TREE CENSUS REPORT

Pauni Municipal Council, Pauni (District: Bhandara)

2023-2024

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1. INTRODUCTION

About Pauni Municipal Council

Pauni is a Town in Khanapur-Vita Taluka in Bhandara District of Maharashtra State, India. It belongs to Desh or Paschim Maharashtra region. It is located 55 KM towards North from District headquarters Bhandara. It is a Taluka head quarter. Pauni Pin code is 415307 and Postal head office is Pauni (Bhandara).

Benapur (3 KM) , Sultangade (3 KM) , Gorewadi (3 KM) , Jakhinwadi (3 KM) , Mohi (4 KM) are the nearby Villages to Khanapur. Pauni is surrounded by Tasgaon Taluka towards South, Atpadi Taluka towards North, Kavathemahankal Taluka towards South , Palus Taluka towards west .Vita, Mahuli , Tasgaon , Mhaswad are the nearby Cities to Khanapur.

Pauni Local Language is Marathi. Pauni town Total population is 6457 and number of houses are 1321. Female Population is 49.3% town literacy rate is 72.9% and the Female Literacy rate is 33.6%.

About Tree Census and Tree Planning

A Tree can be defined as “a long-lived woody plant that has a single usually tall main stem with few or no branches on its lower part”. Trees are often defined as lungs of the planet, as they play a major role in carbon sequestration and oxygen generation, vital for most living beings on the planet. They are primary regulators of soil, temperature, humidity, ground water, etc. Trees also provide vital substances such as food, medicine, timber, as well as habitat for various animals, birds, insects, etc.

Trees are all the more essential for urban areas, as urban areas tend to be a major generators of waste and also a dense habitat of humans. Therefore, the process of ‘Tree Census’ has been gaining increasing importance for Urban areas and the Urban Local Bodies have been directed to conduct tree census for their cities at least once in 5 years. The Maharashtra (Urban Areas) Preservation of Trees Act, 1975, as amended in July 2021, is the principle law for tree preservation and monitoring in the State of Maharashtra.

Tree Census or Tree Inventory is the process of identifying, marking, and cataloging the trees and its various attributes such as species, height, girth, age, location, condition, etc. Tree census is an important step in the process of tree conservation, management and planning. Such documentation of trees is an initial effort towards raising awareness regarding the importance of trees amongst the citizens as well as the scientific community.

A tree with an estimated age of 50 years or more has been defined as a heritage tree. Heritage trees are truly a symbol of heritage and therefore, have been order to be treated as such. Importance has also been given to native / indigenous species, as they are naturally suited to thrive and survive in the given location, without causing serious destruction or evasion to other species.

Based on the data and information obtained as a result of the tree census, further plan of action can be decided. Most significantly, in accordance with the National and State policies and goals, minimum 33% of land area must have ‘Green Land Use’. Analysis of the tree census data yields a clear result of whether this target has been achieved. The data also plays an important role in preparing a plan for achieving the desired result by planning plantation, maintenance and conservation activities.

Methodology

Tree census is the process of process of identifying, marking, and cataloging the trees and its various attributes such as species, height, girth, age, location, condition, etc. Tree Planning is the planning for maintenance and upkeep of existing trees and strategies for future plantations. The Urban Local Bodies (ULBs) and Panchayati Raj Institutions (PRIs) have been entrusted with the task of conducting a tree census in their jurisdiction and ensuring minimum 33% green cover.

For the purpose of this report, the following steps have been performed for the process of Tree Census and Tree Planning:

1. Identifying the survey area.
2. Identifying the survey parameters.
3. Acquiring the necessary tools and manpower required for conducting the Tree Census survey, such as GIS based Survey applications.
4. Planning and conducting the survey as per the parameters.
5. Digitalizing and verifying the survey data.
6. Analysis of Survey data and Generation of Tree Maps.
7. Preparation of Tree Plan.

Each of the above stage has been meticulous planned and implemented by Pauni Municipal Council, in consultation with various stakeholders, consultants, experts, etc.

