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The abundance of the beech bark beetle (*Taphrorychus bicolor* Her.) in Văliug beech stands, Romania

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Abstract: The beech bark beetle *Taphrorychus bicolor* is a secondary pest of European beech whose attacks have increased in Central Europe under drought stress. Its abundance was assessed in beech logging residues from six management units of Văliug Forest District (Caraș-Severin County, Romania), at 600–1050 m. A total of 5,076 entry holes were counted on 36 samples; mean values ranged from 51 to 227 entry holes per sample, without significant differences between zones (Kruskal–Wallis, p = 0.078), and the number of entry holes increased with sample diameter and length.

• Introduction

European beech is the most abundant forest tree species in Romania (about 31% of the forests) and is increasingly affected by drought under climate change. Drought-stressed trees and logging residues favour the beech bark beetle *T. bicolor*, whose attacks on beech have intensified in Slovakia and whose populations reach high levels in the Czech Republic, while data from Romania are scarce. The aim of the study was to assess the abundance of the species in the beech stands of Văliug Forest District, as baseline data for monitoring and prevention.

• Material and method

The study was carried out in Văliug Forest District, in the Semenic Mountains (Fig. 1). Six beech round-wood samples were collected from each of six management units (VIII–26, I–16a, VIII–14a, VI–1a, VI–4a, II–37), located at 600–1050 m in stands with 40–100% beech, in total 36 samples. The residues came from cuttings carried out in February–April 2026 and were sampled in August 2026. For each sample, the entry holes (Gi) were counted and the length (L) and diameter (D) were measured. The zones were compared with the Kruskal–Wallis and Mann–Whitney U tests, and associations between variables were assessed with

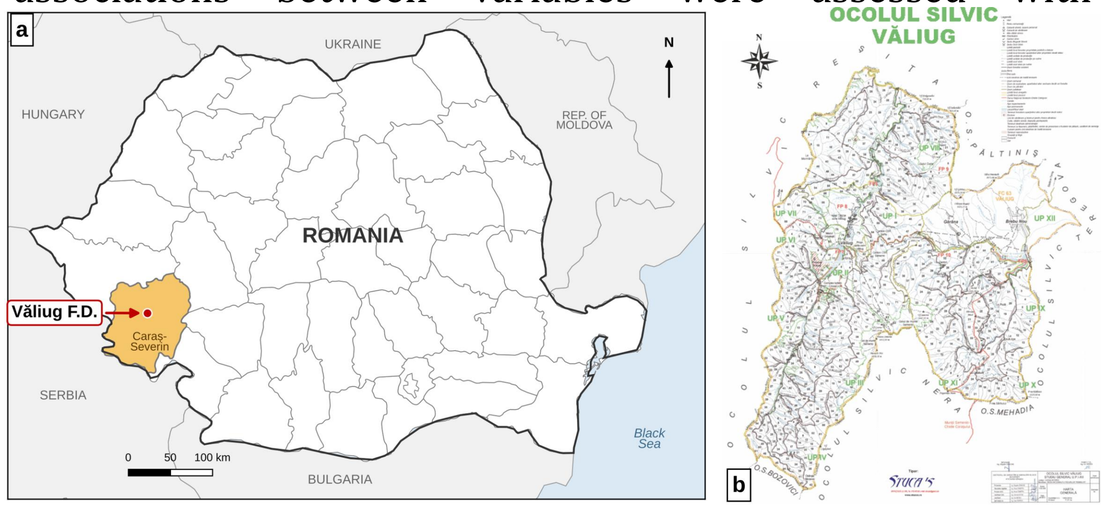


Fig. 1. Location of the study area: a – Văliug F.D. in Caraș-Severin County, Romania; b – general map of Văliug F.D. (PU I–XII)

• Results and discussions

A total of 5,076 entry holes were counted, on average 141 per sample, and the species was present in all zones (Fig. 2). The highest attack occurred in the pure beech stands I–16a (227 entry holes per sample) and VIII–14a (210), the oldest stand, on a warm southern slope, and the lowest in VI–4a (51), on a cool northern slope with the smallest residues. Because of the high variability within zones, the differences were not statistically significant (p = 0.078). Pure beech stands had twice as many entry holes as mixed stands (188 vs. 94 per sample), whereas altitude and aspect showed no consistent effect. The number of entry holes increased with sample diameter (ρ = 0.49) and length (ρ = 0.40); expressed per m^2 of bark, the attack ranged from 408 to 1036 entry holes.

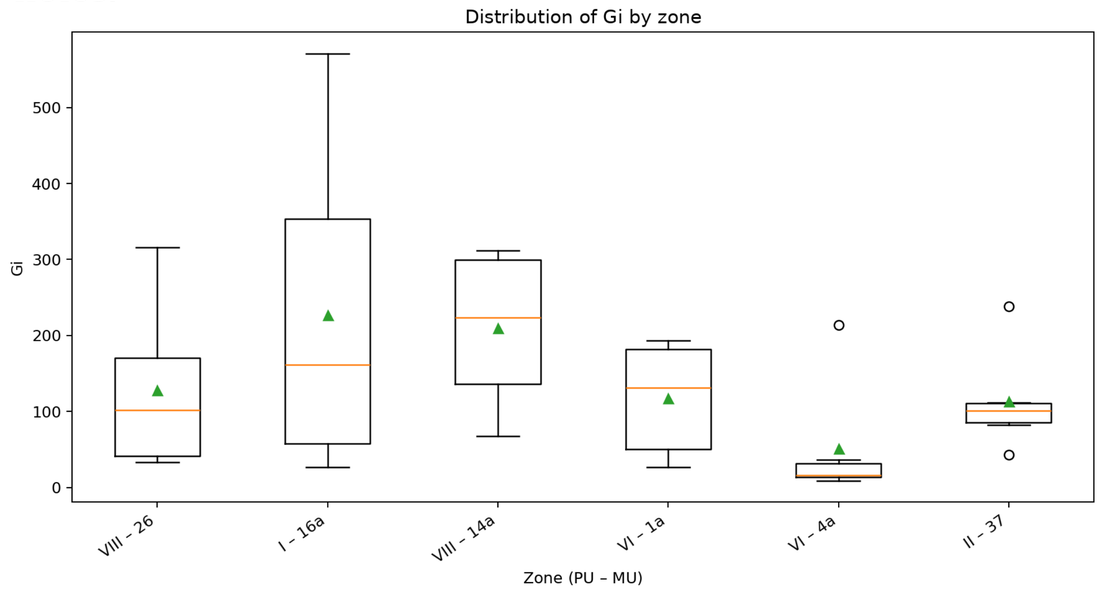


Fig. 2. Distribution of entry holes (Gi) by zone: line – median, triangle – mean, circle – outlier

• Conclusions

Taphrorychus bicolor colonised beech logging residues in all studied stands of Văliug F.D. within about four months after cutting. The attack was highest in pure and old beech stands, while altitude and aspect had no consistent effect. Residues thicker than 5 cm from winter–spring cuttings should be removed or processed before the flight begins in late April, and pure beech stands should be monitored, especially under increasing drought stress.

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