

11.36

PUDUCHERRY

11.36.1 Introduction

Puducherry is a Union Territory located in the southern part of the country having geographical area of 490 sq km scattered over four locations and each having the status of a district. Puducherry & Karaikal are bordered by Tamil Nadu, Yanam is bordered by Andhra Pradesh and Mahe is bordered by Kerala. The main territory of Puducherry lies on the Coromondal coast, about 180 km south of Chennai between 11°45' N to 12°30' N latitude and 79°36' E to 79°53' E longitude. Karaikal is about 150 km south of Puducherry lies between 10°49'N to 11°01'N latitude and 79°43'E to 79°52'E longitude. Mahe on the Malabar coast on the Western Ghats situated between 11°42' N to 11°46' N latitude and 75°31' E to 75°33' E longitude. Yanam on the east coast adjoining Godavari district, lies between 16°42'N to 16°46'N latitude and 82°11'E to 82°19'E longitude. Out of four districts none are hill districts or tribal districts. As per the 2011 census, Puducherry has a population of 1.25 million. The rural and urban population constitutes 32% and 68% respectively. The population density of the UT is 2,547 per sq km, which is much higher than the national average. The 19th Livestock Census 2012 has reported a total livestock population of 0.12 million.

TABLE 11.36.1 Land Use Pattern

Land Use Types	Area (in 000' ha)	Percentage
Geographical Area	48	
Reporting area for land utilization	48.65	100.00
Forests	0.40	0.82
Not available for land cultivation	19.03	39.12
Permanent pastures and other grazing lands	-	-
Land under misc. tree crops and groves	1.19	2.44
Culturable wasteland	4.55	9.36
Fallow land other than current fallows	2.87	5.91
Current fallows	4.76	9.78
Net area sown	15.85	32.57

Source: Land Use Statistics, Ministry of Agriculture, GOI, (2014-15)



11.36.1.1 A Brief Overview of Forestry Scenario

Union Territory of Puducherry does not have any natural forests inside its jurisdiction. As per the Champion & Seth Classification of Forest Types (1968), the forests in Puducherry belong to Type Group 'Littoral & Swamp Forests'. The forest department is taking up plantations on Government lands regularly and encourages agroforestry. The farmers of Puducherry are now cultivating *Casuarina spp.* in the area of 1,600 hectares out of net cultivable area of 15,000 hectares.

Recently the Government of Puducherry has constituted Puducherry Union Territory Wetland Authority for conservation of existing flora and fauna in the wetlands of the UT. The department has developed a small tree arboretum in its department premises wherein 80 species are being accommodated with display of their usages. An urban forest trail has been created and opened for public visit from December 2018 onwards.

The Union Territory is endowed with a rich diversity of wild life, Avi fauna (birds) and Reptiles in particular. The main mandate of the department is maintenance of green cover and taking measures to increase the area under forest. Recorded Forest Area (RFA) in the Union Territory is 13 sq km of which 2 sq km is Protected Forest and 11 sq km is Unclassed Forests. In Puducherry, during the period 1st January 2015 to 5th February 2019, no area of forest land was diverted for non-forestry purposes under the Forest Conservation Act, 1980 (MoEF&CC, 2019).

As per the information received, during last two years, 80 ha of plantations were raised in the UT. The Protected Area network in the UT has one Wildlife Sanctuary known as 'Fudam' covering an area of 2,008 hectares which covers 0.80% of geographical area of the Union Territory.

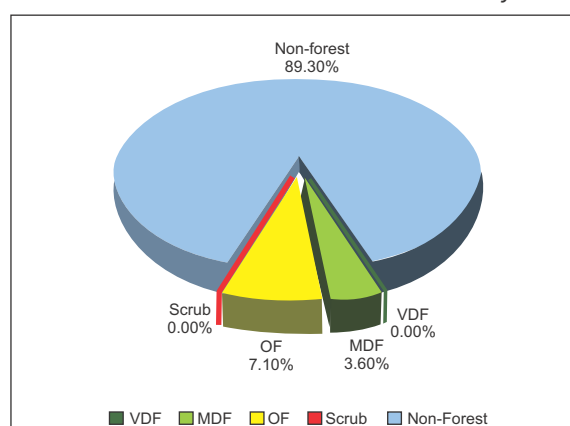
11.36.2 Forest Cover

Based on the interpretation of IRS Resourcesat-2 LISS III satellite data of the period December 2017 to August 2018, the Forest Cover in the UT is 52.41 sq km which is 10.70% of the UT's geographical area. In terms of forest canopy density classes, the UT has 17.66 sq km under Moderately Dense Forest (MDF) and 34.75 sq km under Open Forest (OF). Forest Cover in the UT has decreased by 1.26 sq km as compared to the previous assessment reported in ISFR 2017.

