**Using Remote Sensing to assess Field Margin Trees and their Implications for Wild Biodiversity in an Agricultural Landscape**

As global biodiversity is in decline, farmland agroecosystems present a pivotal opportunity for improving landscapes for conservation and transitioning towards a more efficient food production system that is more aligned with natural resource availability. Field margin trees including hedgerows, tree lines, and forest fragments present potential habitat and corridors for wild biodiversity. There is no existing spatial record of the existing field margin trees in Canterbury Plains, New Zealand. Canterbury Plains is a highly productive agricultural landscape situated with the Southern Alps to the west and Banks Peninsula to the east, both areas with high levels of native biodiversity. It is therefore realistic that field margin trees would function as corridors between the two places.

The use of remote sensing to map field margin vegetation has recently gained popularity globally, but is novel to New Zealand. In this study, object-based image analysis (OBIA) will be used to identify and map field margin trees in Canterbury Plains, New Zealand. OBIA will be performed using aerial imagery and lidar data, and field margin vegetation will be classified with a random forest classifier.

The anticipated results are a detailed map and data layer of the field margin trees in Canterbury Plains including whether the fragments or hedges are composed of native or non-native tree species, and a workflow to be scaled or applied to the rest of New Zealand’s agricultural landscapes or trees in human dominated landscapes elsewhere. The map will also be coupled with data from mammal, insect, and avian data from an ecology study that I conducted in February 2024 surveying wildlife use of field margin trees as habitat in Canterbury Plains. The gained remote sensing knowledge on field margin tree extent combined with ecological information on how wildlife is using the space will be used to inform regenerative agriculture and conservation programs in the region, with implications for the ecosystem services of trees in farmland worldwide.