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A Study on Survival Rates of Biodiversity and District Parks of Delhi Development Authority (DDA) Delhi, India

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Abstract

The objectives of this work were to gauge the success of conservation strategies, evaluation, and assessment of the overall health of ecosystems within the parks, implemented by the Delhi Development Authority (DDA). A multidisciplinary approach was employed, integrating field surveys, data analysis, and a review of management documents. Biodiversity indicators, infrastructure assessments surveys were utilized to comprehensively evaluate the effectiveness of park management. The survival rates 81.00%, 85.23%, and 83.00% were recorded at Tilpath Valley Biodiversity Park, Aravali Biodiversity Park, and Yamuna Biodiversity Park. In the context of district parks, the maximum survival rate 96.00% was reported at M/o District Park Aziz Bax Wala Bagh, Pitampura under the horticulture division of X. while minimum 75.00% was estimated at Afforestation between Wazirabad Barrage to Old Railway bridge (Eastern bank) Near Usmanpur Village under the horticulture division of IX.The evaluation revealed commendable success in biodiversity conservation efforts, with a diverse array of native flora and fauna thriving within the parks. The findings contribute valuable insights for refining conservation strategies, improving infrastructure, and enhancing community engagement, ensuring the sustained success of these green spaces amidst urban development.

Keywords: Biodiversity parks, District parks, Delhi Development Authority (DDA), Plantations, Survival rates *etc.*

Introduction

The plantation has a remarkable role to play in the protection of the region. The forest's presence is primarily responsible for the orderly progression of numerous natural occurrences, from reducing carbon dioxide and other gas emissions to functioning as dust traps, replenishing ground water, and encouraging cloud formation and local precipitation (Rockström *et al.*, 2009; Meyer *et al.*, 2021). Biodiversity parks represent vital components of urban landscapes (Müller *et al.*, 2013), serving as reservoirs of ecological diversity amidst burgeoning urbanization. These green spaces, carefully designed and managed, play a pivotal role in conserving, studying, and promoting biodiversity within urban environments (Jabbar *et al.*, 2021; Addas, 2023). The primary role of biodiversity parks is the conservation of biological diversity in urban areas (Dearborn and Karck, 2010). These parks support the preservation of ecosystem services, such as soil fertility, water and air purification, and climate regulation, by protecting native flora and wildlife (De Bell *et al.*, 2018; Casprini *et al.*, 2023). Moreover, they act as outdoor classrooms, promoting environmental education and awareness activities. Despite their ecological importance, biodiversity parks face challenges, including urban encroachment, pollution, and climate change impacts (Kideghesho 2013). Balancing the needs of visitors with conservation goals, managing human-wildlife interactions, and addressing invasive

species require careful planning and adaptive management (Richardson *et al.*, 2020; Marchini *et al.*, 2021). The foremost objective of the Delhi Forest Department is to keep 2-3% of the area under such forest cover to stop erosion and land deprivation and to safeguard the stability of the fragile environment in the face of huge, related activities and environmental pollution. Delhi's vegetation is typical Type of Northern Tropical Thorn Forest (Champion and Seth, 1968).

With numerous small and large parks under its jurisdiction, the Delhi Development Authority (DDA), the country's first urban development authority (Rao, 2020), has made significant contributions to the overall development and management of India's green spaces. It has made deliberate efforts to develop open spaces as biodiversity parks, district parks, green belts, and neighborhood greens, among other types of open spaces. DDA has fulfilled its commitment to improving and protecting green spaces, restoring the aquatic ecosystem, and revitalizing lakes etc. (https://dda.gov.in/greens).

In order to create shade, enhance the area's aesthetic value, and act as the city's lungs, native and ornamental plants were planted in the parks (Francini *et al.*, 2023). Restoring lost biodiversity and raising public and student knowledge of environmental issues and forest ecosystems are the main goals of biodiversity parks (Delhi Biodiversity Foundation).

Neela Hauz Biodiversity Park, Northern Biodiversity Park, Aravalli Biodiversity Park, Tilpath Valley Biodiversity Park, Tughlaqabad Biodiversity Park, and Yamuna Biodiversity Park are located in Delhi. Besides this, several districts' parks are also established at different locations in Delhi. In some pockets, the Aravalli Mountain range has been divided due to development. DDA has taken up huge plantation work in all the parks.

For the 2018–19 DDA has hired FRI to conduct independent monitoring and assessment of these plantations. Throughout July 2019, the monitoring was done. As a result, the current monitoring and assessment report is an effort to conduct a performance evaluation of the tasks that DDA completed between 2018 and 2019. This is the first time that work has been reported on the monitoring and evaluation of the plantation under the funded DDA Delhi project that work has been carried out by FRI Dehradun.

Materials and Methods

Sapling design and sample collection

In this study, 100 meter transects were made for the enumeration of tree species on both sides of transacts. 0.1ha (31.62 m2) were laid for data collection in the context of tree and shrubs/hedges species enumeration. From each sampled plot, data on plant growth (height and diameter) and survival rate were collected.

