2025 年百万植树计划年度报告

2025 The Million Tree Project Annual Report

2025 年，百万植树计划(MTP)的造林及治沙工作继续在内蒙古及宁夏两地进行。截至 2025 年 12 月，项目于内蒙古总计栽植 50 块林地，绿化面积达 41820.05 亩，栽植各树种共计 3114507 棵；在宁夏白芨滩自然保护区内采用草方格治沙 10700 亩，栽植灌木 214 余万株。

The Million Tree Project (MTP) continued its efforts to fight desertification and improve the environment in both Inner Mongolia and Ningxia in 2025. To date, 3,114,507 trees have been planted on 50 forest sites, covering an area of 2,788 hectares in Inner Mongolia; in Ningxia, 713 hectares of sandy land has been covered with straw grids, and more than 2,140,000 shrubs have been planted to revitalize the ecosystem.

I. 2025 年百万植树计划林地情况综述 MTP 2025 Forest Updates

1.2025 年新增林地 New Forests Planted in 2025

2025 年共有 37 家企业，11 所学校及数千个人和组织参与支持项目的运行。其中捐赠额达到企业林规模（5 万元）的企业有 28 家，其中 17 家捐赠了内蒙项目，14 家捐赠了宁夏项目，有 3 家同时支持了内蒙和宁夏两地的植树项目；捐赠达到学校林规模的学校有 5 所，3 所支持了内蒙项目，2 所捐赠了宁夏项目；捐赠达到个人林规模的有 2 位，均支持了内蒙古林地。造林方面，内蒙的合作方为科左后旗当地农户和林场，宁夏的合作方为白芨滩防沙林场。在各方的支持及努力下，项目在内蒙栽植杨树总计近 10 万棵，占地 1150 亩；在宁夏铺设草方格治沙 1600 亩，点播柠条、花棒、沙拐枣逾 32 万株，撒播草籽（沙蒿）1600 公斤。项目在林地内为达到林地规模的企业及学校树立了纪念碑。 (见下方图片)

37 companies,11 schools and thousands of individuals supported MTP in 2025 by donating trees and shrubs. Among them, 28 companies donated corporate forests of 2,000 trees or 3,333 shrubs or more (50,000 RMB for 2,000 trees or 3,333 shrubs), 17 of which supported the project in Inner Mongolia while the other 14 chose to give to the project in Ningxia and 3 supported the project in both locations. 5 schools donated school forests, 3 of them supported the project in Inner Mongolia while the other 2 chose to give to the project in Ningxia. Two individuals donated a forest in Inner Mongolia. Our local planting partners are the local farmers in Keerqin Zuoyi Houqi, Inner Mongolia and

Baijitan Plantation under the administration of Baijitan Nature Reserve in Ningxia. Nearly 100,000 saplings of Poplars were planted in Inner Mongolia, covering an area of 76.6 hectares. Straw grids were constructed on the surface of an area the size of 106.67 hectares and over 320,000 seeds of *Caragana korshinskii kom*, *Hedysarum scoparium* and *Calligonum mongolicum* were sown and 1600 kg grass seeds were broadcasted (*Artemisia ordosica*) in Ningxia. MTP set up two plaques for forest donors on both planting sites. (See images below)

图 1 内蒙古 2025 林地纪念碑
On-site Forest Plaque of Year 2025 in Inner Mongolia

图 2 宁夏 2025 林地纪念碑
On-site Forest Plaque of Year 2025 in Ningxia

图 3. 2025-1 林地航拍图
Aerial View of 2025-1 Forest Site

图 4. 2025-2 林地航拍图
Aerial View of 2025-2 Forest Site

图 5. 2025-3 截干发芽后的杨树苗木
2025-2 Poplars Sprouted After Stem Cutting

图 6. 2025-3 林地航拍图
Aerial View of 2025-3 Forest Site

图 7. 2025 年宁夏林地航拍图
Aerial View of 2025-NX Forest Site

图 8. 2025 年宁夏林地栽植的柠条
Caragana Planted in 2025-NX

2. 2025 年植树行和生态治沙行　Eco Trips in 2025

2025 年的志愿者植树行先后有 150 多位来自捐赠企业及学校的代表分 6 批次来到内蒙和宁夏的项目地进行植树和治沙体验活动。内蒙活动在四月上旬，栽植树种为杨树。此外，

志愿者还体验了修枝、亲临沙漠；宁夏活动在八月底九月初，内容包括扎草方格、点播草籽、参观治沙博物馆、自然探索等。

More than 150 volunteers from sponsor companies and schools joined this year's eco trips. There were 6 trips in total. In April, volunteers traveled to Inner Mongolia, planting poplars, pruning trees in the grown forest sites and visiting the desert. In late August and early September, another 3 groups of volunteers went to Ningxia, constructing straw grids, sowing shrub seeds, visiting the desertification control museum, and taking part in nature tours.

图 9. 志愿者在内蒙古林地修枝

Volunteers Pruning Poplars in Inner Mongolia

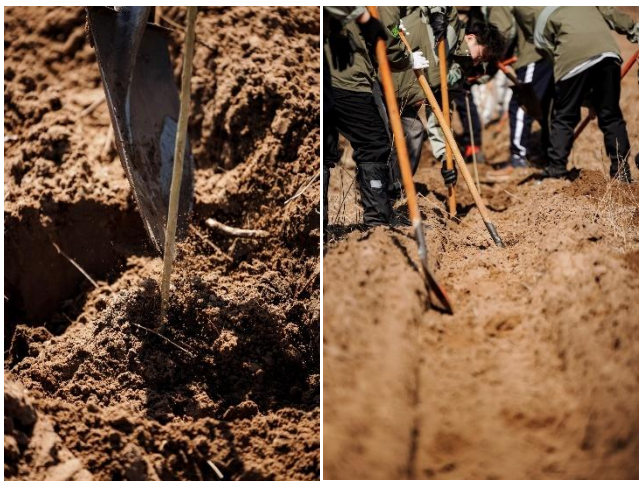


图 10. 志愿者在内蒙古栽植杨树

Volunteers Planting Poplars in Inner Mongolia

图 11.志愿者在宁夏扎制草方格

Volunteers Constructing Straw Grids in Ningxia

图 12. 参与自然探索

Nature Detective Game in Ningxia

3. 2025 年林地走访及调查总述 Forest Visits and Surveys in 2025

2025 年项目组对林地的日常走访及监测贯穿于 3-11 月，并采用无人机拍摄等技术，了解林地情况。7 月-8 月，项目组在志愿者的协助下分别对内蒙及宁夏林地进行了生态调查。内蒙生态调查历时 6 个工作日，共调查了 5 片林地。宁夏林地调查历时 6 个工作日，共调查了 9 片林地，36 个样点的 3600 个草方格样方。

The MTP team carried out site visits on a regular basis from March to November, using drone photography technology to capture the details of forest growths. Ecological surveys were conducted in Inner Mongolia and Ningxia in July and August with the help of the volunteers. The survey in Inner Mongolia sampled on 5 forest sites while the survey in Ningxia sampled 3600 straw grids in 36 plots of 9 forest sites. Both surveys last 6 days long.

