

Supplementary Material

- **Habitat suitability (korimako):** Spatial arrangement is moderately important. Configuration 2a provides the most suitable korimako habitat for this periurban site, which comprises dispersed 1 ha SPUs containing L-sized (0.1 ha) clumps. There is a 29% drop between the top two performing arrangements (configurations 2a and 1a) and the third best (configuration 1b), then an even decrease over the remaining ten configurations (a total difference in ES Scores of 53%). The overall difference of korimako habitat ES Scores is 72%. The lowest performing configurations feature 4 ha SPUs containing 180 XS-sized clumps. The results indicate configuration of clumps has a bearing on korimako habitat, but less so than piwakawaka.
- **Habitat suitability (piwakawaka):** Spatial arrangement is important. The most favourable piwakawaka habitat is provided by the two configurations featuring 1 ha SPUs with shelterbelts (configurations 2b and 2c). There is a 45% drop between these two configurations and the next best habitats. The lowest performing are the two configurations containing 4 ha SPUs featuring XL clumps, followed by the aggregated arrangement of 1 ha SPUs that include single L-sized clumps. These configurations feature the greatest distances (or most space devoid of woody vegetation) between tree clumps of all the configuration options. The 91 % difference of habitat suitability performance across all the configurations for the insectivorous piwakawaka habitat is the highest of the four ES studied. The results indicate configuration of clumps has an important bearing on piwakawaka habitat.
- **Flood mitigation:** Configuration exerts a minor influence on ES performance. The best flood mitigation is provided by configuration 2b, which features 1 ha SPUs with shelterbelts, dispersed evenly across the case study site. The shelterbelts include areas of double row XS clumps, the most closely spaced clumps in any of the SPU options. The top three configurations (configurations 2b, 1b and 1c) comprise 1 ha SPUs containing 11 S clumps and 40 XS clumps, giving a total clump perimeter (or edge length) of 66 km for the overall case study area. The two best performing configurations of 4 ha SPUs (configurations 3c and 4c) feature SPUs containing 180 XS clumps evenly arranged across the SPU with a total edge length of 52 km. The lowest performing flood mitigating configuration 3b features 4 ha SPUs in which the 15% woody vegetation is concentrated in two L-sized clumps, with a total edge length of 36 km. There is only a 19% overall difference in flood mitigation performance, the lowest difference of ES Scores of the four ES studied, suggesting that configuration exerts a minor influence on ES performance.
- **Cooling effect:** Size matters. ESMAX results indicate that the best cooling effect is provided by four configurations, two of which include the 4 ha SPUs containing XL-sized (0.2 ha) woody vegetation clumps, the other two featuring 4 ha SPUs containing two L-sized (0.1 ha) clumps. These arrangements have the SPUs both aggregated and dispersed evenly across the site. There is a 74% drop in cooling performance between configurations of 4 ha SPUs (which contain XL clumps or, alternatively, are also able to accommodate two L-sized clumps) and those comprising 1 ha SPUs (which can only accommodate a single L clump). There is a small difference between the highest and lowest ES values amongst all the 4 ha paddock options (13%) and amongst all the 1 ha configurations (10%). The results suggest the size of individual SPUs is of primary importance to cooling effect delivery, rather than how these SPUs are arranged.