Sampling sites

The biodiversity parks have functional by the Delhi Development Authority, Delhi. A total of sixbiodiversity parks such as Neela Hauz Biodiversity Park, Aravalli Biodiversity Park, Tilpath Valley Biodiversity Park, Northern Biodiversity Park, Tughlaqabad Biodiversity Park, and Yamuna Biodiversity Park (Delhi Biodiversity Foundation DDA, Delhi). Among of these parks, 3 biodiversity parks have been monitored. (Figure 1).More than 120 horticulture district parks were also examined during the survey (Figure 2). The places of biodiversity and horticulture district parks have been shown in the Figure 3.

Biodiversity Parks

The Aravalli Biodiversity Park (ABP)

ABP is located on 699 acres of land to the North-west of Vasant Vihar. The area is heavily invaded by Prosopis juliflora (Vilayati kikar) and has been severely disturbed by mining activities in the past. The primary objective of ABP is to restore the destroyed ecosystem of the Delhi Aravallis. Another goal of the ABP is to encourage environmental awareness and nature education among the general public and schoolchildren.

Neela Hauz Biodiversity Park (NHBP)

NHBP is located on 3.9 hectares of land on the south-central Delhi ridges of the Aravalli range near Sanjay Van in Delhi. NHBP is an attractive site that provides habitat for migratory and resident birds. The Park plays an important role in the environmental conservation, tourists, recreation, eco-friendly activities as well as environmental awareness message habitat of migratory and resident birds.

Northern Biodiversity Park (NBP)

NBP is situated on 122.00 hectares next to Delhi University, North Campus. The Park was rebuilt in 2014-16 in total 87 ha of Kamla Nehru Ridge near Delhi University. The Park is heavily infested with *Prosopis juliflora* (Vilayati kikar), which was planted by the British in the 1920s to restore the harsh environment. Enrichment of the NBP with fascinating birds and a wider range of faunal species. In the context of ecosystem protection, DDA, under the

direction of Dr. C.R. Babu, collaborated with Delhi University faculty to reintroduce 5,000 native plant species that had survived in the ridge 150 years prior. In 2014, 15 native plant species were added to the *P. juliflora.*

Tilpath Valley Biodiversity Park (TVBP)

TVBP established on 69.56 hectares on the Southern Ridge that is closest with Aravalli ranges of Haryana. The area is rich in natural resources. The Park periphery is marked with Asola Bhatti Wildlife Sanctuary of South Delhi.

Tughlaqabad Biodiversity Park

NBP is situated on 200 acres and comprises the eastern gentle slope of the Tughlaqabad Fort area. Park plays major role in the ecological services such as refreshing of ground water, buffering local weather, serving as sink for carbon dioxide, preserving natural heritage of the area, endorsing environmental awareness among the public and students, serving as a living laboratory and hub for environmental education among school, college and university students, and providing recreational value to the public. The park plays a significant role in preserving the area's natural beauty, including its wildlife and plants.

Yamuna Biodiversity Park (YBP)

The Yamuna Basin Project (YBP) has been divided into two phases: Phase I, which spans 157 acres on the Yamuna's inactive flood plains, and Phase II, which spans 300 acres on the river's active floodplains. Numerous forest communities, biologically rich wetlands, grasslands, a broad range of fruit-bearing plants, and an abundance of medicinal herbs may all be found in the park. Native plants and animals can also be found in the park. Currently, the YBP occupies 457 acres close to Wazirabad village on the Yamuna River's west bank.

DDA Districts Parks

During the monitoring and evaluation, district parks have categorized into two types viz., Parks under the North-West Directorate, DDA, and Parks under the South-East Directorate, DDA. In this context, more than 120 parks have been surveyed throughout the study period. Monitoring and evaluation works has been carried out in the sampled plots. Each Horticulture division were selected as a unit for collection of field data and all the divisions were surveyed for monitoring. Furthermore, the size of plots and classification of plantations were also taken into concern for interpretation of all units. 50% random sampling amongst the district parks was carried out and the total area of biodiversity parks was surveyed.