图 13. 2012 年内蒙林地航拍图

图 14. 2018 年内蒙林地航拍图图

图 15. 2019 年内蒙林地航拍图

Aerial Images of the Inner Mongolia Forests Planted in 2012 (Left), 2018 (Middle) and 2019 (Right), Photos Taken in July (Left, Middle) and June (Right) 2025

图 16. 2017 年宁夏林地航拍图

图 17. 2018 年宁夏林地航拍图

图 18. 2019 年宁夏林地航拍图

Aerial Images of the Ningxia Forests Planted in 2017 (Left), 2018(Middle) and 2019(Right), Photos Taken in August (Left, Middle) and December (Right) 2025

图 19. 志愿者在内蒙林地中做生态调查

Volunteers of 2025 Inner Mongolia Ecological Survey

图 20. 宁夏林地调查

Ningxia Forest Survey in 2025

2025 年内蒙夏季生态调查中共统计到 49 种 14816 株植物。调查显示，混交林模式（如 2017-1 地块）生态恢复效果最优，物种数达 35 种（如表 2），多样性指数与植被覆盖度均显著领先单一树种林，表明混交配置能加速生态系统稳定，林地内逐渐形成以多年生草本植物为优势种群的生态结构（如表 1）。人为干扰强烈的地块（如 2014-2）多样性最低，植被演替进程受阻，依旧是少花蒺藜草，狗尾草等一年生草本植被为优势种。樟子松人工林相比杨树林更利于林下植被自然发展，尤其在低密度种植或极端立地条件下表现突出。调查还发现，立地条件（如土壤肥力、地形）和抚育方式（如灌溉、除草）是影响植被结构与覆盖度的关键因素，专业抚育和科学设计可有效提升生态恢复效率。

The 2025 summer ecological survey in Inner Mongolia found 14,816 plants of 49 species in total. Surveys show that the mixed - forest model (such as Plot 2017-1) has the best ecological restoration effect. The number of species reaches 35 (as shown in Chart 2). Both the diversity index and vegetation coverage significantly improved than those of single-tree- species forests, indicating that the mixed- forest can accelerate the recovery of the ecosystem. Meanwhile, the ecosystem structure with perennial herbaceous plants as the dominant has gradually formed in the forests (as shown in Chart 1). Forest plots with strong human interference (such as Plot 2014- 2) have the lowest diversity, and the vegetation succession process is compromised. Annual herbaceous plants such as *Cenchrus pauciflorus* and *Setaria viridis* remain the dominant species. Compared with poplars, pines are more conducive to the natural development of

understory vegetation, especially under low-density planting design or extreme site conditions. The survey also found that site conditions (such as soil fertility and topography) and maintenance methods (such as irrigation and weeding) are the key factors affecting the vegetation structure and coverage. Intensive maintenance and science-based forest design can effectively improve ecological restoration.

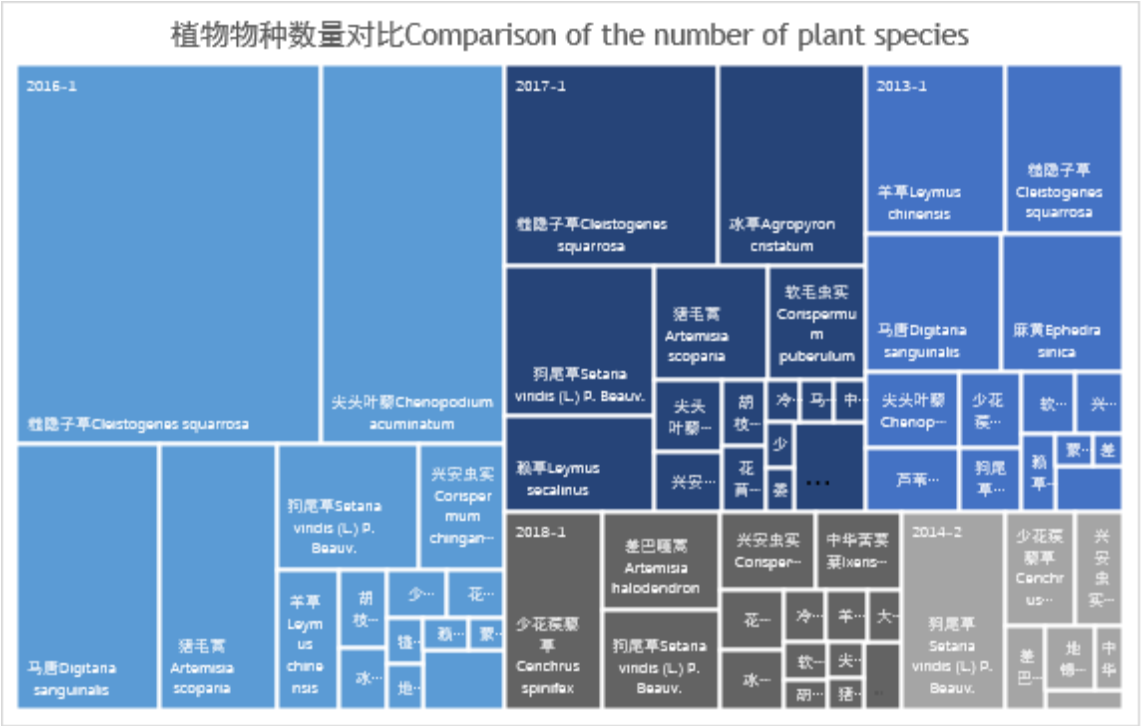


表 1. 五块林地的植被数量对比

Chart 1. Comparison of Vegetation Quantities in Five Forest Areas

指标 Indicator	2013-1	2014-2	2016-1	2017-1	2018-1
R 物种数 Species number	24	15	33	35	19
D1 丰富度 Richness	2.29	1.66	1.94	2.33	2.15
D2 优势度 Dominance	0.13	0.28	0.22	0.15	0.15
E 均匀度 Evenness	0.74	0.60	0.60	0.64	0.72

表 2. 2025 年度五块林地的多样性指数

Chart 2. Diversity Indices of Five Forest Lands in 2025

2025 年 10-11 月，项目组计划对 2013-2025 年期间栽植的块林地逐一进行抽样调查。林地调查历时 14 天，期间共测量林地 22 块，样地 80 个，林木 2870 棵。测量比例占近十年林木总数量的 0.11%。测量的指标包括：保存率、树高、地径、胸径、冠幅、株行距等。

In October and November, the MTP team conducted surveys on the forest sites planted from 2013 to 2025. The survey covered 22 forest sites, 80 sample plots and 2870 tree samples. The sampling ratio was 0.11% among all the trees planted in the past years. The survey measurements included the survival rate, height, basal diameter, diameter at breast height, crown width and spacing in the rows.

经调查测量，2025 年度全林地保存率均值为 74.57%，近 17 年保存率变化情况如下图。截至 2025 年，MTP 栽植树种 8 种，其中杨树和樟子松为主要造林树种，分别达总造林数量的 54%和 31%。大部分树种的保存率维持在 70%左右,达到林地生长预期。

The survey results concluded that the overall survival rate of all MTP forests in 2025 was 74.57%. The graph below shows the average survival rates in the last 17 years. To date, 8 tree species have been planted with hybrid poplars and pines being the majority species making up for 54% and 31% respectively of the trees planted. As of 2025, the survival rates for most tree species were around 70%, showing that these tree species had been well adapted to the local environment and achieved the survival rate goals.

