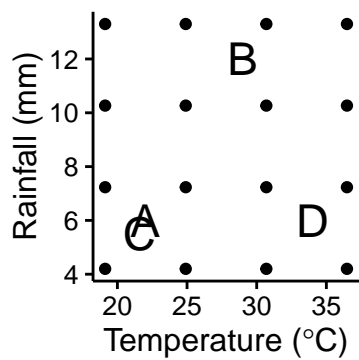
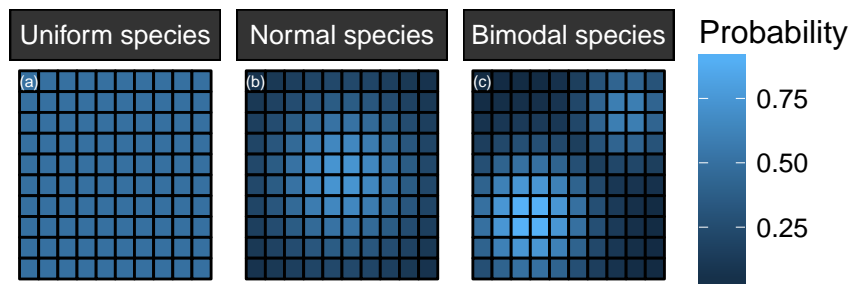


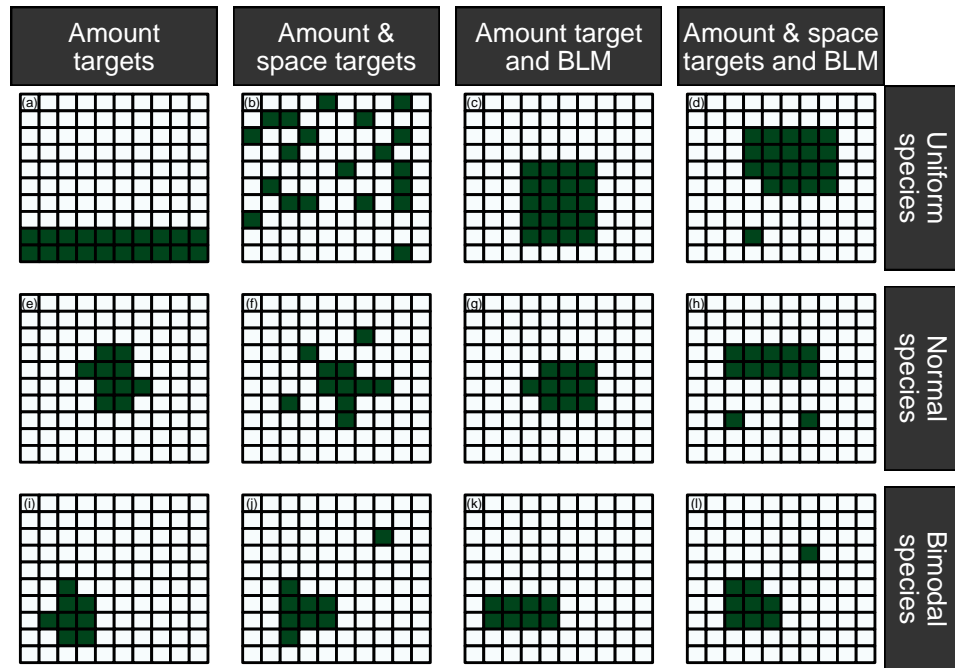
1 Figures



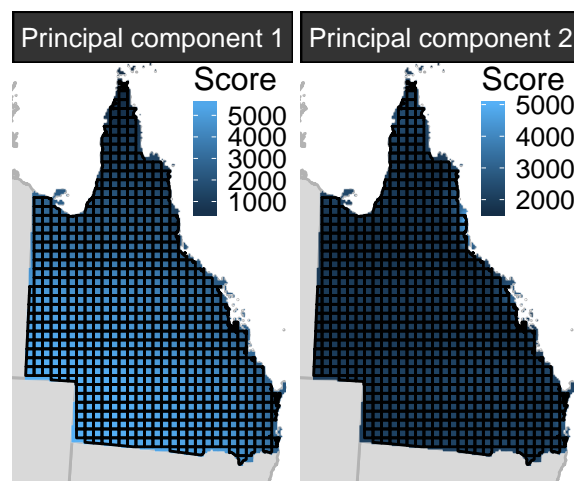
**Figure 1** Example of an attribute space. This environmental attribute space has dimensions relating to annual temperature (°C) and rainfall (mm) values. Letters denote the environmental conditions associated with the geographic locations where four hypothetical populations are found. Points represent demand points. In this space, populations closer to each other are considered more similar to each other.