Results and Discussion

Aravalli Biodiversity Park

In the Aravali biodiversity parks, a total of 40000 vegetation (trees, shrubs and grasses species) were planted in the year of 2018-19. Species such as *Acacia catechu, Acacia senegal, Adina cordifolia, Aegle marmelos, Alangium salvifolium, Albizia lebbeck, Albizia odorattisima, Albizia procera, Anogeissus pendula, Anogeissus sericea, Anona squamosa, Bahunia purpurea, Bauhinia variegata, Bombax ceiba, Boswellia serrata, Bridelia retusa, Bucchnania lanzen, Butea monosperma, Cassia fistula, Cordia sinensis, Cordia myxa, Dalbergia lanceolaria, Dalbergia latifolia, Dalbergia sissoo, Dendrocalamus strictus, Ougeinia oojeinensis, Dicrostachys cineria, Diospyros melanoxylon, Erythrina indica, Feronia limonia, Ficus carica, Ficus glomerata, Ficus virens, Gmelina arborea, Holoptelea integrifolia, Lagerstroemia indica, Lagerstroemia, parvifolia, Lannea coromandelica, Madhuca longifolia, Mallotus philippinensis, Manilkara hexandra, Michelia champaca, Millingtonia hortensis, Mimusops elengii, Mitragyna parvifolia, Moringa cocanensis, Morus alba, Neolamarkia cadamba, Oroxylum indicum, Prosopis cineraria, Pterocarpus marsupium, Schleichera oleosa, Sterculia urens, Stereospermum sauveolens, Syzygium cumini, Syzygium salicifolium, Tecomella undulata, Terminalia arjuna, Terminalia bellirica, Terminalia chebula, Terminalia tomentosa, Trewia nudiflora, Vitex negundo, Wrightia spp.* were surveyed in reference to height, collar diameter, and as well as physical observations recorded. During the survey total of 32400 plants were recorded as surviving. In Aravali Biodiversity Park, the survival rate was evaluated at 81.00% (Figure 4). Average plant heights ranging from 0.90 to 1.7 m were recorded during the survey. The Aravali Biodiversity Park is spread over 279 hectares. Similar work has been done relevant to evaluating the impacts of plantations and associated forestry operations by Ingram *et al.*, (2016).

Tilpath Valley Biodiversity Park

In the case of Tilpath Valley Biodiversity Park, a total of 20000 vegetation (trees, shrubs and grasses species) were planted in the year of 2018-19. Species such as *Acacia catechu, Acacia leucophloea, Acacia senegal, Aegle marmelos, Albizia lebbeck, Anogeissus pendula, Anogessus sericia, Bauhinia racemosa, Boswellia serrata, Butea monosperma, Careya arborea, Carissa carandus, Carissa spinaram, Commiphora wightii, Cordia dichotoma, Dalbergia sissoo, Dichrostachys cinereal, Diospyros montana,*

Ehretia laevis, Emblica officinalis, Fenonia limonia, Ficus racemosa, Holoptelea integrifolia, Hymenodictyon excelsum, Manilkara hexandra, Maytenus senegalensis, Mitragyna parviflora, Murraya paniculata, Sapindus laurifolius, Sterculia urens, Syzygium cumini, Terminalia arjuna, Terminalia bellirica, Vitex negundo, and *Wrighia tomentosa* were surveyed in reference to height, collar diameter, and as well as physical observations recorded.A total of 17046 plants were recorded as surviving. In Tilpath Valley Biodiversity Park, the survival rate was estimated at 85.23% (Figure 4). Average plant heights ranging from 0.60 to 1.00 m were recorded during the survey. The Tilpath Valley Biodiversity Park is spread over 70 hectares.Putra et al. have monitored plantations with integrated sensors and a digital camera (2020).This study demonstrated the potential for future work related to the application of picture data for plantation management, particularly in agroforestry, high-density tree, and small plantation sites.

Yamuna Biodiversity Park

In the reference of Yamuna Biodiversity Park, a total of 24000 vegetation (trees, shrubs and grasses species) were planted in the year of 2018-19. Species such as *Acacia catechu, Acacia nilotica, Cassia fistula, Terminalia arjuna, Terminalia tomentosa, Aegle marmelos, Terminalia bellirica, Dendrocalamus strictus, Semecarpus anacardium, Pterocarpus marsupium, Bauhinia variegata, Holoptelea intgrifolia, Butea monosperma, Wrightia tomentosa, Albizzia lebbeck, Kydia calycina, Madhuca indica, Soymida febrifuga, Albizzia procera, Bombax ceiba, Dalbergia sissoo, Oroxylum indicum, Emblica officinalis, Ficus glomerata, Trewia nudiflora, Adina cordifolia, Syzygium cumini, Mitragyna parvifolia, Dalbergia latifolia, Gmelina arborea, Ougeinia oojensis*, and *Dicrostachys cineria* were surveyed in reference to height, collar diameter, and as well as physical observations recorded. A total of 19,920 surviving plants were recorded. In Yamuna Biodiversity Park, the survival rate was estimated at 83.00% (Figure 4).Average plant heights ranging from 0.50-1.30 m. were recorded during the survey. The Tilpath Yamuna Biodiversity Park is spread over 185 hectares. In order to assess the socioeconomic and climate implications of growth, improved land monitoring techniques are needed. Growing tree plantations is intended to mitigate climate change and boost rural economies (Bey and Meyfroidt, 2021).

DDA District Parks

The Yamuna banks now have a few green belts and over 120 District parks thanks to the efforts of DDA. The biodiversity of Delhi is increasing thanks to these district parks and green belts. In addition to improving biodiversity, parks have created microclimates, strengthened rainfall, improved aquifers, and given people access to plenty of clean air. These district parks influence the macroclimate of a region by serving as a haven for migratory birds and other wild wildlife. The DDA parks, which are spread throughout Delhi, offer a calm socio-physical environment to the city. In addition, the parks offer a wide range of amenities for the community, including playgrounds, gardens, picnic areas, gyms, and kid-friendly parks that increase happiness.

