



קרן קיימת לישראל
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Annual Forest Report 2025

Forestry Division

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Jewish National Fund (KKL-JNF)

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INTRODUCTION

Forests in Israel are a significant component in the continuity of open spaces throughout the country, providing essential ecosystem functions to both the environment and society. In an era of climate change, the importance of forests as open spaces takes on even greater significance, in moderating extreme events, regulating floods, lowering temperatures, and offering unique cultural services such as recreation, hiking, relaxation, and healing to the general public. The primary goal is to maintain, over time, the ability of Israel's forests to supply ecosystem functions, while ensuring forest resilience and nurturing biological diversity. The guiding principles of our work are based on the globally accepted approach of sustainable forest management: thoughtful intervention and reliance on natural processes as much as possible, striving for diversity and complexity in forest structure and species composition to maintain stability and resilience against disturbances such as drought and fires, preservation of natural and heritage values, and minimizing the environmental impacts of forestry activities.

FORESTRY DEPARTMENT WORK GOALS AND PRIORITIES FOR 2025

The purpose of the annual forestry work plan is to ensure the existence of healthy, vital forests; preserve and enhance biodiversity; increase resilience to climate change impacts; and maintain forest continuity and open spaces. The plan emphasizes several key management actions:

- Establishment and maintenance of firebreak zones
- Treatment of young and maturing forests
- Forest rehabilitation and renewal
- Development of visitor reception areas



