

A close-up photograph of a bumblebee on a purple flower. The bee is in the center, facing the viewer, with its wings spread. The background is a soft, out-of-focus purple and white.

Viral eco-evolutionary dynamics of wild and domestic pollinators under global change

BACKGROUND

Pollinators provide sociocultural, biological and economic values for humankind by safeguarding biodiversity and crop yields through the pollination of wild plants and flowering crops. However, pollinators face multiple threats that are affecting their health, populations and diversity. A particular threat to pollinator health comes from a potential escalation of disease risk by environmental changes that alter pollinator nutrition, abundance, species interactions and communities.

OBJECTIVE

VOODOO aims to address this knowledge gap by discovering how land-use (conventional intensive agriculture, rural mosaic or urban land) and alien plant species drive modifications to the availability and quality of floral resources that in turn affect the structure and dynamics of plant-pollinator-virus communities.

VOODOO WILL ANSWER THE QUESTIONS

How do plant-pollinator-virus interaction networks vary between agricultural, habitat mosaic and urban landscapes?



Does land-use driven variation in floral resources affect pollinator interactions and virus sharing?



How does disease manifest in known and alternative pollinator hosts and what is the role of nutritional stress? Do different societal groups apply knowledge of pollinator disease in decision-making?

APPROACH

VOODOO will generate relevant new knowledge on the disease risk in different landscapes to pollinators arising from the effects of urban and agricultural land-use on floral resources, pollinator foraging and viral pathogen coinfection and transmission. It will achieve this through measurement of field-sampled plant-pollinator-virus communities with high-resolution molecular analysis, laboratory and field experiments, modelling and analysing perceptions of disease risk among stakeholders.

The project will ensure active stakeholder engagement with inputs from a stakeholder advisory board (academia, policy, industry and associations). We will evaluate stakeholder perceptions of pollinator disease risk and their evolution in response to new knowledge. Knowledge exchange with EU and international science-policy mechanisms will be actively sought by VOODOO researchers with their track-record of science-policy interfaces.



PARTNERS

VOODOO brings an interdisciplinary research team together to provide new knowledge on the disease risk to pollinators arising from the effects of urban and agricultural land-use on floral resources, pollinator foraging and viral pathogen sharing in different landscapes.

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