PhD: "Nitrogen deposition - an unexplored driver of pollinator decline."

Are you a highly motivated Masters graduate with a desire to pursue a PhD and a scientific career? Are you excited to understand global change impacts on insect-plant interactions and community ecology? Then read on…

Worldwide, pollinators face multiple threats, yet the impact of chronic nitrogen (N) deposition on these important organisms remains understudied. The IPBES (2016) global assessment of pollinators and pollination (https://ipbes.net/assessment-reports/pollinators) stated that N-deposition, despite being a major global change driver, was a worldwide risk to pollinators that has received *"little attention to date"* and that *"further work is required to elucidate the potential of nitrogen deposition as part of a suite of pressures affecting pollinators* [p124]". This PhD will directly address this knowledge gap and risk to pollinators. The student will investigate how chronic N pollution of semi-natural grasslands disrupts the availability or nutritional quality of floral resources and the consequences for bee species diets and plant-bee interactions, which provide pollination services supporting diverse and healthy ecosystems (Fig. 1).

We will evaluate the risks to bee pollinators by addressing three key evidence gaps:

1. How does N deposition affect ecosystem floral biodiversity and nutritional resources for pollinators?

2. How does chronic N enrichment affect the nutrient composition of nectar and pollen in bee diets?

3. Do these shifts in ecosystem resources re-organise pollinator communities and affect bee performance?

Fig. 1 (A) Atmospheric N deposition modifies plant communities with **(B)** potential impacts on pollinators
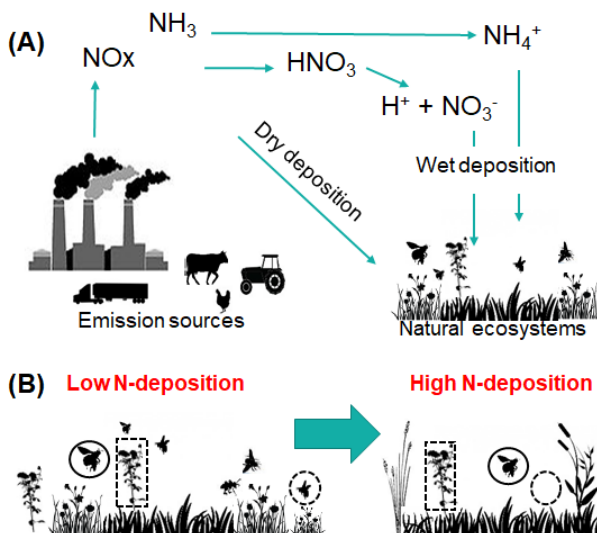
Hypotheses

H1: Reduction in diversity & abundance of forage plants

H2: Lower nutritional quality of surviving forage plants

H3: Lower fitness & survival for solitary or specialist bees

H4: Social, generalist bees dominate communities

Requirements : Master in Ecology, Ing. Environment ; Skills: biology, ecology, data analyses, driving licence ; Language : French: Upper Intermediate/English: Upper Intermediate.

Further details of the PhD :
https://www.adum.fr/as/ed/voirproposition.pl?langue=fr&site=ed_se&matricule_prop=40969

Candidate selection: Email your CV, a motivation letter explaining how your interests and experience are relevant to the project, Masters certification/grades, any letters of recommendation **to :** adam.vanbergen@inrae.fr & didier.alard@u-bordeaux.fr **Deadline**: 01/05/2022.

If selected, you will email your application to the Doctoral School open competition **by 1 June 2022**

This PHD is part of the H2020 Project 'Safeguarding European wild pollinators': www.safeguard.biozentrum.uni-wuerzburg.de