TABLE 11.36.2 Forest Cover of Puducherry
(in sq km)

Class	Area	% of GA
VDF	0.00	0.00
MDF	17.66	3.60
OF	34.75	7.10
Total	52.41	10.70
Scrub	0.00	0.00

FIGURE 11.36.1 Forest Cover of Puducherry



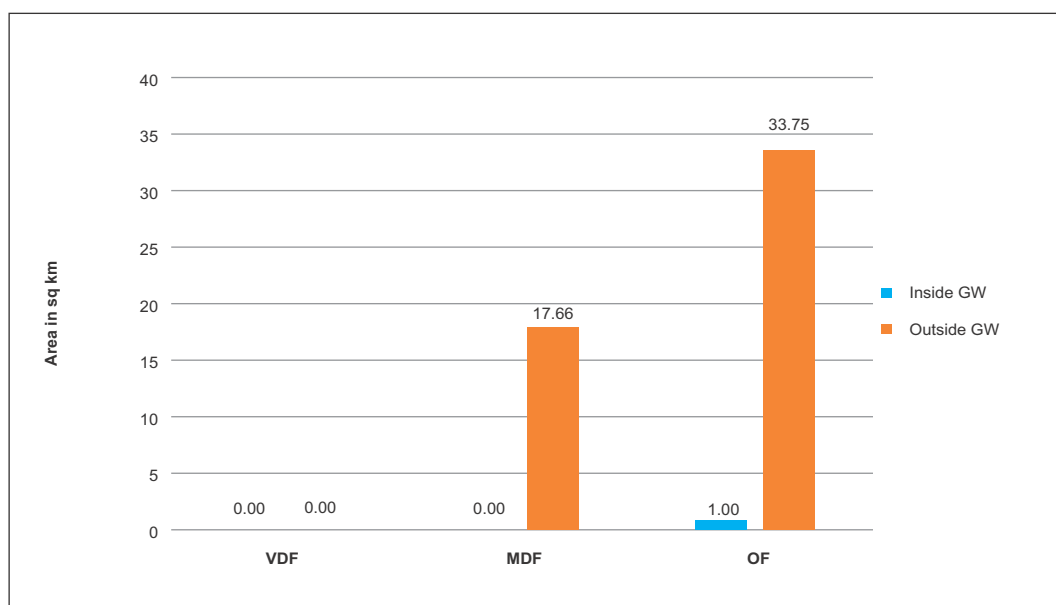
11.36.2.1 Forest Cover inside and outside Recorded Forest Area (or Green Wash)

The UT has reported extent of recorded forest area (RFA) 13 sq km which is 2.65% of its geographical area. The Protected and unclassified forests are 15.38 % and 84.62% of the recorded forest area in the UT respectively. Due to non-availability of digitized boundary of recorded forest areas from the UT, the updated Green Wash from Sol toposheets which is 3.05 sq km has been used as proxy to the RFA boundary and the analysis of forest cover inside and outside this area is given below.

TABLE 11.36.3 Forest Cover inside and outside Recorded Forest Area or (Green Wash) in Puducherry (in sq km)

Forest Cover inside the Recorded Forest Area (or Green Wash)				Forest Cover outside the Recorded Forest Area (or Green Wash)			
VDF	MDF	OF	Total	VDF	MDF	OF	Total
0.00	0.00	1.00	1.00	0.00	17.66	33.75	51.41
0.00%	0.00%	100.00%		0.00%	34.35%	65.65%	

*in case of Puducherry Green Wash boundaries have been used

FIGURE 11.36.2 Forest Cover inside and outside Green Wash in Puducherry**TABLE 11.36.4** District- wise Forest Cover in Puducherry (in sq km)

District	Geographical Area (GA)	2019 Assessment				% of GA	Change wrt 2017 assessment	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Karaikal	157	0.00	6.83	8.34	15.17	9.66	-0.23	0.00
Mahe	9	0.00	1.06	4.61	5.67	63.00	0.00	0.00
Puducherry	294	0.00	9.77	15.35	25.12	8.55	-0.98	0.00
Yanam	30	0.00	0.00	6.45	6.45	21.50	-0.05	0.00
Grand Total	490	0.00	17.66	34.75	52.41	10.70	-1.26	0.00

TABLE 11.36.5 Forest Cover Change Matrix for Puducherry

(in sq km)

Class	2019 Assessment					Total ISFR 2017
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	17.56	0.00	0.00	0.04	17.60
Open Forest	0.00	0.00	34.06	0.00	2.01	36.07
Scrub	0.00	0.00	0.00	0.00	0.00	0.00
Non Forest	0.00	0.10	0.69	0.00	435.54	436.33
Total ISFR 2019	0.00	17.66	34.75	0.00	437.59	490.00
Net Change	0.00	0.06	-1.32	0.00	1.26	

Main reasons for the decrease in forest cover in the UT can be attributed to harvesting of trees outside forests.