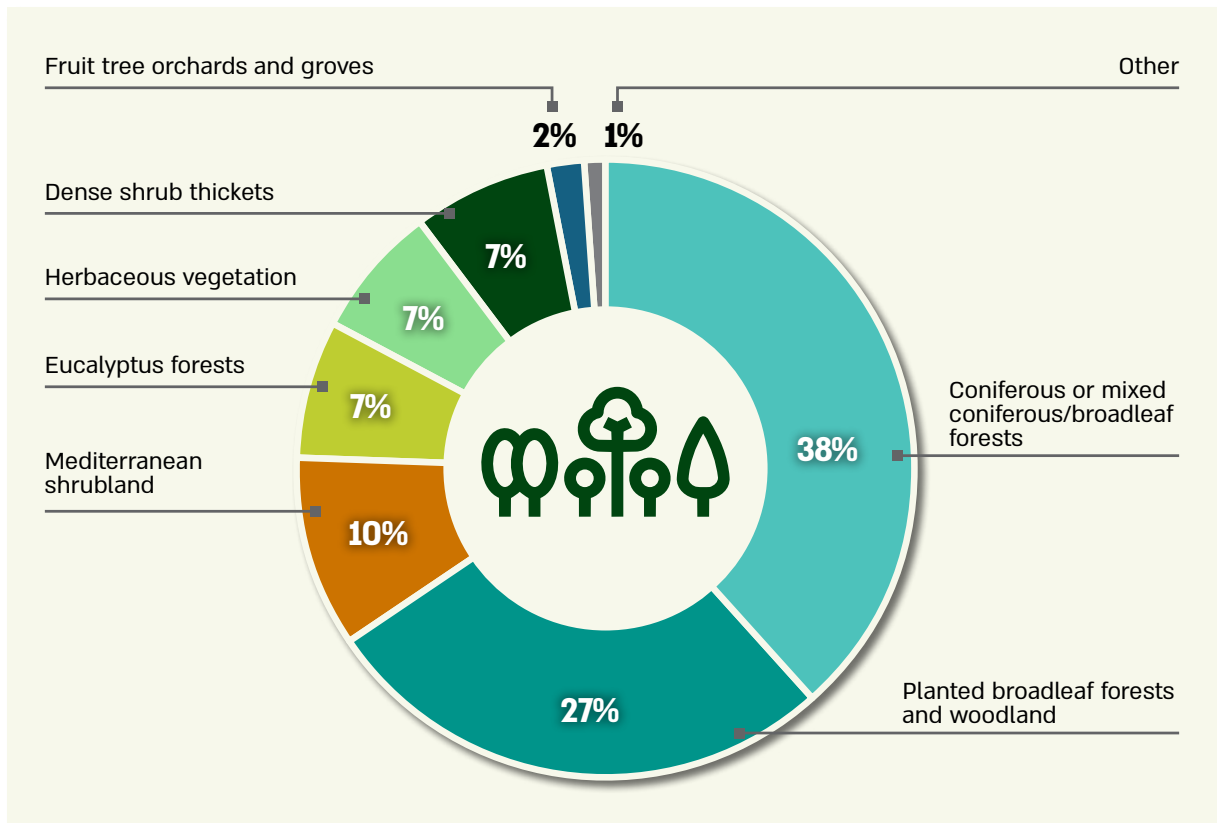
MANAGED FOREST AREA

KKL-JNF manages about **370,650 acres (1.5 million dunams)** of open areas, of which **~210,040 acres (~850,000 dunams)** are planted forests.

VEGETATION TYPES AND SPECIES GROUPS*

As the renewed mapping of KKL-JNF forests progresses as part of the Forest Condition Survey (FCS), information about vegetation formations and species compositions in the forests is also updated and becomes more accurate year by year (a gradual and slow change). Combining these sources of information reveals that **38%** of KKL-JNF forest areas are coniferous or mixed forests** (a mix of coniferous species with native broadleaf species, through natural regeneration or planting); **27%** are planted broadleaf forests and woodland, **7%** are eucalyptus forests, and **24%** are low vegetation formations (shrubland/scrubland/herbaceous).

* These findings are expected to be further refined as mapping advances to cover all KKL-JNF forests.



Infographic 1: **A gradual transition from coniferous forest to mixed forest. Under the coniferous canopy in the planted forests, Mediterranean woodland species are sprouting, establishing themselves, and developing. The developing layer of woodland has gradually become significant and an integral part of the forest's vegetation structure, to the point where it can no longer be defined as a "coniferous forest" only. At KKL-JNF, we refer to this new vegetation formation as a "mixed forest."

EXTREME EVENTS AND MAJOR DISTURBANCES

LARGE WILDFIRES

At the end of April 2025, two severe fires broke out in the coastal-plain region—in Eshtaol Forest and Canada Park. These fires occurred on Holocaust Memorial Day and Memorial Day (23-24.04.2025 and 30.04-01.05.2025, respectively), and left behind extensive damage, all under particularly challenging meteorological conditions in the wake of a drought-stricken winter, with strong winds and very low humidity. KKL-JNF's forestry department is working diligently to restore the damaged areas, learning from these events and strengthening policies to prevent future fires.



Image 1: Part of the area that was affected by the massive fires. View from above. Photo: Monitoring Unit, KKL-JNF.

TREE DESICCATION

In recent years, extreme droughts in Israel, especially in the south of the country, have manifested in a decrease of about **50-67%** in precipitation, leading to widespread mortality in pine and eucalyptus forests and significant damage to **40-60%** of the trees. KKL-JNF is conducting mapping and assessment of forest conditions, alongside planning renewal and rehabilitation actions in accordance with updated forest management policies for the era of climate change. The policy is based on the selection of suitable species (local and native Israeli wild species), maintaining a wide diversity to strengthen forest resilience, and planning that aligns with the changing climatic reality: rising temperatures, reduced rainfall, and prolonged drought periods.

Management principles: adaptive management with ongoing monitoring, fostering diversity and complexity to maintain functionality, encouraging natural processes and local species, coping with uncertainty through diverse solutions, and long-term research.

Modes of action: long-term forest plans, adaptation of species resistant to drought and heat, preserving as much as possible continuity and the size of forest areas, continuous monitoring, and dedicated research.



Photos 2-3: Kramim Forest before and after desiccation. Photo: Maya Milat, KKL-JNF

FIRE REDUCTION AND PREVENTION

Forest fires are one of the main challenges in forest management, due to their destructive impact on vegetation, wildlife, habitats, and nearby infrastructure. Israel experiences a Mediterranean climate with prolonged dry periods and high heat stress, which increases the risk of fires. Forest management to prevent fires aims to reduce the damage caused by fire events, using various tools for forest management: establishing buffer zones around communities, infrastructure sites, and within the forest, maintaining these buffer zones, and thinning and pruning operations to reduce fire risk.

