

Result of Sample Tree Enumeration of Bhamragarh Forest Division

Bhamragarh forest division is one of the forest divisions of Gadchiroli circle. The forest areas of this division occurred in the compact blocks and in some scattered patches. Forest of this division lay between the parallels of Latitudes 19⁰17', to 20⁰ 03' North and between the meridian of longitude 80⁰ 08' to 80⁰57' East.

Climate:- The climate of Bhamragarh is hot and dry and is of tropical type.

Forest Area:- As per Annual Administration Report, legal status-wise details of forest area of Bhamragarh Division as on dated 31/03/2018 are as follows.

Table No-1

Classification of Forest area according to Management & Legal status

(Area in Sq. km.)

Sr. No.	Controlling Agency	Reserved forest	Protected forest	Un-classed forest	Total Forest
1.	Area in charge of Forest Department	3265.76	376.16	1.22	3643.14
2.	Area in charge of F.D.C.M.	0	0	0	0
3.	Private Forest brought under possession of Forest Department	0	0	0	0
Total		3265.76	376.16	1.22	3643.14
% to total forest area		89.64	10.33	0.03	100

Bhamragarh forest division consist of 5 Ranges. Range -wise Forest area under Scientific Management as recorded in Working Plan (2007-08 to 2016-17) by Shri Ramji Singh Yadav IFS, Conservator of Forests, Working Plan Chandrapur -2 is as under.

Table No.2

Sr. No	Name of Ranges	Total Forest area in (ha)
1.	Bhamragarh	86204.46
2.	Etapalli	99085.71
3.	Gatta	64468.49
4.	Kasansur	66094.06
5	Tadgaon	51878.96
	Total	367731.68

Now Dy. Conservator of Forest, Working Plan Gadchiroli, has proposed following working circle - wise forest area, for sample tree enumeration.

Table No.3
Working Circle wise Area proposed for tree enumeration

Sr. No.	Name of working circle	Population area in ha
1	Improvement Working Circle	92148.20
2	Selection Cum Improvement Working Circle	150577.00
3	Protection Working Circle	26809.10
4	SCI / IWC - Working Circle	47591.20
	Total	317125.50

After enumeration work data of the same is received vide Dy. Conservator of Forest Working Plan Gadchiroli vide their letter No. कक्ष-वक्षेस/काआ/गड/८३ दिनांक २९.०४.२०१९.

On scrutiny of data and preparation of results i.e. (1) Stock per hectare was calculated and the result are being reported in the form of following statements.

Statement I : Estimated growing stock- No. of Sound trees in population area.

Statement II : Estimated growing stock- No. of Sound trees per ha.

Statement III : Percentage distribution of total stock of species over all girth classes.

Statement IV : Percentage of stock of species in a girth class to the total stock in that particular girth class.

Statement V : Estimated growing stock - volume in cum./ha.

Some noteworthy result on current enumeration is described in following Table No. 4(a)

Table No. 4 (a)

Statement showing estimated No. of trees per ha. in Previous (Feb-1993 to June-1993) and Current (May-2016 to Feb-2019) tree enumeration

Sr. No	Name of Working Circle	Past enumeration (Feb-1990 to June-1993) No. of trees per ha.	Sr. No.	Name of Working Circle	Current enumeration (May-2016 to Feb-2019) No. of trees per ha.
1	Improvement Working Circle	502.72	1	Improvement Working Circle	209.89
2	Selection Cum Improvement Working Circle	417.61	2	Selection Cum Improvement Working Circle	258.06
3	Protection Working Circle	300.64	3	Protection Working Circle	169.04
			4	SCI / IWC Working Circle	245.52
Weighted Average		424.90	Weighted Average		234.06

It is observed that the total estimated number of trees per hectare in current enumeration (May-2016 to Feb-2019) is decreased as compared to previous (Feb-1993 to June-1993) tree enumeration.