North-West Directorate, DDA

North-West Directorate, DDA district parks have classified under six horticulture divisions viz., Horticulture divisions II, Horticulture divisions III, Horticulture divisions V, Horticulture divisions VIII, Horticulture divisions X, and Horticulture divisions Dwarka (Table 1). In the regarding of tree species, the maximum survival rate (96.00 %) was recorded at M/o District Park Aziz Bax Wala Bagh, Pitampura (Horticulture Division X). while minimum survival rate (65.16 %) was estimated at M/o District Park at Gulabi Bagh, Bandarwala (Horticulture Division II). In the case of shrubs/ hedges species, the maximum survival rate (84.21 %) was reported at M/o District Park B-Block, Paschim Puri (Horticulture Division III). While the minimum survival rate (69.12 %) was recorded at M/o Afforestation MP Green area 18 acres outer fall Nazafgarh to Ring Road (Shivaji Park) (Horticulture Division III). The results were recorded under the North-West Directorate DDA (Table 1 and Figure a-b). Chinese Fir plantation evaluation was conducted on site quality evaluation model. Altitude, canopy closure and slope gradient were found with maximum impact and landform had the minimum influence on site form.

North-South Directorate, DDA

In the context of tree species, the highest survival rate (97.00 %) was reported at M/o Qutub Nursery at Lado Sarai (Horticulture Division VI). While the minimum survival rate (57.60 %) was estimated at M/o District Park Hauz Khasi/c Rose Garden (Horticulture Division VI). In the context of shrubs/hedges species, the maximum survival rate (96.00 %) was recorded at M/o M.P. Green Area at Siri Fort Phase- IV Horticulture Division (VI) while the minimum survival rate (57.60 %) was reported at M/o Tughlakabad Recreational

Complex Zone-III, Phase- I (Horticulture Division VI). These outcomes were estimated under the South-East Directorate, DDA (Table 1 and Figure c-d). Similar work has also been reported on GIS technologies for forest plantation monitoring by Trysnyuk *et al.*, 2021). However, in this context, no work has been reported so far for study on survival rates of biodiversity and district parks of development authority (DDA) Delhi, India.

Suitable species

Plantation initiatives played crucial role in mitigation of atmospheric carbon dioxide and helping and conservation urban tree and trees. Besides this, plantation programme has provided the social values as well and ecological support (Pataki *et al.*, 2021). Based on our study, we have suggested several tree species fit for soil environments and under big biotic influences of Delhi (Table 2). In this context, various ornamental species are suitable for Delhi area which helps in ecosystem conservation (Table 3).

Essential features for tree health and suggestions

Maintaining the health of trees is an important task due to external influences such as environmental pollution and undesirable activities that can cause tree damage. For this reason, it's critical to protect the green areas in our surroundings. To create a healthy atmosphere, a few elements and recommendations are crucial.

- Assessment of soil nutrients.
- Proper source of water.
- Using biofertilizers.
- Regular monitoring.
- Plant quality.
- Avoid unwanted activities etc.
- Plantation in empty areas.
- Mitigation plan for soil erosion.
- Preventing waterlogging.
- Proper fencing.
- Proper sign boards and species name plates.
- More and suitable for reduce the environmental pollution etc.

Conclusions

The estimation revealed commendable success in biodiversity conservation efforts, with a diverse array of native flora and fauna thriving within the parks. The findings contribute valuable insights for refining conservation strategies, improving infrastructure, and enhancing community engagement, ensuring the sustained success of these green spaces amidst urban development. The present work was dedicated on the evaluation of survival rate of biodiversity and district parks of DDA Delhi. During the survey, the survival rate was achieved successfully. Plantation programme has provided the social values as well and ecological benefits. This is the first time that work has been reported on the monitoring and evaluation of the plantation under the funded DDA Delhi project that work has been carried out by FRI Dehradun.

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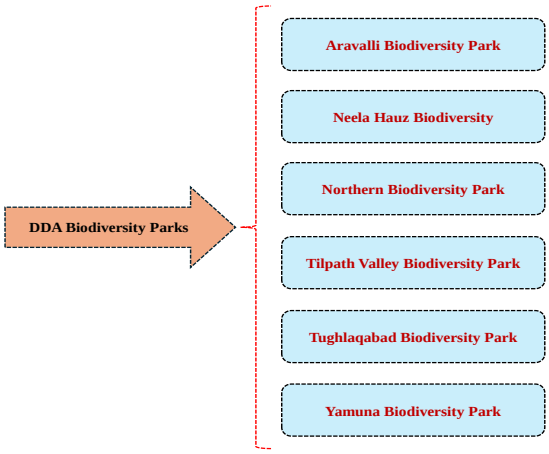

