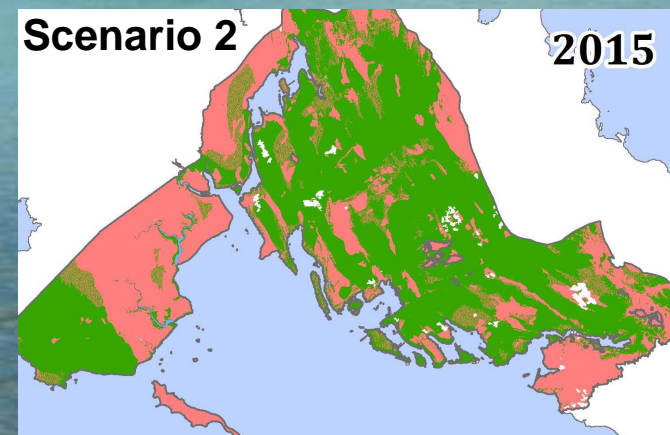
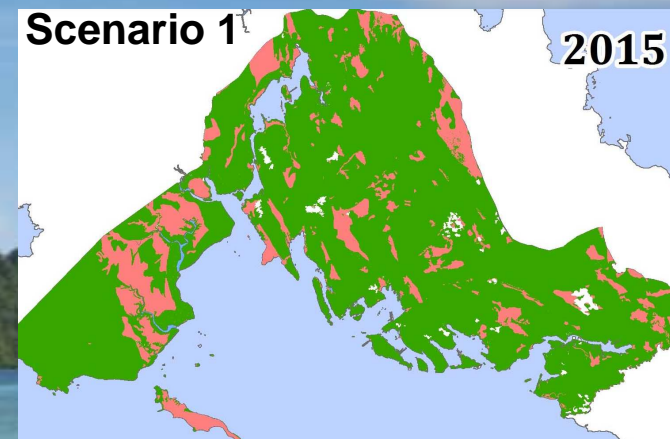
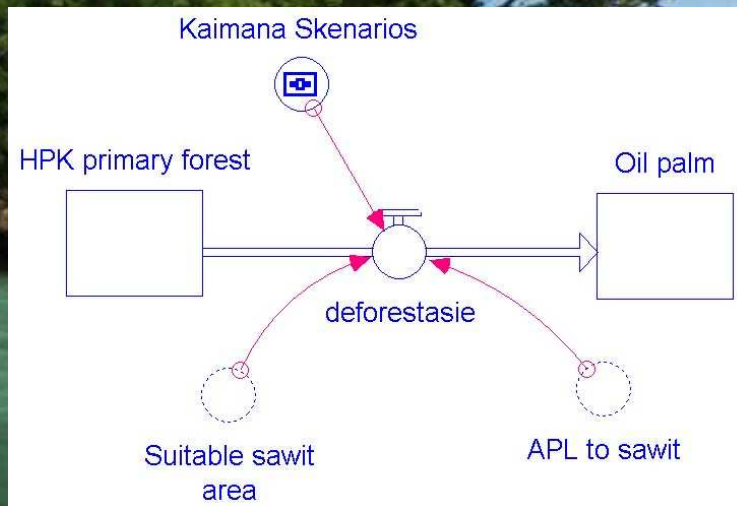


Spatial Projections of Participatory System Dynamics Modeling

Exploring Oil Palm and Carbon Payment Scenarios in Papua, Indonesia



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Team:

Bruce Campbell, Atie Puntodewo,
Herry Purnomo (CIFOR)
Jeff Sayer (IUCN)
Manuel Ruiz-Pérez (UAM)
and others...

This presentation:

1. What is participatory modelling?
2. Our modelling activities (where, what for, with whom?)
3. Constraints participatory modelling
4. Spatial projections of Stella using GeoMod (Idrisi)
5. Limitations/advantages

What is participatory modelling?

Building a model
with a group of non-modelers
under guidance of a model expert facilitator





Greenberger et al. (1976)

‘most insights of models exploring policy effectiveness are gained during the model building process, not after.’

Objectives of participatory modelling

conceptualize a system or problem

exchange knowledge between different stakeholders

increase understanding of landscape dynamics

visualize trade-offs between conservation and development outcomes

create a shared vision to achieve change in the desired direction

explore scenarios, not predict the future!

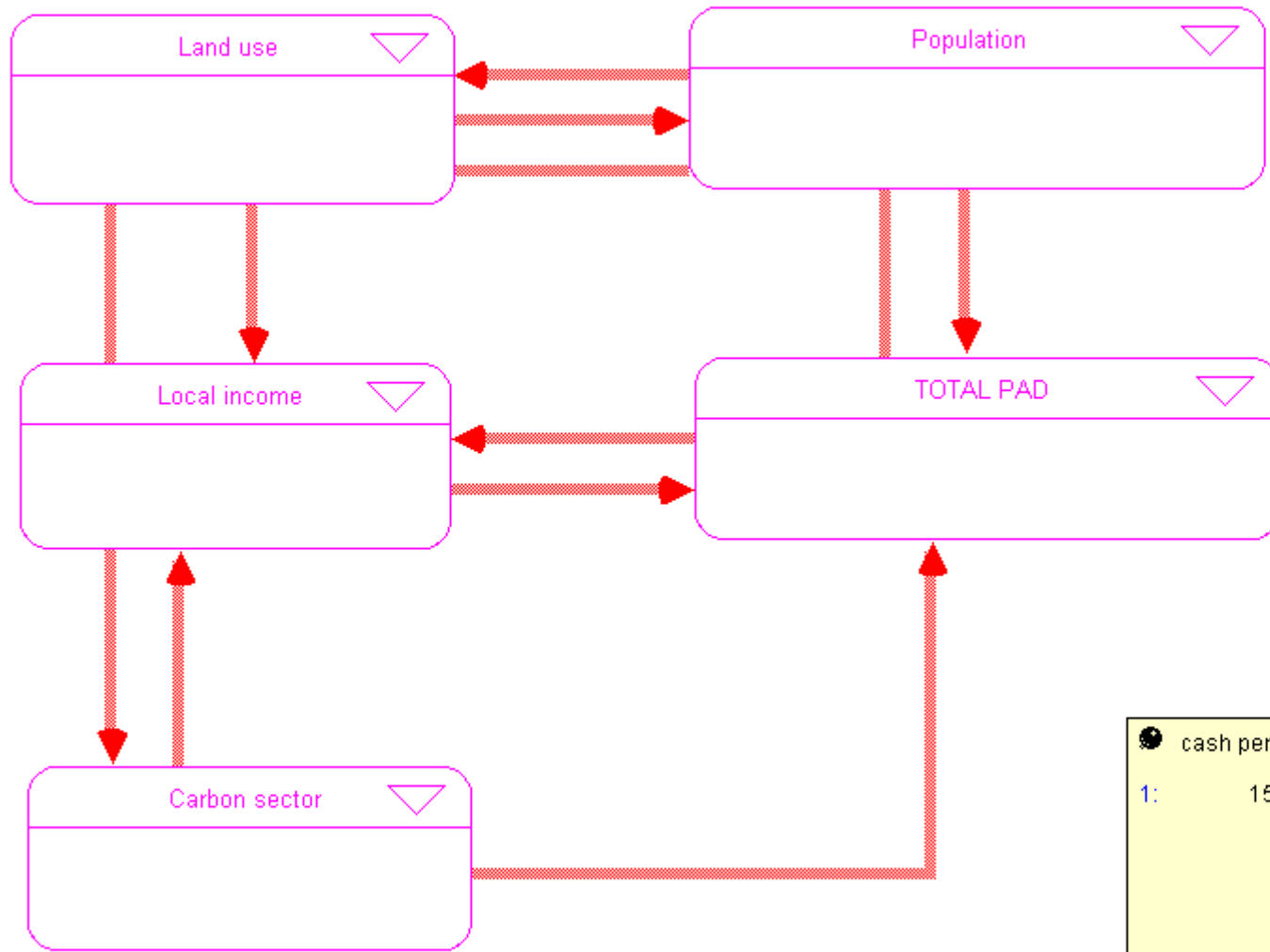


Our participatory modelling activities

Where? Ghana, Cameroon, CAR, Ethiopia, Indonesia (Kalimantan & Papua), Vietnam

What for? Influence decision making process, 'better future' (best outcomes for conservation & development)

