



English Abstracts

■ Almond tree populations in open areas and their restoration – Tsipori National Park as a test case

Itai Gvirtzman¹, Michael Menis¹, Aslan Horesh², Shaul Ben Yehuda³, Ronza Amara⁴, Omer Golan⁵, Zvi Mendel^{6*}

The purpose of this study was to assess various factors affecting the health of almond trees in the open areas surrounding Tsipori, in the central Lower Galilee region of Israel. Our goal was to identify these factors and propose effective measures to safeguard the well-being of the wild almond population. The trees were classified into three age groups—young, mature, and elderly—based on discernible differences in stem diameter. The analysis revealed significant variations in both assessed and calculated health parameters among the different age groups. Notably, the health of elderly trees, as indicated by root color, the presence of fungal fruiting bodies and decay, was particularly serious. In light of these findings, recommendations and targeted interventions are discussed to preserve and enhance the overall vitality of the almond tree population in the specified region. Among the biotic factors, *Capnodis tenebrionis* exhibited the highest level of activity, while the presence of pathogenic microorganisms

was not observed. Elderly trees experienced severe cumulative activity of wood-boring beetles. At the same time, current wood borer activity was minimal across all age groups. Mature trees, subjected to pruning and spraying, demonstrated a slight improvement in their health unlike the elderly trees whose condition worsened on average, even after the aforementioned management treatment. The exacerbation of climatic conditions is evident, as anticipated, in the Tsipori area. Notably, there has been a drastic decrease in the average precipitation during the months of October and November over the last four years, accompanied by a significant rise in the average minimum temperature during these months. These changes point to an extension of the summer season, exerting a detrimental impact on the trees. It is noteworthy that, in some almond trees, particularly among the elderly, the root systems may have suffered irreversible damage. Conversely, in younger or mature trees where primary biotic threats have been temporarily alleviated, there is noticeable improvement in the overall tree condition. These findings offer valuable insights for developing strategies to restore trees in similar environments. Lessons learned from the situation in Tsipori could contribute to the efforts to deal with challenges in other locations experiencing comparable phenomena.

1 Moshav Tsipori

2 Israel Arboriculture Association, Mevaseret Tsiyon

3 Valley Agricultural Center, Migdal HaEmek

4 Department of Horticulture, Environmental Resources Division, Extension Service, Rishon LeTsiyon

5 Forest Health Unit, Forestry Department, KKL-JNF, Eshtaol

6 Plant Protection Institute, ARO, Volcani Center, Rishon LeTsiyon

* zmendel@volcani.agri.gov.il

■ Tree aging

Avigail Heller^{1*}, Naama Luria Arbili², Joseph Riov³

Old trees can be divided into three groups: young, mature and elderly. Old trees, which often outlive humans due to their size, strength, fruit-bearing capacity, and the shade they provide, have spiritual significance, and are revered in various religions and cultures. They provide many benefits of various kinds – environmental (such as preserving biological diversity), aesthetic, emotional, historical,

economic, and more. In Israel, there is awareness of the importance of preserving old trees, but, as in many other places around the world, the number of old trees is declining. This article discusses the life cycle of trees and describes the aging process, as well as the reasons for their disappearance (especially in urban areas). It discusses the coping mechanisms of tree genera and species with longevity, as well as factors contributing to the longevity of specific individual trees. The article also elaborates on practical tools for managing the conservation of old trees.

1 Agronomist

2 Practical Landscape Engineer, Private Consultant

3 The Plant Science and Genetics Institute, the Robert H. Smith Faculty of Agriculture, Food and Environment, the Hebrew University of Jerusalem, Rehovot

* avigailheller1@gmail.com