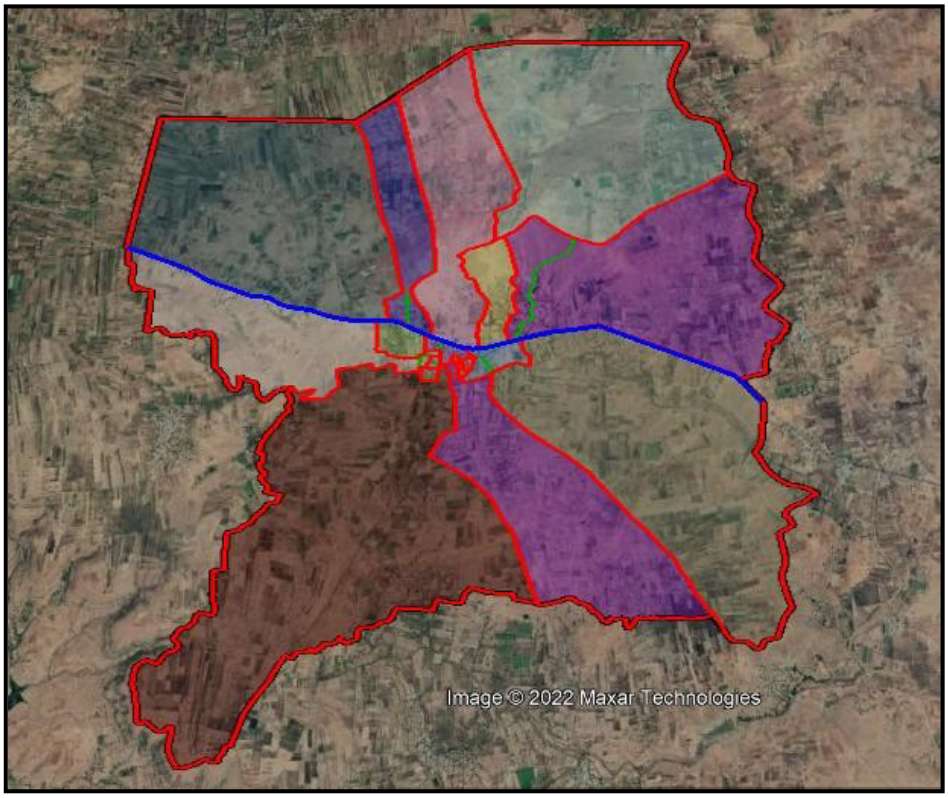
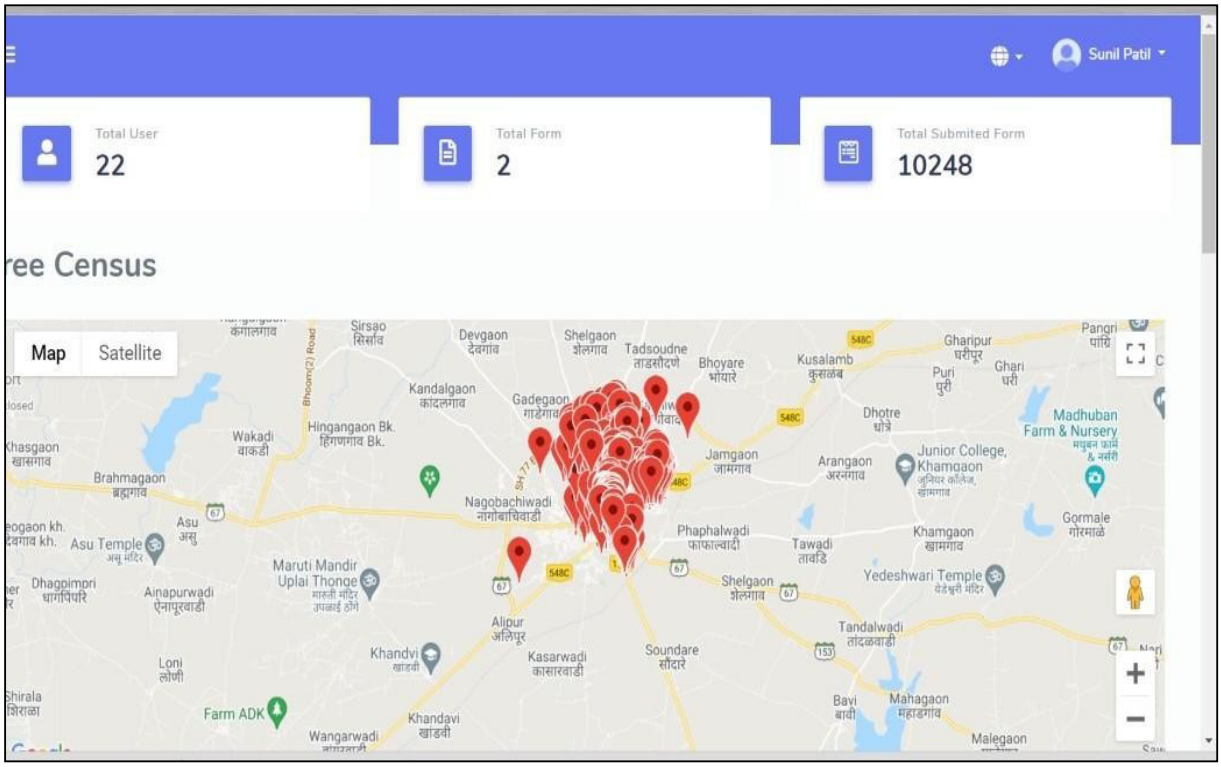


Figure 1: ULB and Ward Boundary indicating the survey area

Table 1: Survey Parameters

1. General	a. Ward Number b. Address c. Photograph
2. Geographical	a. Latitude b. Longitude
3. Technical	a. Common / Botanical Name b. Condition of the Tree c. Age of the Tree d. Height of the Tree e. Diameter of the Tree f. Native &/or Indigenous &/or Heritage



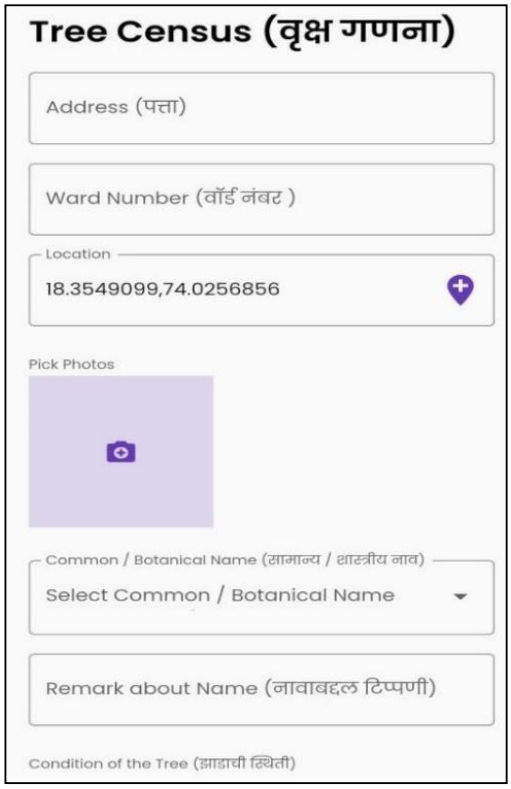


Figure 2: Screenshots of the Mobile Application and Dashboard used for Tree Census survey