TABLE 11.36.6 Altitude-wise Forest Cover in Puducherry

(in sq km)

Altitude Zone (m)	Geographical Area	VDF	MDF	OF	Total	Scrub
0-500	490	0.00	17.66	34.75	52.41 (100%)	0.00
Total	490	0.00	17.66	34.75	52.41	0.00

(based on SRTM, Digital Elevation Model, 30 m, 2016)

TABLE 11.36.7 Forest Cover in different slope classes in Puducherry

(in sq km)

Slope (in degrees)	Geographical Area	VDF	MDF	OF	Total	Scrub
0-5	449	0.00	17.27	34.03	51.30 (97.88 %)	0.00
5-10	41	0.00	0.39	0.72	1.11 (2.12 %)	0.00
Total	490	0.00	17.66	34.75	52.41	0.00

(based on SRTM, Digital Elevation Model, 30 m, 2016)



FIGURE 11.36.3 Forest Cover Map of Puducherry

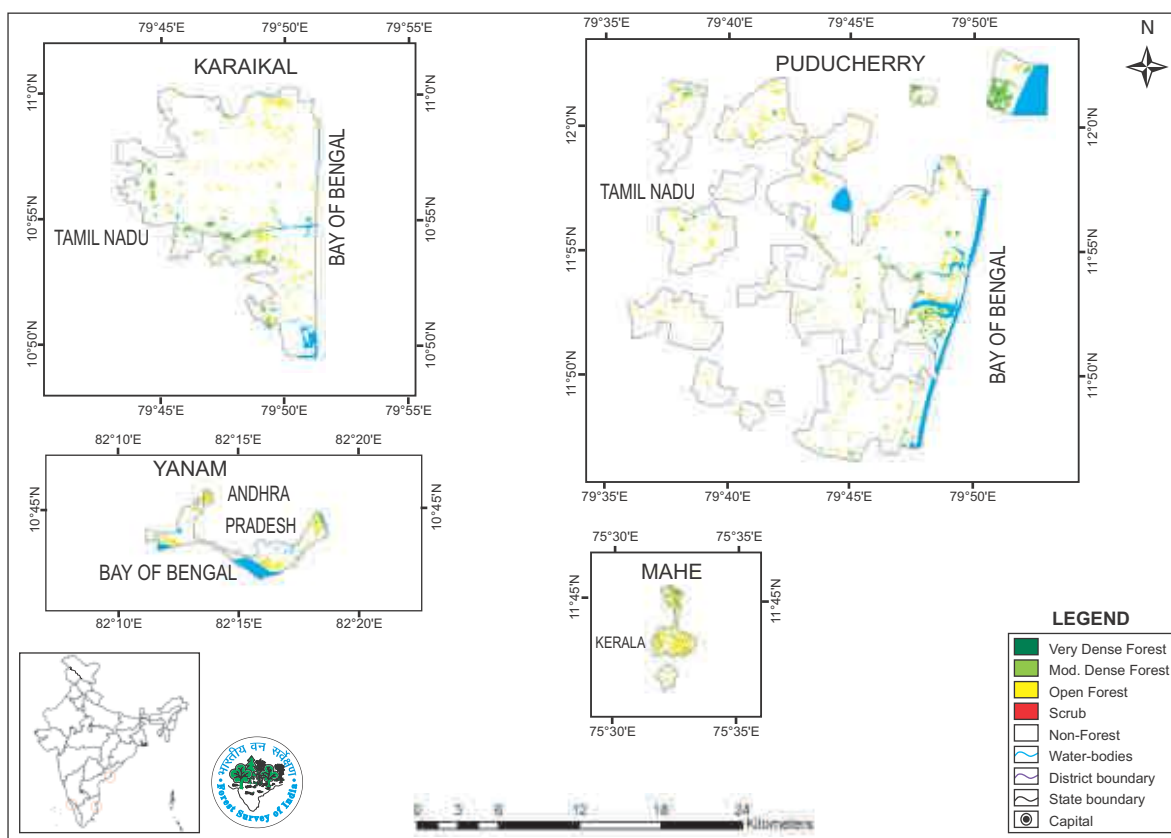


TABLE 11.36.8 Wetlands inside the Recorded Forest Area (or Green Wash) in Puducherry (in ha)

