



**MOVING**  
MOUNTAIN VALORISATION THROUGH  
INTERCONNECTEDNESS AND GREEN GROWTH

**Policy Brief**

# SLOVAK CARPATHIAN MOUNTAINS | Bio-honey



Photo credit: Pavel Filo



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 862739

# Slovak Carpathian Mountains: Bio-honey

Author: Diana Surová (CZU Prague)

## Summary

Humans have used honey as food and medicine since ancient times. Additionally, the importance of bees' presence in a landscape is also laying in the pollination activity of bees as an essential service to biodiversity, food production, and, consequently, human health and survival. In Slovak rural areas, including mountain areas, beekeeping for honey production has a long tradition. Nowadays, beekeeping in Slovakia is becoming increasingly popular. This activity aims to obtain a healthy sugar-substituting product for family consumption and/or to gain an additional family income. Regarding an increasing demand for healthy food products in general, honey in the bio-quality and especially from the local sources is expected to become a highly valued product on the market. Bio-honey production in the Slovak Carpathian Mountains is a new niche that combines innovative thinking and nature-close beekeeping practices. However, beekeeping in general, including bio-honey production, faces challenges resulting from global climate changes, biodiversity losses, socio-demographic changes influencing local land-uses and their management.

Therefore, this value chain is believed to be important for the MOVING project due to its high interconnectedness with the local landscape, its contribution to environmental sustainability and its importance on the market of healthy food products. The project could help find solutions for increased resilience and sustainability of beekeeping and bio-honey production in mountain areas. Additionally, the participative approach applied in the project may help improve a network between stakeholders and other interested parties who have been or want to be involved in this value chain.

**Know more about the Slovak Carpathian mountains Reference Region**, its selected value chain and the regional multi-actor platform (MAP), [here](#).

## Key policy messages

- Promotion of land-use diversity, autochthonous species and breeds, extensive systems and small-scale farming
- Systematic (territorial) approach
- Improve collaborative governance
- Environmental education across professions

## 1. The Mountain Reference Region (MRR)

The Mountain Reference Region (MRR) of Slovak Carpathians is a part of the Carpathian region, which is the second most extensive mountain system in Europe after the Alps. Like other mountain areas, the Carpathians in Slovakia form a living environment for unique wildlife with vital biodiversity, important freshwater sources, and human culture. Simultaneously, these areas are threatened by a variety of natural and human impacts.

Agriculture and forestry have an essential effect on the landscape and biodiversity of this region. However, over the last decades, crop and livestock production has been declining, and abandoned cropland lies fallow. Pastures in the Carpathians are especially vulnerable through the combined impacts of climate change and socio-economic dynamics leading to land-use management changes. Forests cover a significant part of the Slovak Carpathians, but they are vulnerable to drought, strong winds, and pest outbreaks. The region faces challenges resulting from global climate changes, biodiversity losses, socio-demographic changes influencing local land-uses and their management.

Several value chains relate to the Slovak mountains, including agricultural products such as cheese and meat, forest wood and non-wood products, medicinal herbs, horse breeding, and beekeeping. From the non-production economic activities, tourism and recreation are vital in the region. Apart from the popular active winter tourism, other types of recreational activities report an increasing demand all year round.

## 2. Bio-honey – a sweet challenge

Bio-honey production in the Slovak Carpathian Mountains is a new niche that combines innovative thinking and nature-close beekeeping practices. Compared to the lowlands, honey in the mountains is of higher quality due to less intensive agricultural practices, and more areas with forests and meadows. Healthy bee colonies need diverse landscape with high level of biodiversity of autochthonous plants providing bees rich nutrition with nectar and pollen. Healthy bees then contribute to biodiversity of landscape by their presence and pollination. Apart from a clean environment with high biodiversity, bio-honey production requires specific practices of beekeeping. These practices include manual beehive preparation from local resources, use of a natural medicine for bee colonies healing, and winter feeding of bees from their own production, without added sugar. All these specificities simultaneously bring less invasive practices of honey production and higher quality of bee products. These conditions result in lower honey yields than conventional production and make bio-honey more expensive relatively to conventional honey. One of the specificities in the Slovak mountains is the presence of honeydew honey in honey produced close to the forest areas. Unlike flower honey, honeydew has an animal origin made by insects on tree leaves and branches. Bees then transform honeydew into honey in their beehives. Honey containing a large part of honeydew honey is known as “forest honey”. It is a relatively rare product because honeydew production depends on many factors but is much in demand by consumers. Its exclusivity allows the higher price of this honey on the market.