Figure 3: Tree Census survey being conducted on ground

2. TREE CENSUS

There are **46,872** trees on land under the jurisdiction of Pauni Municipal Council. The overall density of trees is **3564 trees / sq. km.** The Tree map for the same has been given below:

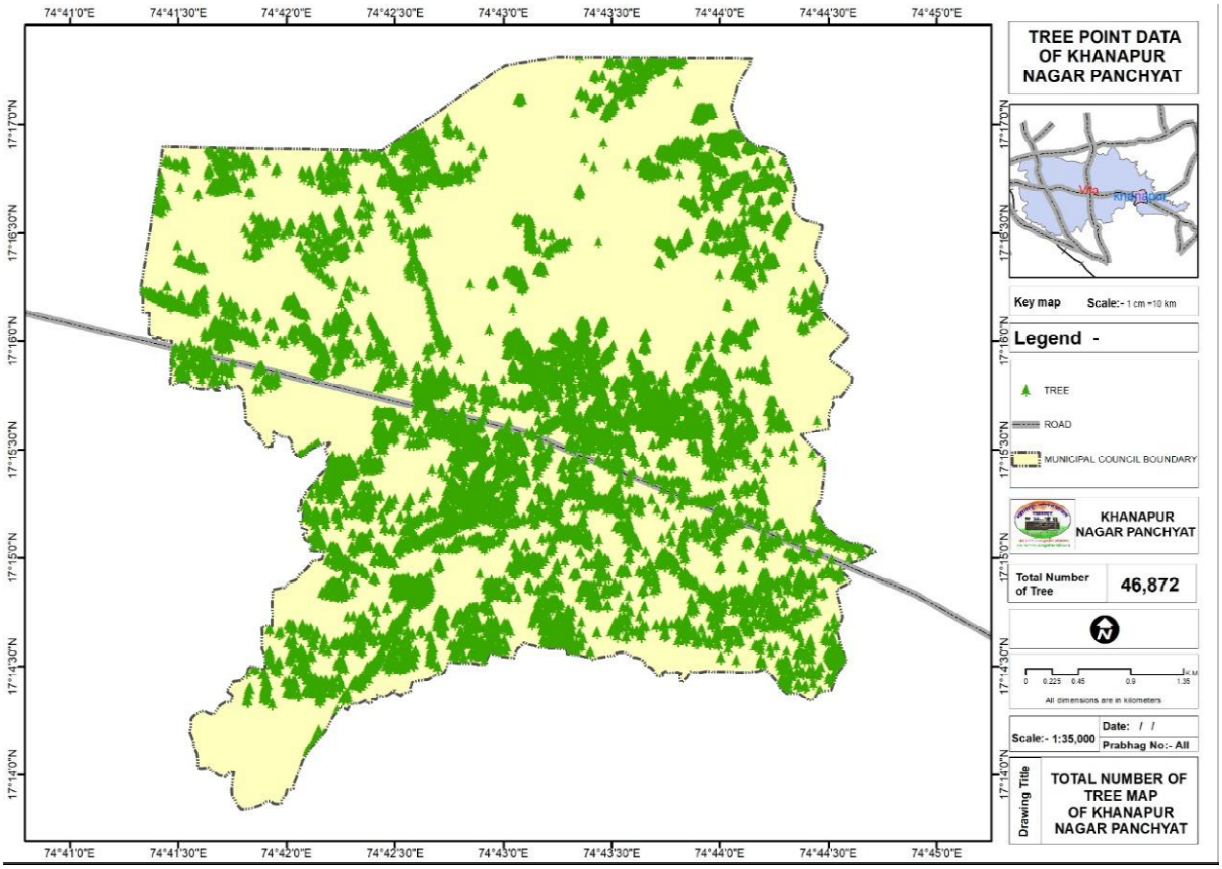


Figure 4: Map indicating the location of trees in the ULB

Table 2: Ward-wise count of Trees in the ULB

Ward Number	Ward Name	Ward Area (in sq. km.)	Count of Trees	Tree Density (Trees / sq. km.)
1	Ward No. 1	3.32	1869	563
2	Ward No. 2	0.35	145	414
3	Ward No. 3	0.24	1503	6263
4	Ward No. 4	4.52	2550	564
5	Ward No. 5	1.63	2637	1618
6	Ward No. 6	0.84	18863	22456
7	Ward No. 7	2.22	4383	1974
8	Ward No. 8	0.03	102	3400
9	Ward No. 9	0.06	11	183
10	Ward No. 10	2.57	1323	515
11	Ward No. 11	1.54	3726	2419
12	Ward No. 12	0.01	1415	141500
13	Ward No. 13	0.01	69	6900
14	Ward No. 14	0.008	19	2375
15	Ward No. 15	0.02	101	5050
16	Ward No. 16	2.51	4042	1610
17	Ward No. 17	4.43	4114	929
Total		**13.15**	**46872**	**3564**