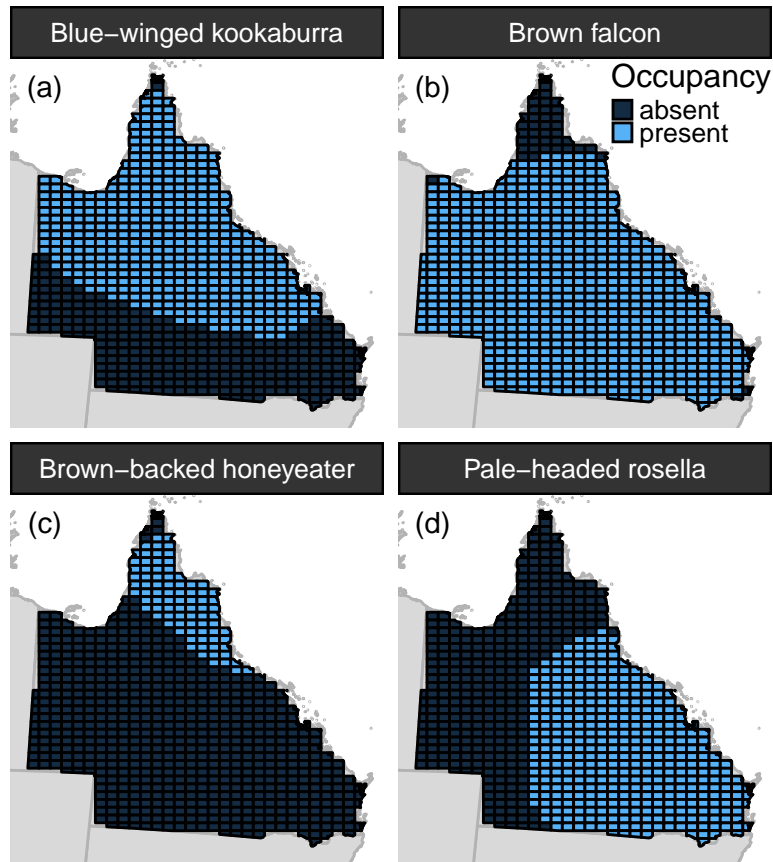
**Figure 2** Simulated distributions of three species. Squares denote planning units. The color of each planning unit indicates the probability that each species inhabits it. Panel (a) shows the uniformly distributed species, panel (b) shows the normally distributed species, and panel (c) shows the bimodally distributed species.



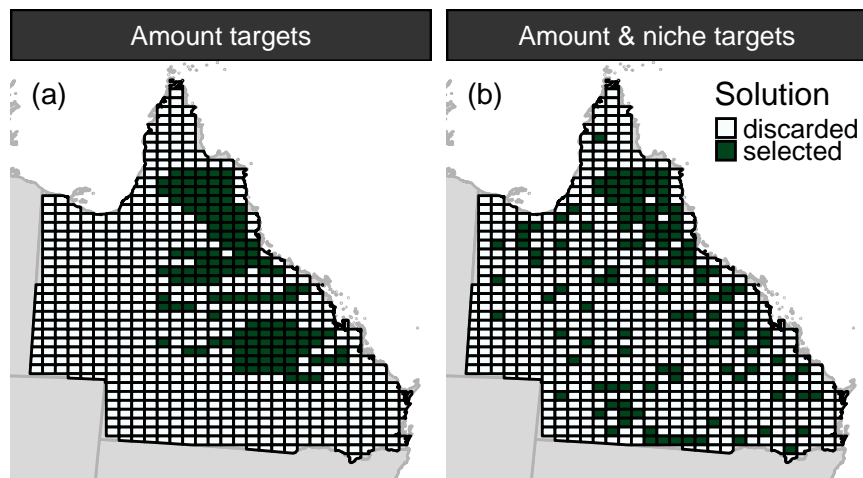
**Figure 3** Simulation study prioritisations. Each panel shows a prioritisation generated for a single species using a set of parameters. Squares denote planning units, with dark green showing those planning units selected for protection in a particular prioritisation. The top row of panels (a, d, g, j) shows prioritisations generated for the uniformly distributed species, middle row of panels (b, e, h, k) for the normally distributed species, and the bottom row of panels (c, f, i, l) for the bimodally distributed species. Each column of panels corresponds to a different set of parameters used to generate the prioritisation. The left column of panels (a–c) shows prioritizations generated using only 20 % amount targets, the middle-left column of panels (d–f) for prioritisations generated using 20 % amount and 75 % space targets, the middle-right column of panels (g–i) for prioritisations generated using 20 % amount based targets and a boundary length modifier (BLM) of 1, and the right column of panels (j–l) for prioritisations generated using 20 % amount and 75 % space targets and also a boundary length modifier of 1.