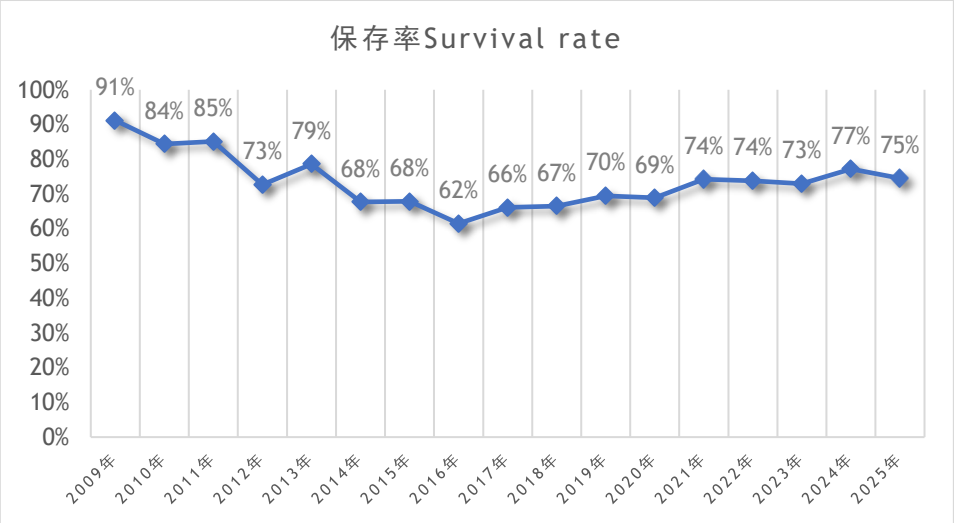


表 3. 内蒙林地过去 17 年平均保存率

Chart 3. Average Survival Rates of MTP Forests in Inner Mongolia over the Past 17 Years

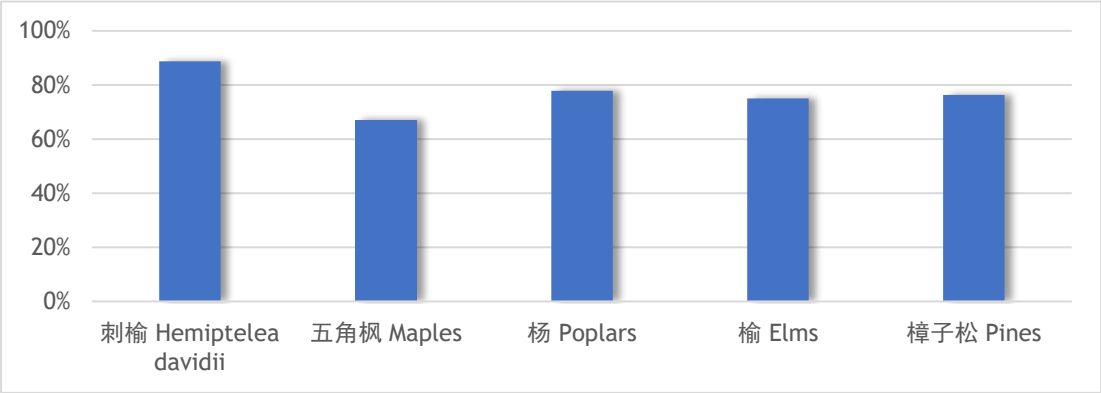


表 4.主要树种的保存率对比

Chart 4. Survival Rates of the Five Main Tree Species

2025 年通辽地区全年降雨量略低于去年，且极端高温天气频发，不利于初植期新苗木生长。新林地出现杂草滋生、次生盐渍化等问题，导致当年林地保存率相较初植水平偏低。而栽植多年的林地，受气候的直接影响较小，保存率和密度基本都会维持在现有水平或轻微下降。也由于最近几年降雨量的普遍增加，部分地势偏低的林地内出现林木被浸泡死亡的情况，且这部分林地存在无法进行修复补植的区域，只能依赖草本植被的自然恢复或封育进行生态修复。

In 2025, the annual rainfall in Tongliao area was slightly lower than that of last year, and extreme high temperature occurred frequently, which was not conducive to the growth of newly planted seedlings. Problems such as weed overgrowing and soil alkalization due to evaporation emerged in new forest sites, resulting in a lower survival rate of forest sites in this year compared with previous forests in the initial planting year. For forest sites that have been planted for many years, they are less affected by the climate, and the survival rate and density will basically remain at the current level or decline slightly. Also, due to the general increase in rainfall in recent years, some trees in forest sites with lower terrain have died due to waterlogging. In addition, there are areas in these forest sites that cannot be replanted for restoration, and ecological restoration can only rely on the natural recovery of herbaceous vegetation or the enclosure.

2025 年宁夏林地调查覆盖 9 片林地，调查主要针对多样性指标、优势物种、植被结构和植被覆盖度等方面，并对各区域进行了系统的航拍记录。近两年气候变化的影响尤为显

著：2024 年的降雨量达到了自 1961 年以来的历史第三高值，而 2025 年则呈现出极端的降水分布——7 月和 9 月均发生了强降雨事件，但 5 月却几乎滴雨未降，降雨量为零。这种剧烈的水文波动，加之温度变化，对宁夏项目区内沙地的植被恢复以及灌木存活造成了显著影响。林地的存活率与生长状况因此出现了较大波动，生态恢复进程面临新的挑战。

In 2025, the forest survey in Ningxia covered 9 forest sites. The survey mainly focused on aspects such as biodiversity indicators, dominant species, vegetation structure, and vegetation coverage, and systematic aerial photography taken for each site as well. The impact of climate change in the past two years has been particularly significant. In 2024, the rainfall reached the third-highest level since 1961, while 2025 showed an extreme precipitation distribution. Heavy rainfall events occurred in both July and September, but hardly any rain fell in May, with the rainfall closing to zero. Such drastic hydrological fluctuations, combined with temperature changes, have had a significant impact on the vegetation restoration of sandy land and the survival of shrubs in the Ningxia project area. As a result, the survival rate and growth status of the forest sites have fluctuated significantly, and the ecological restoration process is facing new challenges.

优势种的变化（如表 6）依然印证了近年来的研究结论。即便某些地块因立地条件优越，其物种数和丰富度显著高于其他区域，但沙米这一典型的一年生草本植物，依旧占据着优势种的地位。然而，随着草方格治沙措施的实施以及灌木种植工程的推进，多年生草本植物和多年生灌木逐渐取代了沙米，成为林地植被的主要组成部分。这表明造林工程已对林地的小气候产生了深远影响。通过对比往年植株比例数据，我们发现今年雾冰藜与兴安虫实的比例发生了显著变化。2024 年，两者的数量比为 0.64，而今年这一比例骤降至 0.0004。结合今年降水时间及频次的异常情况分析，可以推测降水模式的改变对局部生态结构产生了重要影响。这种现象不仅反映了植被群落对环境变化的高度敏感性，也进一步强调了气候变化在生态修复过程中的关键作用。

The changes in dominant species (as shown in Chart 6) still confirm the research conclusions in recent years. Even though the number and richness of species in some plots are significantly higher than those in other areas due to their superior site conditions, *Agriophyllum squarrosum*, a typical annual herbaceous plant, remains the dominant species. However, with the implementation of sand control measures using straw grids and the shrub planting, perennial herbaceous plants and shrubs have gradually replaced *Agriophyllum squarrosum* and become the main components of the

forest vegetation. This indicates that the afforestation project has made a profound impact on the microclimate of the forest sites. By comparing the plant proportion data from previous years, we found that there was a significant change in the proportion of *Bassia dasyphylla* and *Corispermum chinganicum* this year. In 2024, the quantity ratio of the two was 0.64, while this year this ratio dropped sharply to 0.0004. Analyzing in combination with the abnormal precipitation time and frequency this year, it's estimated that the change in the precipitation pattern has affected the local ecosystem structure. This phenomenon not only reflects the high sensitivity of the vegetation community to environmental changes but also proves that climate change has a significant impact on the ecological restoration process.