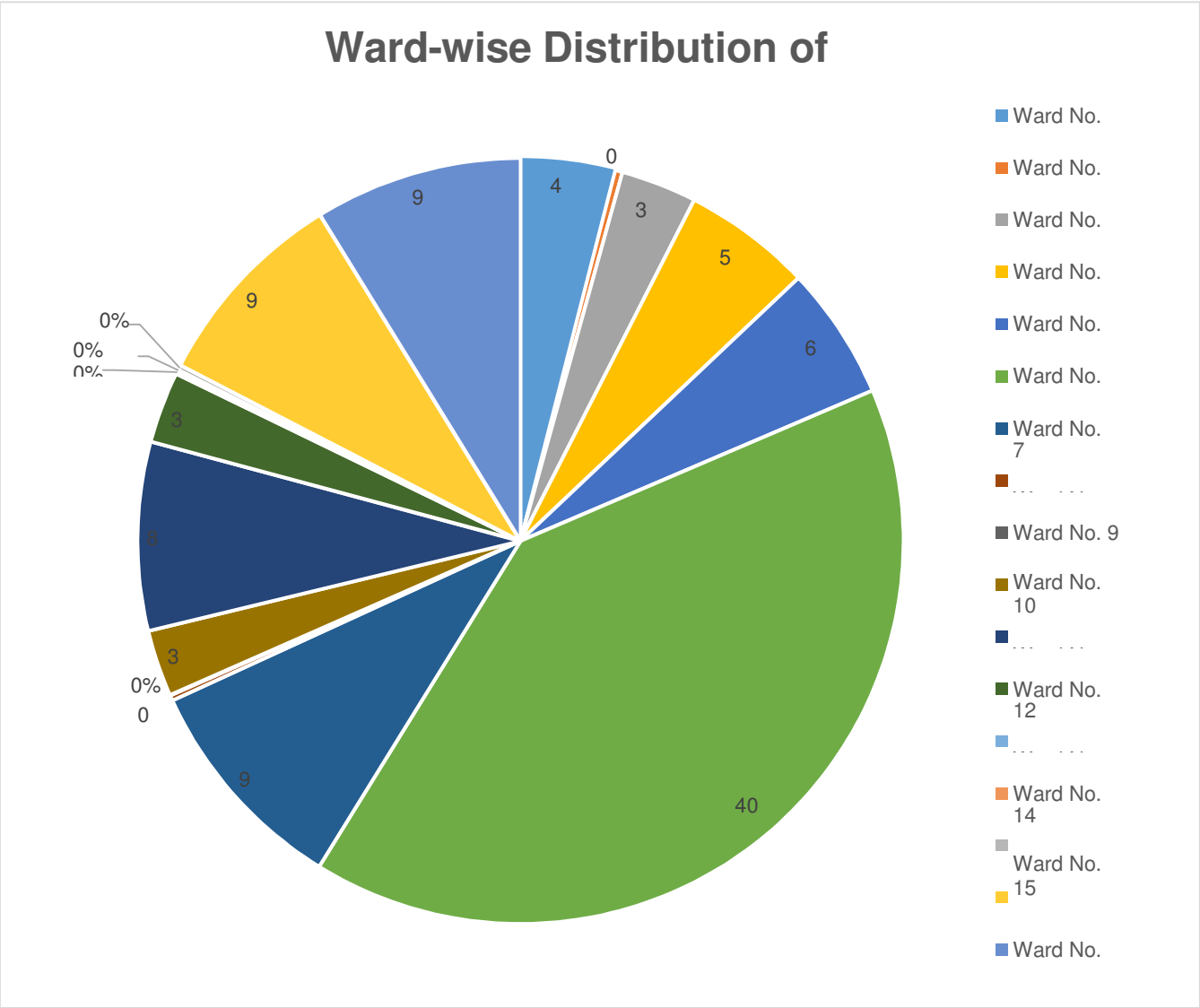

Ward-wise Distribution of
Ward No.
Ward No.
Ward No.
Ward No.
Ward No.
Ward No.
Ward No. 7
Ward No. 9
Ward No. 10
Ward No. 12
Ward No. 14
Ward No. 15
Ward No.
4
0
3
5
6
40
9
0%
3
9
0%
0%
9
3
0%
0
9

Table 3: Species-wise count of Trees in the ULB

Sr. No.	Tree Common Name	Tree Botanical Name	Count	Percentage
1	Babul	Acacia Nilotica	10391	22.17%
2	Indian rosewood	Dalbergia sissoo	8768	18.71%
3	Neem	Azadirachta Indica	7335	15.65%
4	Frywood	Albizia lebbeck	4916	10.49%
5	Karanja	Millettia Pinnata	3959	8.45%
6	Eucalyptus	Eucalyptus obliqua	3502	7.47%
7	Sesban	Sesbania sesban	1480	3.16%
8	Mango	Mangifera Indica	1417	3.02%
9	Gulmohar	Delonix Regia	842	1.80%
10	Custard apple	Annona squamosa	787	1.68%
11	Sag	Tectona Grandis	500	1.07%
12	Paperflower	Bougainvillea spectabilis	411	0.88%
13	Peru	Psidium guajava	389	0.83%
14	Coconut	Cocos Nucifera	305	0.65%
15	Palash tree	Butea monosperma	298	0.64%
16	Drumstick tree	Moringa oleifera	206	0.44%
17	Vilayati Chinch	Pithecolobium Dulce	185	0.39%
18	Chiku	Manilkara zapota	122	0.26%
19	Bamboo	Psidium guajava	111	0.24%
20	Lemon	Citrus Limon	107	0.23%
21	Jambul	Syzygium cumini	94	0.20%
22	Peepal	Ficus Religiosa	80	0.17%
23	Banyan	Ficus Benghalensis	46	0.10%
24	Tamarind	Tamarindus Indica	46	0.10%
25	Other	Other	575	1.23%
Total			46872	**100.00%**

