



**Tree Census
Manchar Nagar
Panchayat
Dist. Pune
(Maharashtra)
Report 2024- 25**

Prepared by



Tree Census of Manchar Nagar Panchayat 2024-25



TREE CENSUS REPORT OF MANCHAR NAGAR PANCHAYAT 2024-25

Report prepared by:



**Prakrutiparv Green Private Limited
Pune - 411038**

***"The legacy of our heritage trees lies not just in
their past, but in the actions, we take today to
ensure their survival."***



PROJECT TEAM

Project Co-ordinator	Mr. Dnyanesh S. Rathod
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Field Co-ordinator	Ms. Sayali Dhole
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1. SUMMARY

Tree Census at Manchar Nagar Panchayat was carried out during the month of Augst – September 2024 in 16 Wards of the city, spread over an area of 12 sq. km. Geo-coordinates of each tree were recorded using GPS instruments. The extensive field work resulted into count of 20537 Trees. Total Native trees and Non-Native trees are 14,050 and 6,517 respectively. Out of the total trees species Kaduneem and Subabhul were found to be dominant species. For each tree, attributes like its Local name, Scientific name, GPS coordinates, Height, Age, Tree type (Indigenous or Non- Indigenous) and Health condition were recorded in field. Summary in tabular form is given below:

Sr. No	Component	Result and Description
1	Total number of Trees	1,41,594
2	Number of Tree species	115
3	Dominant Tree species	1. Kaduneem (3,320 Trees) 2. Subabhul (2,248 Trees)
4	Total Native Tree count	14,050
5	Total Non-Native Tree count	6,517
6	Ward with Maximum Trees	Ward 11 constituted for maximum tree count with total of 6,083 individuals
7.	Ward with Minimum Trees	Ward 8 constituted for minimum tree count with total of 22 individuals



2. INTRODUCTION

PURPOSE OF TREE CENSUS:

The purpose of the tree census report is to systematically document and evaluate the distribution, diversity, and health of trees within a specified area. Tree census aims to identify key tree species, assess their abundance and spatial distribution, evaluate the health condition of trees, and analyse factors influencing their growth and vitality. With the help of data collection and analysis, the tree census report aims to provide insight about the green cover status of the area surveyed and its importance in decision-making to preserve and conserve biodiversity, enhance ecosystem services and promote sustainable urban development.

IMPORTANCE OF TREE CENSUS:

A tree census is a vital tool for studying the composition and well-being of trees within a surveyed area. The knowledge gained helps us plan for "smart green cities." These cities prioritize features that improve air quality, reduce the urban heat island effect, and increase the amount of green space available.

The tree census data allows for targeted planting and growth strategies. By identifying areas with low tree cover, we can focus efforts on planting new trees in those locations. Moreover, understanding the existing species diversity helps us promote the planting of more native species. This fosters a more resilient ecosystem, better equipped to handle environmental challenges. Ultimately, a tree census serves as an awareness tool, encouraging community engagement in tree conservation efforts.

WHY TREE CENSUS?

According to the **Maharashtra (Urban Areas) Protection and Preservation of Trees Act (1975)**, for the better preservation, protection, and planting of trees in urban areas, it is mandatory for **Municipal Corporations** to conduct a census of all trees within their jurisdiction. This census must be conducted once in every five years. This legal requirement is the reason why the concerned authorities have undertaken this activity.

The contract for the Manchar Nagar Panchayat, 2023 tree census was awarded to Prakrutiparv Green Pvt. Ltd., Pune, in the year 2023-24.



DEFINITION OF TREE:

According to the Maharashtra Tree Act (1975), a tree is defined as a plant with a woody stem or trunk that reaches a minimum circumference of 10 cm at chest height (approximately 1.3 meters above the ground).

SIGNIFICANCE OF TREE:

Trees are fundamental to our planet's health and well-being, playing a vital role in both ecological and human spheres. Trees act as natural air filters, absorbing harmful pollutants like carbon dioxide and releasing oxygen through photosynthesis. This helps combat climate change and provides cleaner air for us to breathe. They influence the water cycle by intercepting rainfall, slowing down evaporation, and allowing water to infiltrate the soil. This helps prevent soil erosion and regulates water flow, reducing the risk of floods and droughts.

Forests provide vital habitat for a vast array of wildlife, from insects and birds to mammals and amphibians. Trees support a complex web of life and contribute to overall biodiversity. Their roots help anchor soil, preventing erosion and promoting soil fertility. Fallen leaves decompose, adding nutrients back to the soil and creating a healthy environment for plants to grow. Studies have shown that spending time in nature, surrounded by trees, can have positive impacts on mental and physical health.

