Small- and large-scale structure of live fish movements in Scotland - Electronic Appendix

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1 Colour versions of figures

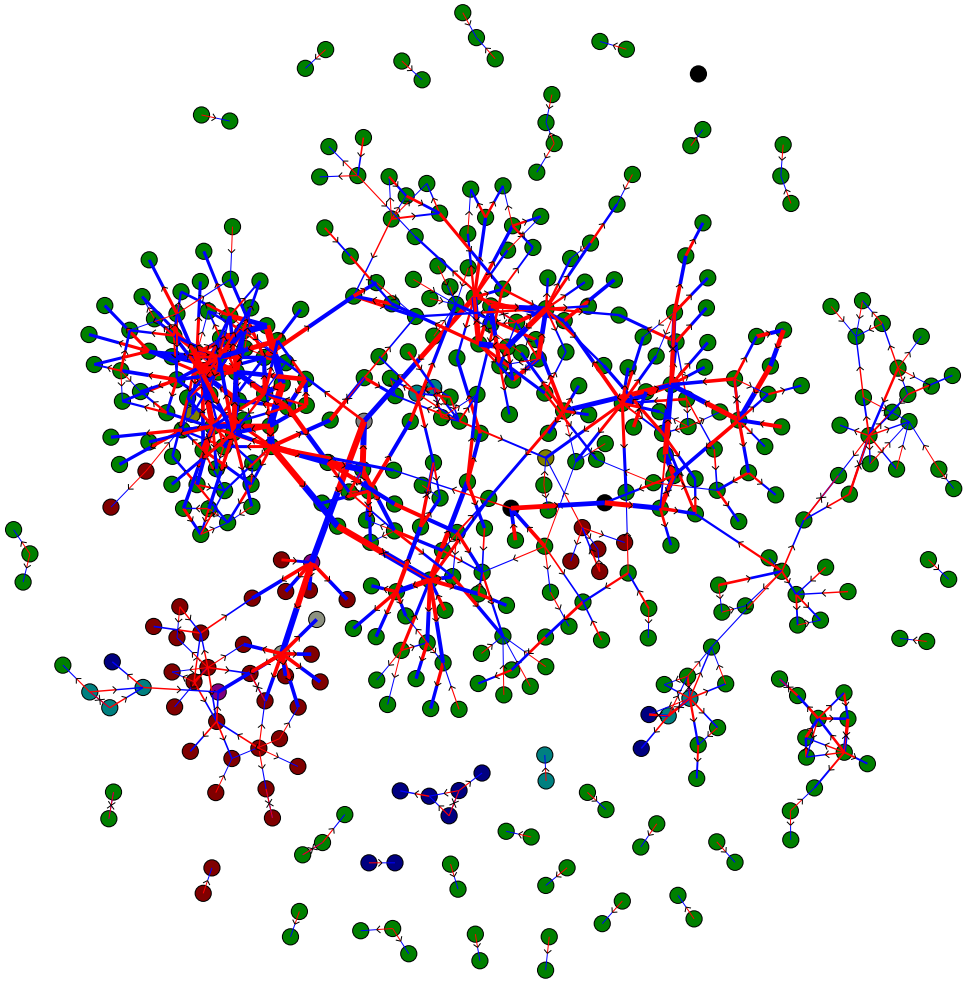

Figure 1: Colour version of figure 1. The 2003 Scottish live fish movement network, with sites coded according to species moved between sites. Green, salmon (S); red, rainbow trout (R); blue, brown trout (T); other colours indicate mixed species. The direction of arcs is indicated by arrows and colour (red half-arc for source), and their relative betweenness ($\log_e$-scale) indicated is by line width.

