



CNRS/Aix Marseille Université

Europôle Méditerranéen de l'Arbois
Bâtiment Laennec
13545 Aix en Provence cedex 4

Direction : Nicolas Roche
Nicolas.roche@univ-amu.fr

Administration : Joëlle Cavaliéri
Tél : 06 66 03 84 72
Joelle.cavaliéri@univ-amu.fr

Site internet : <http://www.eccorev.fr/>

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Fiche-Résumé

Titre :

Porteur du projet : Benoît Geslin

Participants : Marie Zakardjian, Hervé Jourdan, Christine Robles

Laboratoires et Partenaires impliqués : IMBE, LPED

Principaux résultats :

Edaphic conditions are a major environmental filter driving plant assemblages and community structures. Soils derived from ultramafic outcrops (i.e., ultramafic substrates) are characterized by high concentrations of heavy metals and nutrient deficiencies constraining plants growth. However, due to coupled effects of edaphic conditions and climate, tropical ultramafic substrates may harbour a very particular flora. New Caledonia, second hotspot of plant biodiversity worldwide, owes much of its exceptional biodiversity to ultramafic substrates. While the flora of New Caledonian ultramafic substrates is well-known, its fauna remains to be described. Notably, little is known about insect pollinators interacting with the exceptional plant biodiversity present on ultramafic substrates. Here,

we described plant-pollinator interaction networks in ultramafic and non-ultramafic substrates in New Caledonia. Wild alien bees were less diverse and less active in ultramafic substrates than in non-ultramafic ones, with an opposite trend for native bees. Our results suggest that ultramafic environments may filter alien pollinators. Although ultramafic substrates may not be optimum environments in terms of quality and quantity for floral resources, they may offer native bees a refuge from the competitive pressure exerted by alien bees. Indeed, we only recorded six interactions realised by wild alien bee species in ultramafic substrates, against 122 in non-ultramafic ones. Due to beekeeping, *Apis mellifera* thrived and was the most active species in both substrates. Further studies are needed to test whether heavy metals found in ultramafic substrates such as nickel may transfer to pollinators through plant rewards. If so, this could have sanitary implications for beekeeping in ultramafic environments.

Publications, congrès :

Publication :

Zakardjian M., Mahé P., Geslin B. & H. Jourdan. 2023. Plant-pollinator interactions in ultramafic and non-ultramafic substrates in New Caledonia. *Botany Letters*. <https://doi.org/10.1080/23818107.2023.2204134>

Congrès :

Zakardjian M., Jourdan H., Robles C., Mahé P. & B. Geslin. 2022. Ultramafic soils select plant-pollinator interactions in New Caledonia. Conférence of the GDR Pollinéco. Paris.

Suite donnée au projet (contrats nationaux, internationaux, bourses de thèse...):