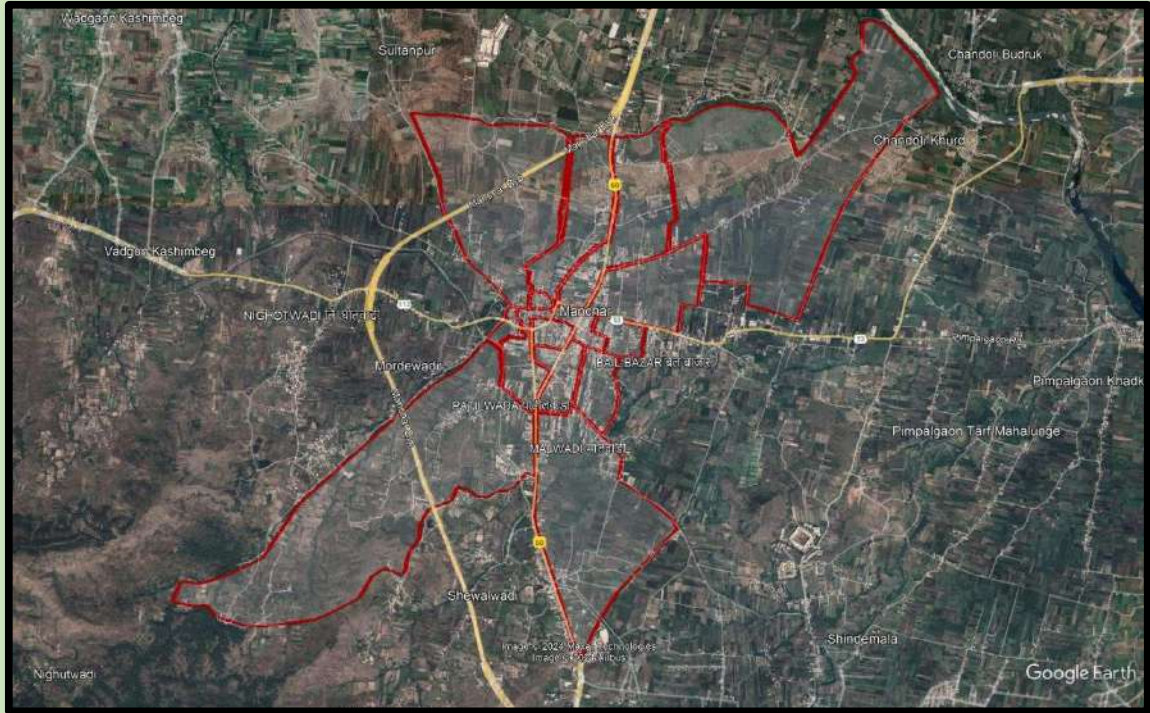
Trees can reduce stress, improve mood, and even boost the immune system. Forests provide us with timber, fruits, nuts, and other resources. They also support tourism and recreation industries, generating income for local communities. They help mitigate the effects of climate change by absorbing carbon dioxide, a major greenhouse gas. They also provide shade, reducing urban heat island effects and making cities cooler. Trees add beauty and character to our landscapes. They provide shade in the summer, vibrant colours in the fall, and a sense of peace and tranquillity throughout the year.

Trees are the lungs of our planet, providing a multitude of benefits for both the environment and humankind. It is crucial to protect and nurture our trees to ensure a sustainable future for all.



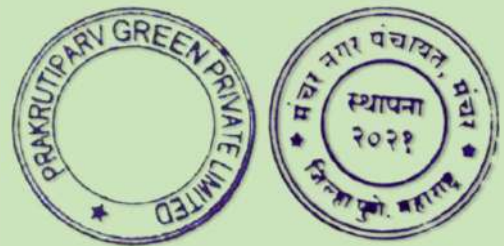
LOCATION OF TREE CENSUS PROJECT:

Manchar is a census town and Nagar panchayat in Ambegaon taluka of Pune district in the Indian state of Maharashtra. City is located at 19.0°N 73.93°E. It has an average elevation of 682 metres (2237 feet) with 12 sq.km of area.



ABOUT AREA SURVEYED:

Manchar city comes in a slight dry arid region and acts as a forest corridor for many wild animals connecting Junnar and nearby areas. Area has good amount of floral diversity with majority of Native species. This city plays a crucial role in harbouring and supporting many diverse wildlife and plays key role in environmental balance.



3. MATERIALS & METHODOLOGY:

The purpose of the project was to create a detailed inventory of Tree individuals and species known as the “Tree Census”. In total, 12 sq. kms of the project area was surveyed and each tree was counted and was get tagged on a GPS device. The data collection was done from all the 16 wards separately in the Manchar City. Trees having woody stem and having minimum girth of 10 cm in diameter at the chest level of an average height person and height of about 3 m high were counted. Trees which fit in these criteria were counted. Data was collected from all wards using GPS etrex 30 instruments. Information like Scientific Name, Common name, Diameter, Height, Health condition, GPS location, ownership was recorded in field itself.