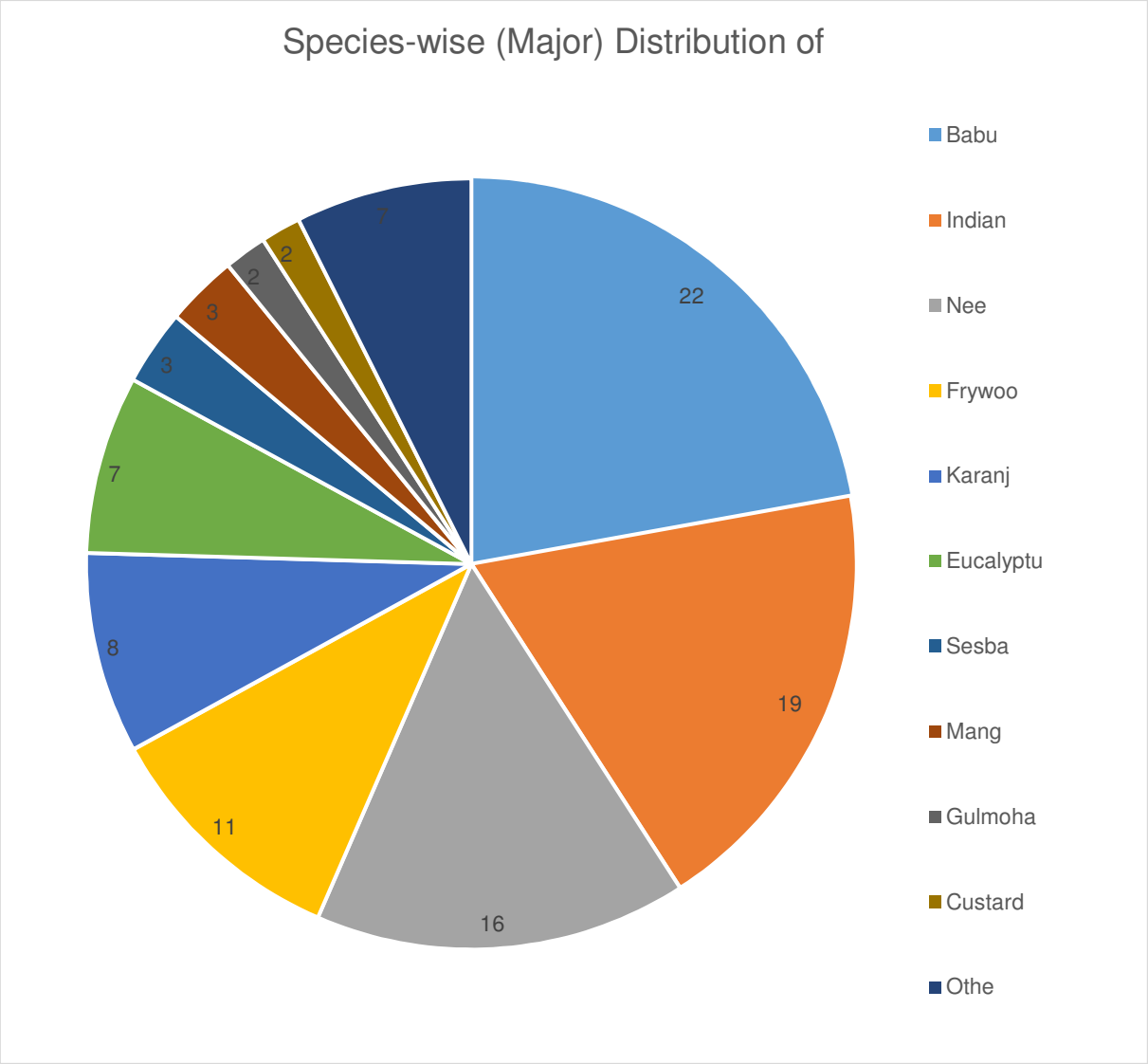

Species-wise (Major) Distribution of
22
19
16
11
8
7
3
3
2
2
7
Babu
Indian
Nee
Frywoo
Karanj
Eucalyptu
Sesba
Mang
Gulmoha
Custard
Othe

Table 4: Sample Data of Tree Census Survey

Tree ID	Ward Number	Latitude	Longitude	Tree Common Name	Tree Botanical Name	Age of the Tree (in years)	Height of the Tree (in foot)	Diameter of the Tree (in foot)	Condition of the Tree
knp-029514	17	17.22805	74.701699	Indian rosewood	Dalbergia sissoo	12	23.00	1.00	Good
knp-029511	17	17.232646	74.705357	Indian rosewood	Dalbergia sissoo	12	23.00	1.00	Good
knp-029431	17	17.233469	74.702065	Indian rosewood	Dalbergia sissoo	12	13.00	2.00	Good
knp-029509	17	17.235043	74.701637	Indian rosewood	Dalbergia sissoo	26	25.00	1.00	Good
knp-029495	17	17.235124	74.701668	Indian rosewood	Dalbergia sissoo	12	25.00	1.00	Good
knp-029493	17	17.235143	74.701669	Indian rosewood	Dalbergia sissoo	12	25.00	1.00	Good
knp-029494	17	17.235158	74.701646	Indian rosewood	Dalbergia sissoo	12	25.00	1.00	Good
knp-029533	17	17.235168	74.701635	Indian rosewood	Dalbergia sissoo	12	13.00	1.00	Good
knp-029512	17	17.235317	74.701723	Indian rosewood	Dalbergia sissoo	12	23.00	1.00	Good
knp-029513	17	17.235317	74.701723	Indian rosewood	Dalbergia sissoo	12	23.00	1.00	Good
knp-029515	17	17.235318	74.701782	Indian rosewood	Dalbergia sissoo	12	23.00	1.00	Good
knp-029534	17	17.235332	74.70192	Indian rosewood	Dalbergia sissoo	12	13.00	1.00	Good
knp-029535	17	17.235442	74.70184	Indian rosewood	Dalbergia sissoo	12	13.00	1.00	Good
knp-009782	17	17.235485	74.702207	Babul	Acacia Nilotica	12	25.00	1.00	Good
knp-044627	17	17.235572	74.70193	Poison Nut	Jatropha curcas	35	32.00	2.00	Good
knp-029530	17	17.235657	74.702082	Indian rosewood	Dalbergia sissoo	12	15.00	1.00	Good
knp-043400	17	17.235692	74.702062	Other	Other	18	23.00	1.00	Good
knp-043401	17	17.235709	74.70206	Other	Other	12	13.00	1.00	Good
knp-029497	17	17.235712	74.702147	Indian rosewood	Dalbergia sissoo	12	25.00	1.00	Good

