

# Evaluation of trunk and adhesive barrier traps as sustainable management strategies for *Thaumetopoea pityocampa* larvae

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*Thaumetopoea pityocampa* (Lepidoptera: Thaumetopoeidae) is one of the major pests of forest ecosystems in the Mediterranean, causing extensive defoliation and weakening of trees (e.g., *Pseudotsuga*, *Pinus*, and *Cedrus*) (Roques 2015). In addition to ecological and economic degradation, larvae possess urticating setae that elicit severe allergic reactions in humans and animals (Olivieri et al. 2023). Various control measures, such as chemical and mechanical methods (e.g., removal of nests), have been utilised against *T. pityocampa* larvae (Topkara et al. 2025). Traditional nest removal is limited to small-scale areas (Bouzar Essaidi et al. 2023), while chemical control remains limited due to negative impacts on the ecosystem and humans (Topkara et al. 2025). The objective of the current research was to assess the effectiveness of trunk barrier traps (commercial and prototypes) and adhesive barrier traps for the capture of *T. pityocampa* larvae in two consecutive years.

The trials were conducted in March 2015 and between February and March 2016 in Greece. For this purpose, 10 trees bearing 3–5 nests each were selected, and commercial trunk barrier traps were installed on their trunks. In 5 of the 10 trees, an equal number of adhesive barrier traps were installed 0.5 m above the commercial trunk barrier traps, while in the remaining 5 of the 10 trees, the adhesive barrier traps were installed 0.5 m below the commercial trunk barrier traps. In addition, in 2016, a prototype trunk barrier trap was compared with the commercial trunk barrier trap. Specifically, four commercial and four prototype trunk barrier traps were suspended on four trees bearing 3–5 nests each. In both years, the traps were inspected for captured larvae at 2-day intervals.

Significantly more larvae were captured in commercial trunk barrier traps compared to the adhesive barrier traps installed above the trunk barrier traps in both years. Only a few larvae (<10) were captured in the adhesive barrier traps installed below the trunk barrier traps. The performance of the prototype trunk barrier traps was equal to that of the commercial trunk barrier traps. On all inspection dates, there were no significant differences between the mean numbers of captures in the prototype and the commercial trunk barrier traps. Overall, our findings suggest that in urban areas, larval capture with trunk barrier traps could serve as a valuable, environmentally friendly, and cost-efficient alternative management option for *T. pityocampa* larval populations.

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## References

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