

Occurrence and survival of free living honeybees in the Tribeč forests, Slovakia

Matus Pavle, Robert Chlebo



In 2017, an observational experiment was launched in the Tribeč Mountains to study the survival of bee colonies in natural conditions of broadleaf forests. Initially, colonies placed in traditional log hives barely survived. In 2020, the experiment shifted to a purely observational one, focusing on swarms. Despite preparations, the swarms mostly did not survive the winter. Genetic tests showed a significant occurrence of the Italian honey bee (*Apis mellifera ligustica*) in the area. Data from following years showed that the colonies were unable to maintain a stable populations. In 2024, swarms occupied ten of the fifteen designated locations, and none survived until autumn. The ongoing experiment aims to provide more data leading to an answer to the question of why colonies cannot survive from year to year in natural conditions.

Introducing colonies into the forests (2018 – 2019)

We set up five observational locations with hivelogs situated on trees. We place there honeybees and support them with feeding and gentle antiviral treatment with essential oils. Not one has overwintered.

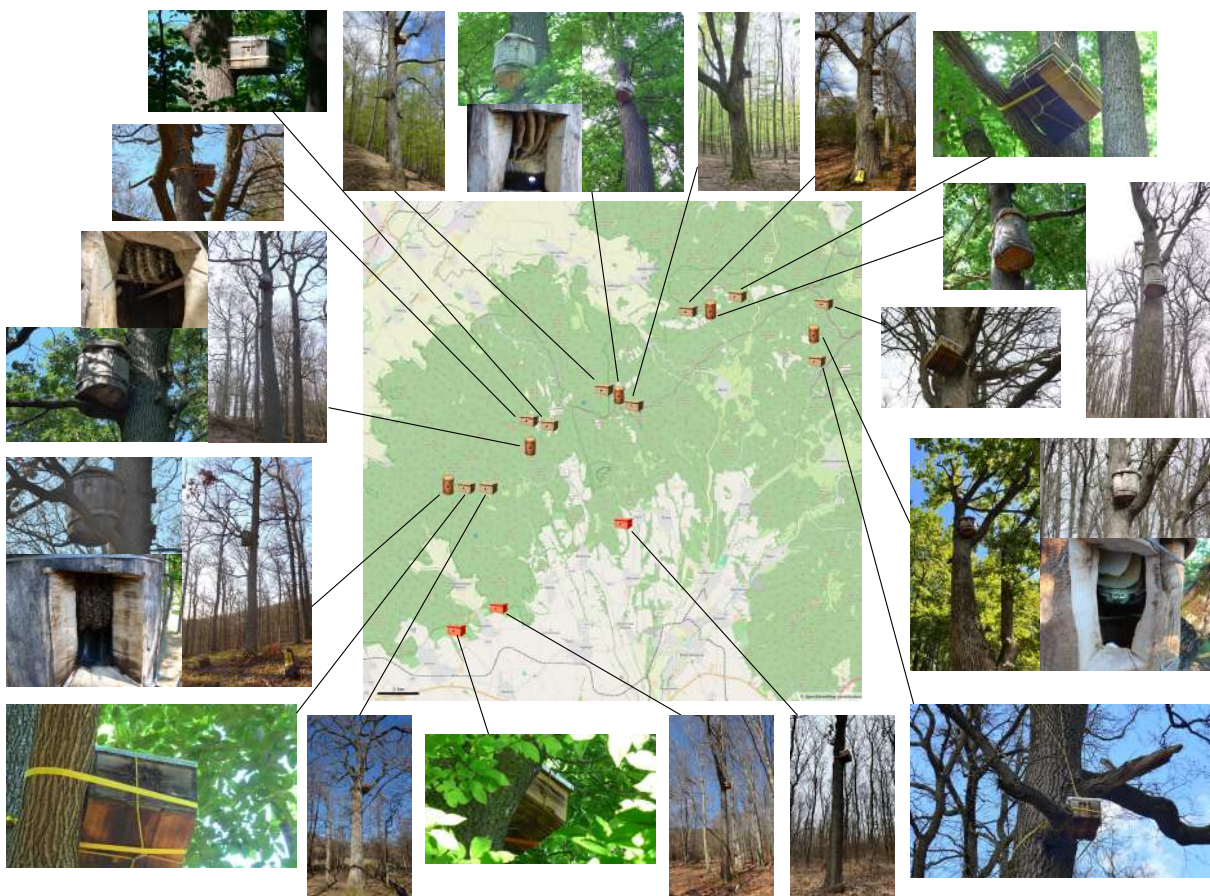
Observational study of presence and survival of swarms

We transformed the study to poor observational one, as we placed ten more swarm traps into the forests. We monitored them one time per month in the season and when they were occupied, we took some samples from the bees. We focused on survival time of honeybees at each location and after their death we examined the hive and (if present) the dead honey bees.

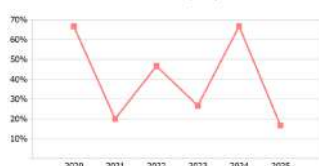


To prove the causes of zero survival rate by experimental methods

Until now, it is not clear, if there is only one or more factors and conditions behind zero survival rate in this area. We try to experimentally eliminate some disturbing factors, for example predators disruption. In this year (2025) we placed three more swarm traps on the edge of forest area to see if there is some change in survival rate when forage radius is more diverse (agricultural land, inhabited land).



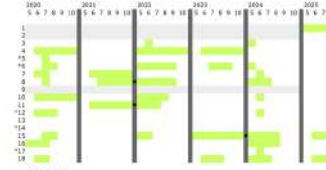
Seasonal occupancy



Interesting findings to add to the discussion so far

Years with higher and lower numbers of swarms seem to alternate. Although the annual occupancy of bait hives and loghives was relatively high (almost 40%), the monthly occupancy was just over 21%. Over six years, there were nine swarms that lived for only about a month and then died (most of them in 2024 season). Only seven swarms (19%) survived to the end of the seasons. Even these did not overwinter due to lack of supplies.

Persistence of survival



PP-447 [Bee Biology]

Occurrence and survival of free living honeybees in the Tribec forests, Slovakia

Matus Pavle, Robert Chlebo

Slovak University of Agriculture in Nitra, Institute of Animal Husbandry, Tr. A. Hlinku 2, Nitra, Slovakia

In 2017, an observational experiment was initiated in the Tribec Mountains to investigate the occurrence and survival of free-living honeybee colonies in the natural conditions of broadleaf forests. Initially, colonies were placed in traditional log hives, but they struggled to survive beyond a single season. By 2020, the study transitioned into a purely observational approach, focusing on swarms that naturally settled in the area. Despite careful monitoring and preparations, most swarms failed to survive the winter. Genetic analyses conducted on the local bee populations revealed a significant presence of the Italian honey bee (*Apis mellifera ligustica*), although the original bee race in this area was the Carniolan one, suggesting potential genetic or environmental factors influencing colony survival. Data collected over several years indicated that none of the established colonies were able to maintain stable populations. In 2024, ten of the fifteen designated nesting sites were occupied by swarms, yet none survived until autumn. The ongoing experiment aims to provide deeper insights into the ecological and environmental factors that hinder the long-term survival of honeybee colonies in these natural forest conditions.