3. HERITAGE TREE CENSUS

As discussed earlier, Trees having age above 50 years are classified as 'Heritage Trees'. Accordingly, according to survey, Pauni Municipal Council has around **216** Heritage trees within its jurisdiction. The location map of the trees is given below:

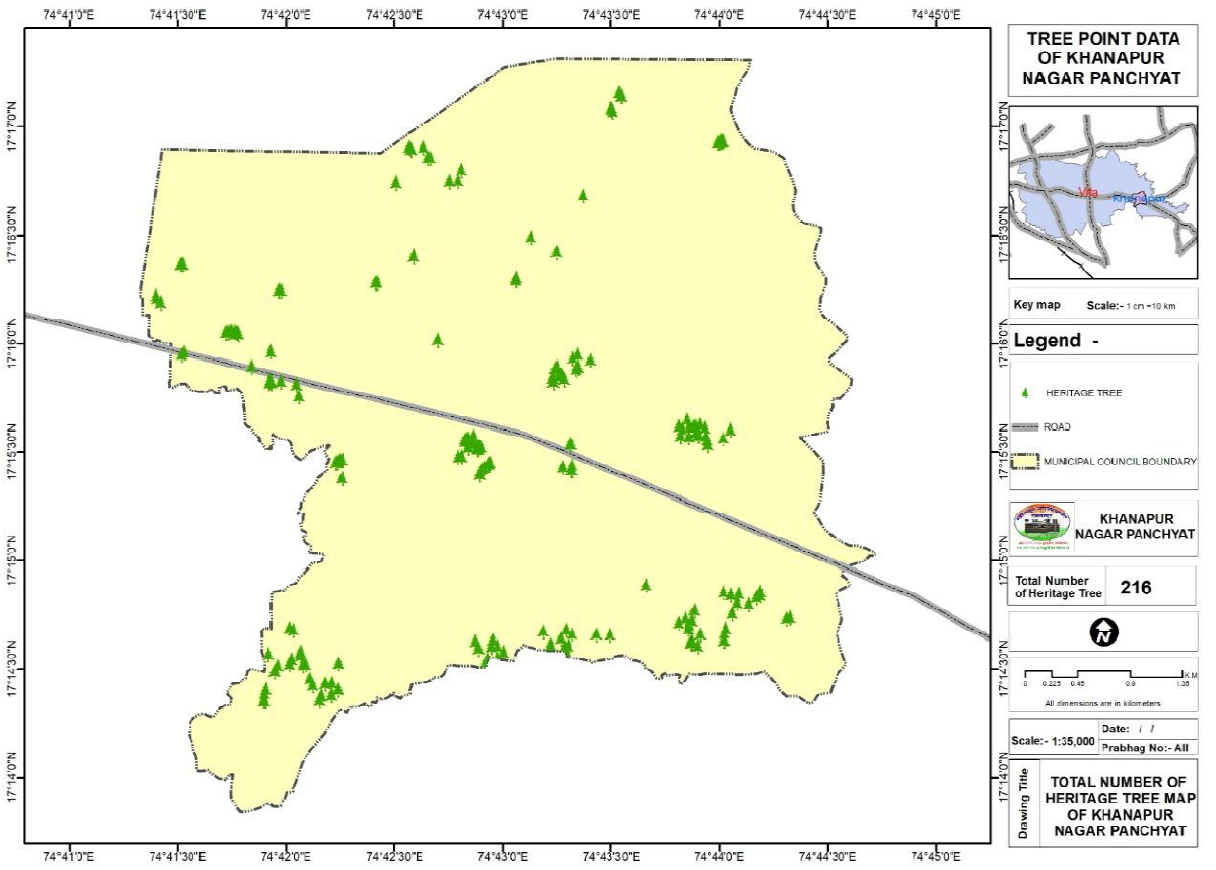


Figure 5: Map indicating the location of Heritage trees in the ULB

Table 5: Sample Data of Heritage Tree Census Survey

Tree ID	Ward Number	Latitude	Longitude	Tree Common Name	Tree Botanical Name	Age of the Tree (in years)	Height of the Tree (in foot)	Diameter of the Tree (in foot)	Condition of the Tree
knp-023348	7	17.254361	74.724669	Indian rosewood	Dalbergia sissoo	50	79	2	Good
knp-023366	7	17.254361	74.724669	Indian rosewood	Dalbergia sissoo	50	79	2	Good
knp-023385	7	17.254361	74.724669	Indian rosewood	Dalbergia sissoo	50	79	2	Good
knp-023469	7	17.254361	74.724669	Indian rosewood	Dalbergia sissoo	50	79	2	Good
knp-023553	7	17.254361	74.724669	Indian rosewood	Dalbergia sissoo	50	79	2	Good
knp-023599	7	17.254361	74.724669	Indian rosewood	Dalbergia sissoo	50	79	2	Good
knp-035616	17	17.255416	74.715898	Mango	Mangifera Indica	60	32	6	Good
knp-035617	17	17.255416	74.715898	Mango	Mangifera Indica	60	32	6	Good
knp-035618	17	17.255416	74.715898	Mango	Mangifera Indica	60	32	6	Good
knp-035619	17	17.255416	74.715898	Mango	Mangifera Indica	60	32	6	Good
knp-014617	16	17.25622	74.71813	Eucalyptus	Eucalyptus obliqua	53	83	1	Good
knp-014635	16	17.25622	74.71813	Eucalyptus	Eucalyptus obliqua	53	83	1	Good
knp-014639	16	17.256238	74.718172	Eucalyptus	Eucalyptus obliqua	63	88	2	Good
knp-014645	16	17.256238	74.718172	Eucalyptus	Eucalyptus obliqua	63	88	2	Good
knp-046627	12	17.258928	74.71317	Tamarind	Tamarindus Indica	65	32	3	Good
knp-046631	12	17.258928	74.71317	Tamarind	Tamarindus Indica	65	32	3	Good
knp-035187	12	17.25894	74.713124	Mango	Mangifera Indica	70	45	5	Good
knp-035211	12	17.25894	74.713124	Mango	Mangifera Indica	70	45	5	Good
knp-035180	12	17.259074	74.713311	Mango	Mangifera Indica	60	43	6	Good
knp-035210	12	17.259074	74.713311	Mango	Mangifera Indica	60	43	6	Good
knp-046622	12	17.25912	74.713319	Tamarind	Tamarindus Indica	50	23	3	Good
knp-046630	12	17.25912	74.713319	Tamarind	Tamarindus Indica	50	23	3	Good
knp-035183	12	17.259127	74.713317	Mango	Mangifera Indica	60	40	5	Good
knp-035209	12	17.259127	74.713317	Mango	Mangifera Indica	60	40	5	Good
knp-033422	12	17.259186	74.712865	Karanja	Millettia Pinnata	50	90	2	Good

