

Ecosim

The ecosystem simulator that
simulates the success and failure
of nature management

EcoSim™



ST
stichting



PRO
IT projecten

Goal of presentation

- Catch your interest for Ecosim
- Invite to explore possibilities for further development

Why Ecosim

- Ecosystem functioning as algorithm
- A good nature manager knows what input leads to the desired output
- Computer game analogy
- A good gamer knows what input yields most points

Why Ecosim

- Ecosim is the platform on which:
 - to train your management skills
 - learn how ecosystems respond
 - how conservation objectives are achieved
 - at the lowest costs (financial and societal)

Who will use Ecosim?

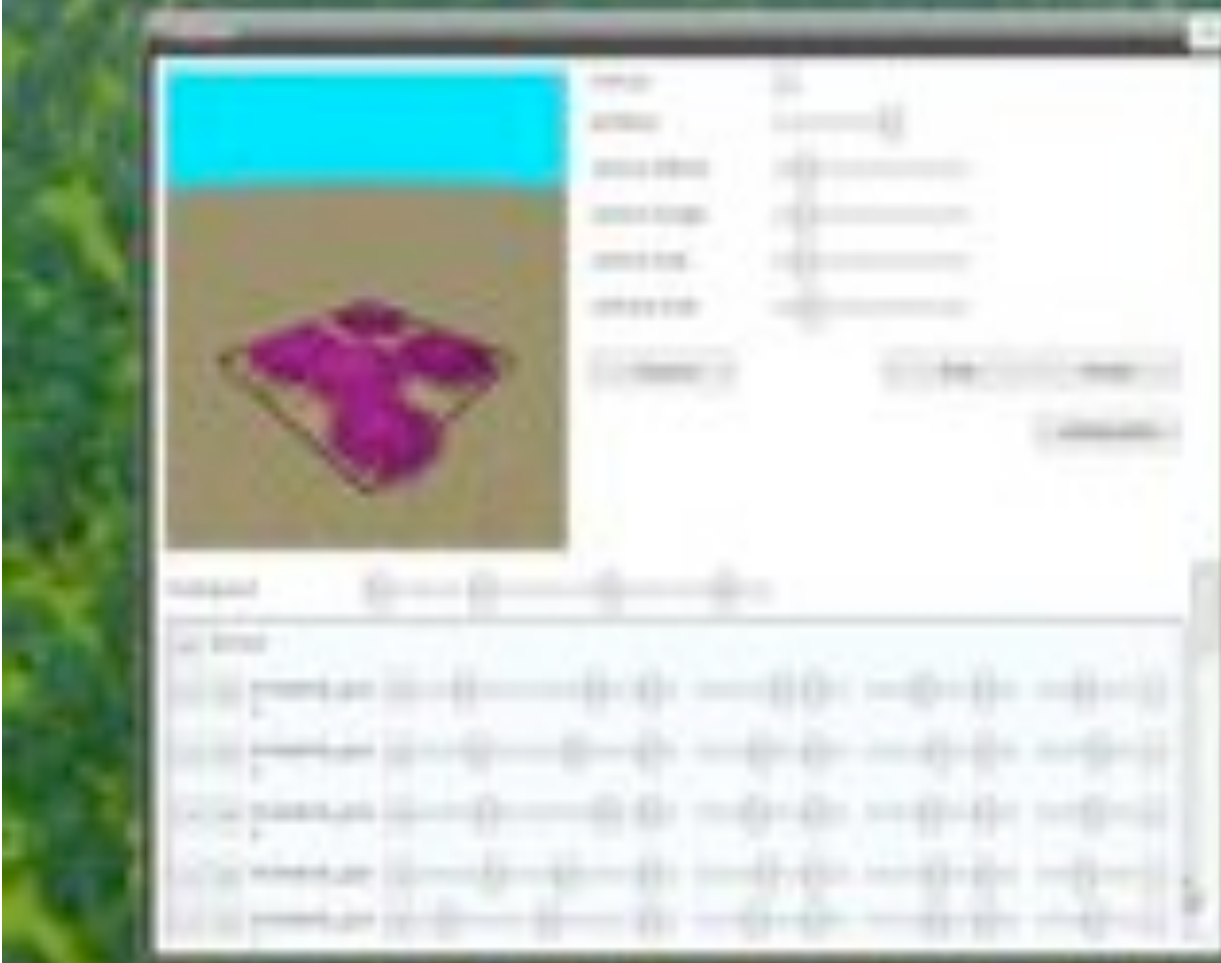
- Developed for students in nature management, ecology and for biology in highschools.
- Professionals in nature management (currently secondary).

How does Ecosim work?

- 4 key elements
 - Landscape
 - The interface
 - Assignments
 - Building tools

Ecosim landscape

- 1 million 20 x 20 metre tiles (20x20 km)



Ecosim landscape

- 1 tile is a vegetation unit or artificial unit (e.g. corn field, meadow, buildings, streets, industry)

Ecosim landscape

tile abiotics
(pH, nutrients,
soil, hydrology)

tile structural
characteristics
(slope,
patchiness,
presence of
hedgerows)



Ecosim landscape

- Each unit is part of a succession web

Ecosim landscape

- The ecosim landscape is a complex 'machine' that changes over time to the succession climax stage (usually forest), as does the real landscape.

The background of the slide is a screenshot of the EcoSim game interface. It shows a top menu bar with 'EcoSim' and 'Help' buttons. Below the menu is a toolbar with various icons for research, management, and simulation. The main area displays a grid-based map of a landscape with different terrain types. A semi-transparent text box is overlaid on the map, containing the title 'Ecosim interface' and a list of player actions. The bottom of the screen shows a character icon and a status bar.

Ecosim interface

- The player can
 - Do research (= unveal tile values)
 - Do management (change tile values)Both take time and cost money
- The player receives feedback to his/her actions

Ecosim assignments

- Objective that flourishes only in certain tiles or tile combinations, and under certain conditions.
- The player needs to figure out what these conditions are, what is lacking in the current situation, and what measures can creates change for the better.

Assignment example

- Preserve Early Marsh-orchid (*Dactylorhiza majalis*)
- What are its requirements? (library / natuurportal)
- Conduct survey (select area to survey)
- Establish and explain trend (research on abiotic conditions)
- Choose conservation measure(s)
- Choose management

Other possible assignments

- Preserve or reintroduce species
- Maximise ecosystem diversity
- Assign natura 2000 sites
- Stakeholder roleplaying game

building tools

- Open source
- Maximum 'designability' within program
 - Tile editor
 - Landscape designer
 - Assignment editor (uncertain)

Further development

- More assignments
- More landscapes / ecosystems
- Create model of existing area
(synchronise with GIS)
- Integrate hydrology models in Ecosim

Ecosim

- What would you want to do with Ecosim?
- What must the program be able to do?
- Can we make a (funded) project out of it?