Across KKL-JNF-managed areas nationwide, there are approximately **9,884 acres** (40,000 dunams) of forest designated as firebreak zones. Most existing firebreaks are located around the edges of communities. There are also firebreak zones within forests (based on existing roads) and surrounding infrastructure sites and visitor areas.

In 2025, about **1,764 acres** (7,140 dunams) of buffer zones were treated across the country, including the establishment of **4,400** new buffer zones and maintenance of **2,700** existing ones. These figures reflect a continuous increase in the scope of work, strengthening the forests' ability to withstand fires and the implementation of fire protection guidelines in forest and ecological management plans. This year, work began to establish a buffer zone in dense woodland around the community of Kiryat Tivon. The work included felling pine trees while preserving mature woodland trees, then clearing the undergrowth and pruning woodland trees to shape and disconnect the continuity of vegetation from the ground to the treetops.



Photos 4, 5: The buffer zone around the community of Tivon. The work focused on preserving the magnificent woodland trees while removing woody vegetation from the undergrowth and disconnecting the vertical continuity from the ground to the treetops of the natural woodland. Photos: Moni Shitrit and Mor Ashkenazi, KKL-JNF

BIODIVERSITY AND ENDANGERED SPECIES

SURVEY OF NATURAL RESOURCES IN KKL-JNF FORESTS

Each year, as part of the "Survey of Natural Values in KKL-JNF Forests," areas designated for thinning and forest renewal work in the annual work plan are surveyed. Within the survey area, endangered plants, concentrations of flagship species, and magnificent trees are mapped, along with animal nesting and breeding zones, wet habitats, and unique habitats. The findings are integrated into work planning maps and are available for forest managers to view and use.

In 2025, **35 forests** containing areas for thinning and renewal were surveyed, covering a total area of about **3,337 acres** (approximately 13,500 dunams). A total of **946 observations** of natural resources were recorded, including **505 observations** of **26 species** of plants that are endangered. These observations include large, stable populations of endangered species in forests, many of which were previously unknown. Significant sightings of endangered species include: Eig's Sage (*Salvia eigii*) in Beit Keshet Forest, Twisted Bells (*Bellevallia flexuosa*) in Gal'ed Forest, Southern Sow-thistle (*Scandix australis*) in Jerusalem Forest, Negev Giant Fennel (*Ferula negevensis*) and Aleppo Yarrow (*Achillea aleppica*) in Yatir Forest, and Black Salsify (*Scorzonera longifolia*) in Plugot Forest.

Additionally, forests identified as "hotspots" for a wide variety of endangered species were surveyed, particularly in the loess and kurkar soils of the northern Negev. In Be'eri Forest and Nahal HaBesor, significant concentrations of endangered plant species characteristic to the area were found, such as: Yellow linaria (*Linaria flava*), Tiny valerian (*Valeriana minuta*), Cretan arum (*Arum creticum*), Negev arum (*Arum negevensis*), Small sunrose (*Helianthemum minutum*), Jaffa flax (*Linum jaffanum*), Palestine bedstraw (*Galium palestinum*), Palestine clover (*Trifolium palestinum*), Palestine chamomile (*Anthemis palestinum*), and additional species.