With whom? Local government, personnel from conservation and development NGOs, scientists, private company



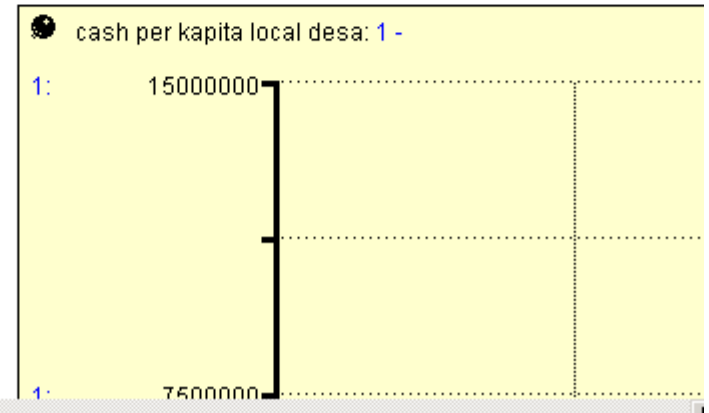
KAIMANA SKENARIOS



Percent going to Communities APL

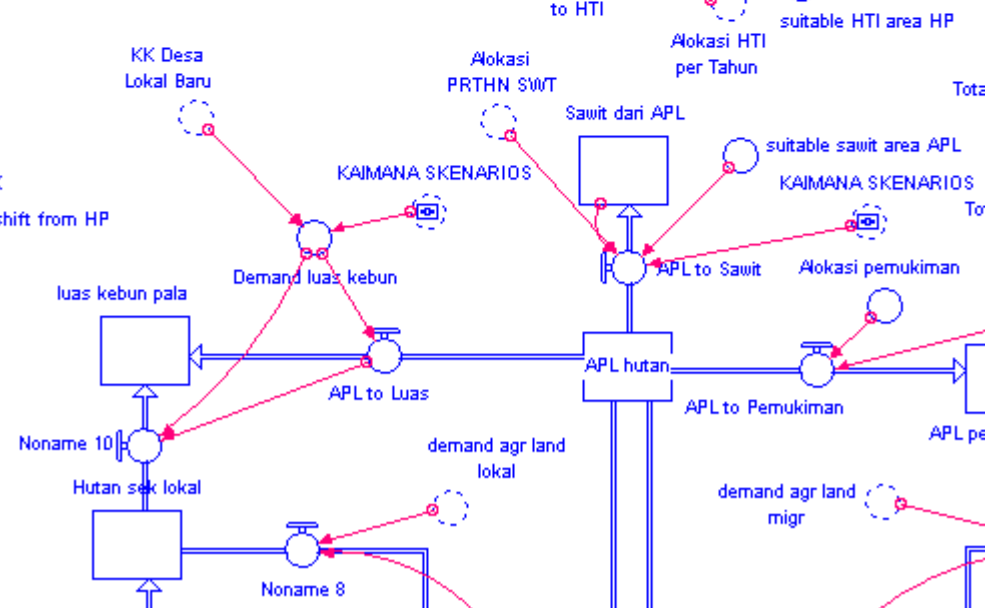
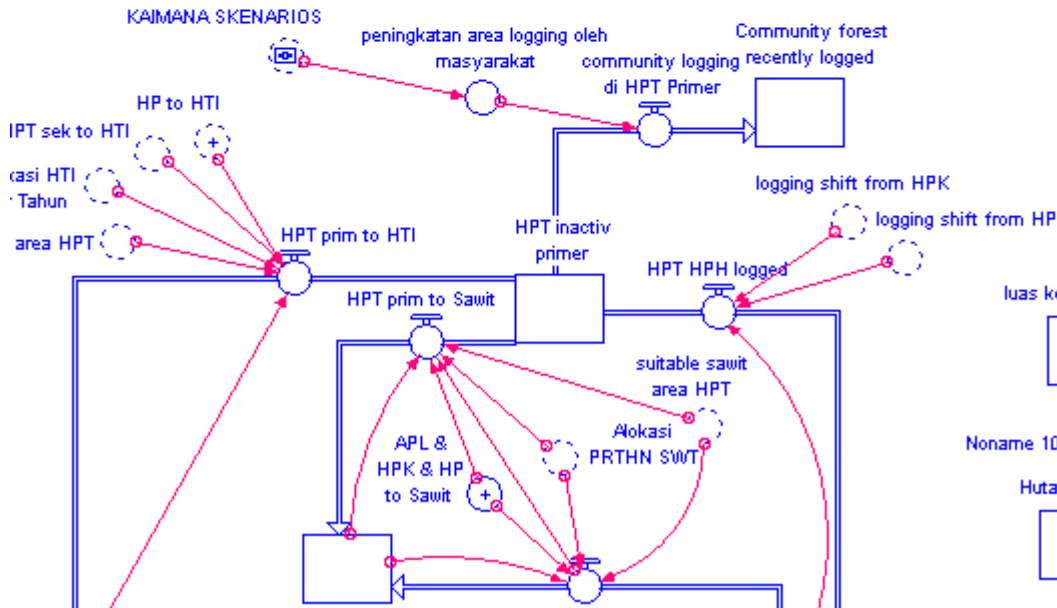
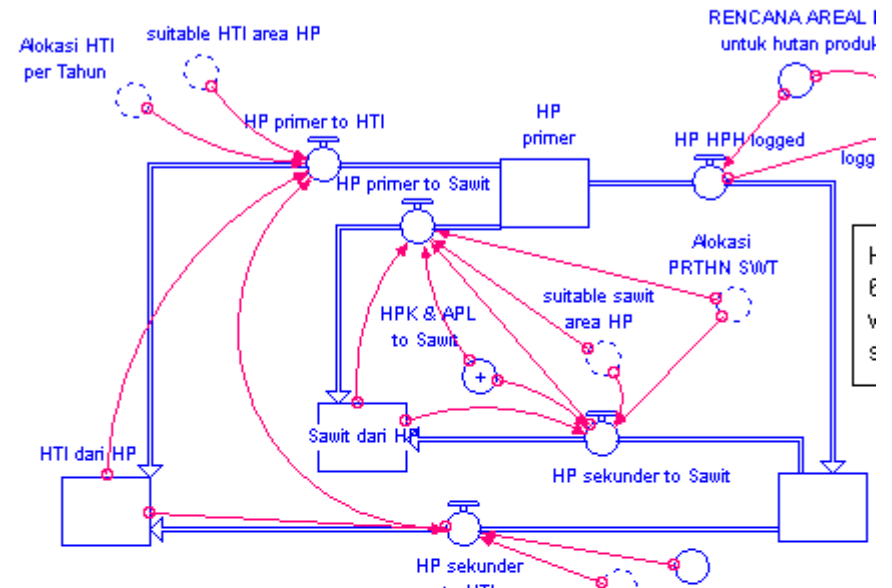
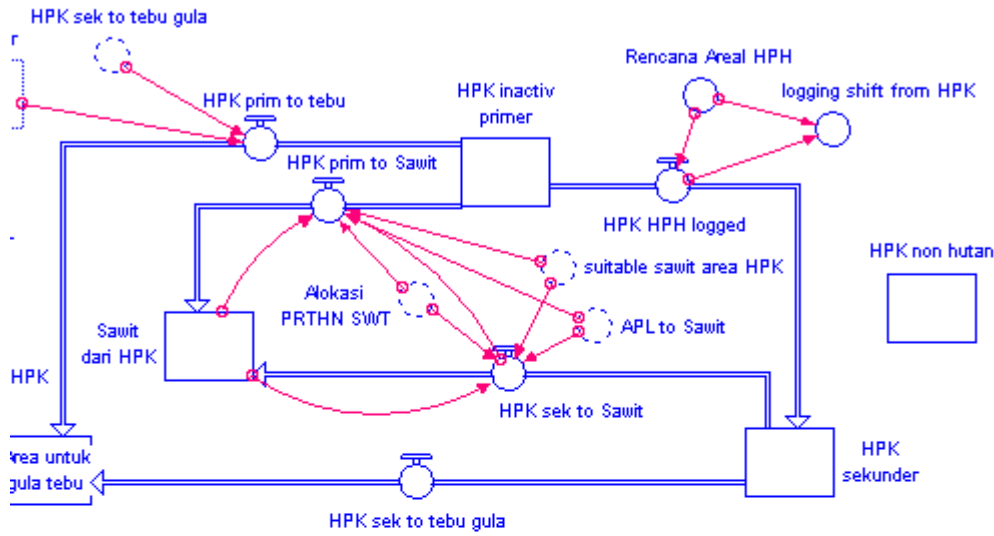