指标 Indicator	2015	2017	2018	2019	2020	2021	2022	2023	2024
R 物种数 Species number	9	9	9	5	13	9	14	8	8
D1 丰富度 Richness	0.65	1.00	1.15	0.37	1.04	0.33	1.06	0.29	1.33
D2 优势度 Dominance	0.59	0.45	0.39	0.81	0.49	0.87	0.54	0.86	0.31
E 均匀度 Evenness	0.75	0.72	0.73	0.53	0.57	0.36	0.45	0.46	0.81

表 5. 宁夏各年份林地生物多样性指标

Chart 5. Biodiversity Index of the Forest Sites Planted in Each Year

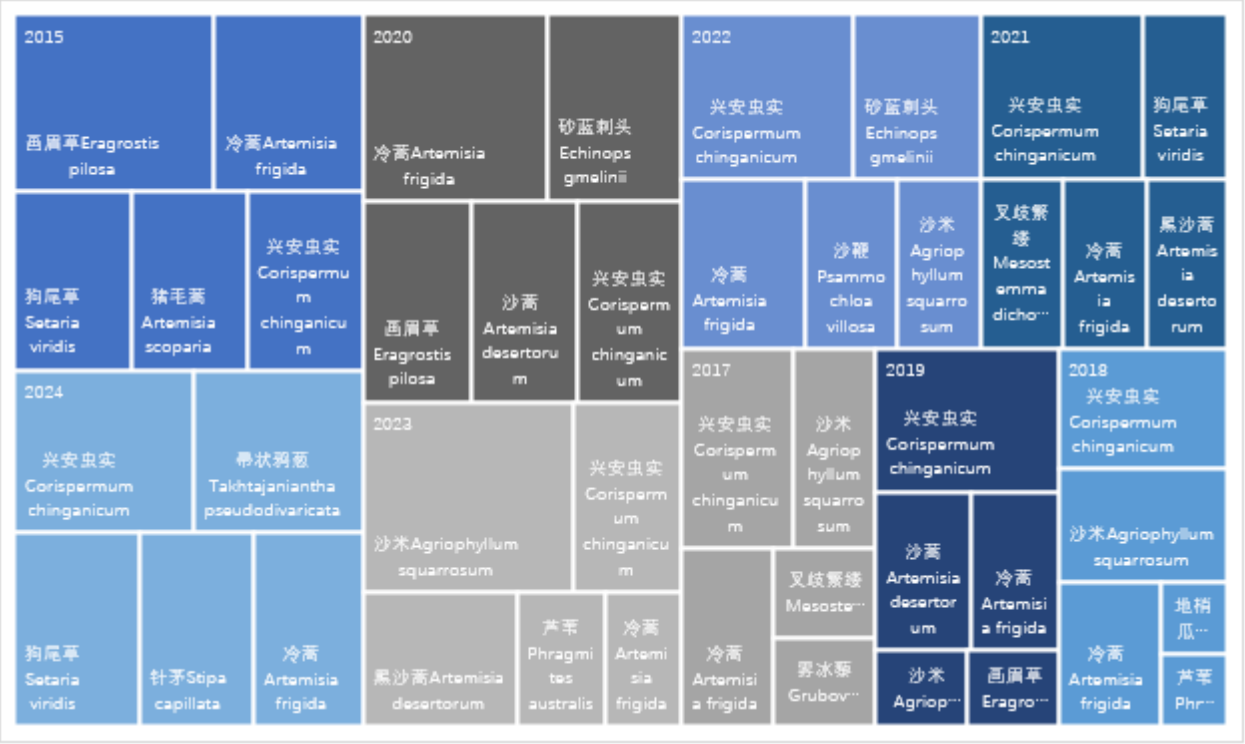


表 6. 宁夏各年份林地植物种类分布

Chart 6. Species Distribution of Ningxia Forest Sites of Different Planting Years in 2025

如表 7 所示，随着林地种植时间的推移，植被结构呈现出动态变化的过程：初期以少量草本层为主，随着时间发展，草本植物逐渐繁茂；然而，随着灌木层的兴起，草本层又逐步衰退。这一演替过程与我们对植被生态系统的理论认知高度吻合。这表明，通过草方格固沙并种植灌木的措施，不仅有效遏制了土地沙化，还促进了生态系统的自然修复，展现了植被从简单到复杂、再到稳定状态的良性演替趋势。

As shown in Chart 7, with the passing of planting years, the vegetation structure shows a dynamic change process: in the initial stage, it is mainly composed of a small amount of herbaceous layer. As time goes on, herbaceous plants gradually thrive. However, with the rise of the shrub layer, the herbaceous layer gradually declines. This succession process is highly consistent with our theoretical understanding of the vegetation ecosystem. This indicates that the measures of sand fixation with straw grids and shrub planting not only effectively stop desertification but also promote the natural restoration of the ecosystem, demonstrating a positive succession trend of vegetation from simplicity to complexity and then to a stable state.

