

SITES

Model Uses	SITES is a physical model used to create conservation portfolios that represent examples of all native species and plant communities.	
Major Categories	Decision Support	<u>Subject Knowledge Level</u> Intermediate
Minor Categories	Scenario Development	<u>Technical Difficulty Level</u> Basic
Model Type	Physical Model	<u>Geographic in Nature?</u> Yes

Abstract

The goal SITES is to assemble regional portfolios of conservation lands that collectively represent viable examples of all native species and plant communities. It aims to increase the efficiency and effectiveness of conservation activities through a systematic approach to regional portfolio assembly coupled to local, on-the-ground implementation.

Sites 1.0 is a customized ArcView project that facilitates designing and analyzing alternative portfolios. The software in Sites 1.0 to select of regionally representative systems of nature reserves for the conservation of biodiversity is called the Site Selection Module (SSM). It is a streamlined derivative of SPEXAN 3.0 (Spatially Explicit Annealing) that was developed by Ian Ball and Hugh Possingham. SPEXAN was originally developed as a stand-alone program with no GIS interface for displaying portfolios and ancillary spatial data.

SSM provides two heuristic procedures for selecting a conservation portfolio that attempts to meet stated, quantitative conservation goals as efficiently (using as few sites) as possible. The first procedure, known as the Greedy Heuristic, is a stepwise, iterative procedure that accumulates one site at a time, choosing the best site at each step, until the goals have been met. This procedure, which has been widely used in the past, has the advantage of being extremely fast and producing reasonably efficient solutions. The second procedure, known as Simulated Annealing, evaluates alternative complete reserve systems at each step, and compares a very large number of alternative reserve systems to identify a good solution. Neither procedure is guaranteed to find "the best" solution. The major advance of SSM over other reserve siting approaches is that it allows the analyst to better control the spatial configuration of the conservation portfolio. One can specify portfolios that have a high level of connectivity among sites, or portfolios in which sites are more dispersed, depending upon which spatial properties are perceived as being more important to the viability of the conservation elements and/or the feasibility of reserve system acquisition and management.

Future Developments

None planned

Model Limitations

None noted

Model Features

None noted

Required Data Types

GIS data of planning units, vegetation, etc.

Model Outputs

GIS maps of reserve portfolios; tables of vegetation representation analysis in reserve portfolio.

Source

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Source (URL)

<http://www.biogeog.ucsb.edu/projects/tnc/overview.html>

Hardware Requirements

PC Computer with Windows 95 or later

Supported Platforms			
DOS	<input type="checkbox"/>	UNIX	<input checked="" type="checkbox"/>

Software Requirements

ArcView 3.x

Windows	<input checked="" type="checkbox"/>	Macintosh	<input type="checkbox"/>
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Cost, Licensing and Availability

Free. Downloadable from above website.