Fig. 1. Biodiversity parks

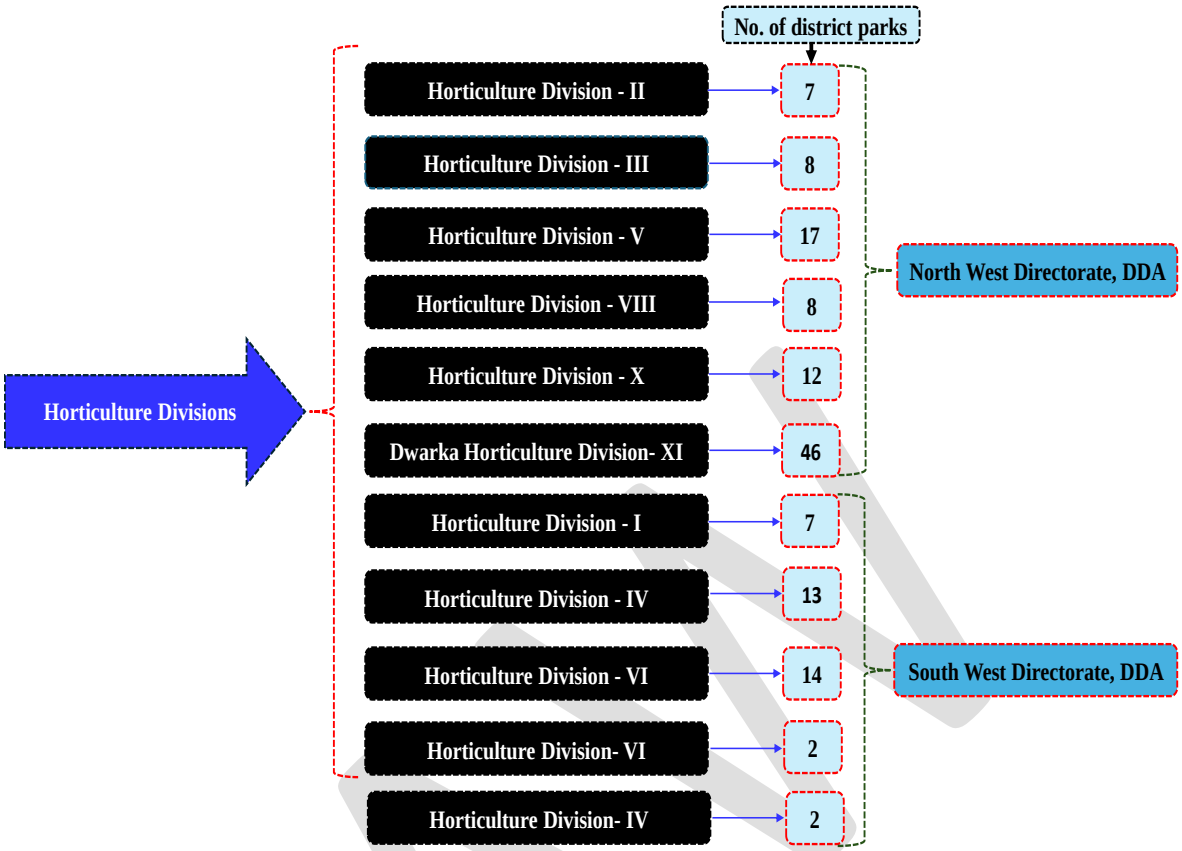

Figure 2. Survyed district parks under the horticulture divisions.

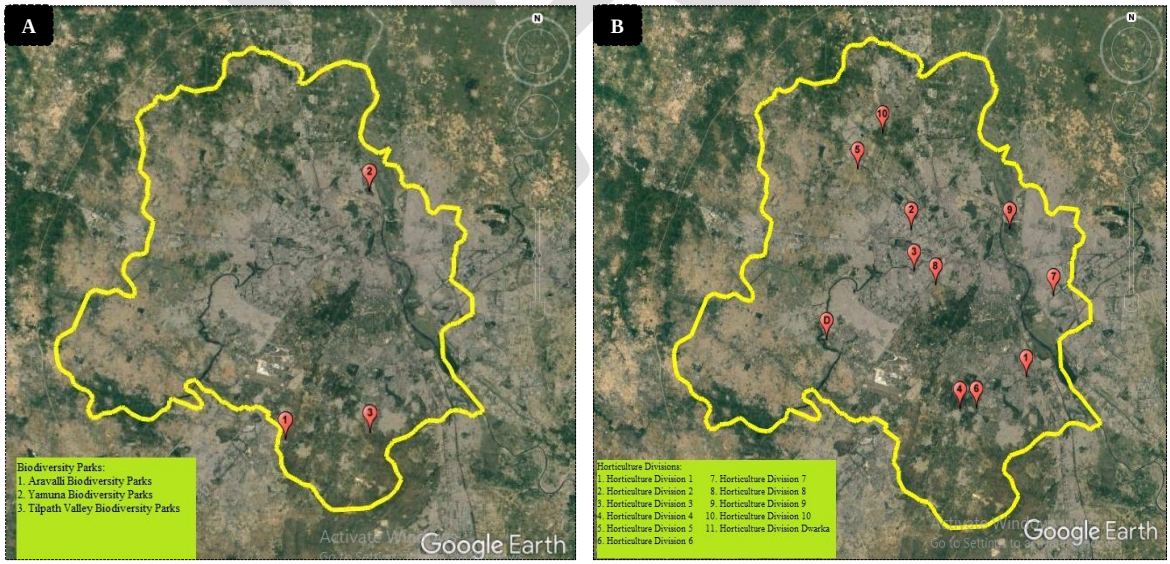

Figure 3. Locations of biodiversity parks and horticulture districts parks (DDA).