4. NATIVE & INDIGENOUS TREES

In biogeography, a native species is indigenous to a given region or ecosystem if its presence in that region is the result of only local natural evolution (that is "with no human intervention"). Native trees are beneficial because are easily adapted to the soil and climatic conditions of a specific area over a long period of time, provide the most suitable habitat for local wildlife, they support native pollinators, which are critical to global crop production, they're uniquely suited to grow in their native area, etc.

There are **46,297** Trees belonging to **24** Species in the ULB. Following is the species-wise-list of Trees in the ULB:

Table 6: Species-wise count of Native / Indigenous Trees in the ULB

Sr. No.	Tree Common Name	Tree Botanical Name	Count
1	Babul	Acacia Nilotica	10391
2	Indian rosewood	Dalbergia sissoo	8768
3	Neem	Azadirachta Indica	7335
4	Frywood	Albizia lebbeck	4916
5	Karanja	Millettia Pinnata	3959
6	Eucalyptus	Eucalyptus obliqua	3502
7	Sesban	Sesbania sesban	1480
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10	Custard apple	Annona squamosa	787
11	Sag	Tectona Grandis	500
12	Paperflower	Bougainvillea spectabilis	411
13	Peru	Psidium guajava	389
14	Coconut	Cocos Nucifera	305
15	Palash tree	Butea monosperma	298
16	Drumstick tree	Moringa oleifera	206
17	Vilayati Chinch	Pithecolobium Dulce	185
18	Chiku	Manilkara zapota	122

19	Bamboo	Psidium guajava	111
20	Lemon	Citrus Limon	107
21	Jambul	Syzygium cumini	94
22	Peepal	Ficus Religiosa	80
23	Banyan	Ficus Benghalensis	46
24	Tamarind	Tamarindus Indica	46
Total			**46297**

5.GREEN COVERAGE

Pauni Municipal Council has a total Green Cover of **3.02 sq. km**, which amounts to around **23%** of the total land area. A Green Cover map has been given below:

