Native Bees in Norway

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Introduction

Bees are essential pollinators around the world, and are therefore necessary for many plant species to reproduce. There are seven recognized bee families around the world, and these include Apidae, Megachilidae, Halictidae, Adrenidae, Colletidae, Melittidae and Stenotritidae (Paleontological Research Institution, 2022). In Norway, species from six of these families are present, where only species from the Stenotritidae family are absent (Horg and Centre, 2012). This paper will describe some of the native bee species in Norway, in addition to explaining why these are important for local ecosystems. Followed by this, the paper will address the decline of native bee populations and discuss the possible causes for this.

The importance of wild native bees

In total 211 bee species from six families are found in Norway (Nielsen et al., 2024). Apidae is the largest family including almost 6000 species worldwide of which 68 species can be found in Norway. This family includes *Apis mellifera*, also known as the western honey bee, as well as 35 norwegian bumblebee species (*Artsdatabanken*, n.d.) . Besides the western honey bee and the bumblebee species the majority of the remaining species are solitary bees (VKM, et al. 2024). Vassvik et al. (2026) found that solitary bees show a slower foraging behaviour leading to a longer stay of the bee on individual flowers and therefore to an increased contact with the stigma of the plant. In addition solitary wild bees collect more pollen than honeybees, which primarily forage on nectar (Woodcock et al., 2013).

Additionally foraging behaviour differs depending on whether a bee species is oligolectic or polylectic. Polylectic bees, such as the western honey bee are generalists that feed on a broad range of plant species while oligolectic bees are specialised on specific plant species, genera or families (Weiner et al., 2010). Native bee species are especially important for pollination due to their adaption to local climatic conditions and specific plant species. Bumblebees, for instance, remain active pollinators at low temperatures and can even forage during rainfall (Goulson, 2003). Studies show that the success of pollination is mostly influenced by wild bees, while honeybees are less efficient (Vassvik et al., 2026). This limitation especially occurs in plant species with deep flowers or those requiring buzz pollination, which honeybees are not capable of. Many wild bee species, including bumblebees, are able to perform buzz pollination (Goulson, 2003), which enhances the importance of wild bee species since effective pollination plays a key role in the conservation of numerous endangered wild plant species (Gathmann & Tscharntke, 2002).

The threat of honey bees

The honeybee *(apis mellifera)* originates from parts of Europe but has since been introduced by humans in countries such as Norway due to its effectiveness in honey production and crop pollinating. It is not exactly clear when the honeybee was first introduced in Norway, but the Norwegian Beekeepers

Association was established in 1884. Honeybees are generalists and forage on easily accessible flowers. They can fly several kilometers in search of resources and, upon locating a floral hot spot, communicate it to the rest of the colony. This efficient foraging combined with the large size of honeybee colonies, may place pressure on native bee species potentially altering their foraging patterns. Managed honeybees can pose a threat to the population of native bees directly by competition for floral resources or indirectly by either transferring pathogens and parasites or creating changes in the plant communities (VKM, et al. 2024).

Competition occurs when different species' niches overlap with a limited amount of resources. This will mainly concern floral resources rather than nesting sites. Honeybees in Norway depend on human-managed hives due to lack of nesting areas such as hollow trees, whereas native bees typically nest in cavities of dead wood or the ground. Competition for floral resources is significant when there is dietary overlap between honeybees and native bees. Oligolectic bees that specialize in a few flowers could potentially be in direct competition with honeybees. This is worsened by the efficient foraging strategies of the honeybees. When a honeybee colony is at its activity peak in June and July, they are the most effective at depleting floral resources. Oligolectic bees that both overlap in diets and activity peak are the most threatened. These include short-haired bumblebee (*Bombus subterraneus*), the great yellow bumblebee (*B. distinguendus*) and critically endangered large scabious mining bee (*Andrena hattorfiana*) (VKM, et al. 2024).

Pathogen spillover from honeybees to native native bees can occur when they visit the same flowers. The most significant concern is the parasitic mite *Varroa destructor,* first detected in Norway in Oslo in 1990. This mite feeds on the lymphatic fluid of honeybees and has led to increased attention on viral diseases and how to limit them. Although *V. destructor* is restricted to the species *Apis* and cannot be transmitted directly to native bees, it still poses an indirect threat. Infested honeybee colonies are weakened and therefore more vulnerable to viruses such as Deformed Wing virus (DWV), sacbrood virus (SBV) and Black Queen Cell Virus (BQCV), which all can be transmitted to native bees. Despite these risks, the current likelihood of pathogen spillover in Norway is considered low, due to high hygienic standards and monitoring by the Food Safety Authority (VKM, et al. 2024).

Honeybees in Oslo have been observed pollinating several invasive plant species including warty-cabbage (*Bunias orientalis*), wintercress (*Barbarea vulgaris),* and sweet clovers (*Melilotus sp*.) (Davey et al., 2023). This may facilitate the reproduction of these invasive plants, potentially reducing the availability of floral resources for native bees that specialize in native plant species (Stout & Tiedeken, 2017; VKM, et al. 2024).

Environmental consequences of decrease in wild bee populations

The consequences of wild bees decline affect both natural ecosystems and agricultural production. Disruptions in natural ecosystems are closely linked to reduced wild plant reproduction, as many plants depend on wild bees for pollination. A decline leads to lower seed production, which threatens the long term survival of the plant species
(Brandslet, 2025).
Wild bees play a crucial role in maintaining ecosystem balance and functionality. Approx 87% of wildflower species in the EU depend on insect pollination to produce seeds and fruits (Katumo et al., 2022). These plant communities are essential for supporting animal life by providing both habitat and food sources (European Environment Agency, 2025).

In addition, wildflower plants associated with wild bees contribute significantly to soil health by improving nutrient availability and maintaining the soil structure.
The decline of wild bees therefore threatens this ecological balance, potentially leading to the loss of diverse ecosystem services or even the collapse of entire ecosystems (VKM, et al. 2024).
Another consequence is threatening the agriculture and food security.
Across Europe, around 84% of crop species rely on insect pollination. This highlights the vulnerability of agricultural systems to pollinator decline, a risk that is equally relevant for Norway's food production (European Environment Agency, 2025).
Additionally, the use of insecticides and pesticides in agriculture further contributes to decline of wild bees. These chemicals are toxic to pollinators, impair their navigation and reproduction, and reduce their population over time. As a result, agricultural systems may become increasingly dependent on managed pollination or face reduced productivity (Basu et al., 2024).
It's not only affecting the quantity of food produced, also its nutritional value, as many pollinator-dependend crops, such as fruits, vegetables and nuts are key sources of essential vitamins and minerals (Crone et al., 2022).
Wild pollinators are essential for ornamental plants as well as crops for fibre, fodder, biofuels and pharmaceuticals products. A decline of wild bees could therefore have widespread impacts across multiple industries (European Environment Agency, 2025).

Conclusion

Wild bees are being pushed to the brink of extinction by habitat loss, disease, and competition from the tamed honey bees, and alongside the niches that these wild bees support. Losing these species is not only an ecological footnote in our destruction of nature but it reveals how the smallest creatures can hold entire ecosystems together. If conservation agencies and media fail to give wild bees the urgent attention they need, we risk losing more than just a species, but the web of life they sustain.

Statement of using AI

Artificial intelligence tools were used to support grammatical corrections and improve the clarity and structure of the text.

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