



Dry or wet? Comparing black slot trap efficiency in spruce bark beetles control

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Abstract Bark beetles are one of the greatest threats to coniferous forests in Europe. Pheromone traps are currently the most effective method of controlling the mass infestations that some of them are known to cause. However, the efficiency of pheromone traps has not yet been sufficiently researched, especially in relation to other important variables that are influenced by the current global changes. *Ips typographus* L. and *Pityogenes chalcographus* L. are two economically important bark beetle species that cause major damage to conifers in Serbia. In the present study, we evaluate the efficiency of two commonly used pheromone traps set during a three-year experiment in the Tara National Park in Serbia. During this period, 672,934 ind. of *I. typographus*

and 2,597,578 ind. of *P. chalcographus* were caught. Our results show that wet traps were about 1.8 times more efficient than dry traps for both species studied. Furthermore, our results indicate that the optimal temperatures for bark beetle flight are between 22 °C and 26 °C, with substantial swarming behaviour occurring at 16.5 °C. At the same time, the data also show a negative correlation between the number of individuals caught and temperatures above 16 °C, suggesting that temperature is probably not the only key factor influencing bark beetle activity.

Keywords *Ips typographus* · *Pityogenes chalcographus* · Black slot trap · National Park Tara · Integrated pest management