This data was fed into Microsoft Excel software. During the field work, the team noted down location, ownership, counted each individual tree, measured the diameter, noted down the approximate height and age of the same. The condition of the tree whether in healthy condition, infected condition, dead or mechanically cut – were mentioned. Trees growing on the roadside, in the government plots, agricultural boundaries and in the private plots were included in the census. Most of the tree identification was done in field. In case of unidentified trees, specimens were collected and identified with help of literature and with the help of plant taxonomist. Data from all the instruments was collected and analysed using MS excel. Technology used GPS device along with the Google earth pro software was used to mark GPS positioning of each tree individuals.



4. OBSERVATION

Table 4.1: Tree Census was done in all 16 wards within the city limits. Count of all trees of all 16 wards are represented in following tables

Sr. No	Ward No.	Total Tree	Total Species count
1	Ward 1	1969	78
2	Ward 2	1807	56
3	Ward 3	2585	50
4	Ward 4	97651	98
5	Ward 5	724	40
6	Ward 6	1075	40
7	Ward 7	162	11
8	Ward 8	124	30
9	Ward 9	116	17
10	Ward 10	352	29
11	Ward 11	6311	55
12	Ward 12	732	48
13	Ward 13	190	12
14	Ward 14	599	41
15	Ward 15	2533	56
16	Ward 16	994	41
	Total	238958	



Table 4.2: Count of Native and Non-Native trees of all the 16 wards are represented in following tables:

Sr. no	Ward No	Total Native species	Total Non-Native species
1	1	1639	330
2	2	1369	438
3	3	1895	690
4	4	216807	1901
5	5	439	285
6	6	879	196
7	7	92	70
8	8	69	55
9	9	98	18
10	10	251	101
11	11	4689	1622
12	12	569	163
13	13	150	40
14	14	489	110
15	15	1896	637
16	16	742	252
	Total	232073	6885



Table 4.3: Count of total individuals of each species recorded is given below.

Sr. No.	Local Name	Scientific Name	Locality	Total Count
1	Aamba	<i>Mangifera Indica</i>	Native	6398
2	Aapta	<i>Bauhinia Racemosa</i>	Native	2077
3	Aavala	<i>Phyllanthus Emblica</i>	Native	4889
4	Ajan Vruksh	<i>Ehretia Laevis Roxb</i>	Native	2077
5	Akash shevga	<i>Spathodea Campanulata</i>	Non-Native	1689
6	Anjeer	<i>Ficus Carica</i>	Native	298
7	Arjun	<i>Terminalia arjuna</i>	Native	5089
8	Australian Cheesewood	<i>Pittosporum Undulatum</i>	Non-Native	1032
9	Avocado	<i>Persea Americana</i>	Non-Native	1569
10	Badam	<i>Terminalia Catappa</i>	Native	569
11	Bahava	<i>Cassia Fistula</i>	Native	659
12	Bakain	<i>Melia azedarach</i>	Native	33
13	Bakul	<i>Mimusops Elengi</i>	Native	1968
14	Behda	<i>Terminalia bellirica</i>	Native	1203
15	Bel	<i>Aegle Marmelos</i>	Native	1364
16	Bhendi	<i>Thespesia Populnea</i>	Native	2058
17	Bhojapatra	<i>Betula Utilis</i>	Native	785
18	Bhokar	<i>Cordia dichotoma</i>	Native	4456
19	Blue gulmohar	<i>Jacaranda Mimosifolia</i>	Non-Native	2598
20	Bor	<i>Ziziphus Mauritiana</i>	Native	1026
21	Bottle Palm	<i>Hyophorbe Lagenicaulis</i>	Non-Native	4026
22	Buch	<i>Millingtonia Hortensis</i>	Native	410
23	Buffalo Thorn	<i>Ziziphus Mucronata</i>	Non-Native	3024
24	Chandan	<i>Santalum Album</i>	Native	2716
25	Cherry	<i>Prunus Avium</i>	Non-Native	220
26	Chikku	<i>Manilkara Zopata</i>	Non-Native	1025
27	Chinch	<i>Tamarindus Indica</i>	Non-Native	1022
28	Chinese Fan palm	<i>Livistona Chinensis</i>	Non-Native	1254
29	Christmas Tree	<i>Araucaria Columnaris</i>	Non-Native	695
30	Dalimb	<i>Prucia Granatum</i>	Non-Native	456
31	Dev babhul	<i>Vachellia Nilotica Subsp. Tomentosa</i>	Native	1236
32	Dev kanchan	<i>Bauhinia Purpurea</i>	Native	896
33	Dhoop	<i>Parishia Insignis</i>	Native	2158
34	Erand	<i>Ricinus communis</i>	Native	632
35	False Ashok	<i>Monoon Longifolium</i>	Native	383
36	Fire Bush	<i>Hamelia Patens</i>	Non-Native	241
37	Gavran Babhul	<i>Vachellia Nilotica</i>	Native	86
38	Ghanti Phul	<i>Tecoma Stans</i>	Non-Native	42
39	Giripushpa	<i>Gliricidia Sepium</i>	Non-Native	2589

