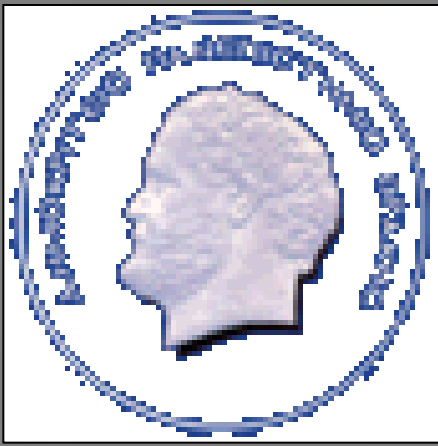
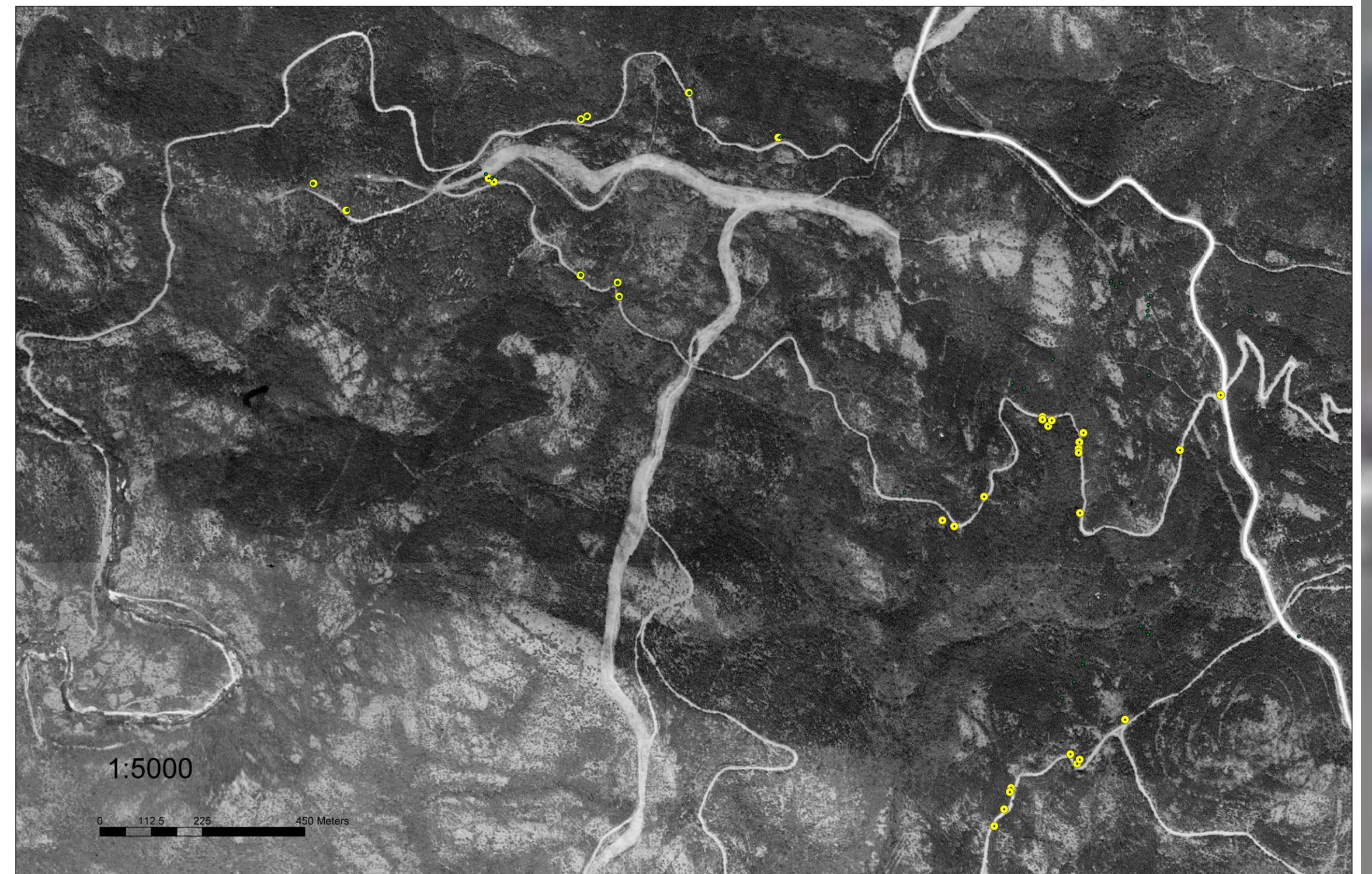