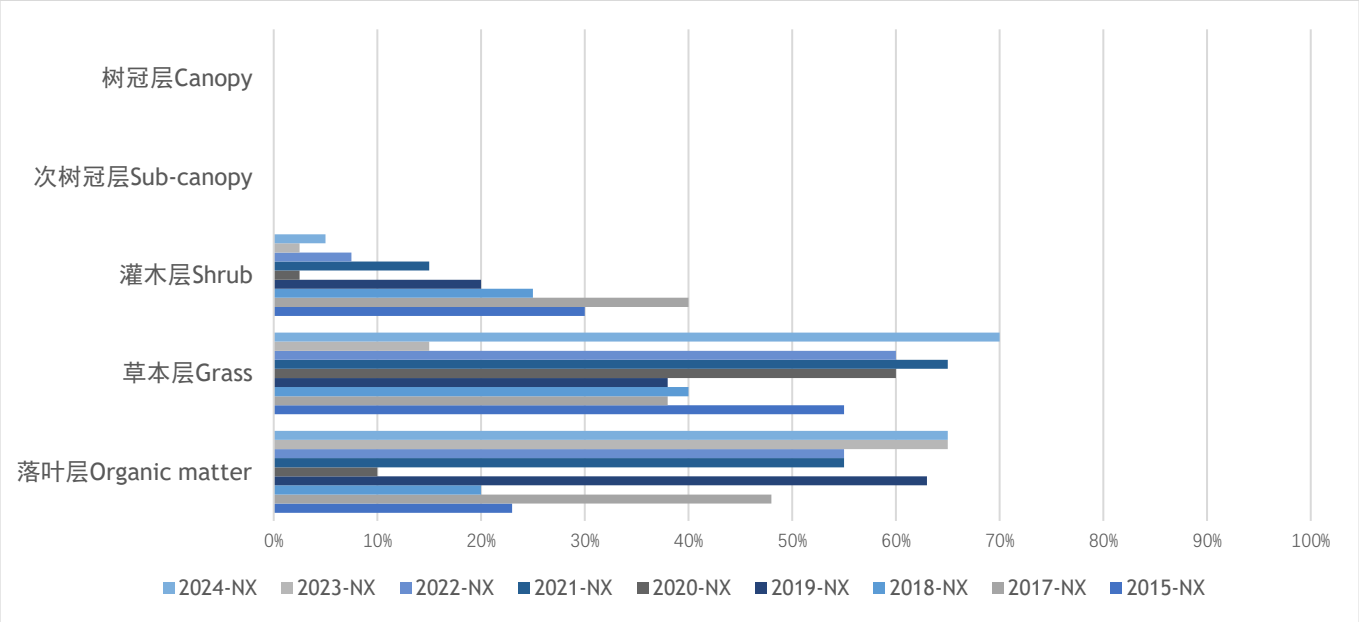


表 7. 宁夏各年份林地植被结构变化

Chart 7. Vegetation Structure of the Forest Sites Planted Each Year in Ningxia

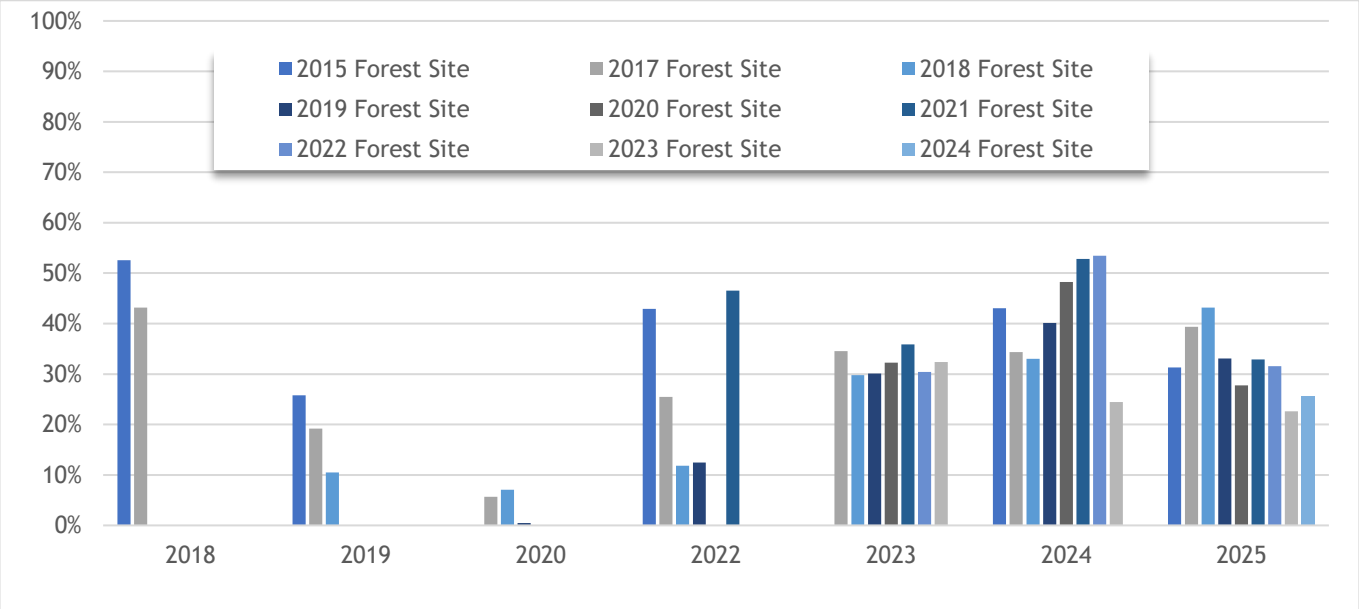


表 8. 2018-2025 年间宁夏各年份林地覆盖度变化

Chart 8. Average Vegetation Coverage from 2018 to 2025 of the Forest Sites Planted in Each Year in Ningxia

2025 年林地生长情况普遍较好。调查抽样方法较往年做了改进，对存活率的提高也有一定影响。2019 地块经过前年的补植，林地存活率有一定提升。而 2015、2017、2018 三片林地则相对比较平稳。2021 与 2020 林地立地条件有限，但补植有一定成效。2022 年林地和 2023 年林地情况都有所改善。2024 年林地在 2025 年的补植非常成功，大部分播种的柠条种子都发芽了。

In 2025, the growth of forests was generally good. The sampling method for the survey was improved compared with previous years, which also had impact on the improvement of the survival rate. After replanting in the year before last, the survival rate of 2019-NX forest site has increased. The situation of the three forest sites planted in 2015, 2017, and 2018 remained relatively stable. The site conditions of the forest sites planted in 2020 and 2021 were limited, but the replanting has been helpful. The conditions of the forest sites planted in 2022 and 2023 have both improved. The replanting work in the 2024 forest sites was very successful, and most of the caragana seeds have germinated.