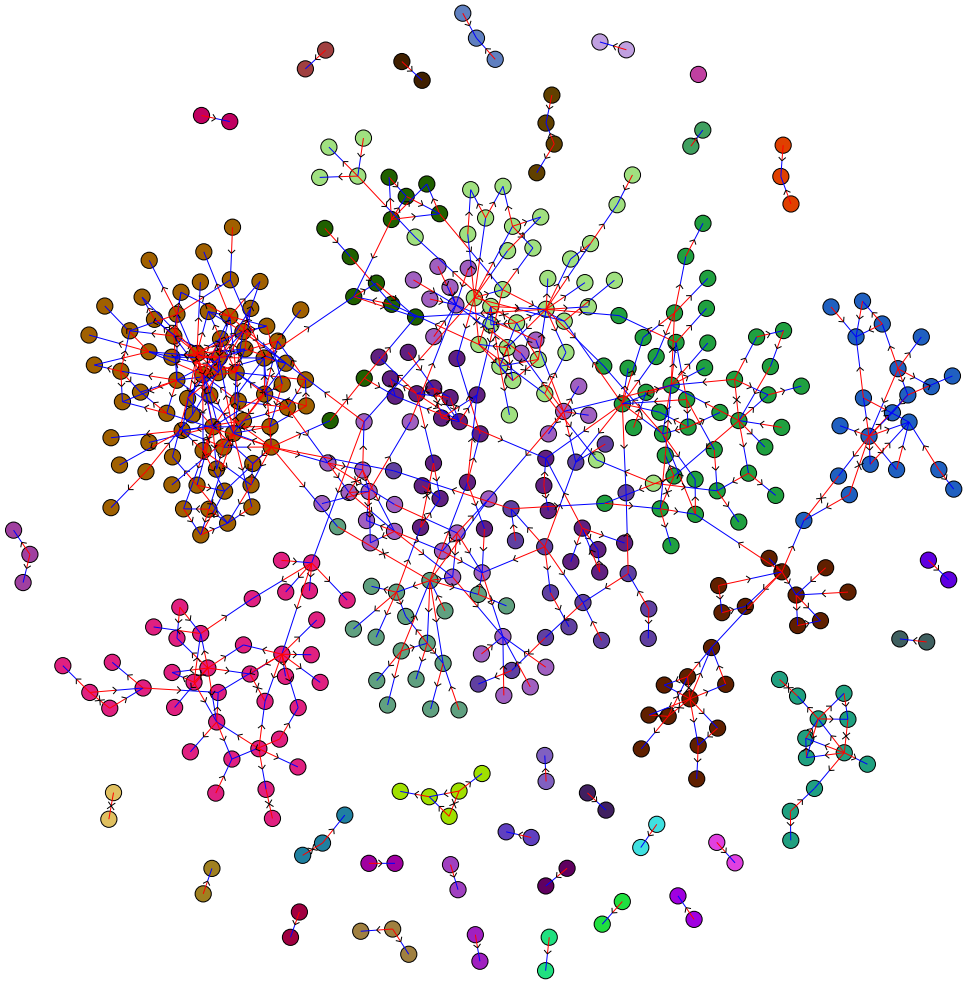

Figure 2: Colour version of figure 3. Community assignment for the live fish movement network for Scotland in 2003. Community membership is indicated by different symbols.