pendapatan masyarakat
skenario. Skenario
skenario 3 Pink





Land use





KAIMANA SKENARIOS

Slider: 1 to 3, value: 1

global price per tonCO2

Slider: 10000 to 500000, value: 150000

REDD Scenarios

Slider: 1 to 5, value: 1

Percent going to Communities APL

Slider: 0.0000 to 1.0000, value: 0.5000

Percent going to Communities areal hutan

Slider: 0.0000 to 1.0000, value: 0.1000

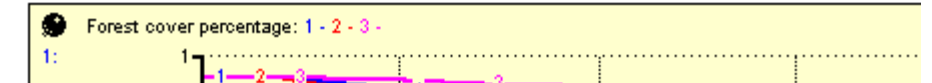
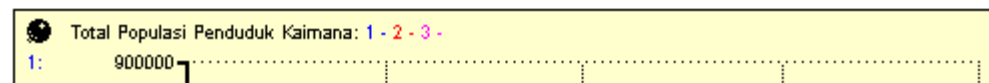
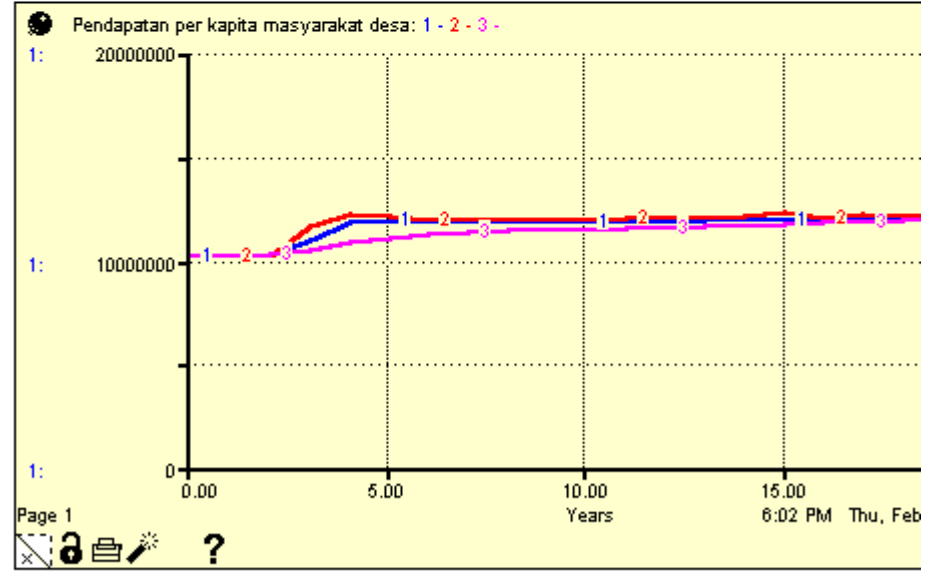
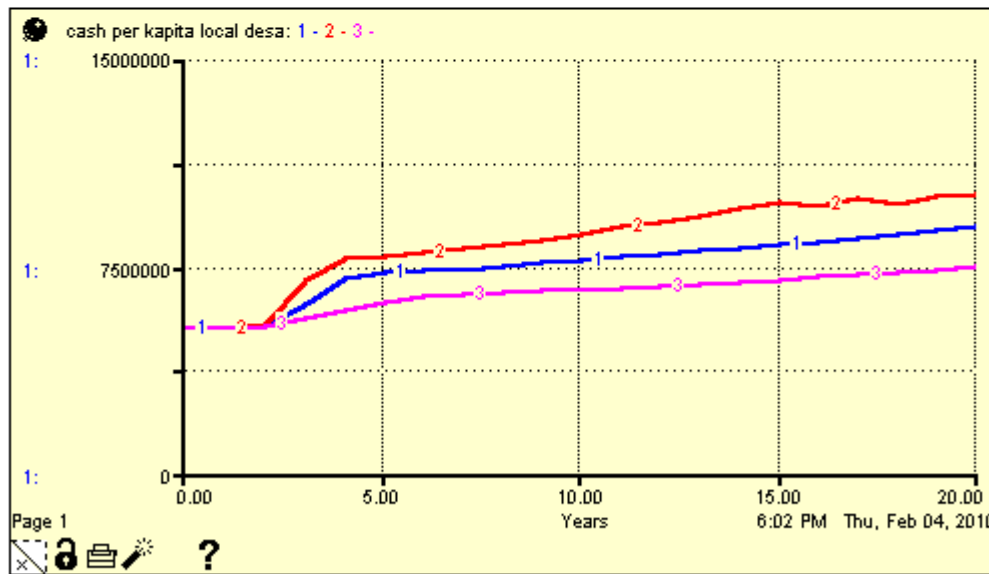
Pendapatan

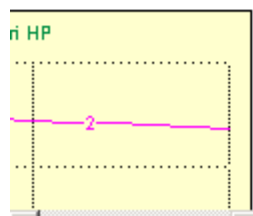
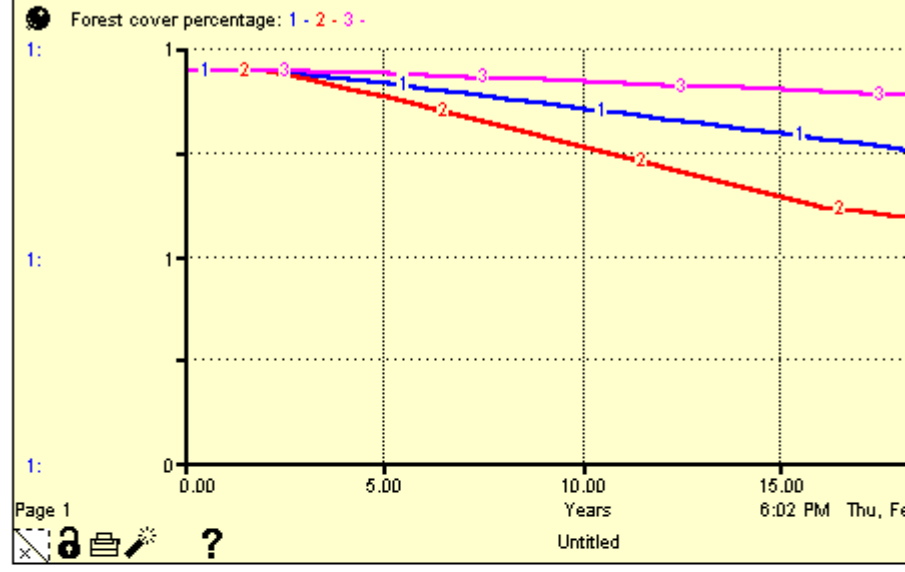
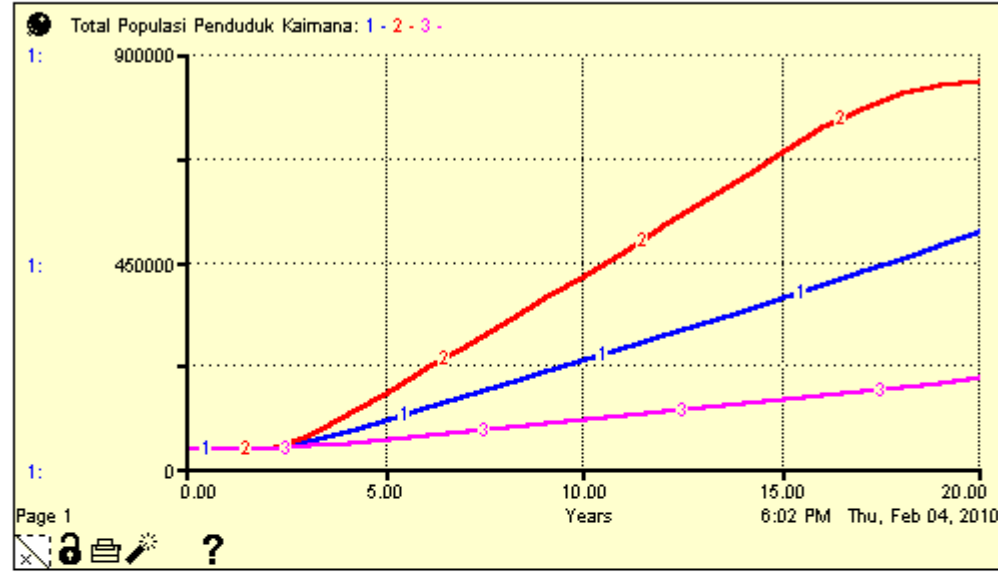
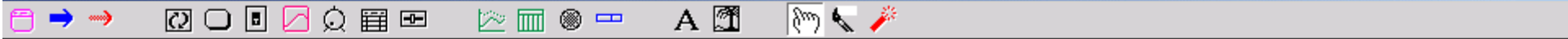
Pada scenario 3 (sunset di kaimana) sangat tinggi karena dipengaruhi cart mendapat income dari Pembayaran F