Table 4 (b)

Estimated percentage distribution of trees in 15 U 30 and 31 U 45 and remaining girth class to overall girth class

Working Circle	Girth class-wise estimated percentage of number of trees (%)			
	15U30	31U45	Remaining Girth Classes	Total estimated No. of trees
Improvement Working Circle	0	19.41	80.59	100
Selection Cum Improvement Working Circle	0	18.04	81.96	100
Protection Working Circle	0	13.41	86.59	100
SCI / IWC Working Circle	0	19.22	80.78	100
Weighted Average	--	18.22	81.78	100

Working circle wise estimated, number of sound trees per hectare are as follows.

Table No.5

Working Circlewise No. of sound trees per ha

Sr. No.	Name of Working Circle	Total	General utility species	Special utility species	Minor forest produce species	Other species
1	2	3	4	5	6	7
1	Improvement Working Circle	209.89	61.24	67.89	54.87	25.89
	% of stock to total stock	100	29.18	32.35	26.14	12.33
2	Selection Cum Improvement Working Circle	258.06	77.42	84.91	58.98	36.75
	% of stock to total stock	100	30.00	32.90	22.86	14.23
3	Protection Working Circle	169.04	58.02	56.20	37.76	17.06
	% of stock to total stock	100	34.32	33.25	22.34	10.09
4	SCI / IWC Working Circle	245.52	77.93	68.60	62.77	36.22
	% of stock to total stock	100	31.74	27.94	25.57	14.75
Total weighted average		234.66	71.16	75.09	56.56	31.85
% of stock to total stock		100	30.32	32.00	24.11	13.57

Table No.5A

Working Circlewise Volume in cum. per ha

Sr. No.	Name of Working Circle	Total	General utility species	Special utility species	Minor forest produce species	Other species
1	2	3	4	5	6	7
1	Improvement Working Circle	106.11	37.93	24.85	31.45	11.88
	% of stock to total stock	100	35.74	23.42	29.64	11.20
2	Selection Cum Improvement	122.73	47.43	29.02	30.89	15.39
	% of stock to total stock	100	38.64	23.65	25.17	12.54

3	Protection Working Circle	96.13	38.78	25.79	22.57	8.99
	% of stock to total stock	100	40.34	26.83	23.48	9.35
4	SCI / IWC. Working Circle	124.88	46.57	29.46	30.85	18.00
	% of stock to total stock	100	37.30	23.59	24.70	14.41
Total weighted average		115.97	43.81	27.60	30.34	14.22
% of stock to total stock		100	37.78	23.80	26.16	12.26

Highlights from the results of tree enumeration as given in table No.5, are summarised below:

1) Improvement Working Circle:-

Categorywise percentage of Species to total growing stock in this working circle is as given below

Sr. No.	Category of Species	Name of Species	% to total growing stock
1	A:-Species of General Utility	Ain, Bija, Lendia, Shisam, Teak, Tiwas	29.18
2	B:-Species of Special Utility	Arjun, Bherra, Dhawada, Garadi, Haldu, Hiwar, Kalamb, Karai, Karam, Khair, Kudai, Salai, Sawar, Semal. Shivan	32.35
3	C:-Species of Minor Forest Produce	Amba, Apta, Awala, Behada, Biba, Char, Hirda, Jambhul, Kawath, Moha, Neem, Palas, Tendu.	26.14
4	D:-Other Species	Amaltas, Anjan, Chichchwa, Dhoban, Dikamali, Ghogar, Ghoti, Kakai Kuda, Kumbhi, Kusum, Lokhandi, Mokha, Pangara, Pimpal, Rohan, Others	12.33

2) Selection Cum Improvement Working Circle:-

Categorywise percentage of Species to total growing stock in this working circle is as given below