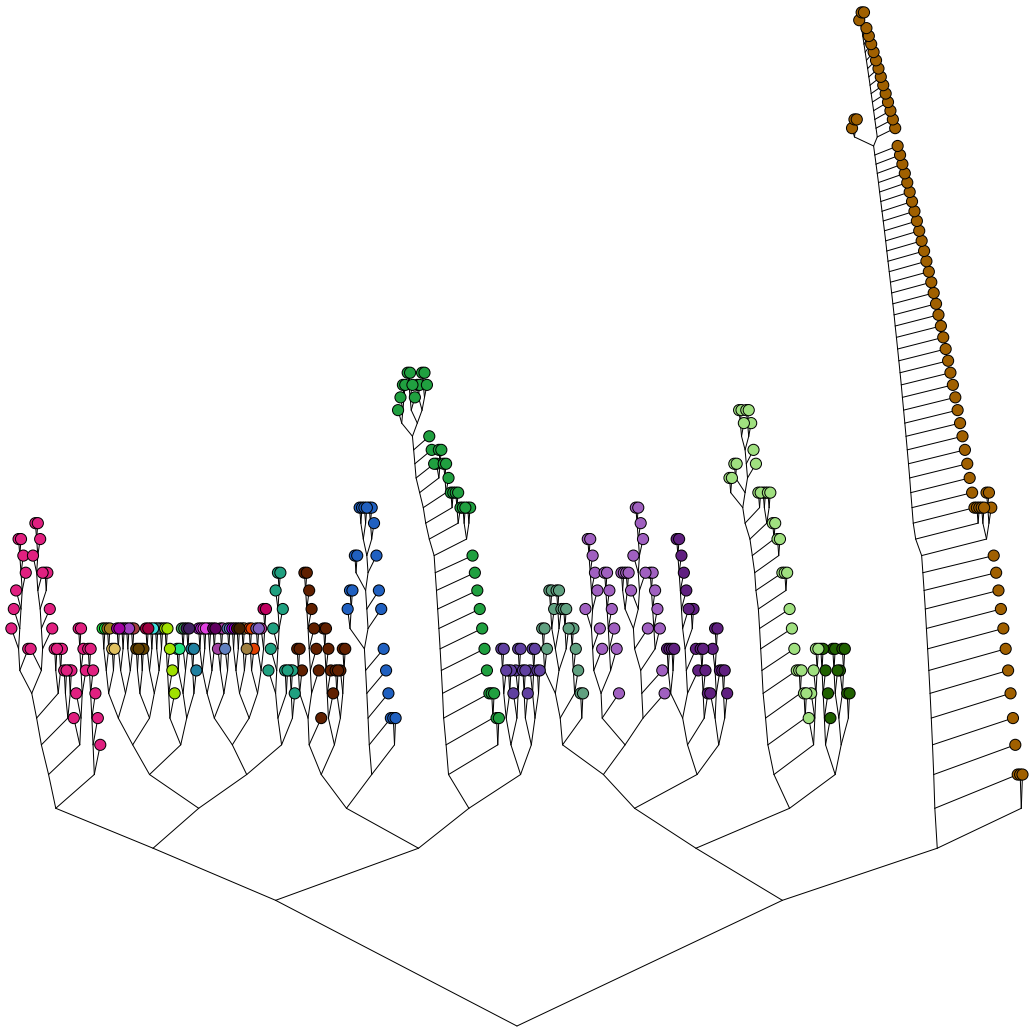

Figure 3: Colour version of figure 4. Dendrogram for the community algorithm. Each branch represents a group of nodes that are merged by the algorithm into the same community before they are merged into another such group. Best-fit communities are as shown on Figure 2.

2 Additional information

Species	Eigenvalue	$\langle k^{\text{in}} \rangle$	$\langle k^{\text{out}} \rangle$
Salmon	1.01	1.49	1.51
Trout	1.05	1.53	1.67
Rainbow trout	0.96	1.44	1.16
Fresh water	0.96	1.47	2.54
Salt water	1.04	1.48	0.44
Hatchery, tank	1.03	1.57	2.79
Pond, raceway,	1.11	1.52	1.65
Cage	0.98	1.44	0.87

Table A1 Relative eigenvalues ($\times$ number of nodes, $\beta = \frac{1}{2}$), $\langle k^{\text{in}} \rangle$ and $\langle k^{\text{out}} \rangle$ tabulated according to site type as recorded by the FRS Aquadat database.