pendapatan masyarakat asli berdasarkan 3 skenario. Skenario 1 Biru, skenario 2 merah, snario 3 Pink

Baseline assumption

0= Baseline scenario 2
1= Baseline scenario 1





Constraints participatory modelling?

Balance accuracy with simplicity

Perfection is attained not when there is nothing more to add, but when there is nothing left to take away – A. de St-Exupéry

Stella outputs only graphs/tables



GeoMod (Idrisi)

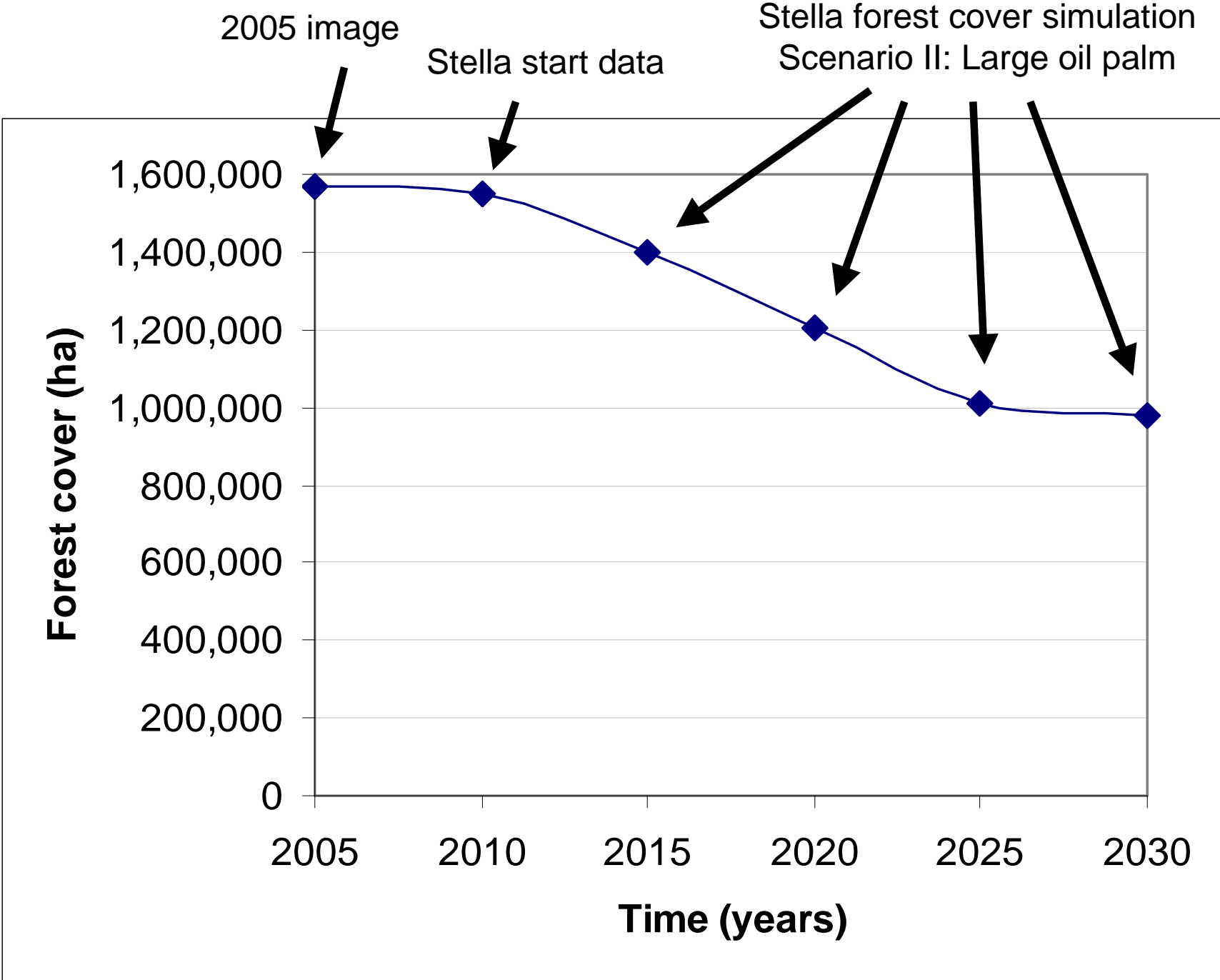
Beginning map forest cover

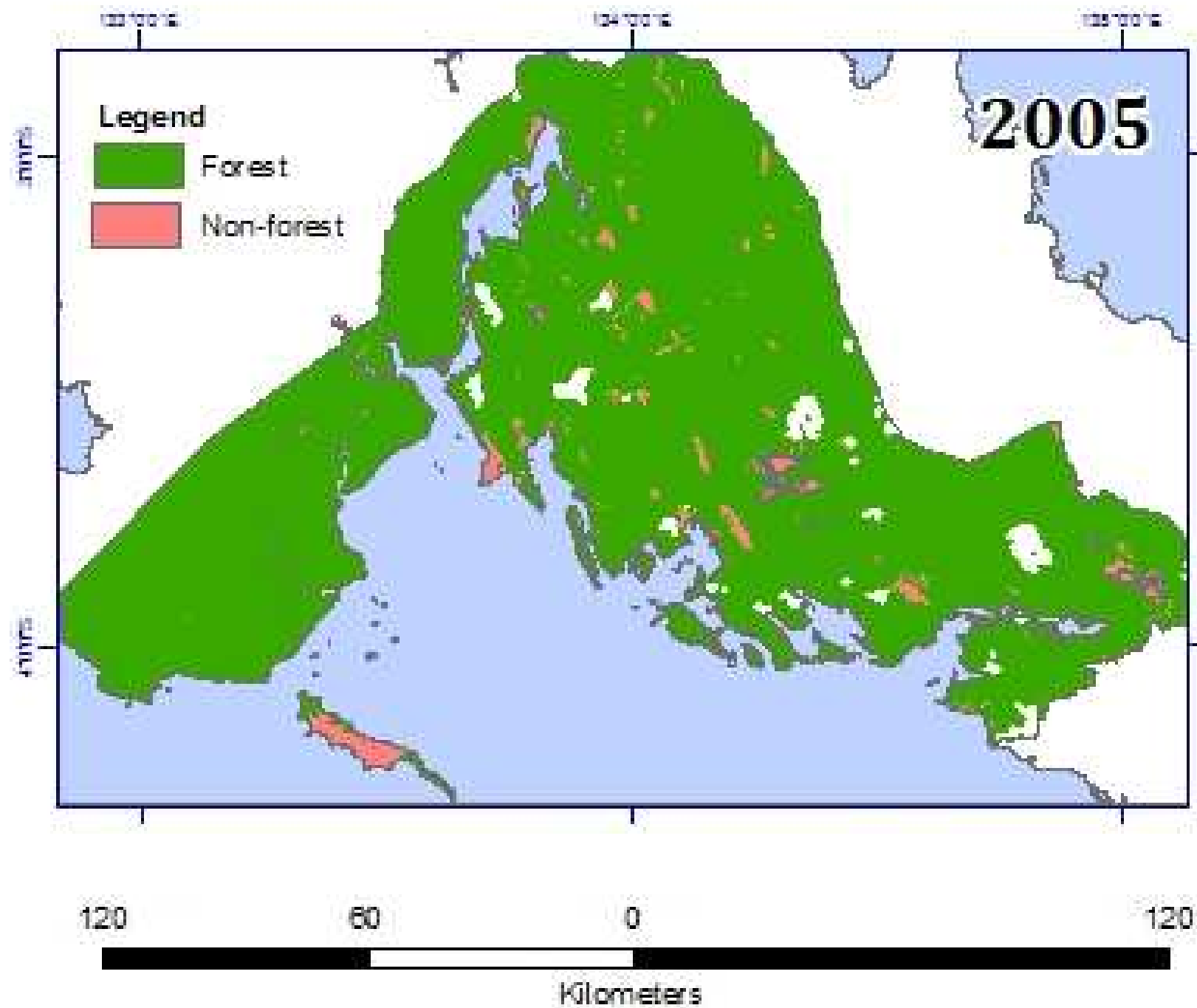
Proximity

Driver maps

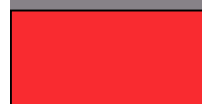
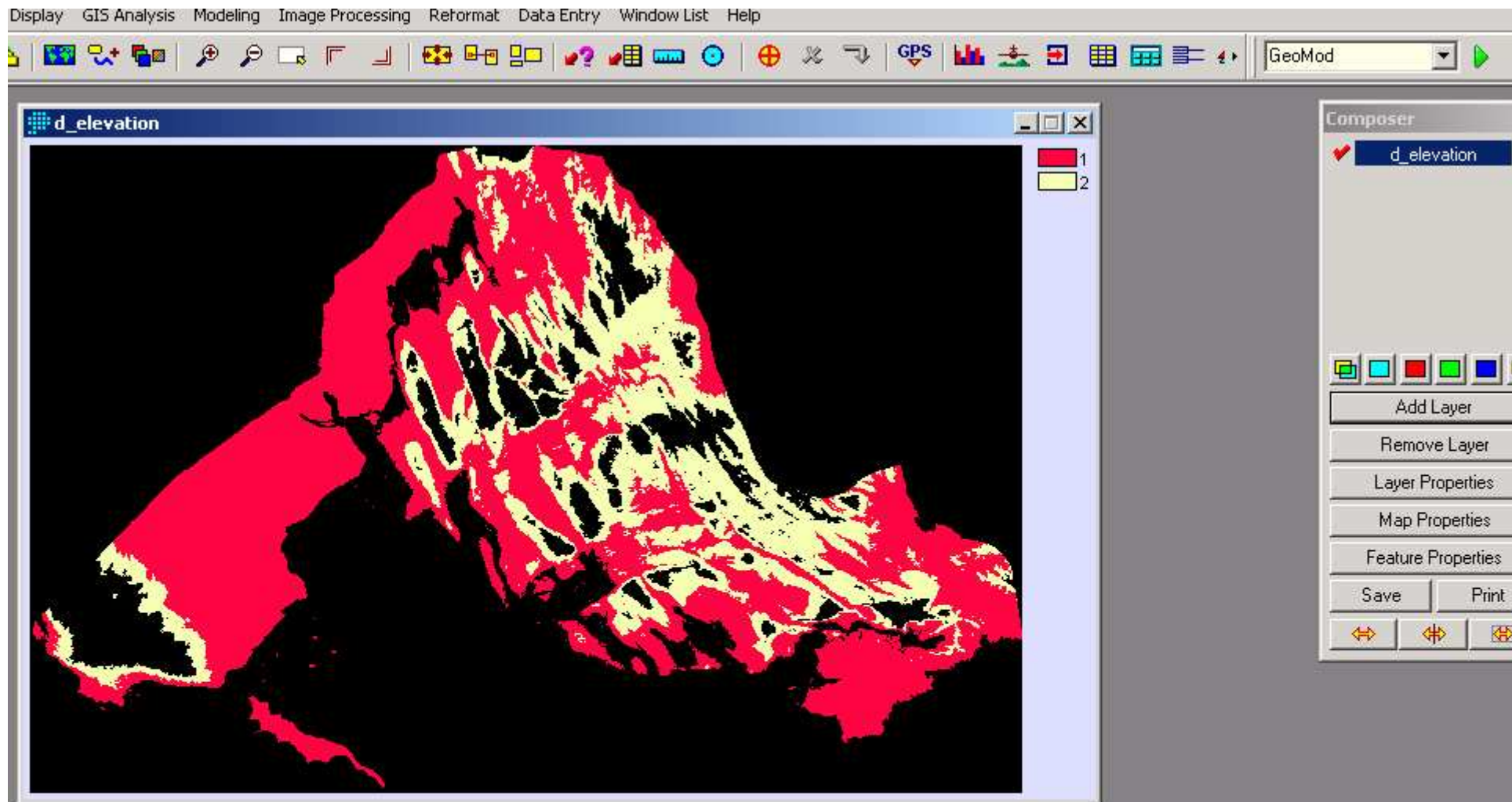
Time step

Forest cover change









Most suitable

(0-400m)