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40	Gulmohar	<i>Delonix Regia</i>	Non-Native	1204
41	Hadga	<i>Sesbania grandiflora</i>	Non-Native	2036
42	Hivar	<i>Vachellia Leucophloea</i>	Native	658
43	Indian Mulberry	<i>Morinda Citrifolia</i>	Native	898
44	Jamb	<i>Syzygium samarangense</i>	Native	4587
45	Jambhul	<i>Syzygium Cumini</i>	Native	2077
46	Jambphal	<i>Syzygium Jambos</i>	Native	698
47	Jungli Badam	<i>Hydnocarpus Pentandrus</i>	Native	5078
48	Kadamb	<i>Neolamarcia Cadamba</i>	Native	897
49	Kadipatta	<i>Murraya Koenigii</i>	Native	574
50	Kaduneem	<i>Azadirachta Indica</i>	Native	6025
51	Kanak Champa	<i>Pterospermum acerifolium</i>	Native	2145
52	Kanchan	<i>Bauhinia Variegata</i>	Non-Native	569
53	Kaner	<i>Cascabela thevetia</i>	Non-Native	1024
54	Karanj	<i>Pongamia Pinnata</i>	Native	20479
55	Karmal	<i>Dillenia pentagyna</i>	Native	5500
56	Karvand	<i>Carissa carandas</i>	Native	2574
57	Kashid	<i>Senna Siamea</i>	Native	526
58	Katesavar	<i>Bombax Ceiba</i>	Native	4129
59	Kavath	<i>Limonia Acidissima</i>	Native	1089
60	Khair	<i>Sengelia Cetechu</i>	Native	3001
61	Malaysian Ashok	<i>Saraca Indica</i>	Non-Native	2545
62	Marukh	<i>Ailanthus excelsa</i>	Native	3163
63	Mavha	<i>Madhuca Longifolia</i>	Native	523
64	Mehendi	<i>Lawsonia Inermis</i>	Native	2685
65	Mohagani	<i>Swietenia Macrophylla</i>	Non-Native	5000
66	Mokha	<i>Schrebera swietenioides</i>	Native	2724
67	Moroccan Withania	<i>Withania Frutescens</i>	Non-Native	1786
68	Nandrukh	<i>Ficus Benjamina</i>	Native	1786
69	Naral	<i>Cocos Nucifera</i>	Native	1272
70	Nilgiri	<i>Eucalyptus Globulus</i>	Non-Native	3329
71	Nilgiri Champa	<i>Magnolia Nilagirica</i>	Native	1053
72	Nirgudi	<i>Vitex Negundo</i>	Native	1211
73	Palas	<i>Butea Monosperma</i>	Native	3759
74	Pandhara Chafa	<i>Plumeria Rubra</i>	Non-Native	1430
75	Peru	<i>Psidium Guajava</i>	Non-Native	989
76	Phanas	<i>Artocarpus Heterophyllus</i>	Native	102
77	Pimpal	<i>Ficus Religiosa</i>	Native	569
78	Pipali	<i>Exbucklandia Populnea</i>	Native	1459
79	Prajakta	<i>Nyctanthes Arbor-Tristis</i>	Native	717
80	Putranjeeva	<i>Putranjiva Roxburghii</i>	Native	1645
81	Rain Tree	<i>Samanea Saman</i>	Non-Native	969
82	Raktrohida	<i>Tecomella Undulata</i>	Native	2459