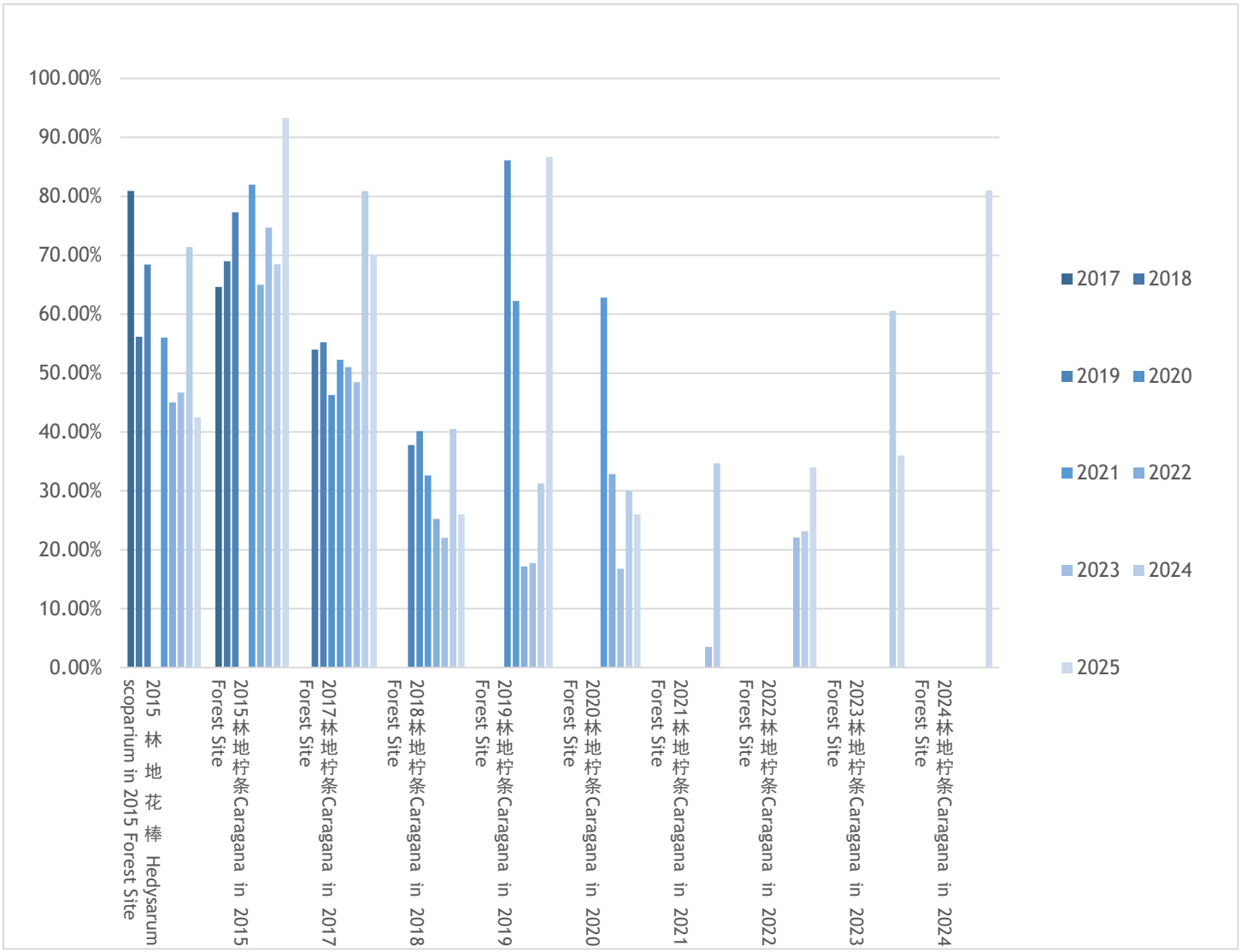


表 9. 各林地中灌木历年存活率

Chart 9. Survival Rates of Shrubs in Recent 8 Years on Each Forest Site Planted from 2015 to 2024

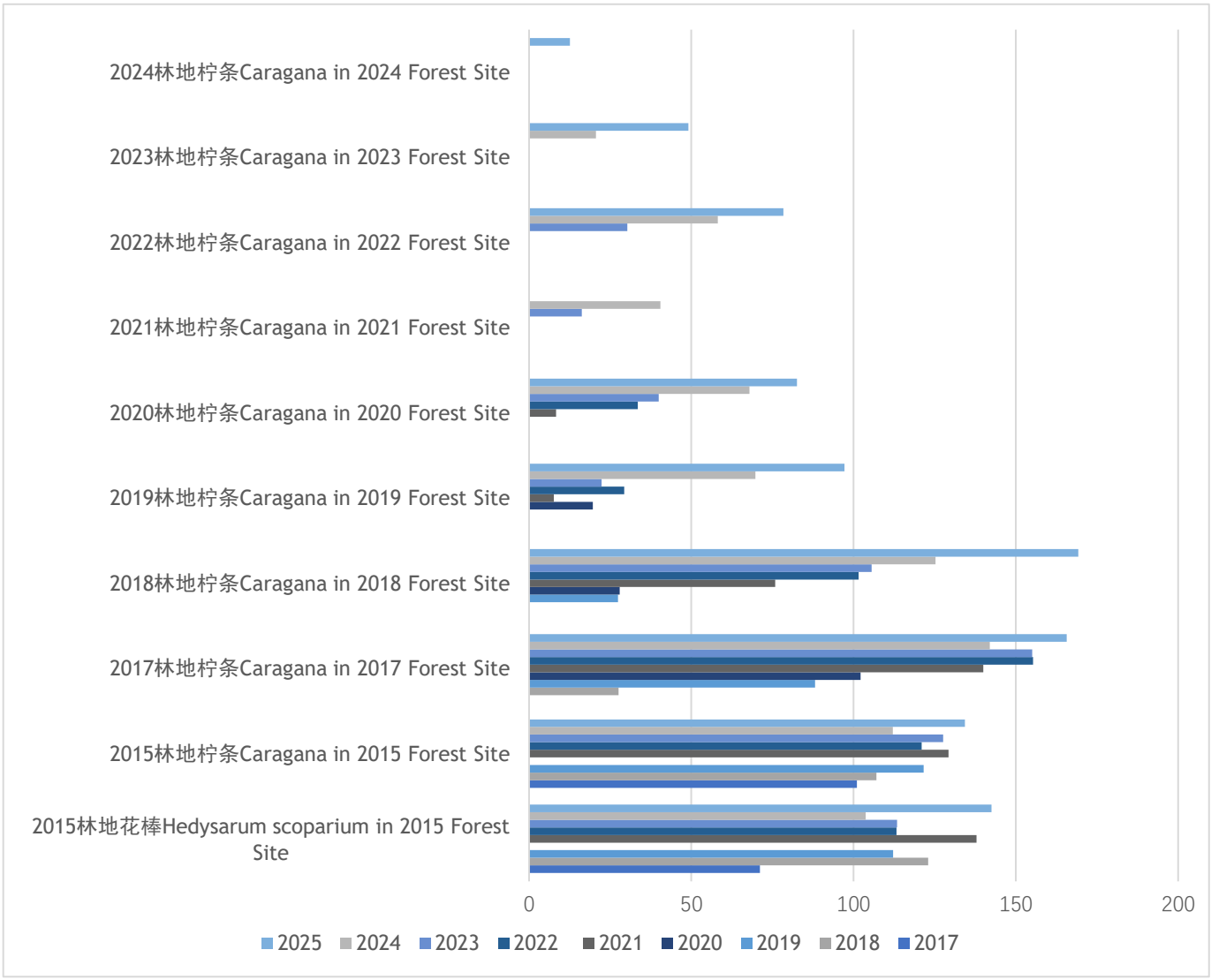


表 10. 历年灌木丛高度，单位：厘米

Chart 10. Average Height of Shrubs Over Years on Each Planting Site Planted from 2015 to 2024, Unit: cm

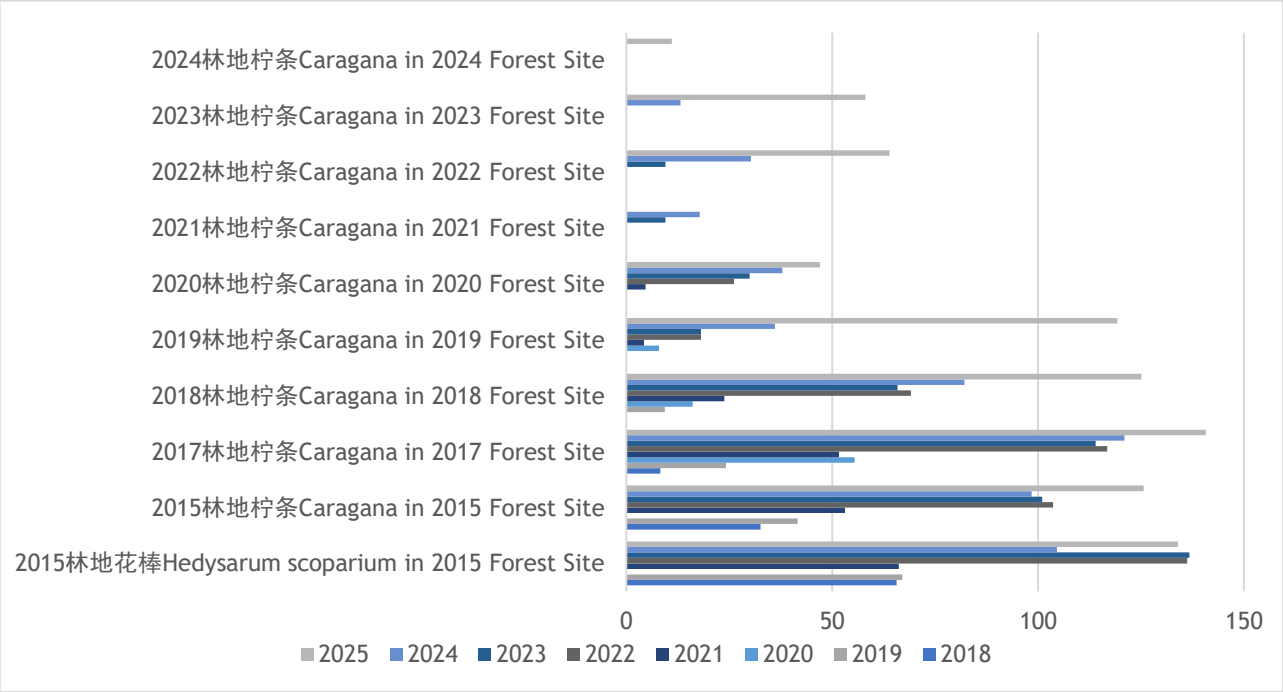


表 11. 历年灌木冠径，单位：厘米

Chart 11. Average Crown Sizes of Shrubs Over Years on Each Planting Site Planted from 2015 to 2024, Unit: cm