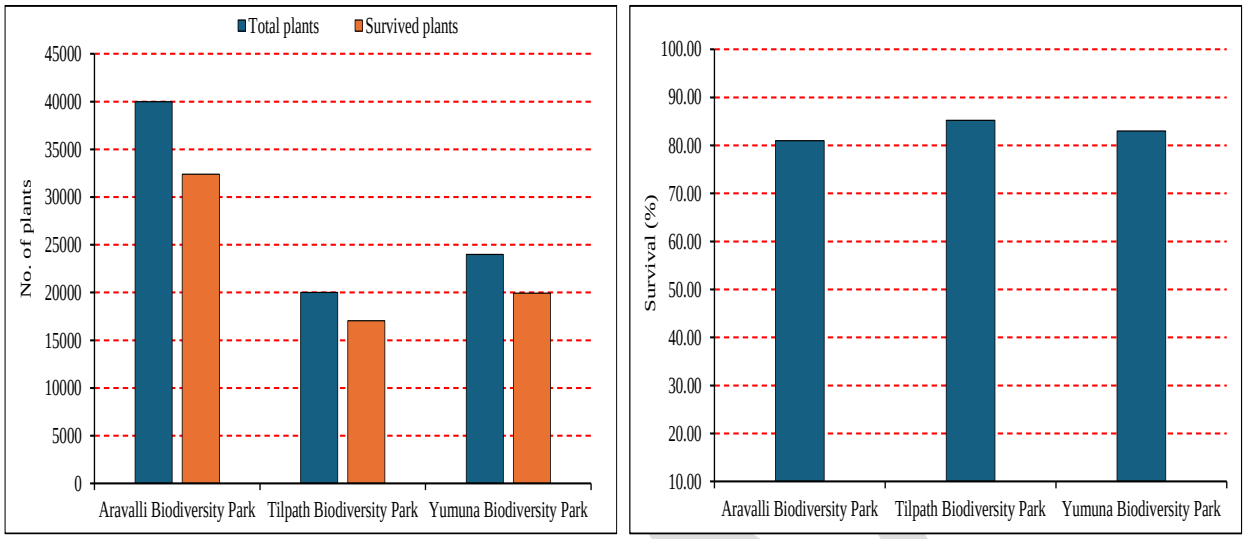

Figure 4. Total plants, survived plants, and survival (%) of biodiversity parks and horticulture districts parks (DDA).