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83	Ramphal	<i>Annona Reticulata</i>	Non-Native	1089
84	Reetha	<i>Sapindus Mukorossi</i>	Native	3561
85	Royal Palm	<i>Roystonea Regia</i>	Non-Native	4828
86	Rudraksh	<i>Elaeocarpus Recurvatus</i>	Native	1104
87	Rumbad	<i>Baccaurea Motleyana</i>	Native	5269
88	Sagwan	<i>Tectona Grandis</i>	Native	4253
89	Sandpaper Fig	<i>Ficus coronata</i>	Non-Native	1987
90	Saptaparni	<i>Alstonia Scholaris</i>	Native	967
91	Seeta Ashok	<i>Saraca Asoca</i>	Native	629
92	Shevaga	<i>Moringa Oleifera</i>	Native	690
93	Shirish	<i>Albizia Lebbeck</i>	Native	4869
94	Shisam	<i>Dalbergia Sissoo</i>	Native	967
95	Silver Oak	<i>Grevillea Robusta</i>	Non-Native	2369
96	Sitaphal	<i>Annona Squamosa</i>	Non-Native	919
97	Son Chafa	<i>Magnolia Champaca</i>	Native	1032
98	Sonmohar	<i>Peltophorum Pterocarpum</i>	Native	2802
99	Spanish Tamarind	<i>Vangueria Maagascariensis</i>	Non-Native	989
100	Subabhul	<i>Leucaena Leucocephala</i>	Non-Native	2248
101	Supari	<i>Areca Catechu</i>	Non-Native	596
102	Suru	<i>Casuarina Equisetifolia</i>	Non-Native	968
103	Taadi	<i>Borassus Flabellifer</i>	Non-Native	1025
104	Tagar	<i>Tabernaemontan Divaricata</i>	Native	5000
105	Tarwad	<i>Senna Auriculata</i>	Native	967
106	Tembhurni	<i>Diospyros Melanoxylon</i>	Native	1045
107	Tobacco Tree	<i>Nicotiana Tabacum</i>	Non-Native	23
108	Umbar	<i>Ficus Racemosa</i>	Native	5000
109	Vad	<i>Ficus Benghalensis</i>	Native	2045
110	Valunj	<i>Salix Tetresperma</i>	Native	1058
111	Vavla	<i>Holoptelea Integrifolia</i>	Native	2401
112	Vedi Babhul	<i>Vachellia Nilotica Subsp. Indica</i>	Native	1419
113	Vilayati babhul	<i>Prosopis Juliflora</i>	Non-Native	2896
114	Vilayati chinch	<i>Pithecellobium Dulce</i>	Non-Native	1029
115	White Silk Cotton	<i>Ceiba Pentandra</i>	Non-Native	1023
		Total		238958



Table 4.4: Count of total trees and its green canopy cover in each ward wise.

Sr. No	Ward No.	Ward Area (Sq.mt)	Total Tree	Total Tree Canopy (Sq.mt)	Green Cover Percentage (%)
1	Ward 1	1225082	1969	539406	44.43
2	Ward 2	437663	1807	182579	41.72
3	Ward 3	581585	2585	396388	68.16
4	Ward 4	2477419	97651	2170361	87.61
5	Ward 5	431369	724	73000	16.92
6	Ward 6	95165	1075	69748	73.27
7	Ward 7	78630	162	5722	7.28
8	Ward 8	21965	124	4008	18.25
9	Ward 9	28644	116	17928	17.20
10	Ward 10	43606	352	20910	47.97
11	Ward 11	2469261	6311	97463	40.40
12	Ward 12	150300	732	18249	21.84
13	Ward 13	65859	190	9916	15.06
14	Ward 14	161846	599	73204	45.23
15	Ward 15	1249172	2533	458685	36.72
16	Ward 16	178874	994	76618	42.83
	Total	9623597	238958	3666592	43.5



5. RESULT

- Ward no 04 was seen to have highest number of trees with total 87% coverage.
- Ward no 12 was seen to have highest number of Native trees as well.
- Ward no 8 was recorded with lowest count of trees i.e. 22 followed by ward no 9 with 37 counts.
- Ward 3 was observed to have highest green cover density with 68%.

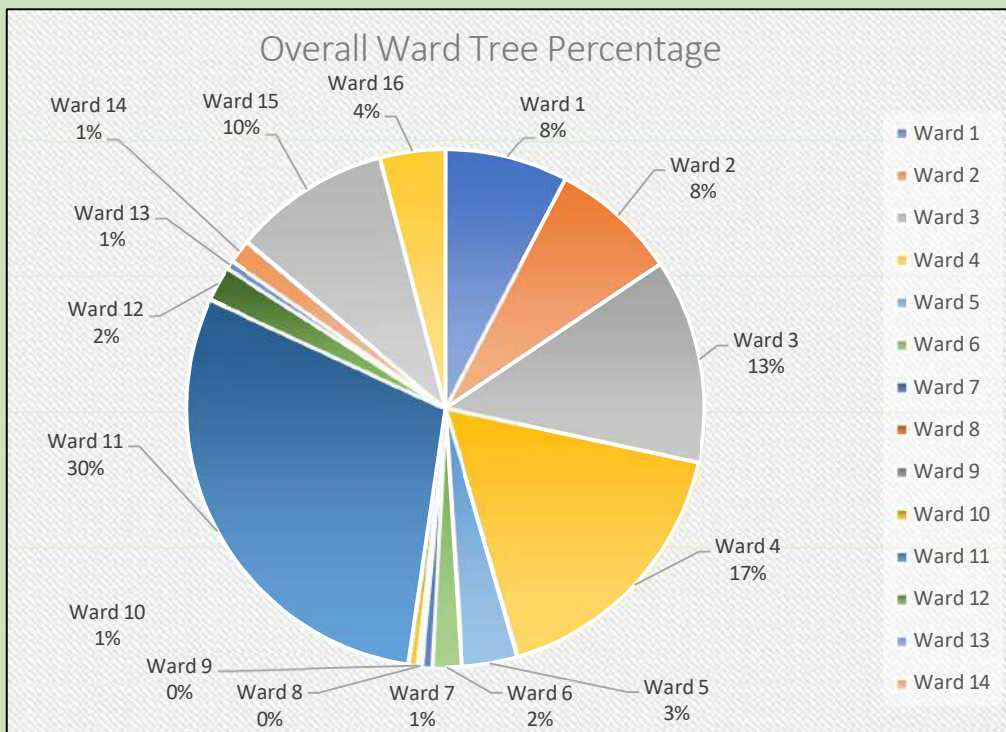
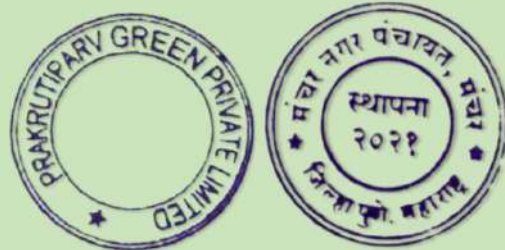