通过系统性的生态调查可以发现，经过草方格治理后，地块的植被覆盖率呈现稳步上升的趋势。这一现象充分表明，草方格在固定沙丘方面具有显著的效果。不仅如此，草方格工程的实施还带来了额外的生态效益——土壤水分和种子库得到了有效补充，这些因素共同促进了地面植被覆盖度的提升。

Through systematic ecological surveys, it can be found that after the construction of straw grids, the vegetation coverage of the plots shows a steady upward trend. This indicates that straw grids have remarkable effects in fixing sand dunes. Moreover, the construction of the straw grids has also brought additional ecological benefits - soil moisture and seed banks have been effectively replenished, and these factors together have promoted the increase in ground vegetation coverage.

从植被种类和数量的变化来看，尽管不同林地因地理位置的差异表现出一定的多样性，但整体趋势却十分一致：植被群落正逐步从以沙米为主的群落向兴安虫实-雾冰藜群落过渡，并进一步演替为沙蒿-兴安虫实群落。与此同时，草方格与灌木种植的结合，推动了林地植被群落的结构转变，使其从一年生草本植物群落逐渐发展为多年生草本植物群落。这种变

化不仅体现了生态修复措施的有效性，也为后续的生态演替奠定了基础。然而，值得注意的是，近年来气候变化波动剧烈，这对生态系统的稳定性构成了潜在挑战。未来，植被结构可能发生何种变化仍存在较大的不确定性，需要持续监测和深入研究。

Looking at the changes in the types and quantities of vegetation, although different forest sites show a different level of diversity due to geographical differences, the overall trend is very consistent. The vegetation community is gradually transitioning from a community dominated by Agriophyllum squarrosum to a Corispermum chinganicum-Bassia dasyphylla community, and further succession to an Artemisia desertorum-Corispermum chinganicum community. Meanwhile, the combination of straw grids and shrub planting has promoted the structural transformation of the forest vegetation community, enabling it to gradually develop from an annual herbaceous plant community to a perennial herbaceous plant community. This change not only reflects the effectiveness of ecological restoration measures but also lays the foundation for subsequent ecological succession. However, it is worth noting that in recent years climate change has been severe, which poses potential challenges to the stability of the ecosystem. There is still uncertainty about what changes may occur in the vegetation structure in the future, which requires continuous monitoring and research.

在生长调查方面，灌木的生长特点表现得尤为明显。初期，树高和冠幅等指标普遍较低，但随着生长进程的推进，灌木进入快速生长期，并最终趋于稳定状态。基于这一规律，在适宜的年份进行全面补植，可能会对地块的整体生态恢复产生更为积极的影响。因此，科学规划补植时间和方式，将是未来生态修复工作中的重要环节。

In terms of growth index, the growth characteristics of shrubs are particularly obvious. In the initial stage, indicators such as tree height and crown size are generally low, but as the growth process continues, shrubs enter a rapid growth period and finally arrive in a stable status. Based on this progress pattern, comprehensive replanting in the following years may have a more positive impact on the overall ecological restoration of the forests. Therefore, science-based replanting plan will be an important part of future ecological restoration work.

总结而言，草方格与灌木种植的协同作用显著改善了林地的生态状况，而气候变化带来的不确定性则提醒我们，必须采取更加灵活和前瞻性的管理策略，以确保生态修复工作的可持续性。

In summary, the synergistic effect of straw grids and shrub planting has significantly improved the ecological conditions of the forest sites. The uncertainty brought about by climate change reminds us that we must adopt more flexible and forward-looking management strategies to ensure the sustainability of ecological restoration work.

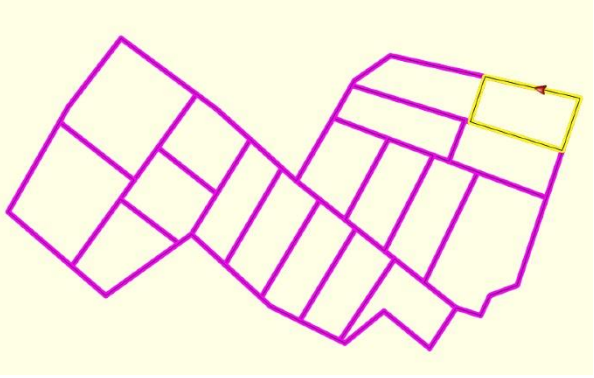
II. 路博迈公益林年度林地报告 Neuberger Berman Fund Management Forest Updates

路博迈是百万植树计划的林地赞助商，自 2024 年开始为项目捐赠，累计种植 2000 棵树，公益林面积达 27.03 亩。各林地情况请点击下表中的对应该年份查看。

Neuberger Berman Fund Management has been supporting the Million Tree Project since 2024, donating 2,000 trees covering an area of 1.80 hectares. Please click the YEAR for detailed information on the latest forest updates.

路博迈 Neuberger Berman Fund Management			
年份 Year	**位置 Location**	**面积/Area （亩/Hectare）**	**树种及数量 /Tree species& Amount**
2024	2024-2，内蒙古通辽市科尔沁左翼后旗常胜镇 Changsheng Town, Horqin Zuoyi Houqi, Tongliao, Inner Mongolia	27.03/1.8	2,000 棵 （杨树/Poplars）
路博迈公益林总计 Neuberger Berman Fund Management Forest		**27.03/1.8**	**2,000**

附录 1 Appendix1

路博迈 Neuberger Berman Fund Management		
年份 /Year	GPS 坐标/Coordinate	林地示意图/Forest Map
2024	2024-2 N42 52.765 E122 37.337 N42 52.715 E122 37.317 N42 52.683 E122 37.441 N42 52.741 E122 37.465 N42 52.765 E122 37.337	

附录 2 林地调查说明 Appendix 2 Forest Survey Description

林地抽样调查的目的在于通过数据测量、实地观察，了解林地的生长情况，并进行后续的数据建档、整理分析等工作，藉以对现有林地经营方式进行评估。若林地生长状况不佳，则需采取相应对策以进行调整（例如补植树苗、与其他合作单位进行协商等）。为确保林地调查的客观性，采样棵数一般在林地总棵数的 0.3-0.5%之间；以随机、分散作为原则，在地图上选取林地内的样点，并记录选取样点的定位坐标。每年调查期间，项目雇佣当地农户，员工对其进行技术技能培训后，带队一起进行实际测量工作。参与林地调查也促进当地居民了解林地状况、认识环境保护的重要性。

The purpose of the forest survey is to understand the growth of the forest through measurement and site observation. By conducting rigorous follow-up data filing, sorting and analysis, we are able to monitor tree growths while evaluating the viability of the forest management model in use and make adjustments as needed. If the forest is not growing well, corrective measures must be taken (e.g. replanting seedlings, consultation with experts, and so forth). To ensure the objectivity of the forest survey, the number of trees sampled is generally between 0.3 – 0.5% of the total number of trees. Random and scattered sampling plots are selected on the map, and the location coordinates of selected sampling plots are recorded. Each year during the survey, MTP employs and trains local farmers to help measure the trees. Participation in the forest survey also gives the local residents an opportunity to understand the condition of the forests and the importance of environmental conservation.