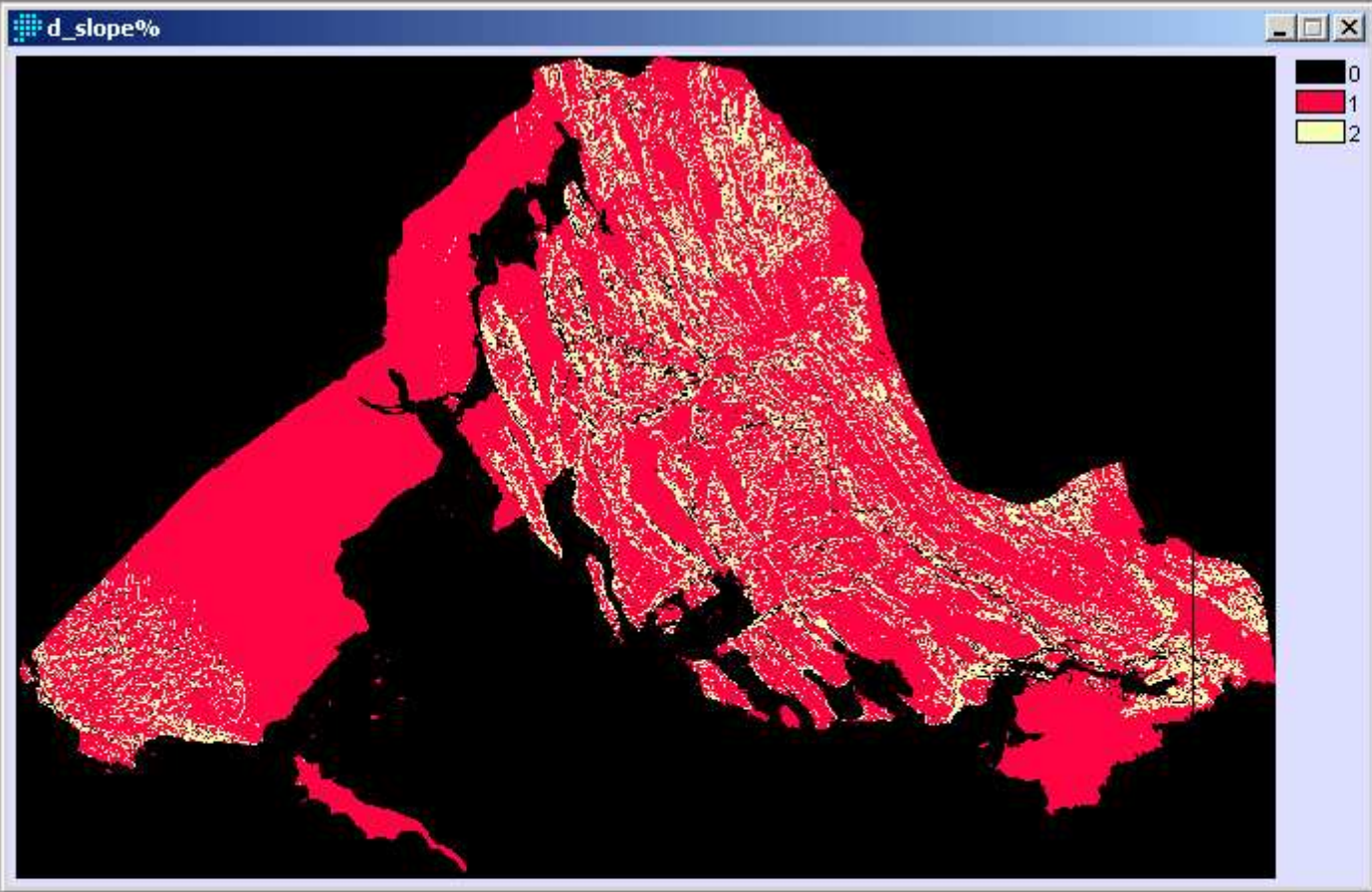
Less suitable

(400-700m)



Unsuitable

(>700m)



Composer

- d_slope%

Legend icons: black, cyan, red, green, blue

Add Layer

Remove Layer

Layer Properties

Map Properties

Feature Properties

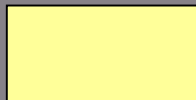
Save Print

Navigation icons: pan, zoom, home



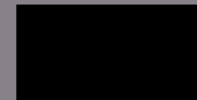
Most suitable

(<15%)



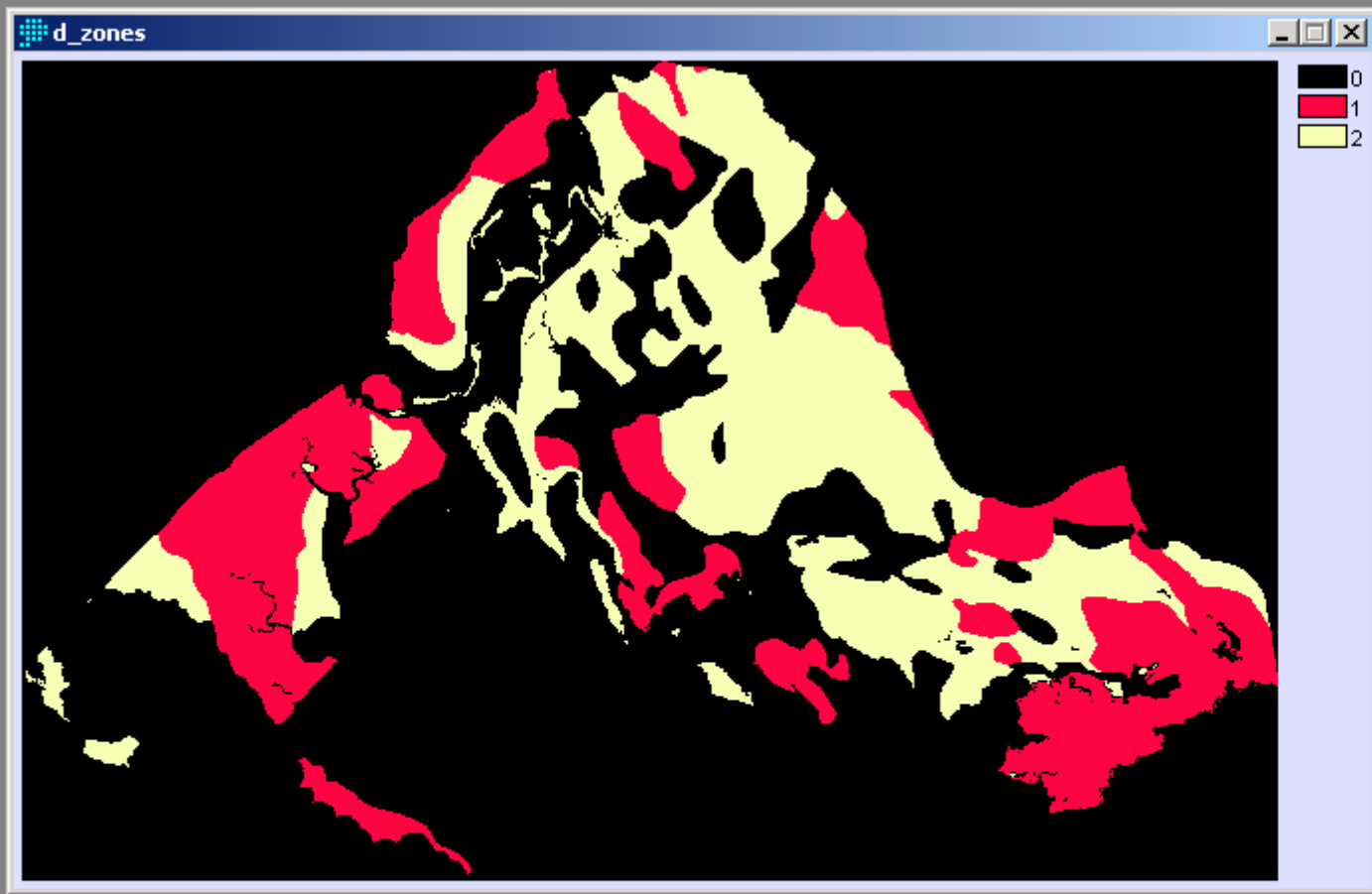
Less suitable

(15-25%)



Unsuitable

(>25%)



Composer

- d_zones

Legend icons: [Black] [Red] [Yellow]

Add Layer

Remove Layer

Layer Properties

Map Properties

Feature Properties

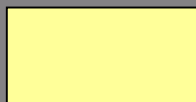
Save Print

Navigation icons: [Home] [Previous] [Next] [Full Screen]



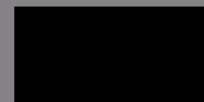
Most suitable

(Conversion & production forest)