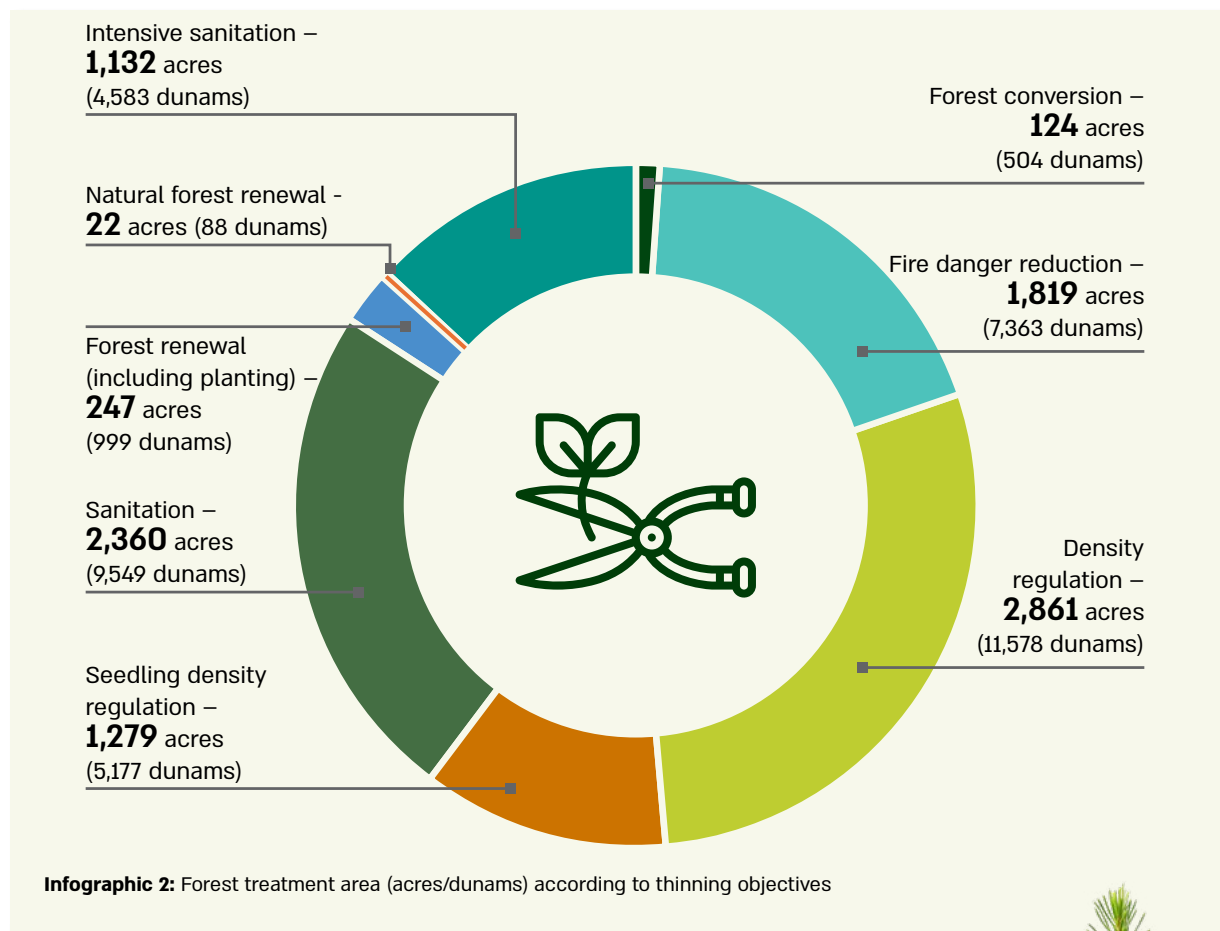


Figures 6–11: Endangered plants. Photos: Deborah Lev Ramati and Inbal Biberman, Open Landscape Institute (OLI)

FOREST MANAGEMENT

THINNING AND PRUNING

One of the main treatments for maintaining the health and vitality of forests is tree thinning, which helps direct limited resources (water and light) more efficiently to the remaining trees. In 2025, thinning was performed on about **9,884 acres** (40,000 dunams) of forests. Nearly **988 acres** (4,000 dunams) were thinned for the purpose of creating firebreaks. In addition, about **370 acres** (1,500 dunams) underwent uprooting and treatment of invasive plant species. Thinning serves a variety of purposes, such as reducing fire risk, sanitizing damaged or non-vital forests, regulating stand density, and more.



FOREST RENEWAL AND PLANTING

In 2025, approximately **1,201 acres** (4,860 dunams) were planted, of which **12%** were in new areas and **88%** were for forest renewal. **74%** were broadleaf species, including oaks, pistachios, carobs, tamarisks, acacias, and more, while **26%** were coniferous species (Jerusalem pine, Turkish pine, stone pine, Mediterranean cypress, and cedar species).