Fig 5.1 – Ward wise Tree Distribution



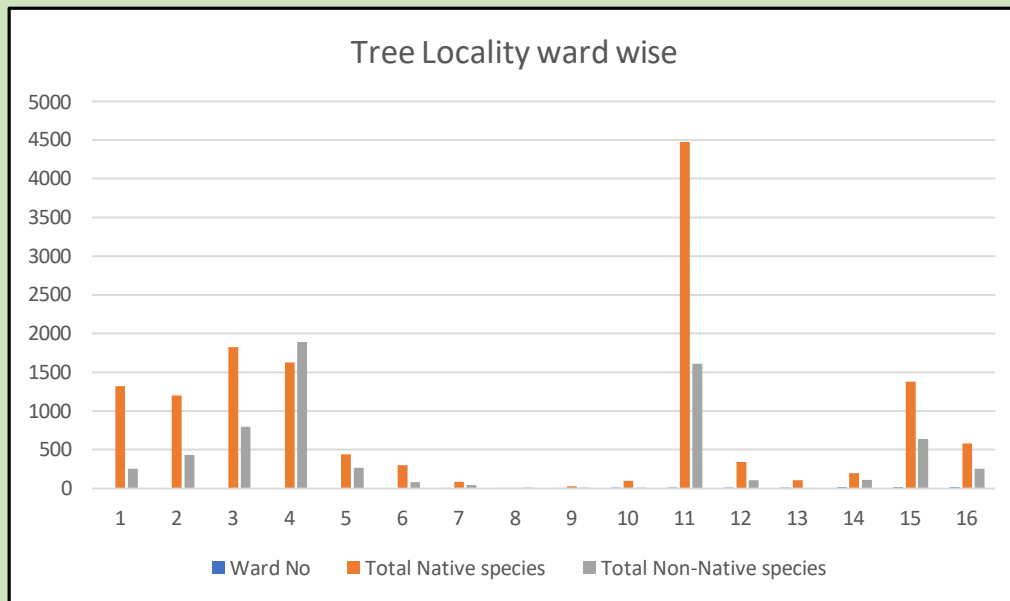
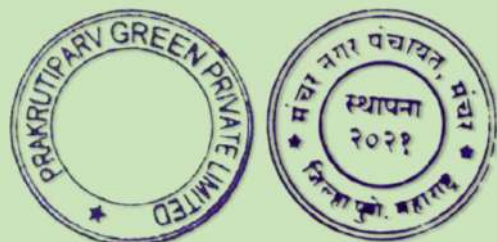


Fig 5.2 – Ward wise Native and Non-Native distribution

- e) In terms on green cover quality, native trees were found to be dominating in most of the wards like ward number 11, ward no 1, ward no 2 and ward no 3.
- f) Species like Aamba (*Magnifera indica*), Subabhul (*Leucaena Leucocephala*) and Kaduneem (*Azadirachta indica*) were found to be main indigenous dominating species.
- g) Ward no 4 showed dominance of Non-Native tress as thisb has huge amount of Chinch (*Tamarindus Indica*) platation, this needs to consider in coming future to avoid dominance of non-indigenous trees.