以内蒙林地调查为例，首先根据造林情况确定样地大小，一般采用 20m*20m 方形（或连续 4 行每行 10 株），然后根据样地大小，确定样地数量。通过 Mapsource 等软件在林地地图上随机抽样，然后在随机点处设立样地，并用油漆或标记牌等标记样地内的所有树木，测量这些树木并记录。

Taking the forest survey in Inner Mongolia for example, first determine the size of sample plots according to the topographic conditions, generally 20m*20m squares (or continuous 4 rows with 10 trees in each row), and then determine the number of sample plots based on the size of the forest. Set up the random sampling model on the forest map using Mapsource or other software, and then generate the random plots. All the trees on the plot are marked with paint or markers, before they are measured and recorded.

百万植树计划选择了活立木测量的三个指标作为主要参考：

a.地径：苗干靠近地表面处的直径；

b.胸径：主干离地表面胸高处的直径(一般默认为 1.3 米)；

c.树高：树木从地面根茎到树梢间的距离。

此外，为了核准林地的造林规格及抚育效果，我们选择了以下两个指标作为主要参考：

a.株距：两棵植物之间的栽种距离；

b.行距：邻近两行植株间的距离。

MTP selects three indicators of standing tree measurement for main references:

a. Ground diameter: diameter of seedling stem near ground surface;

b. Diameter at breast height: the diameter of the chest height of the trunk above the ground surface (generally 1.3m);

c. Tree height: the distance from the ground root to the top of a tree.

In addition, to check the afforestation specification and maintenance of the forest, we select the following two indicators for main references:

a. Tree spacing: the planting distance between two plants;

b. Row spacing: the distance between two adjacent rows of plants.

为了讨论林地的生长状态，我们选择增加测量指标-冠高：树尖至树冠底部的长度。

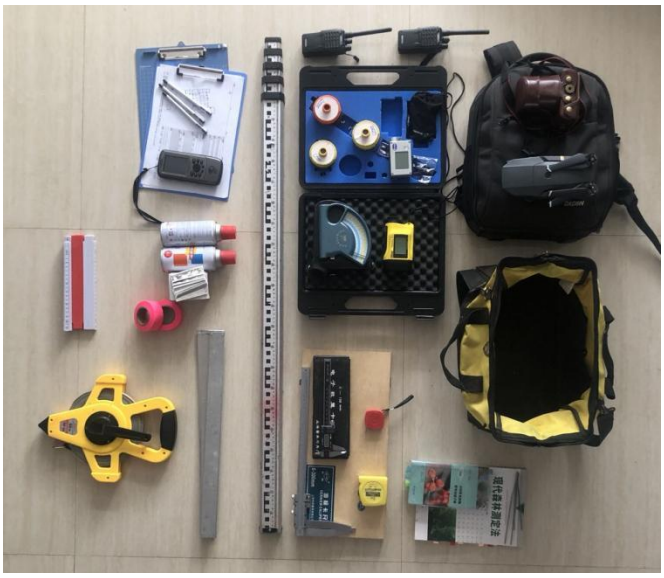
To discuss the growth condition of a forest, we choose to add one indicator—crown height: the length from the tip of the tree to the base of the crown.

在林地调查中，项目不仅测量上述指标，还会记录林木实际状况，包括样点内每一棵树木的生长情形，并记录下死亡林木及栽植林木的数量。并会标注特殊情况，例如：林木是否健康存活？林木主干是否有分岔生长？林地是否遭受人为活动破坏？若有施行林农间作，农作物是否影响到林木的生长？

In the forest survey, MTP not only uses these above indicators, but also records the actual condition of the trees, including the growth of each tree on the sample plot, and the number of dead trees and that of trees actually. Special notes are made as well, such as: is the tree healthily alive? Does the trunk of the tree show any visible splits? Has the forest been damaged by human activities? If there is interplanting, do crops affect tree growth?

林地调查中常使用到的测量工具包括前期初步调查所需要的：GPS、计数器、卷尺；秋季调查工具所需的：游标卡尺、胸径尺、卷尺、20 米卷尺、测高仪、记录表、地图等；以及标记工具：追踪彩带、铝制标签、铁丝、红色喷漆。如下图所示。

The measurement tools commonly used in forest surveys include GPS, counter and tape measure, which are needed for preliminary survey; and vernier caliper, DBH ruler, tape measure, 20-meter tape measure, altimeter, record table, map, which are needed for the autumn survey. Marking tools are also necessary: tracking ribbons, aluminum labels, wire, red paint. Some of the tools are shown in the picture below.



具体测量流程如下：

The specific measurement process is as follows:

a. 使用地图软件随机标定采样点并制作地图

a. Use map software to select sampling plots randomly and make sampling maps

2013-1 需要 12 个样地　15*2 测量

1. N43 12.745 E122 06.076	2. N43 12.740 E122 06.170	3. N43 12.727 E122 06.403
4. N43 12.722 E122 06.520	5. N43 12.738 E122 06.644	6. N43 12.688 E122 06.790
7. N43 12.700 E122 06.895	8. N43 12.682 E122 06.962	9. N43 12.653 E122 07.076
10. N43 12.570 E122 07.430	11. N43 12.522 E122 07.525	12. N43 12.494 E122 07.617

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b. 步行或乘车抵达采样点，使用喷漆、追踪带、铝制标签等工具对采样点内林木进行标记，以便后续追踪。

Get to the sampling plot on foot or by car, and mark the trees in the sampling plot with spray paint, tracking tape, aluminum labels and other tools for follow-up tracking.

c. 使用测高仪、塔尺等工具对样区内林木进行树高、树冠等指标的测量并记录
Use altimeter, leveling pole and other tools to measure and record tree height, crown and other indicators of trees on the sampling plot

d. 使用胸径尺、游标卡尺等工具对区域内林木进行地径、胸径等指标的测量并记录
Use DBH ruler, vernier caliper and other tools to measure and record ground diameter, DBH and other indicators of trees on the sampling plot

e. 使用 50m/100m 皮尺测量与区域内林木的株距和行距并记录
   Use a 50m/100m tape measure to measure and record tree spacing and row spacing of the trees on the sampling plot
f. 观察林地内林木病虫害、间种、人为破坏等现象并记录
   Observe and record tree diseases and insect pests, interplanting and man-made destruction on the sampling plot

综上所述，利用测量所得的数据，计算整块林地的成活比率，并针对生长数据进行逐年分析，项目才得以通过林地抽样调查，了解林地现状、评估现有林地状况和经营策略。

In conclusion, the surveys are instrumental in helping us calculate survival rates of the forests and keep track of tree growth year by year. Through close monitoring, not only are we able to understand the real-time conditions of our trees we are able to evaluate and improve the overall forest management strategy as well.