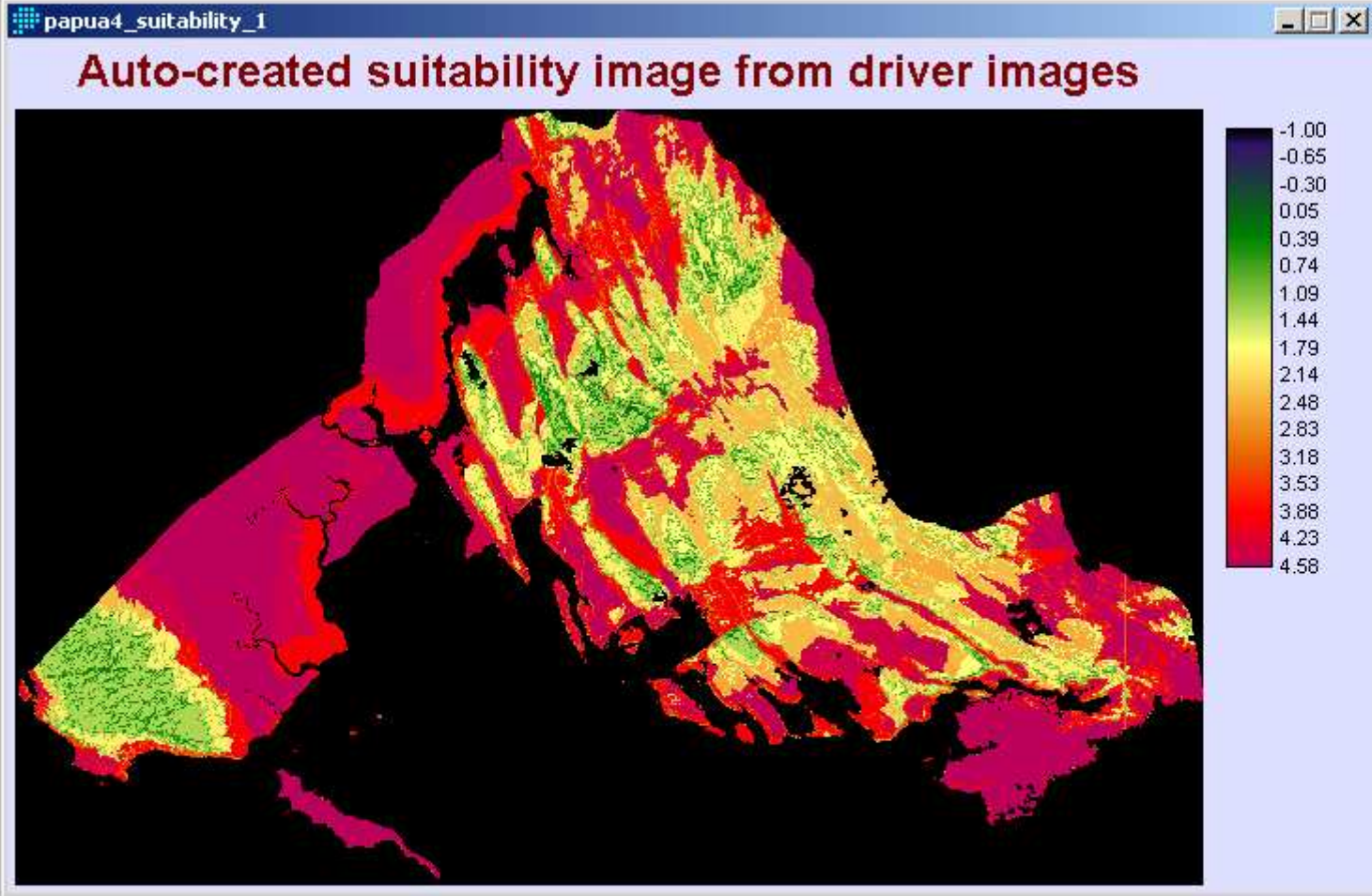
Less suitable

(Limited production Forest)



Unsuitable

(Protected forest)



Composer

papua4_suitability_1

Add Layer

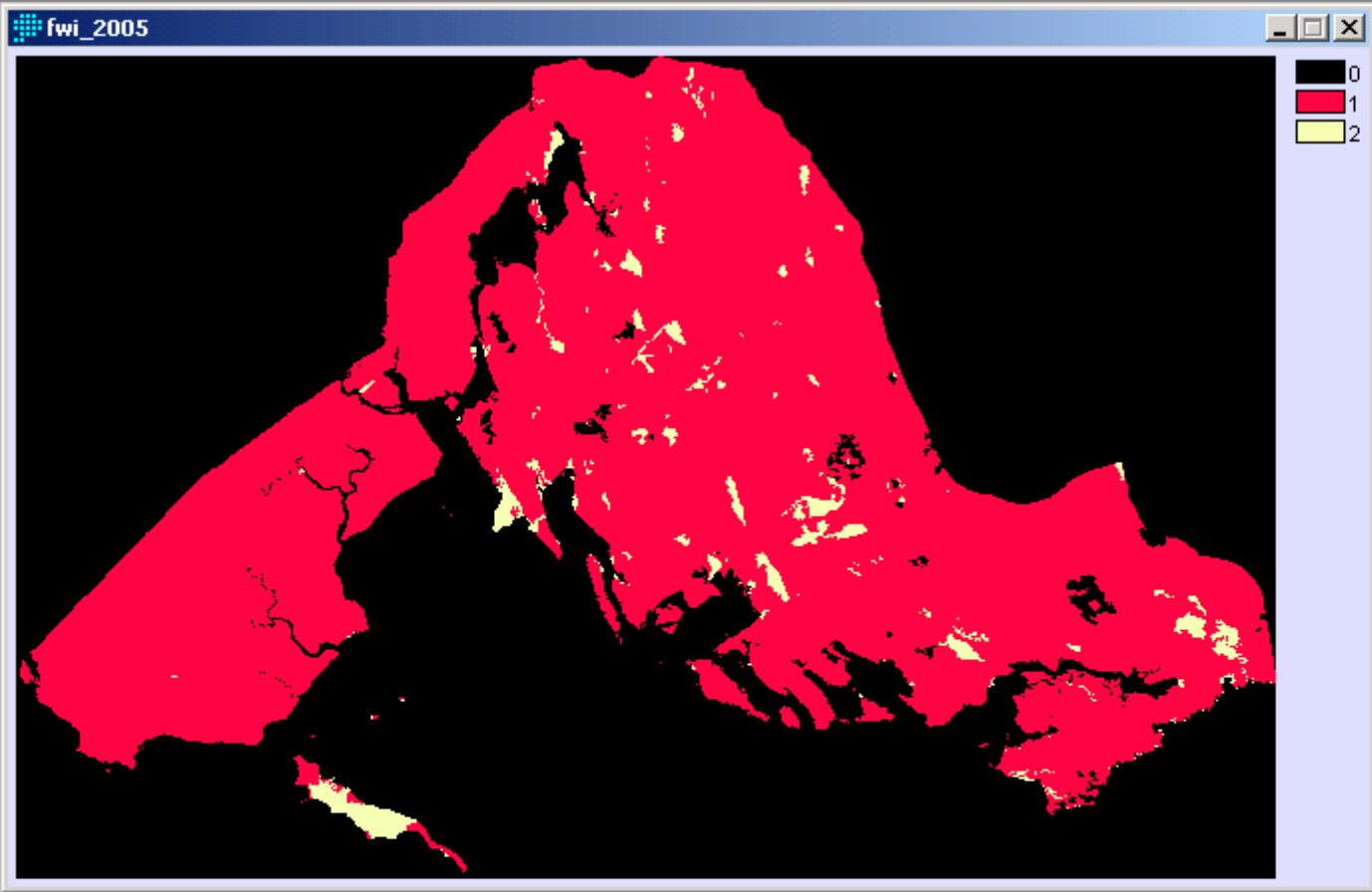
Remove Layer

Layer Properties

Map Properties

Feature Properties

Save Print



Composer

- fwi_2005

Legend icons: [Black] [Red] [Yellow]