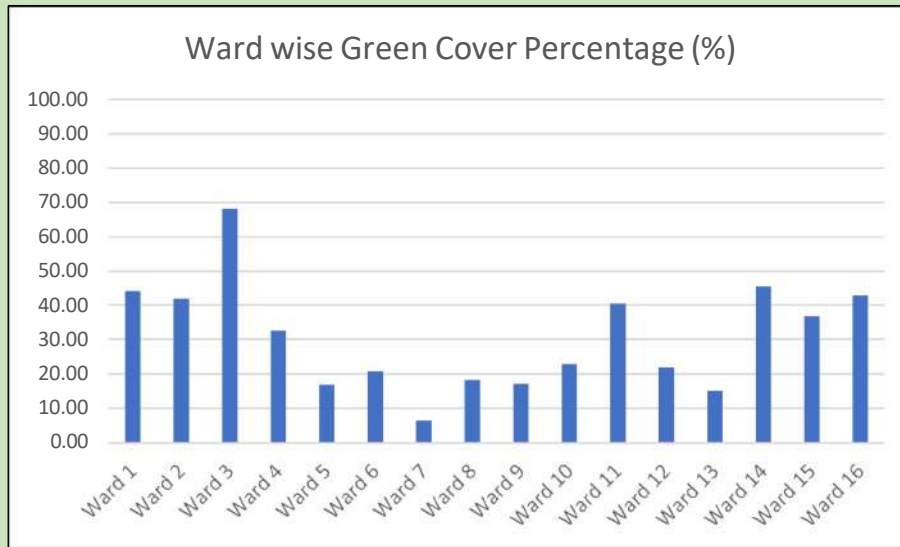


Fig 5.3 – Each Ward wise Green Cover distribution with respect to its area

- h) Green cover distribution was calculated for each ward separately with respect to its area. Ward 3 was observed to have highest percentage with total 68% green cover distribution.
- i) Following Ward no 14 stands second with 45% and ward no 1 with 44%.
- j) Ward no 7 mainly consist of old city where plantation was seen less.

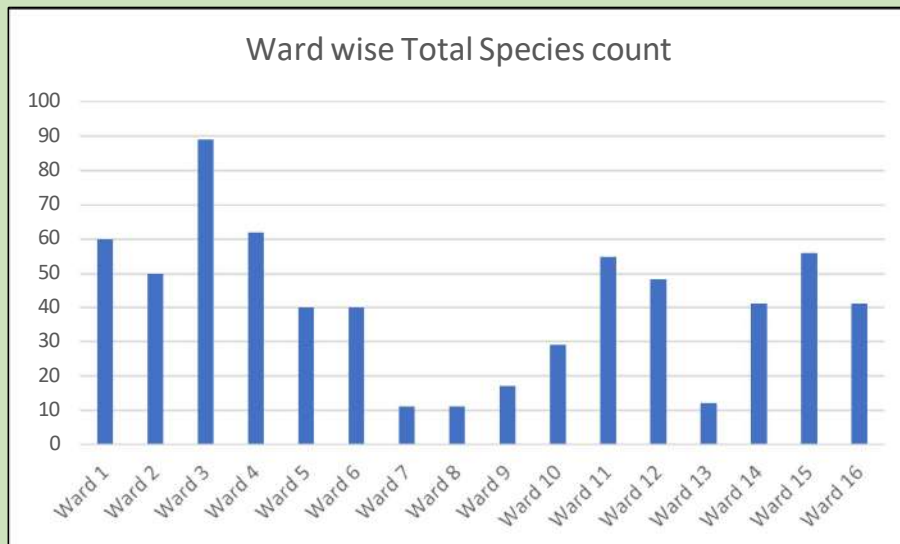


Fig 5.4 – Each Ward wise total species count

- k) Ward no 3 was observed to have highest number of tree species with a total counting of 89 species.