FOREST HEALTH

The larvae of the pine processionary moth have irritating hairs that cause itching reactions on the skin, which can harm humans, especially in campgrounds and youth camps. In 2025, approximately **4,500 acres** (18,200 dunams) were treated using aerial spraying.

The little fire ant affects the well-being of humans and animals with its sting and also impacts ecosystems in irrigated habitats or along watercourses. In 2025, monitoring and control actions against the little fire ant were carried out at **9 different sites**, including KKL-JNF nurseries and field centers. Monitoring and treatment in the nurseries help prevent the spread of the little fire ant into forest areas, while treatments in other public areas reduce nuisance for visitors and workers.

The fig longhorn beetle damages different species of fig trees, including the common fig. The larvae of the beetle bore deep into the trunk and branches, destroying the transport vessels, weakening the tree structurally, and causing the death of affected trunks and branches. In 2025, a trial plot of fruit trees was established as part of research on the fig longhorn beetle.



TREATMENT OF INVASIVE PLANTS

Invasive plants are species foreign to the local habitat, whose presence is a result of human-induced changes, and they can significantly alter ecosystems, displace native species, and cause damage to infrastructure, agriculture, human health, and more. In 2025, treatment of invasive plants was carried out over approximately **7,166 acres** (29,000 dunams).

As of 2025, there are **40 monitored sites** of weakleaf bur ragweed (*Ambrosia confertiflora*) in KKL-JNF forests, which are regularly monitored. This year, additional targeted monitoring and treatment were performed at the monitored sites. At **30 sites**, no renewed growth was observed at the end of the past year, and at **10 sites**, dedicated treatments were performed. This year, for the first time, a multi-year plan for the treatment of invasive plants was developed, considering a wide range of factors. The plan will serve as a model for developing multi-year plans for additional forests, based on a research model that takes into account annual cycles, such as the plan for the Menahemia Forest.



SEED COLLECTION AND NURSERIES

The Seeds and Nurseries Department is responsible for collecting seeds from approximately **250** plant species for the purpose of seedling production. Throughout the year, about **4–5 tons** of fruit are collected, yielding about **1.5–2 tons** of seeds. Approximately **40%** of the seedlings produced in the nurseries are broad-leaved tree species (including native woodland species and acacias); about **9%** are coniferous forest tree species, **7%** are eucalyptus species, **2%** are species characteristic of riparian vegetation, and **42%** are bush and ornamental tree species, among others.

In 2025, KKL-JNF nurseries produced about **800,000** seedlings. About **40%** of those were intended for planting in forests, and **60%** were distributed to external entities such as agricultural afforestation (about 10,000 seedlings), beekeeping pastures (about

30,000 seedlings), schools, IDF bases, kibbutzim, and the like. Over the past year, we continued to introduce improvements in the seedling cultivation system at nurseries (advanced growing containers, innovative mechanization, and more). In the past year, seedling production for riparian areas has expanded, and we now grow about **40** species for riverbanks, especially for restoration in the Zippori Stream, Hula Lake area, and the Mahanayim Stream. In addition, a project is being carried out for collecting seeds and producing seedlings of rare wild herbaceous species in Israel, in order to assist in the conservation of these species in the field. About **30** herbaceous species are grown at the Eshtaol nursery. The Seeds Department also assists in relocating, conserving, and replanting geophytes from areas where infrastructure work is carried out on forest lands, such as works done near Jerusalem and in the Kiryat Gat Forest, including rare geophytes like the Galilee onion (*Allium galileum*) and Warburg's hyacinth (*Bellevalia warburgii*).

FOREST PLANS AND LONG-TERM MANAGEMENT

In long-term forest and management plans, the primary objectives are defined for the entire area of each plan, based on the list of forest management goals in Israel (as defined in the Forest Management Policy of Israel). The plans divide the area into sub-units, and in each, a forestry designation and desired vegetation structure are specified. After defining the "desired" state compared to the actual situation, the plans specify the management actions to be taken in the forest, their scope, and the priorities for implementation. KKL-JNF places great importance on preparing forest and long-term management plans for the forests it manages. By the end of 2025, all completed plans so far cover about **36%** of the forests.

