

MacLeod CJ. Simulating farm biodiversity outcomes. Manaaki Whenua – Landcare Research DataStore. <https://datastore.landcareresearch.co.nz/dataset/simulating-farm-biodiversity-outcomes>

Supporting data and R-code for journal article in *Environmental Challenges*:

Pathways towards evidence-based decision-making for improving New Zealand farm sustainability

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1. Raw data

- a. **Farm_composition.csv**: starting values for simulating distribution of biodiversity refuges among the farms
- b. **questions_dependence.csv**: matrix of biodiversity weights for each management action and which of those actions are dependent on presence of a given biodiversity refuge)

2. R-code to simulate biodiversity weights across 1000 farms under different scenarios

- a. `simulating_biodiversity_weights.R`

3. Simulated datasets:

- a. Refuge composition.zip (nine files, each with 1000 columns (farms), 43 rows (actions)):

➤ **Farm composition habitat set [h] level [g].csv**, where:

- h = which biodiversity refuges were increased (1 = baseline, 2 = small refuges only, 3 = large refuges only)
- g = the number of farms where refuges were increased (1 = 0 farms, 2 = 100 farms, 3 = 200 farms, 4 = 300 farms)

- b. Total biodiversity scores.zip (180 files; each with 11 columns (years), 1000 rows (farms)):

➤ **Weighted biodiversity scores 11 years [k] actions [oa] habitat set [h] proportion level [g].csv**, where:

- k = the proportion of actions implemented (0, 0.25, 0.5, 0.75 or 1)
- oa = how actions were selected ('randomised' or 'prioritised')
- h = which biodiversity refuges were increased (1 = baseline, 2 = small refuges only, 3 = large refuges only)
- g = the number of farms where refuges were increased (1 = 0 farms, 2 = 100 farms, 3 = 200 farms, 4 = 300 farms)