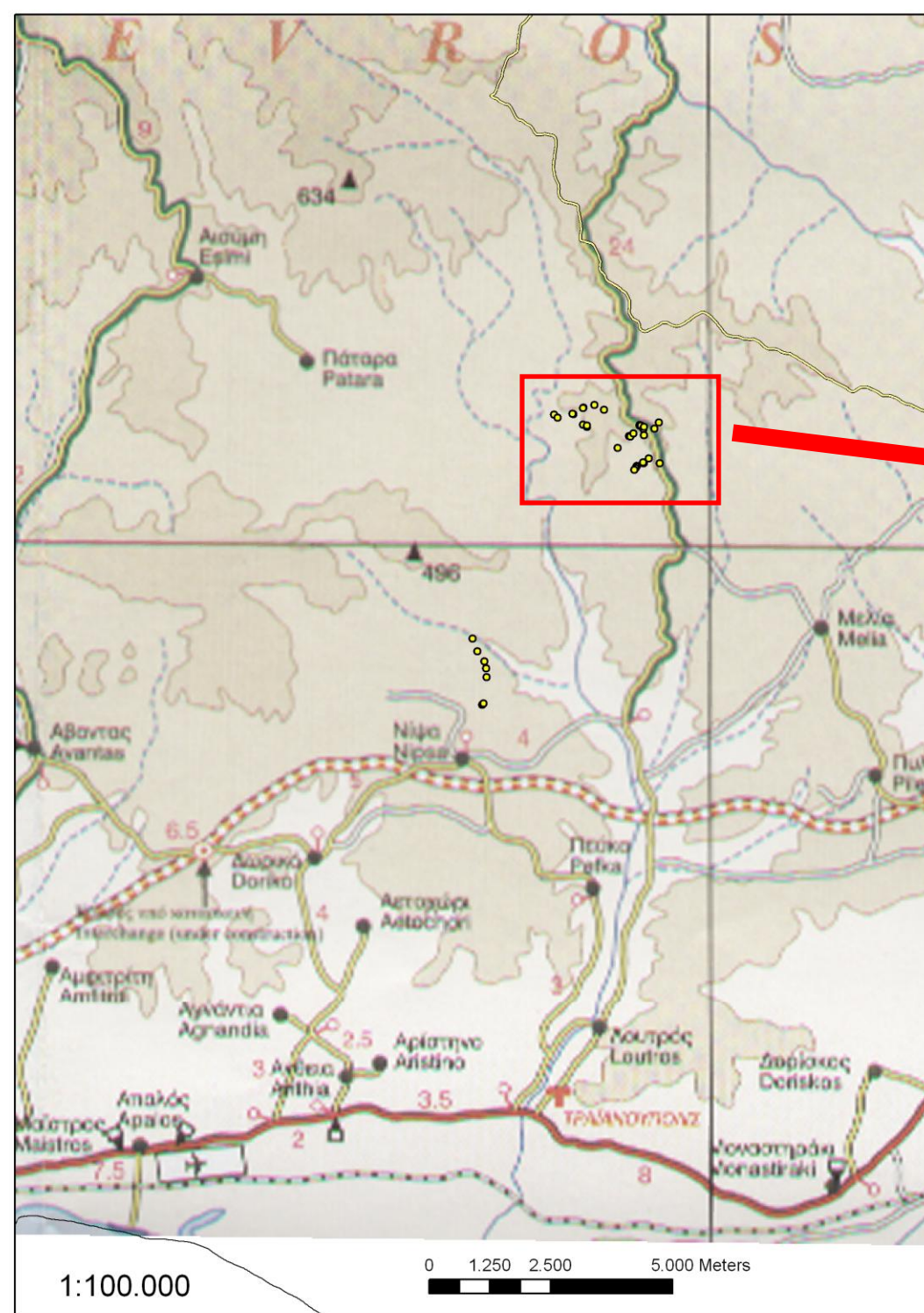