Wetland Category	No. of Wetlands	Total Wetland Area
Inland Wetlands - Natural		
River/Stream	1	6
Sub - Total	1	6
Coastal Wetlands - Natural		
Creek	1	29
Intertidal mud flat	3	6
Mangrove	3	86
Sub -Total	7	121
Wetlands (<2.25 ha)	0	0
Total	8	127
Total Recorded Forest (or Green Wash) Area (in ha)		305
% of Wetland area inside Recorded Forest (or Green wash) Area		41.64%

(analysis based on the National Wetland Atlas: India, 2011)

11.36.3 Forest Types & Biodiversity

Forest Types Maps of 2011 have been refined in the recently completed exercise by FSI. Percentage area under different forest types of Puducherry as per the Champion & Seth classification (1968), according to the latest exercise are presented in the following table.

TABLE 11.36.9 Percentage area under different forest types of Puducherry

Sl.No.	Forest Type	% of Forest cover
1	4B/TS2 Mangrove Forest	3.19
2	Plantation/TOF	96.81
	Total	100.00

11.36.4 Fire Prone Forest Areas

Geographical area under different classes of forest fire proneness are given in the following table.

TABLE 11.36.10 Forest Fire Prone Classes (in sq km)

Sl.No.	Forest Fire Prone Classes	Geographical Area	% of Total forest cover
1	Extremely fire prone	0.00	0.00
2	Very highly fire prone	0.00	0.00
3	Highly fire prone	0.00	0.00
4	Moderately fire prone	0.00	0.00
5	Less fire prone	1.57	100.00
	Total	1.57	100.00

11.36.5 Tree Cover

Forest cover presented in the section 9.36.2 accounts for tree patches of size 1 ha and more having canopy density more than 10%. However, trees occurring in patches of size less than 1 ha including scattered trees are assessed through sampling based methodology. Tree cover in Puducherry has been estimated as given in table 11.36.11.

TABLE 11.36.11 Tree Cover in Puducherry

Tree Cover	Area
	23

(in sq km)

Tree cover of Puducherry has decreased by 4 sq km as compared to the previous assessment reported in ISFR 2017.

11.36.6 Extent of Trees Outside Forest (TOF)

Trees outside Forests (TOF) refer to tree resources found outside the forests as defined in the Government records. FSI maps forest cover using satellite data and assesses tree cover outside forests using sampling based method. Forest Cover outside the recorded forest area is derived using boundaries of RFA or Green Wash. Extent of TOF therefore may be estimated as the sum of extent of forest cover outside the recorded forest areas (RFA) and tree cover as given in the preceding section

TABLE 11.36.12 Extent of TOF in Puducherry (in sq km)

Forest Cover outside the RFA/GW	Tree Cover	Extent of TOF
51.41	23	74.41

11.36.7 Growing Stock in Forest

Growing stock in the recorded forest areas (RFA) in Puducherry is given in the table 11.36.13.

TABLE 11.36.13 Growing Stock in Puducherry

(in m cum)

Growing Stock (GS)		% of Country's GS
Growing Stock in Recorded Forest Area	0.05	0.001
Growing Stock in TOF	0.40	0.02

11.36.8 Carbon Stock in Forest in Puducherry

The total Carbon stock of forests in the UT including the TOF patches which are more than 1 ha in size is 0.40 million tonnes (1.47 million tonnes of CO₂ equivalent) which is 0.0056% of total forest carbon of the country. Pool wise forest carbon in Puducherry is given in the following table

TABLE 11.36.14 Forest Carbon in Puducherry in different pools

(in '000 tonnes)

AGB	BGB	Dead wood	Litter	SOC	Total
97	22	0.63	7	276	403

11.36.9 Dominant tree species in Trees Outside Forests (TOF)

Top five species in numbers in Trees Outside Forests in Puducherry in Rural and Urban areas are given in the table 11.36.15 and table 11.36.16 respectively.

TABLE 11.36.15 Top five tree species in TOF (Rural) in Puducherry

Sl. No.	Species	Relative Abundance (%)
1.	<i>Cocos nucifera</i>	25.58
2.	<i>Azadirachta indica</i>	17.41
3.	<i>Borassus flabelliformis</i>	13.64
4.	<i>Tectona grandis</i>	7.92
5.	<i>Mangifera indica</i>	4.65

TABLE 11.36.16 Top five tree species in TOF (Urban) in Puducherry

Sl. No.	Species	Relative Abundance (%)
1.	<i>Cocos nucifera</i>	29.91
2.	<i>Moringa pterygosperma</i>	13.93
3.	<i>Azadirachta indica</i>	13.24
4.	<i>Mangifera indica</i>	11.64
5.	<i>Artocarpus integrifolia</i>	3.20