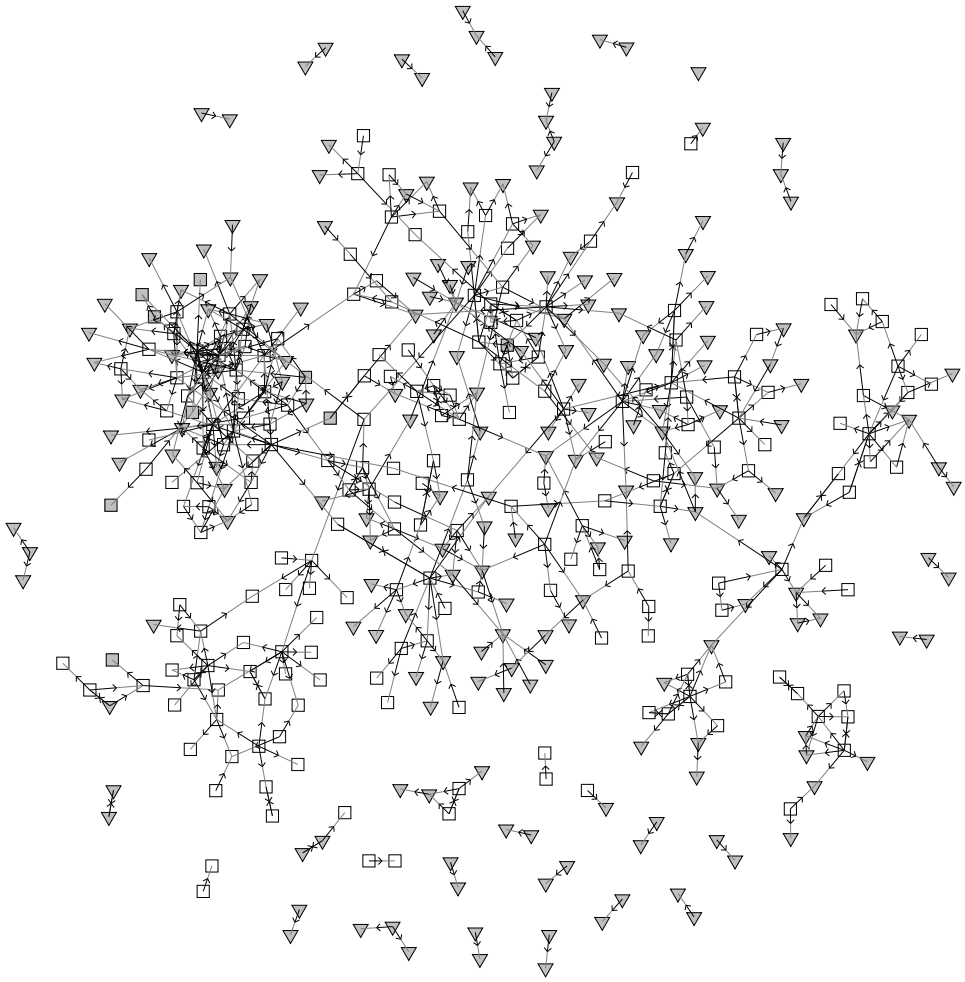

Figure A1 The movement graph, showing saltwater (▼) and freshwater (□) sites.

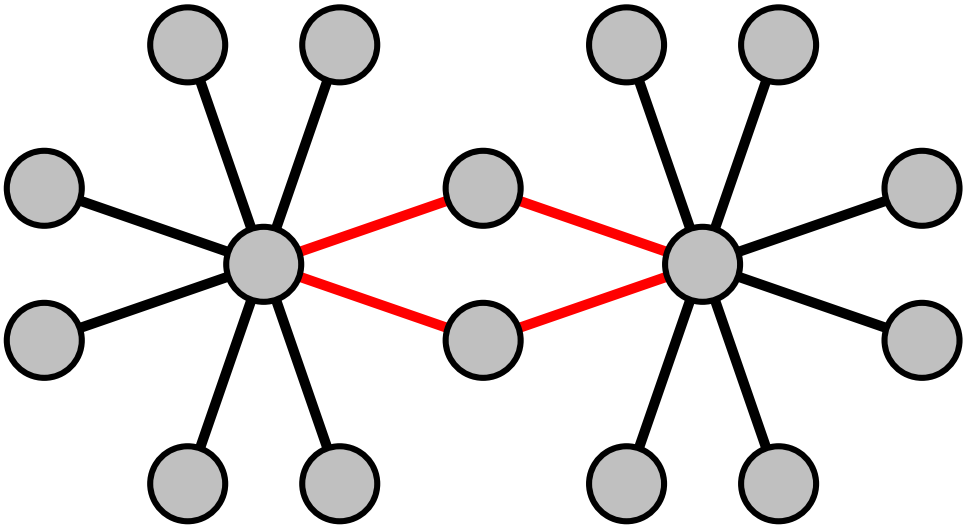

Figure A2 Demonstration of failing of greedy edge-removal algorithm. Removal of the four red edges quickly breaks the network into smaller components. However removal of a single red edge makes no reduction in largest component size, unlike removing a black edge. Thus, a greedy algorithm for reducing component size is inefficient.