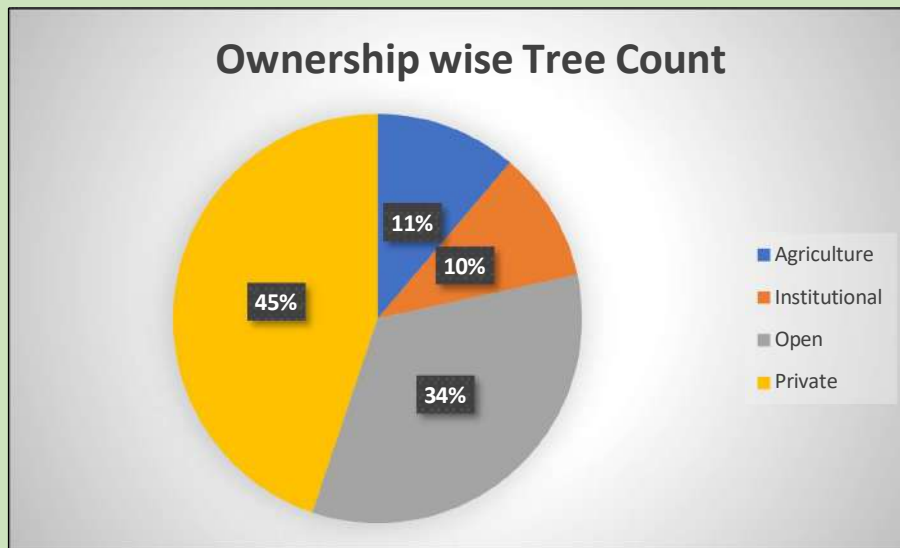


Fig 5.4 – Ownership wise Tree distribution percentage

- l) After analysis it was found out that 45% (9205 trees) of the total tree count are situated in private area. This consist of residential area. Tress planted by people in front of house, farm house etc.
- m) After Private ownership Tress in Open areas constitutes 34% (6907) of the total count.
- n) Agriculture area ranks 3rd and followed by institutional ownership. Institutional ownership consists of various school and college campus, hospitals, banks and other locations run by any entity and no single owner.



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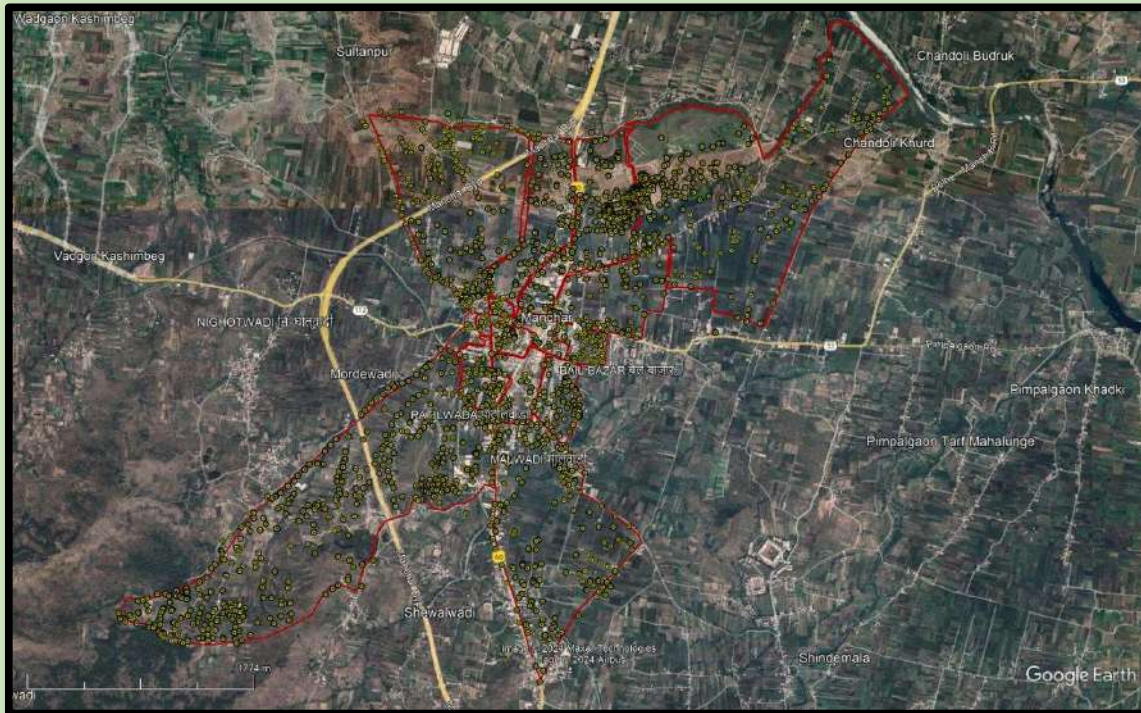


Fig 5.5 – Manchar Tree Census Map

- Above attached map shows the distribution of Green Cover (marked in yellow colour) across 16 wards in Manchar Nagar Panchayat.
- Ward number like 8,9,10,13 constitutes old city area situated in the middle of the city. Since this area is densely populated the green cover vegetation is lesser.
- However, outer wards like ward number 1, 4, 11 and 15 are located in the outer part and have good amount of vegetation cover with good tree species diversity.
- Ward numbers like 11, 3 and 4 are having good amount of green cover mainly near canal area and forest plantation.



6. RECOMMENDATION

1. City has good population of healthy trees, but special attention should be given to young trees as they prone to get cut by human beings or eaten by cattle.
2. More focus needs to be given on Indigenous species, especially plantations done in and near Government owned property like Government buildings, road side space, river side space, play grounds and gardens.
3. Removal and clearing Non-Native patches; plantation of Native fruiting and flowering species to support local birds and other faunal species.
4. Ensuring high success rate by proper protection of newly planted saplings till they grow.
5. Involvement of locals by conducting various programs under “Majhi Vasundhara Abhiyan” to sensitize people regarding importance of trees and its protection.
6. Community participation program to create awareness among locals.
7. Involvement of schools and colleges through Tree adoption program.




मुख्याधिकारी
मंचर नगर पंचायत, मंचर

