



PROTECTING ISRAEL'S FORESTS: KKL-JNF Fire Prevention and Forest Restoration

For over a century, Keren Kayemeth LeIsrael - Jewish National Fund (KKL-JNF) has been at the forefront of preserving and developing Israel's forests. As climate change intensifies and with it, the frequency and severity of forest fires, KKL-JNF is committed to the forests' protection and restoration. Below we outline the key strategies and actions taken by KKL-JNF to protect Israel's forests.



Forest Fire Prevention Strategies

KKL-JNF employs a comprehensive fire prevention strategy aimed at reducing fire intensity and spread. Key actions include:

Buffer Zones: Areas designed to slow fire spread and protect human life and property. We establish zones around populated areas and within forests, creating a network of protective barriers throughout Israel's woodland regions.

Vegetation Management: The meticulous treatment of plant life along roads and in strategic areas to reduce fire fuel. Techniques include thinning tree canopies, pruning lower branches, clearing undergrowth and managing dead wood materials, tailored to various forest types such as woodland, coniferous, mixed, and semi-arid.

We employ a combination of treatments based on specific conditions: in public reception areas, we maintain shade while pruning tree tops and treating the undergrowth. In areas at risk of large fires, we implement pruning, thinning, and grazing strategies to manage vegetation effectively. Grazing is particularly useful in hard-to-access areas, while mowing and collection techniques are utilized in more accessible locations.





Road Network Planning: Developing and maintaining a road network for effective firefighting access. Roads are classified based on their suitability for different firefighting needs, from main access routes to smaller paths. They also double as fire barriers.

Site Protection: Implementing specific fire prevention measures at key sites within our forests, such as heritage sites and tourism attractions. Special attention is given to public reception areas in order to ensure visitor safety.

When it comes to effective fire prevention and treatment, diversity and adaptability are essential. Our forest teams combine various treatment methods tailored to the specific terrain. For example, we cultivate irrigated areas to create zones with low flammability and implement landscape fragmentation strategies to establish patches that further reduce overall fire risk.



Forest Restoration After Fires

Reforestation after a fire is a long-term process consisting of several stages. Initially, immediate actions must be taken to eliminate hazards that endanger the safety of hikers. Subsequently, a measured treatment of the damaged forest areas is required, maintaining an ecological vision that ensures the preservation of the soil and the natural recovery of vegetation. Only in the final stage are active operations conducted to renew the forest.

Immediate and Short-term Actions After a Fire

In the first year following a fire, efforts focus on essential actions to protect the ecosystem and prevent soil erosion. Key operations include:

Safety Measures: Immediate removal of hazards to ensure the safety of visitors and workers.

Damage Assessment: Conducting comprehensive surveys to map the extent of damage to trees, habitats, and infrastructure.

Soil Conservation: Implementing short-term actions to prevent further damage, such as cutting down trees near roads, repairing infrastructure at public reception sites, and taking measures to mitigate soil erosion.



Treatment of Damaged Trees

Cutting down and removing damaged trees is important but not always necessary. This work begins at least one winter after the fire and continues for up to four years to prevent the collapse of dead trees.

Tree treatment starts with an evaluation of fire-damaged trees, with methods varying from leaving areas untouched to complete excision, depending on damage severity and environmental conditions. To minimize soil erosion, treatments are typically conducted in summer when the soil is less vulnerable.

High-priority areas, especially recreational zones, receive special attention to ensure visitor safety and accessibility. In minimally affected areas, a case-by-case assessment determines the necessity of treatment, while accessibility challenges are addressed with methods adapted for hard-to-reach locations.

In regions of significant nature and heritage value, manual treatment methods may be preferred, and sometimes intervention is avoided altogether to maintain natural integrity. Broad-leaved trees are thinned or pruned after five years to promote sustainable regeneration and reduce future hazards. This comprehensive approach balances effective treatment with ecological protection.





Forest regeneration

The goal of forest regeneration is to achieve the desired vegetation configuration and coverage, considering the area's characteristics, ecosystem services, and habitat conditions. This process may rely on natural regeneration or include planting and seeding when necessary.

The stages of regeneration include:

Pre-Renewal Survey (5 Years Post-Fire): Collecting data on habitat conditions, including soil, topography, accessibility, existing vegetation, natural regeneration, and heritage values.

Plant Renewal Plan: Developing a strategy for renewal layout—natural, planting, or combined—along with fire prevention measures.

Flexible Scheduling: Adapting plans to account for unique areas, such as arid regions or high-visitor zones, as well as areas at risk of encroachment.

Work Plans: Creating detailed annual and multi-year work plans for effective implementation.

Fire Prevention Planning: Analyzing previous fires to develop strategies that ensure balanced and sustainable recovery, including measures such as thinning pine seeds, tailored to local conditions.

By following these steps, we ensure effective forest regeneration that preserves natural assets and enhances resilience to future fires.



KKL-JNF's Commitment

KKL-JNF is committed to the preservation and sustainable management of Israel's forests through these strategies. Balancing ecological needs with fire prevention and restoration efforts ensures the protection of these vital natural resources for future generations. Our work combines traditional forestry knowledge with modern environmental science to serve Israel's unique and precious woodlands.

Sources:

Ashkenazi, M., Assem, Y., & Zoraf, H. (January 2024). Guidelines for fire prevention and forest restoration after fires. Forestry Department, Keren Kayemeth LeIsrael - Jewish National Fund.

Photos & Figure:

Ben Shemen & Biriya Forest: TSR Aerial Photography;
damaged forests and vegetation regeneration: Yaron Charka, Michael Huri, Bonnie Scheinman;
Biriya Forest (during Iron Swords War), Yaron Charka,
KKL-JNF Photo Archive.