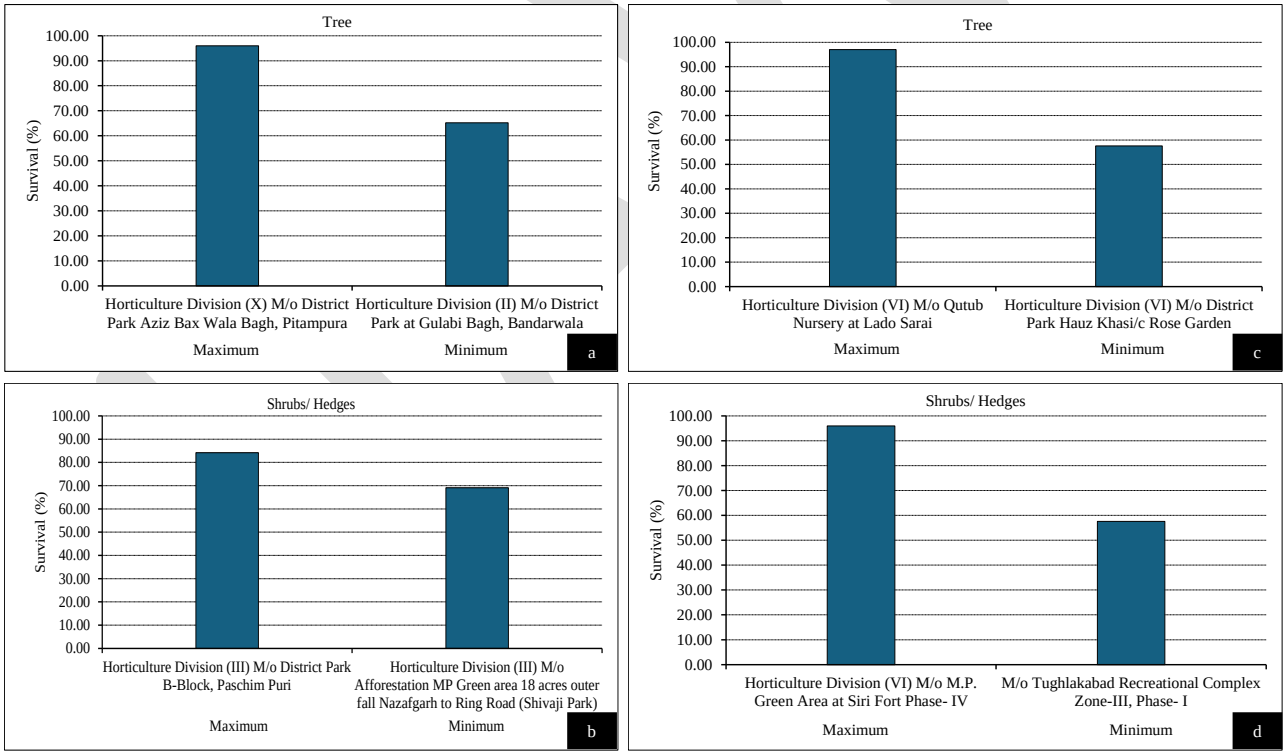

Figure 5. Minimum and maximum survival rate of plant and shrubs & hedges species in horticulture divisions districts parks (DDA). a-b: North-West Directorate DDA and c-d: South-West Directorate DDA

Table 1. Maximum and minimum survival rate of tree and shrubs/ hedges species in Horticulture Districts Parks

Name of Division	Tree species		Shrubs/ hedges species	
	Minimum survival (%)	Maximum survival (%)	Minimum survival (%)	Maximum survival (%)
	North-West Directorate DDA			
Horticulture Division II	**65.16** M/o District Park at Gulabi Bagh, Bandarwala	**76.54** M/o District Park at C.H.B.S. Pitampura Sanjay Van	**68.01** M/o Distt. Park at Gulabi Bagh, Bandarwala	**79.50** M/o Distt. Park at C.H.B.S. Pitampura Sanjay Van
Horticulture Division III	**69.71** M/o DDA land as green surrendered by Swatantra Bharat Mill	**91.11** M/o Park RSP/NHP at CGHS Buddla, Vikas Puri, Phase. I (Near Gauri Shankar Mandir)	**69.12** M/o Afforestation MP Green area 18 acres outer fall Nazafgarh to Ring Road (Shivaji Park) Basai Darapur	**84.21** M/o District Park B-Block, Paschim Puri
Horticulture Division V	**74.00** M/o Green Belt Sector- 37, Behind Pocket B-3, Rohini	**84.00** D/o Central Green area, Sector- 35, Rohini between Pocket 5 & 6	**75.00** M/o Green Belt Sector-37, behind Pocket B-3, Rohini	**83.92** M/o Green Belt Sector-37, Near Pocket B-3, Rohini
Horticulture Division VIII	**71.00** M/o Distt. Park at Mayapuri Phase- II	**75.50** M/o District Park at A-Block Janak Puri	**69.63** M/o Xonal Green Area adjoining industrial area Naraina Phase- II Satya Park	**76.34** M/o District. Park at Janak Puri B-Block
Horticulture Division X	**74.40** M/o Green area old orchard, Secondary A-10, Narela	**96.00** M/o District. Park Aziz Bax Wala Bagh, Pitampura	**72.00** M/o District. Park (Lala Wala Bagh) Pitam Pura	**80.62** M/o District. Park Aziz Bax Wala Bagh, Pitampura
Horticulture Division Dwarka	**71.11** M/o 45 Meter wide RSP & CV Road No. 216 Dwarka	**79.03** M/o Central Nursery at Sector- 05, Dwarka	**75.00** M/o 45 Meter wide RSP & CV Road No. 216 Dwarka	**84.00** M/o Main green land at Sec. 19 B (Near OPG School)
	South-West Directorate DDA			
Horticulture Division I	**69.66** M/o Park opposite L.S.R. College at GK-I	**94.00** M/o MP Green area Maa Anandmai Ashram at Kalka Ji	**82.00** M/o MP Green area J.P. City Forest Phase I, II, & III	**93.96** M/o Afforestation MP Green area at Kalka Ji (Dhobighat)
Horticulture Division IV	**57.60** M/o District Park Hauz Khasi/c Rose Garden	**87.13** M/o District Park (Vasant Udhyan) at Vasant Vihar	**82.00** Hauz Khas Sports field	**94.00** M/o Afforestation M.P. Green area at Dhaula Kuan
Horticulture Division VI	**78.00** M/o M.P. Green area at Lado Sarai, Phase-I (Tara Wala)	**97.00** M/o Qutub Nursery at Lado Sarai, Phase - I	**70.00** M/o Tughlakabad Recreational Complex Zone-III, Phase- I	**96.00** M/o M.P. Green Area at Siri Fort Phase- IV
Horticulture Division VII	**55.50** M/o Art of Living Flood plain Area	**77.00** M/o Green Area Sanjay Lake at Trilokpuri Phase I, II, & III	**78.00** M/o Green area CWG Village at Akshardham	**88 .00** M/o District Park Patparganj
Horticulture Division IX	**73.00** Afforestation between Wazirabad Barrage to Old RLY. Bridge (Eastern Bank) Near Signature Bridge	**75.00** Afforestation between Wazirabad Barrage to Old Railway Bridge (Eastern Bank) Near Usmanpur Village	**70.00** Afforestation between Wazirabad Barrage to Old RLY. Bridge (Eastern Bank) Near Usmanpur Village	**71.00** Afforestation between Wazirabad Barrage to Old Railway Bridge (Eastern Bank) Near Signature Bridge