You can learn about the existing plans for the following forests on the KKL-JNF website (in Hebrew): Forest of the Martyrs, Sataf Forest, Adullam-France Park, the Tzora and Eshtaol Forests, the Gerar and Hanun Forests, Biriya Forest, Northern Jerusalem Hills, the Sharon Bloc Forests, the Southern Coastal Plain Kurkar Hills Forests, Nahal Refaim, Jerusalem Forest, Ben Shemen Forest, Gilboa Forest, Menashe Park Forests, Yatir Forest, Segev-Yuvalim Forests, the Hills Axis, USA Park Forests, Meitar-Hiran Forests, Bar'am-Malkia and Sasa Forests, Shahariya-Lachish Forest.

LONG-TERM MONITORING AND RESEARCH

MONITORING ENDANGERED PLANTS

In 2025, the establishment of plots for monitoring the vitality of populations of rare and endangered species, as well as the impact of forest management on these populations, was completed. A total of **124** plots were established in **15** forests for the following species: Jerusalem sage (*Phlomis pungens*), Eig's sage (*Salvia eigii*), Shepherd's needle (*Scandix palaestina*), Zohary's woundwort (*Stachys zoharyana*), and annual species characteristic of light soils (Chius buttercup (*Ranunculus chius*), Spiny medick (*Medicago murex* Willd), Rough cat's ear (*Hypochaeris achyrophorus* L.), Smooth cat's ear (*Hypochoeris glabra*), and Bird's-foot-trefoil (*Ornithopus pinnatus* (Mill.) Druce)). Analytical research of the monitoring data will allow for a deeper understanding of the factors harming these populations on one hand, and the conditions enabling them to thrive on the other.

LONG-TERM MONITORING OF MATURE PINE FORESTS (LTM)

The Long-Term Monitoring System (LTM) of mature conifer forests in Israel is designed to provide an in-depth and comprehensive picture of the structure, function, and health of forests over time. The system is based on **243** permanent plots representing a variety of habitats in Jerusalem pine (*Pinus halepensis*) and Turkish pine (*Pinus brutia*) forests, where periodic measurements of ecological indicators are conducted. In the past year, measurements were taken of key metrics such as Gross Primary Production (GPP), Leaf Area Index (LAI), evapotranspiration (ET), Water Use Efficiency (WUE), and Leaf Area Efficiency (LAE). The measurements relied on satellite imagery combined with ground-based measurements and empirical models. These data are used to formulate forest management strategies and to identify trends in the structure and function of the ecosystem. This year saw significant progress in the development of long-term ecological research stations – tools for monitoring based on remote sensing.



LONG-TERM ECOLOGICAL RESEARCH (LTER)

KKL-JNF manages five long-term ecological research and monitoring stations (LTER) located in diverse ecosystems and environmental conditions. These stations serve as unique research centers for tracking changes in the structure, function, and health of the ecosystem, including planted forests, shrublands, runoff-harvesting forests, and extreme arid ravines. The information collected at these stations contributes to the development of adaptive management and the improvement of ecosystem resilience in response to climate change and other environmental pressures.

RESEARCH

KKL-JNF promotes external research conducted by academic institutions, thereby bridging knowledge gaps and finding solutions to improve management and enable data-driven decision making. These studies cover a wide range of topics reflecting the core areas of the forestry system: management and stewardship of forests and open spaces, biodiversity, and ecosystem services in forests; advancement of propagation, breeding, functionality and forest health; planning and visitor management. The Forestry Department manages 34 active research projects that started through previous years' calls for proposals, in addition to 16 new studies that have recently begun. During the year, several significant studies were completed, among them a prominent study conducted by Dr. David Helman from the Faculty of Agriculture at the Hebrew University and Dr. Tamir Klein from the Weizmann Institute of Science. This study examined the effect of drought stress on forest trees, focusing on developing monitoring capabilities for drought using remote sensing tools. The research demonstrated how it is possible to identify trees at risk of mortality before visible physiological signs appear, by integrating hyperspectral drone data, satellite imagery, and machine learning models. The study also developed a dedicated application. [Link to the publication of this research on ynet \(in Hebrew\).](#)

