTRODUCTION

At present the total forest cover of our country is 71.22 million hectare, which is 21.67 percent of the total geographical area of the country_ (ISFR,2019) and in 2014 the percentage of forest cover was 24.01. This clearly indicates that our forest cover is reduced by 2.34 percent in last five years. To increase and maintain the forest cover several developmental programs were introduced in the field of forestry.

According to Forest Act (2006), indigenous communities became 'owners' and 'managers' of their forest. To check the outcome of the Act it is necessary to measure the biodiversity and environmental status of the respected forest area. In the present study we calculate the standing tree biomass and counted the number of species of trees of Sitarampeth village.

In ecology biomass is defined as the mass of living biological organisms in a given area or ecosystem at a given time. Biomass can refer to species biomass, which is the mass of one or more species, or to community biomass, which is the mass of all species in the community. Biomass is regarded as an important indicator of ecological and management process in the vegetation. It is also associated with hydrological properties such as infiltration, run off and erosion.

Sitarampeth is a small village with predominantly Scheduled Tribes community in Bhadrawati Taluka of Chandrapur district of Maharashtra state. It is adjacent to world famous TADoba National park. The village has received CFR title over 650.16 ha of forest land. It is situated at 20° 08' 67" N, 79° 11' 78"E. The forest of Sitarampeth is classified as southern tropical dry deciduous forests as per Champion's classification.

The aim of the present study is to calculate Standing tree biomass and the predominant tree species of the area.

METHODOLOGY

The study area was visited several times before sampling to choose the proper sampling method for representative sampling. The belt transect method is

chosen because it is standard method in most ecological surveys and it would fit into study area.

Rectangular sampling quadrats with sides of 20m x 25m were chosen. The quadrats were laid out with the help of rope, compass bearings, measuring tape, flags, etc. The rope was kept tight with flags at each corner of the quadrat. Villager at each corner of the quadrat near the flags were kept standing to ensure that flags were not miss-positioned. Compass is used to keep the line straight.

The counted trees were marked with chalk to ensure proper counting. The girth of each tree at breast height (GBH) was measured. The local names of the tree species were asked to the villagers and noted. Twenty such quadrats were studied. Standing tree Biomass of each quadrat was calculated by using the formula given by Shailaja Ravindranath.

Standing Biomass (SB) = Basal area x 8.32 - 1.69 (Shailaja Ravindranath, 1997)

Where, Basal area = $(GBH)^2 / 4\pi$,

GBH=girth at breast height, 8.32 and 1.69 are constants.

RESULTS AND DISCUSSION

A total of 51 species of trees were recorded. The predominant species are listed in the table (Table. 1)

The standing tree biomass of each quadrat was calculated in tons by measuring the total basal area of trees in each quadrat (Table 2). It varies from 23.94 tons to 419.30 tons. After calculating each quadrat the Standing tree biomass of Sitarampeth forest area is found to be 3032.12 tons/hectare.

Table 1. Predominant species

Sr.No.	Local names	Scientific names	Family
1	Sagwan	Tectona grandis	Verbenaceae
2	Palas	Butea monosperma	Fabaceae
3	Karai	Millusa velutina	Anonaceae
4	Tendu	Diospyros melanaxylon	Ebernaceae
5	Bija	Pterocarpus marsupium	Fabaceae
6	Mahuwa	Madhuca longifolia	Sapotaceae
7	Kuda	Holarrihena antidysenterica	Apocyanaceae
8	Ghoti	Zizyphus glaberrima	Rhamnaceae
9	Dhawada	Anogeissus latifolia	Caesalpiniceae
10	Ain	Terminalia alata	Combretaceae

Table 2. GBH and SB of each quadrat

Quadrat No.	GBH (m ²)	SB (tons)
1	6.22	23.94
2	8.80	49.56
3	11.38	84.09
4	9.20	54.39
5	16.56	179.94
6	13.72	123.03
7	18.37	221.87
8	10.06	65.37
9	7.68	37.41
10	9.44	57.38
11	12.63	103.97
12	15.15	150.32
13	12.26	97.90
14	17.39	198.66
15	15.94	166.62
16	19.23	243.25
17	14.47	137.00
18	22.54	334.85
19	25.21	419.30
20	20.74	283.27
	Total biomass (tons / hectare)	3032.12

CONCLUSION

The present study shows that the Sitarampeth forest area has high biomass and good environmental status. It is also observed that the rules framed by Sitarampeth gram sabha for conservation, protection and management of the forest resources are good, and should be followed by other communities for sustainable development.

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