Table 2. Species suitable for soil conditions and under heavy biotic pressure of Delhi

S. No.	Species	Family	Common name
1.	*Acacia auriculiformis*	Fabaceae	Australian kikar
2.	*Acacia senegal*	Fabaceae	Senegal kikar
3.	*Ailanthus excelsa*	Simaroubaceae	Maharukh
4.	*Azadirachta indica*	Meliaceae	Neem
5.	*Cassia siamea*	Fabaceae	Cassod
6.	*Casuarina equisetifolia*	Casuarinaceae	Ironwood
7.	*Cedralla toona*	Meliaceae	Tun
8.	*Dendrocalamus strictus*	Poaceae	Ladhi Bans
9.	*Elaeodendron glaucum*	Celastraceae	Jamrasi
10.	*Ficus auriculata*	Moraceae	Timla, Fig
11.	*Ficus semicordata*	Moraceae	Drooping fig, Khaina
12.	*Flacourtia indica*	Salicaceae	Indian plum
13.	*Holoptelea integrifolia*	Ulmaceae	Rajain
14.	*Lagesrtroemia speciosa*	Lythraceae	Jarul
15.	*Litsea chinensis*	Lauraceae	Laural
16.	*Melia dubia*	Meliaceae	Dek
17.	*Moringa oleifera*	Moringaceae	Sahjan
18.	*Parkinsonia aculeata*	Fabaceae	Vilayati kikar
19.	*Pithecellobium dulce*	Fabaceae	Jangal jalebi
20.	*Pongamia pinnata*	Fabaceae	Karanj
21.	*Prosopis cineraria*	Fabaceae	Shammi
22.	*Sapindus mukorossi*	Sapindaceae	Reetha
23.	*Terminalia bellirica*	Combretaceae	Baheda

Table 3.Ornamental plants suitable for Delhi area

S.No.	Species	Family	Common name
1.	*Acacia auriculiformis*	Mimosaceae	Wattle
2.	*Acacia farnesiana*	Mimosaceae	Vilayati Kikar
3.	*Albizia lebbek*	Mimosaceae	Kala Siris
4.	*Albizia procera*	Mimosaceae	Safed Siris
5.	*Bauhinia variegata*	Caesalpiniaceae	Kachnaar
6.	*Bauhinia tomentosa*	Caesalpiniaceae	Yellow Orchid Tree
7.	*Bischofia javanica*	Phyllanthaceae	Paniyala
8.	*Calliandra haematocephala*	Mimosaceae	Bijauri
9.	*Callistemon viminalis*	Myrtaceae	Bottle Brush
10.	*Cassia fistula*	Caesalpiniaceae	Amaltas
11.	*Cassia javanica*	Caesalpiniaceae	Java Cassia
12.	*Delonix regia*	Caesalpiniaceae	Gulmohar
13.	*Enterolobium timbouva*	Mimosaceae	Ear Pod Tree
14.	*Erythrina variegata*	Papilionaceae	Pangara
15.	*Ficus benjamina*	Moraceae	Swamis Fig
16.	*Ficus racemosa*	Moraceae	Goolar
17.	*Ficus religiosa*	Moraceae	Pipal
18.	*Ficus retusa*	Moraceae	Laurel fig
19.	*Ficus virens*	Moraceae	Pakad
20.	*Grevillea robusta*	Proteaceae	Silver oak
21.	*Hamelia patens*	Rubiaceae	Firebush
22.	*Jacaranda mimosifolia*	Bignoniaceae	Neli gulmohar
23.	*Lagerstroemia indica*	Lythraceae	Sawani, Farash
24.	*Lagerstroemia speciosa*	Lythraceae	Jarul
25.	*Mesua ferrea*	Clusiaceae	Nahar, Nagkeshar

26.	*Mimusops elengi*	Sapotaceae	Maulshree
27.	*Morus alba*	Moraceae	Shahtoot
28.	*Neolamarckia cadamba*	Rubiaceae	Kadamb
29.	*Nyctanthes arbortristis*	Oleaceae	Harsingar
30.	*Platanus orientalis*	Platanaceae	Chinar
31.	*Platycladus orientalis*	Cupressaceae	Morpankhi
32.	*Plumeria obtusa*	Apocynaceae	Gul chin
33.	*Plumeria rubra*	Apocynaceae	Golenchi, Golachin
34.	*Polyalthia longifolia*	Annonaceae	Ashok
35.	*Sterculia urens*	Sterculaceae	Gum Karaya
36.	*Strelitzia reginae*	Strelitziaceae	Bird-of-Paradise Flower
37.	*Syzygium cuminii*	Myrtaceae	Jamun
38.	*Syzygium jambos*	Myrtaceae	Gulabjamun
39.	*Tecomella undulata*	Bignoniaceae	Roharu
40.	*Terminalia bellirica*	Combretaceae	Baheda
41.	*Terminalia chebula*	Combretaceae	Harad
42.	*Terminalia myriocarpa*	Combretaceae	East Indian Almond
43.	*Toona ciliata*	Meliaceae	Toon

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