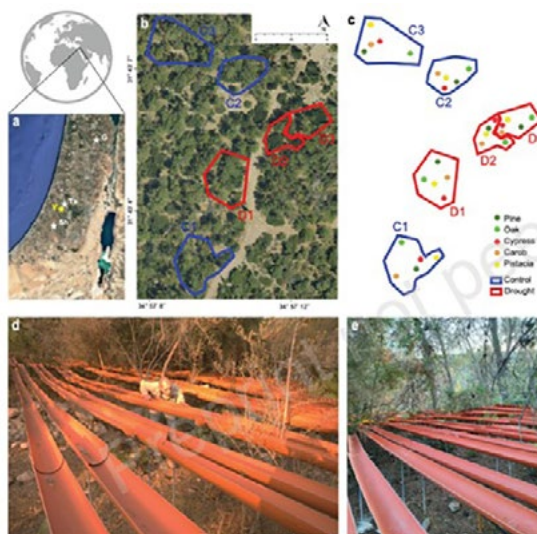


Figure 1. The study area showing (a) the experimental site of Yishi Forest (Y; yellow star) and the three forest sites of Tzora (Tz), Shacharia (Sh), and Gilboa (G). (b) Aerial view of the 0.05-hectare plots at Yishi, with control plots in blue (C1–C3) and rainfall exclusion plots in red (D1–D3). (c) Same as (b) but with the tree species marked on the map. (d–e) The rainfall exclusion system in Yishi consisting of open-pipe gutters installed to divert approximately 50% of incident precipitation.

Another study completed this year, conducted by Dr. Ora Moshe from the Erosion Research Station, dealt with the contribution of trees to the restoration of ecosystem services in buffer strips along streams in agricultural areas. The research demonstrated that tree-based buffer strips help reduce erosion and fertilization from fields, improve habitat quality, and preserve biodiversity. The study developed a spatial tool for prioritizing areas for the restoration of buffer zones between the stream and agriculture, forming a professional foundation for KKL-JNF's policy in stream restoration. The knowledge accumulated from these studies allows KKL-JNF to improve forest planning and management, its monitoring and functioning, and to base professional decisions on up-to-date, scientifically based data and policy. [Link to the publication of this research on ynet \(in Hebrew\).](#)



POLICY DOCUMENTS

This year, we completed the writing of two important policy documents addressing key aspects of forest management.



Fire Prevention and Post-Fire Forest Rehabilitation

The document "Prevention of Fires and Forest Restoration After Fire" presents an organized approach for forest management focused on reducing fires. The document defines the types of areas for fire prevention management: buffer zones around communities and within forests, as well as areas for reducing the risk of mega-fires. Its second part deals with a multi-year work process for forest restoration.

**View the document
(in Hebrew)**



Forest Establishment and Renewal

The document on forest establishment and renewal includes two main chapters: 1) Establishing forests in areas designated for forestry where trees have not developed. In this chapter, we emphasized the decision-making and planning process and introduced two innovations: preliminary analysis and evaluation of the area's functionality and the need for restoration, and consideration of ecological sensitivity and natural values, from the national level down to local examination through ecological surveys. 2) Forest renewal, consisting of multi-year as well as multi-stage processes whose primary purpose is to maintain a multi-generational forest with continuous coverage.

**View the document
(in Hebrew)**



SUMMARY OF 2025 AND OUTLOOK FOR 2026

The data from the past year reflect continuity and the gradual implementation of forest management principles, alongside ongoing policy development. In 2025, we published two important policy documents, and we are currently working on Streams Management and Soil Conservation documents, which are expected to be completed in the coming year. The dry winter and severe drought have made their mark, both in the major fire in the Eshtaol forests and Canada Park, and even more so in the growing phenomenon of tree dieback in the southern and central forests. The worsening climate conditions and decline in rainfall are likely to intensify the dieback, and at present we are engaged in mapping and analyzing the data, as well as preparing multi-year action plans to address these challenges.



Figure 12: Segev Forest. Photo: Forest Condition Survey, Keren Kayemeth Lelsrael-Jewish National Fund