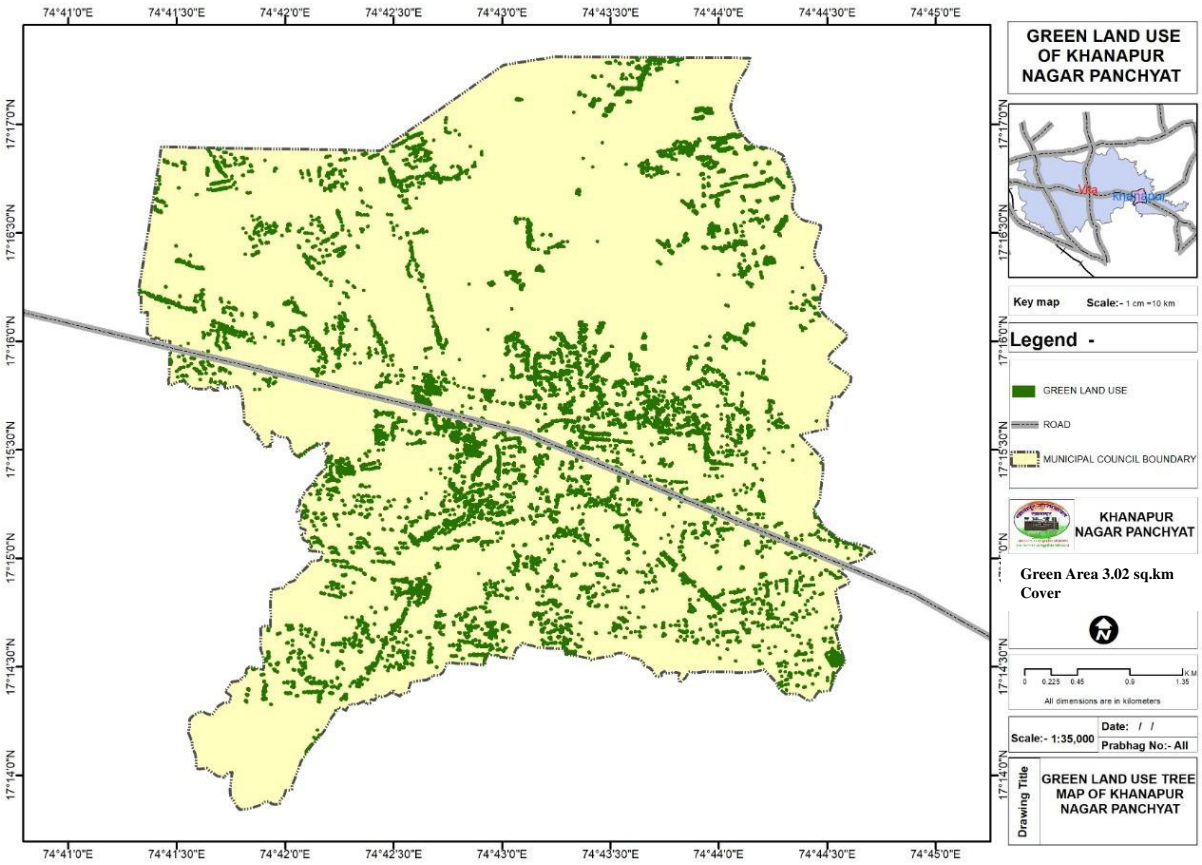

Figure 6: Map indicating Green Cover in the ULB

6. TREE PLAN

As mentioned above, Pauni Municipal Council has a total Green Cover of **3.02 sq. km**, which amounts to around **23%** of the total land area. Therefore, the National target of 33% is not met and thus, an action plan is needed for the ULB.

Pauni Municipal Council is actively involved in new plantations. Accordingly, the ULB has planted about **2340** trees in the Newly Created Green areas, in order to increase the Green cover in the ULB. Pauni Municipal Council has planned to plant a total **20379** trees to achieve minimum 33% area as green cover by 2025, by plantation of more trees, as given in the table below.

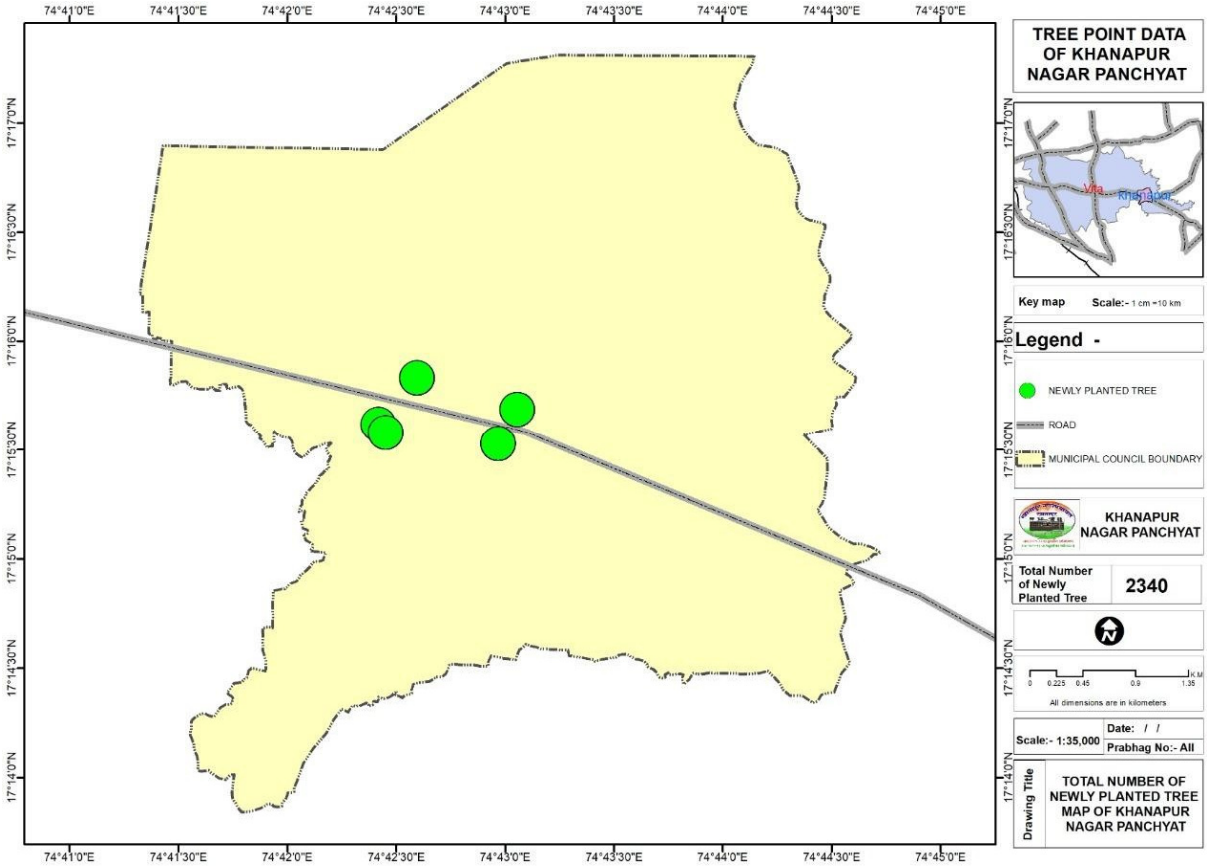

Figure 7: Map indicating areas with Newly Planted Trees in the ULB

Table 7: Summary of Trees planned to be planted by 2025

	Latitude	Longitude	Count of Trees planned to be planted in 2022-2023	Count of Trees planned to be planted in 2023-2024	Count of Trees planned to be planted in 2024-2025
Mahtam Gandhi School	17.26386	74.70992	1203	1203	1203
Smashan Bhumi	17.25882	74.71613	1203	1203	1203
Kosewadi Par talav	17.26031	74.70696	1203	1203	1203
Tasgaon Bypass	17.26146	74.71758	1203	1203	1203
Ghankachara Vyvasthapan Prakalp	17.25967	74.70753	1203	1203	1203
Total			**6013**	**6013**	**6013**