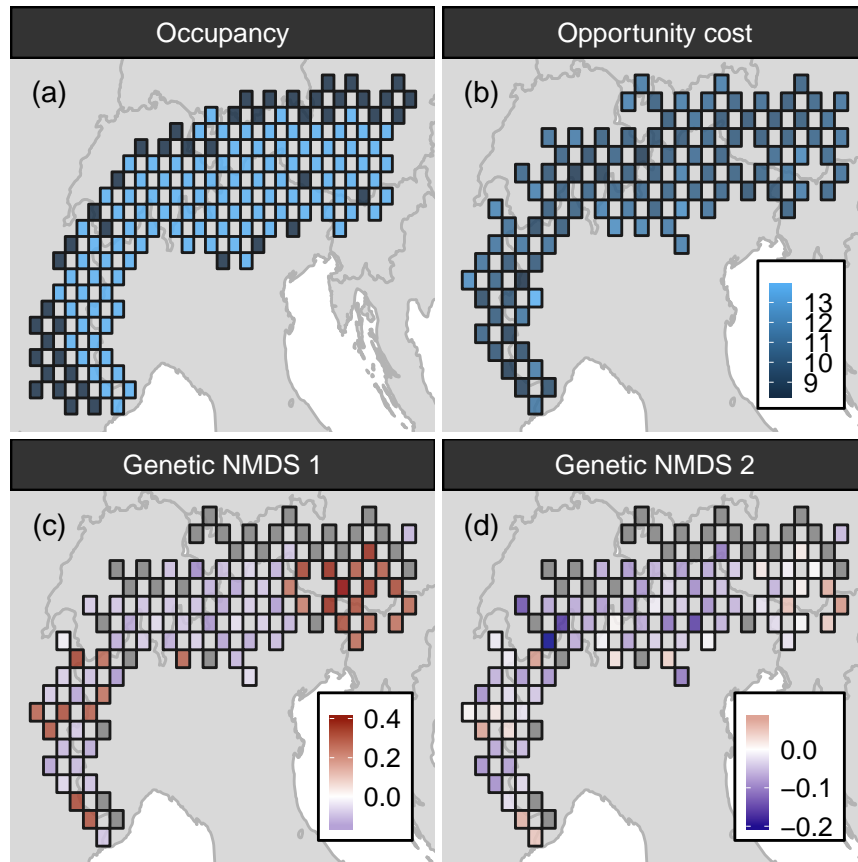
**Figure 4** Distribution of environmental variation across Queensland, Australia. Squares denote planning units. The panels show the first and second main gradients of climatic variation.