Sr. No.	Category of Species	Name of Species	% to total growing stock
1	A:- Species of General Utility	Ain, Bija, Lendia, Shisam, Teak, Tiwas	30.00
2	B:-Species of Special Utility	Arjun, Bherra, Dhawada, Garadi, Haldu, Kalamb, Karai, Karam, Khair, Kudai, Salai, Sawar, Semal. Shivan	32.90
3	C:-Species of Minor Forest Produce.	Amba, Apta, Awala, Behada, Bel, Biba, Char, Chinch, Hirda, Jambhul, Moha, Palas, Shiras, Tendu.	22.86
4	D:-Other Species	Aali, Amaltas, Anjan, Borghat, Chichwa, dhoban,	14.24

	Dikamali, Fedra, Ghogar, Ghoti, Kasai, Kateain,, Kuda, Others	
--	--	--

3) Protection Working Circle:-

Catagorywise percentage of Species to total growing stock in this working circle is as given below

Sr. No.	Category of Species	Name of Species	% to total growing stock
1	A:- Species of General Utility	Ain, Bija, Lendia, Shisam, Teak, Tiwas.	34.32
2	B:-Species of Special Utility	Bherra, Dhawada, Garadi, Haldu, Kalamb, Khair, Salai, Sawar, Shivan.	33.25
3	C:-Species of Minor Forest Produce	Apta, Awala, Behada, Biba, Char, Hirda, Moha, Palas, Tendu.	22.34
4	D:-Other Species	Dhoban, Ghoti, Kusum,, Movai, Rankel, Rohan, Surya Others	10.09

4) SCI/IWC Working Circle

Catagorywise percentage of Species to total growing stock in this working circle is as given below

Sr. No.	Category of Species	Name of Species	% to total growing stock
1	A:- Species of General Utility	Ain, Bija, Lendia, Shisam, Teak	31.74
2	B:-Species of Special Utility	Arjun, Bherra, Dhawada, Garadi, Haldu, Hiwar, Kalamb, Karai, Khair, Salai, Semal.	27.94
3	C:-Species of Minor Forest Produce	Apta, Behada, Biba, Char, Hirda, Moha, Palas, Tendu	25.57
4	D:-Other Species	Amaltas, Ghogar, Kumbhi, Kusum, Lokhandi, Mokha, Rohan, Others	14.75

Table No.6

Availability of Teak in Previous (February 1990 to June1993) Enumeration in (No. of sound trees per ha.)

Sr. No	Name Working Circle	Total growing Stock	Teak/Ha	% of stock of trees to the total stock
1	2	3	4	5
1	Improvement WorkingCircle	502.72	5.29	1.05
2	Selection Cum Improvement Working Circle	417.61	3.99	0.96
3	Protection Working Circle	300.64	0.94	0.31
	Weighted Average	424.90	3.95	0.93

Table No.6 (A)
Availability of Teak in Current (May-2016 to Feb-2019) enumeration.
(No. of sound trees per ha.)

Sr. No	Name Working Circle	Total growing Stock	Teak/Ha	% of stock of Teak trees to the total stock
1	2	3	4	5
1	Improvement W.C.	209.89	2.03	0.97
2	Selection Cum Improvement W.C.	258.06	3.74	1.45
3	Protection W.C.	169.04	1.98	1.17
4	SCI/ IWC W. C.	245.524	4.180	1.70
Total (Weighted Average)		234.66	3.16	1.35

Statistical Analysis: -

The Statistical personnel of the office of the Chief Forest Statistician, Maharashtra State, Nagpur has carried out the statistical analysis of the data. The percentage standard error is calculated for each Working Circle is given in the following table No. 7

Table No.7
Working circlewise standard error

Sr. No.	Name of working circle	Population area in ha	Sample area in ha	Intensity of sampling %	% Standard Error
1	Improvement W.C.	92148.20	39.40	0.043	3.70
2	Selection Cum Improvement W.C.	150577.00	67.70	0.045	2.35
3	Protection W.C.	26809.10	11.60	0.043	9.00
4	IWC/SCI W. C.	47591.20	21.30	0.045	4.59
	Total	317125.50	140.00	0.044	--

**Chief Forest Statistician,
Maharashtra State, Nagpur.**