# Conservation biology of the rare plant *Eriolobus trilobatus* in N.E. Greece

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## Current status:

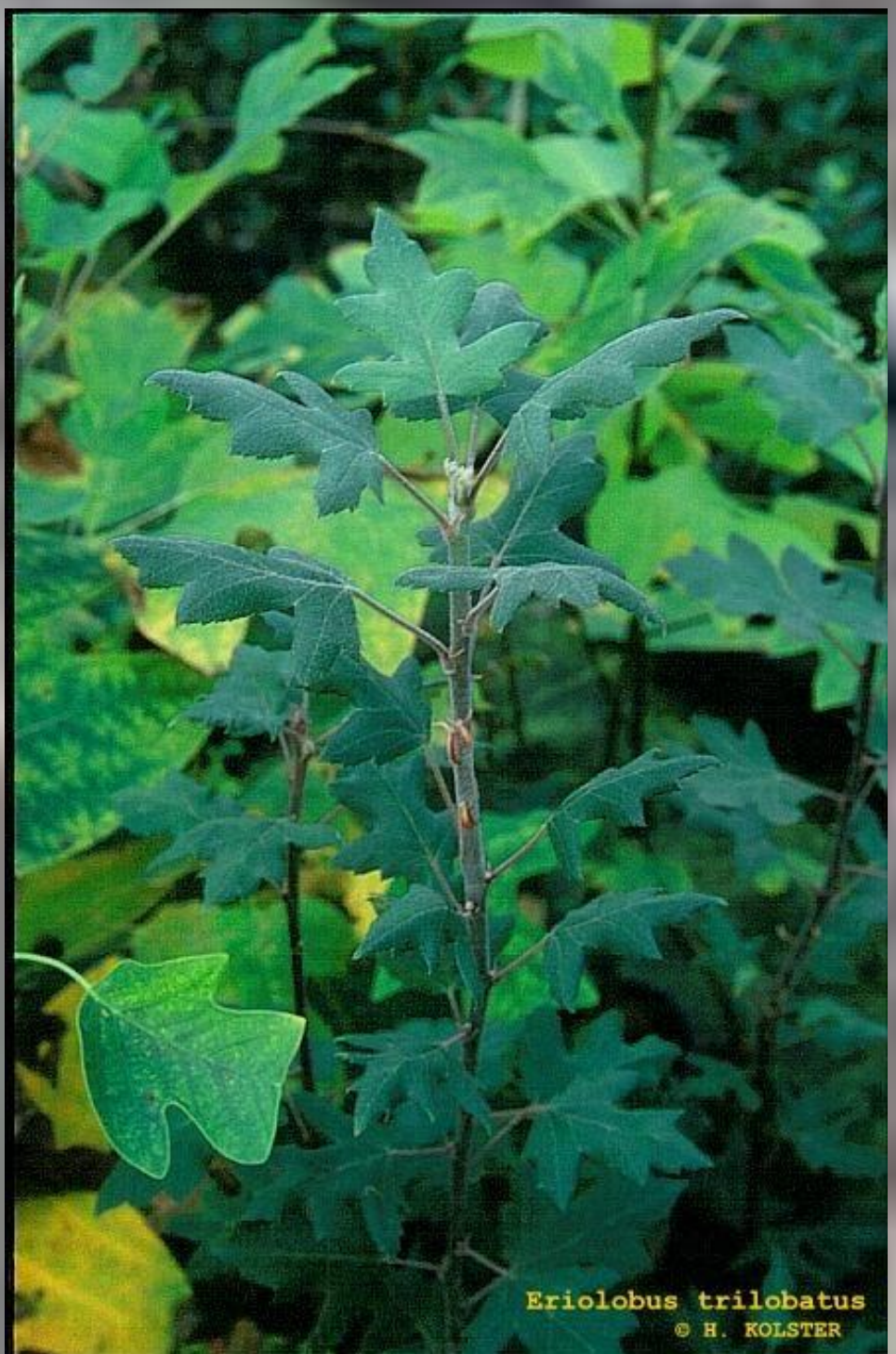
*Eriolobus trilobatus* (wild apple or crab apple) is a small tree listed in the Red Data Book of Rare and Threatened Plants of Greece. It belongs to the family Rosaceae and the subfamily Maloideae. It is also known as *Malus trilobata*. It grows in Israel and in N.E. Greece, where only a few isolated trees or small groups of trees can be found. Its existence in Europe is severely threatened by forestry operations, agriculture and road construction, since its presence is not broadly known.

## Uses of *Eriolobus trilobatus*:

- Its fruit is sour, but it can produce jellies and sweets if its pulp is mixed with sugar and boiled.
- It can be grown as ornamental tree for its beautiful flowers, leaves and fruits.
- Its ability to act as rootstock for domestic apples to add beneficial characteristics should be tested.
- It can also act as a pollinizer in apple orchards.

## The apples:

Malus, the apples, is a genus of about 30-35 species of small deciduous trees or shrubs, including most importantly the domesticated Orchard or Table Apple (*M. domestica*, derived from *M. sieversii*). The other species are generally known as "wild apples", "crab apples", "crabapples" or "crabs", this name being derived from their small and sour, unpalatable fruit. The genus is native to the temperate zone of the Northern Hemisphere, in Europe, Asia and North America. Apple trees are small, typically 4-12 m tall at maturity, with a dense, twiggy crown. Apples require cross-pollination between individuals by insects (typically bees, which freely visit the flowers, for both nectar and pollen); all are self-sterile, and self-pollination is impossible making pollinating insects essential. The honeybee is the most effective pollinator of apples. Malus species, including domestic apples, hybridise freely. *Eriolobus trilobatus* has three-lobed leaves (resembling a maple leaf) with several structural differences in the fruit and is therefore treated as a genus of its own.



## Results so far:

- A total of 52 trees was located and marked on the map
- Seeds harvested; a satisfactory germination rate was recorded (> 90%).
- As many as 45 new plants were created out of seeds.
- Material was prepared for DNA isolation.

## Future activities:

- Search for more possible individuals and map them.
- Repeat germination test with seeds of this year.
- Create new plants out of seeds.
- Establish a "backup" plantation near the natural population.
- Isolate DNA and study the genetic variation of adult trees and progeny using molecular markers (AFLPs, SSR).
- Study floral phenology and reproduction.
- Study the ability for vegetative propagation; create a clone seed orchard for future seed production outside the original expansion of the species.
- Introduce more individuals back to the forest; increase population and effective population number.
- Design and suggest *in situ* conservation measures.
- Lobby and awareness

## Aim of the project:

- To locate all remaining wild apple individuals in N.E. Greece
- To study the reproductive biology of the species and evaluate its ability to regenerate and survive *in situ*
- To develop propagation techniques from seed or cuttings
- To create *ex situ* collections in the broader region
- To design and perform *in situ* conservation measures
- To create awareness for the needs of the species