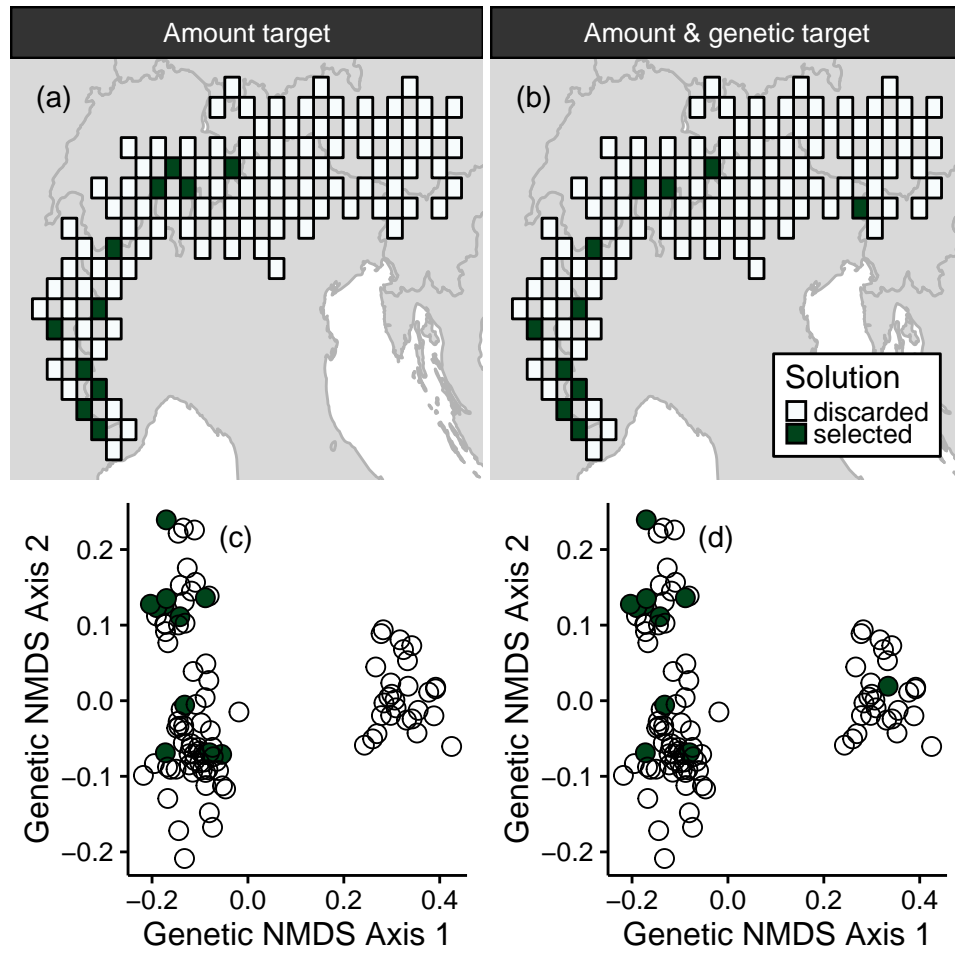
**Figure 5** Distribution of the species used in the first case-study. Squares denote planning units. Each panel shows the distribution of a different species.



**Figure 6** Prioritisations for the niche-based case-study in Queensland, Australia. Squares represent planning units. Dark green planning units for selected for protection and pale green units were discarded. Panel (a) shows the planning units selected when using 20 % amount targets. Panel (b) shows the planning units selected selected when using 20 % amount targets and 75 % niche targets



**Figure 7** Study area and data used in the second case-study. Squares denote planning units. Panel (a) shows all grid cells surveyed by the IntraBioDiv project. Grid cells occupied by Betony-leaved Rampion are shown in bright blue. The subsequent panels contain only the grid cells that were occupied by the species. Panel (b) shows the opportunity cost of each planning unit (estimated as the total human population density). Panels (c–d) show the spatial distribution of the ordinated genetic data. These values describe the typical genetic characteristics of individuals in each planning unit. Planning units with similar values/colors contain individuals with similar loci polymorphisms.



**Figure 8** Prioritisations for the genetic case-study in the European Alps. Panels (a–b) show prioritisations generated using different parameters. Squares denote planning units shown in geographic space. Panel (a) shows the planning units selected when using 10 % amount targets. Panel (b) shows the planning units selected when using 10 % amount targets and 95 % genetic targets. Panels (c–d) show the solutions in the genetic space. Each point corresponds to a planning unit. The coordinates of the points represent the typical genetic characteristics of individuals sampled in that planning unit (based on an NMDS of the binary loci data). Planning units associated with points that are closer together contain individuals with more similar genetic characteristics than planning units that are further apart. In all panels, dark green planning units were selected for protection, and pale green planning units were discarded.