

1077-90-735

Nahid Jafari*, Mathematical and Geospatial Sciences, RMIT University, Melbourne, Australia,
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Australia. *Selecting Sites for a Fully Connected Reserve Network.*

The aim of this work is to design a network of sites for conservation purposes. The problem considers the selection of sites that maximize biodiversity values (species richness, rarity, etc) subject to various constraints. These constraints comprise a budget limitation and connectivity that is usually desirable in reserve design recently. In the biological conservation networks, connectivity is important to allow species to move freely without leaving the protected area. The spatial attributes have been addressed in several studies but these techniques either did not guarantee full connectivity or did not guarantee an optimal solution.

In this study we proposed an integer program that selects a subset of sites which are fully connected and which maximizes the bio-diversity value given a limited budget. Our method approaches the reserve design problem as a transshipment problem. (Received September 11, 2011)