### **3. Value chain contribution to sustainability and resilience of the Mountain Reference Region: barriers and opportunities**

Bees present a crucial part of the environment as plant pollinators, and they are necessary for biodiversity, food production and consequently for human health and surviving. Bees by themselves contribute to the biodiversity in a territory. A healthy landscape for bees means a territory with clean water and a rich diversity of autochthonous plants, flowering at different times of a year without chemical treatment. A healthy, diversified landscape is not a matter of course nowadays. On the global scale, agriculture and forestry lead towards monocultures of crops and tree species. Additionally, the increasing use of pesticides inevitably influences water quality. These changes cause a decrease in bee nutritional diversity, negatively impact their immune system, and decrease their ability to resist diseases, such as parasites and viruses. Honey that contains pesticide residues has lower quality and consequently honey overall risks losing its reputation as a clean natural product, causing a dramatic price decrease.

The Carpathian Mountains have good environmental conditions for bio-honey production due to clean environment and increasing interest in beekeeping by Slovak population. However, the biodiversity level necessary for a good quality of bee pasture would need some attention due to occurring changes at climate level and changes at a societal level. Currently, the key resource for bee pasture - the biodiversity - is considerably impacted by global climate changes causing drought, temperature increase, temperature fluctuations and climate extremes. The irregular temperature fluctuation disrupts the natural annual cycle of bees. Additionally, increasing temperature and drought weaken bee colonies, and make bees more susceptible to diseases. Additionally, the land-use changes especially the abandonment or inappropriate management of pastures and meadows cause gradual reduction in biodiversity. The life-style changes in mountain areas where the living is substituted by recreational and touristic use also impact a diversity and origin of plants in gardens. Beekeepers complain about an overpopulated bear population in mountains causing damages on beehives.

Another critical challenge for beekeepers nowadays is to maintain healthy bee colonies. In this regard, the year-round monitoring and a territorial treatment of bee colonies to reduce parasites that transmit viruses is essential. Bee colonies without parasites in central Europe practically do not exist. The positive aspect in Slovakia is that antibiotic medicine is prohibited in beekeeping, though there are numerous bio-methods to eliminate parasites from bee colonies.

### **4. Policy relevant considerations**

Ongoing changes at environmental and social dimensions bring new challenges to beekeeping and require new approaches and practices. Beekeepers need to adapt if they want to succeed. One of the urgent requirements is a systematic (territorial) approach to beekeeping practices, maintenance, or restoration of healthy bee colonies, and to planning and management of

biodiversity rich territories. The promotion of land-use diversity with extensive land-use systems, autochthonous species and breeds, and support of small-scale farming would be appropriate.

The new policies should consider the fundamental interconnectedness between the health of bees, landscapes, and humans. In this regard, new policies should insist on diversified and unpolluted crops, pastures and meadows, and forests with rich undergrowth for bee pasture. A good collaboration between farmers, foresters, and beekeepers to achieve accessible and diversified fields for bees would be helpful at the local level. For this goal, education of all involved actors about the importance of bees and their necessities is needed.

The new policies should also be aware that small-scale beekeeping has several positive aspects for both ecology and society. Policies can, in practice, better adapt beekeeping to an ecological approach, contribute to more evenly distributed bee colonies across a territory, and promote cultural and ecosystem services from beekeeping. They can also help increase public awareness about bees' importance, through activities such as agro-tourism, bee-farm educational visits, workshops, and so on.

To date, bio-honey production represents a very moderate proportion of honey production in Slovakia. This value chain is, however, believed to be important for the MOVING project due to its high interconnectedness with the local landscape, its contribution to environmental sustainability and its importance on the market of healthy food products. The project can help find solutions for increased resilience and sustainability of beekeeping and bio-honey production in mountain areas. Additionally, the participative approach applied in the project may help improve a network between stakeholders and other interested parties who have been or want to be involved in this value chain.

## Acknowledgements

The author and the whole Moving team at the CZU in Prague would like to thank Ing. Pavel Fiľo (director of the secondary school Stredná odborná škola Pod Bánošom, Banská Bystrica <https://www.sosbanbb.sk/>, educating all generations of beekeepers) for his active participation in the project as an expert and teacher of beekeeping and for his help in building MaP in Slovak mountains. Thanks also go to all other participants in the project (beekeepers, local and regional authorities, researchers, foresters, farmers etc.) who were willing to spread information about the project, add valuable advice and contribute to interviews, questionnaires, and the first workshop.

## Authors

Diana Surová, CZU Prague, [surovad@pef.czu.cz](mailto:surovad@pef.czu.cz)