

Plantings for the Renewal and Restoration of the Be'eri Forest after Repeated Fires

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Fires in open areas have a great impact on the design of natural vegetation and the entire ecosystem. The open areas in the Western Negev, near the border fence with the Gaza Strip, are characterized by extensive areas of field crops and orchards, embedded in natural areas of nature reserves and diverse forests planted by KKL-JNF since the 1960s. Since 2014 (Operation Protective Edge) there has been a disturbing phenomenon of fires in the open areas of the Western Negev, which recurs at a high annual frequency due to hostile activity by our enemies in the Gaza Strip. The impact of fires on planted forests is related to the intensity of the fire, weather conditions, tree species, topographical conditions in the area, the degree of success of suppression efforts and the frequency of fires in a given area.

In 2014, about 840 acres (340 hectares) of planted forest were burned in a strip of land east of the border, measuring about 10 kilometers wide. In 2018, when incendiary kites and incendiary balloons were used to damage forests and agricultural fields, about 2,223 acres (900 hectares) of planted forest were burned. In 2019, about 148 acres (60 hectares) were burned, and during the four years between 2020-2023, about

1,235 acres (500 hectares) were burned in the same strip of land and partially overlapped with the areas that were burned in the past. For comparison, in the years 2010-2013, an average of about 37 acres (15 hectares) per year were burned in the administrative area of the entire Western Negev. For the mapping of the fire areas, see Figure1.



Photo: Shai Levy

Incendiary Kites in the Be'eri Forest, 2018. "In 2018, when incendiary kites and incendiary balloons began to be used in order to damage forests and agricultural fields, about 2,223 acres (900 hectares) of planted forest were burned... For comparison, in the years 2010-2013 an average of about 37 acres (15 hectares) were destroyed by fire in the administrative area of the entire Western Negev per year."

recommendations for both conservation and development.

The master plan was developed with these findings in mind, along with considerations for existing and anticipated public use. Its preparation involved collaboration with representatives from the Eshkol and Sdot Negev Regional Councils, the Israel Antiquities Authority, the Nature and Parks Authority, the Shikma-Besor Drainage Authority, and Kibbutzim Sa'ad, Be'eri, and Alumim.

The Be'eri Forest Master Plan outlines three levels of development for forested areas:

1. Intensive Forest: Development focused on recreational activities, primarily for receiving the public.

2. Extensive Forest: Development that is carried out while preserving the forest's natural functions.

3. Conservation Forest: No development of the forest system, apart from forest roads or other supportive elements.

In the Be'eri badlands and at the dam on Nahal Gerar, areas with high ecological value and exceptional botanical diversity were identified. Very high ecological values were found in the Shahaf and Gerar streams, as well as in forests planted along the border fence in sandy soil. The area surveyed contains endangered species, heritage trees such as *Ficus sycomorus* and *Acacia radiana*, and significant concentrations of wildflowers.

The recommended forest management approach for the surveyed area is the patchwork system: dense plantings in zones designated for leisure and recreation, with the remaining land – comprising the majority of the area – featuring sparse afforestation interspersed with open forest clearings. A detailed, multi-year planting plan was developed for approximately 500 acres (200 hectares) of fire-damaged areas in the Be'eri Forest, spanning from the border fence in the west to Kibbutz Be'eri in the east. The considerations for renewing and rehabilitating the forest stemmed from the fact that very few living trees remained in these areas – this was determined after waiting over a year to assess the regeneration potential of fire-damaged trees and to remove those that had died.

Prior to beginning works to prepare the area for planting, a detailed natural values survey was conducted for the designated zones. This was done in order to obtain a permit from the Israel Nature and Parks Authority for any potential impact on natural assets, as required by law. To ensure maximum preservation of the forest's natural and cultural values, the planting plan defined “no touch” zones containing vegetation typical of kurkar ridge habitats, and protective radii were marked around these critical natural features.

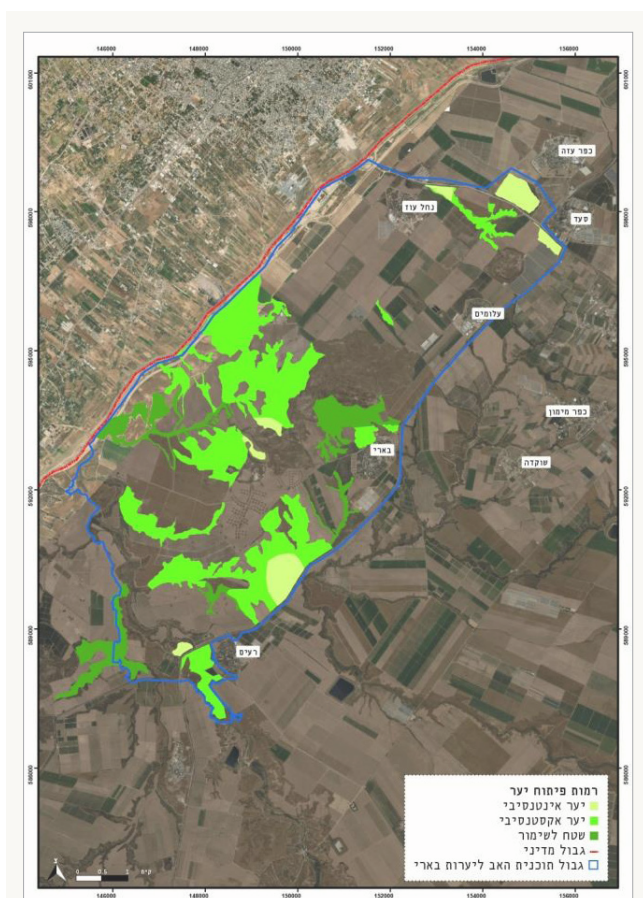


Figure 3 | The levels of development planned for the forest areas according to the Be'eri Forest Master Plan

Key Principles of the Be'eri Forest Planting Program

- In the eastern areas – sparse plantings in patches;
- In the western areas near the border fence – dense plantings to provide concealment ("security plantings");
- Areas of intensive public use: dense plantings to provide shade;
- Tree species selection according to soil type and the designated purpose of each polygon.
- Planting maintenance – targeted weed control, protective sleeves, mulching, and irrigation;
- Mitigation of soil erosion – stabilizing channel heads and regulating forest access roads.

In addition, during the "Iron Swords" war, open areas were damaged, primarily due to soil disturbances caused by vehicle activity along existing roads, the construction of new roads, and the creation of assembly areas, with some areas also damaged by fires. In all the forests damaged in the Western Negev, detailed ground mapping is currently ongoing, following an analysis of remote sensing imagery that indicated changes in the terrain between October 7 and the end of January. The analysis was based on

change detection interpretation of Sentinel-2 satellite imagery, conducted by the Marvin company.

By the start of the war, approximately 110 acres (45 hectares) of the Be'eri Forest had already undergone rehabilitation. Future restoration and renewal activities will continue in coordination with security forces, following the completion of the damage mapping efforts.

Sources

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Photo: Moshe Baruchi

Damage from the Iron Swords War – The digging of ramparts caused landscape damage and the diversion of runoff from forest tree roots. In Be'eri Forest, near the ANZAC Memorial.



Photo: Hamed Abu Siyam

Extinguishing a fire in the Be'eri Forest, 2018