

Abstract

This bachelor's thesis examines the factors threatening solitary bees and their essential role in ecosystems and agriculture. Solitary bees, which constitute the majority of bee diversity, are crucial pollinators that support biodiversity and ecosystem stability. The primary threats to their populations include intensive agriculture, insecticide use, climate change, urbanization, competition with honeybees, parasites, and invasive species. Intensive farming practices and landscape homogenization reduce the availability of food and suitable nesting sites, while insecticides, particularly neonicotinoids and flupyradifuron, adversely affect bee survival and reproductive capabilities. Climate change induces phenological mismatches between plant flowering and bee activity, disrupting pollination synchronization. Urbanization diminishes natural habitats and increases exposure to stressors such as light pollution. Competition with honeybees limits access to floral resources for solitary bees, and parasites further weaken their populations. The thesis proposes conservation measures including landscape diversification, insecticide restriction, support for genetic diversity, population monitoring, and increased public awareness. In conclusion, a comprehensive approach to protecting solitary bees is essential for sustainable development and the preservation of functional ecosystems.

Keywords: solitary bees, threats, insecticides, pollination, management