Add Layer

Remove Layer

Layer Properties

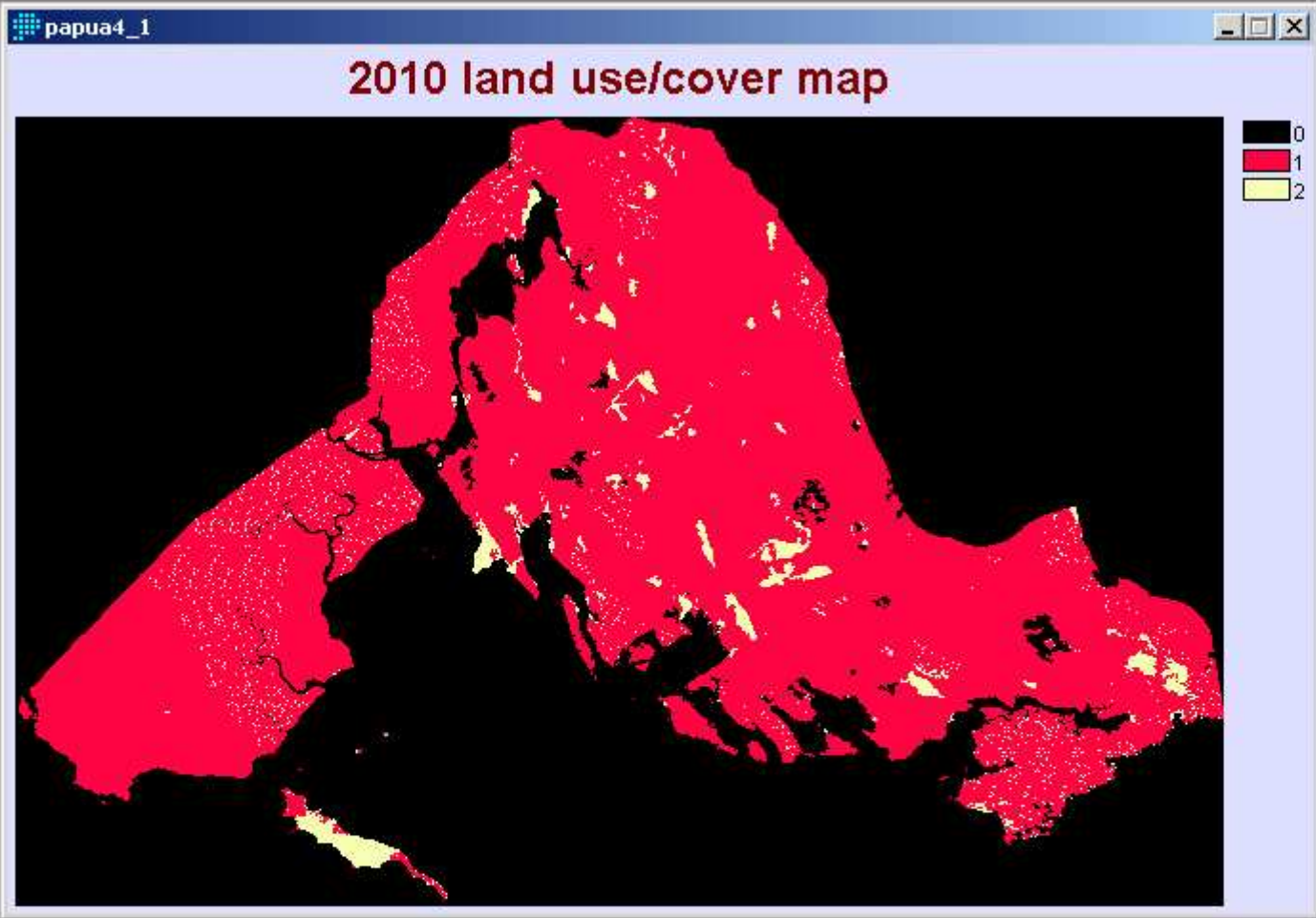
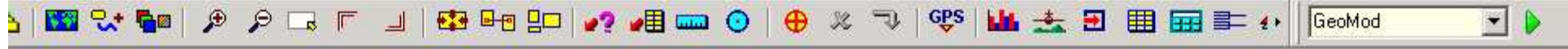
Map Properties

Feature Properties

Save Print

Navigation icons: [Home] [Previous] [Next] [Full Screen]

The Composer panel is used for managing the map's appearance. It includes a list of layers, a legend, and buttons for adding, removing, and editing layers. It also has buttons for saving and printing the map, and navigation icons for home, previous, next, and full screen.



Composer

papua4_1

Add Layer

Remove Layer

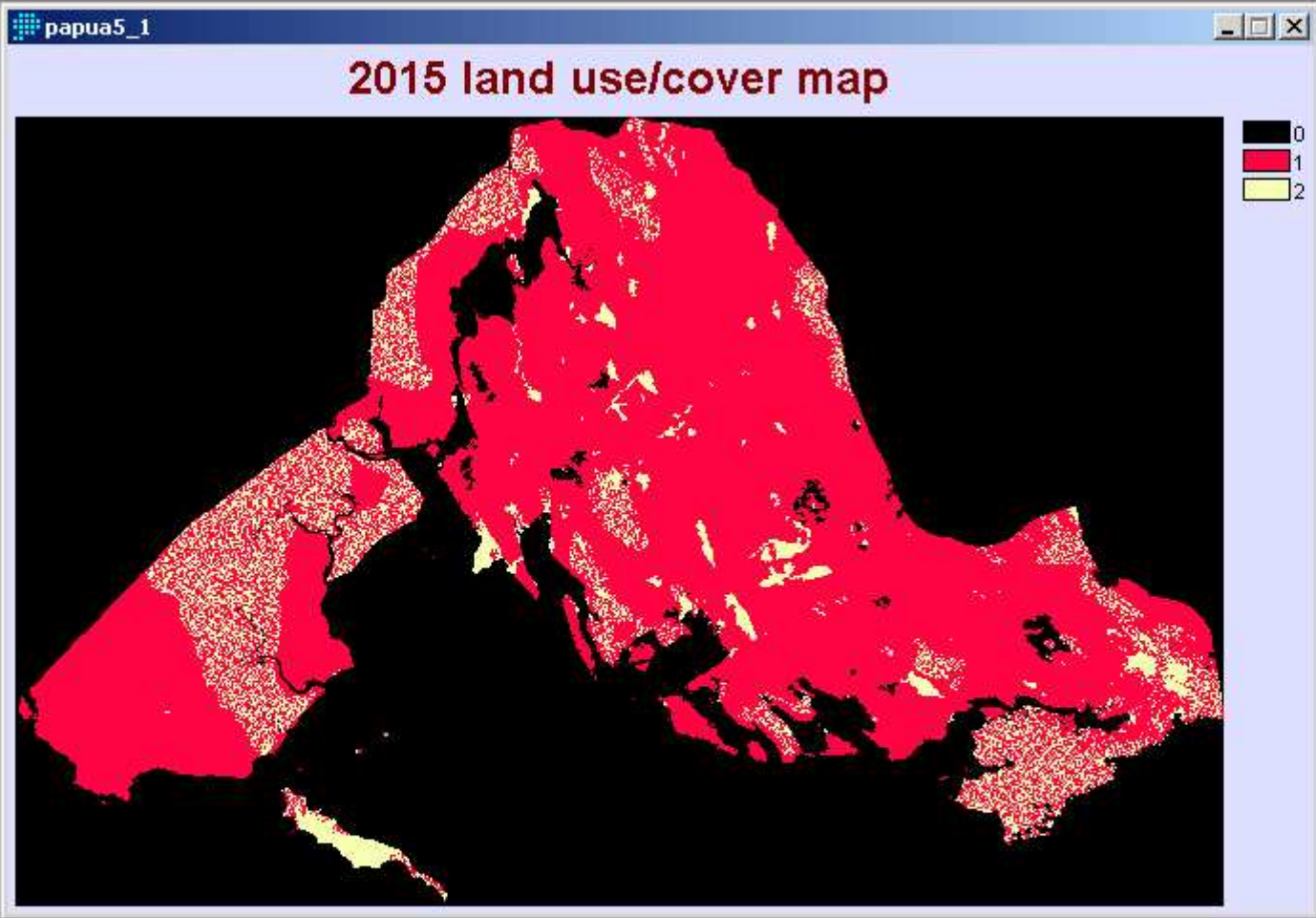
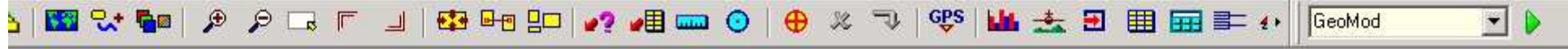
Layer Properties

Map Properties

Feature Properties

Save Print

The 'Composer' panel on the right side of the interface. It shows a list of layers with 'papua4_1' selected and checked. Below the list are several buttons: 'Add Layer', 'Remove Layer', 'Layer Properties', 'Map Properties', 'Feature Properties', 'Save', and 'Print'. At the bottom of the panel are three navigation buttons with arrows.



Composer

papua5_1

Add Layer

Remove Layer

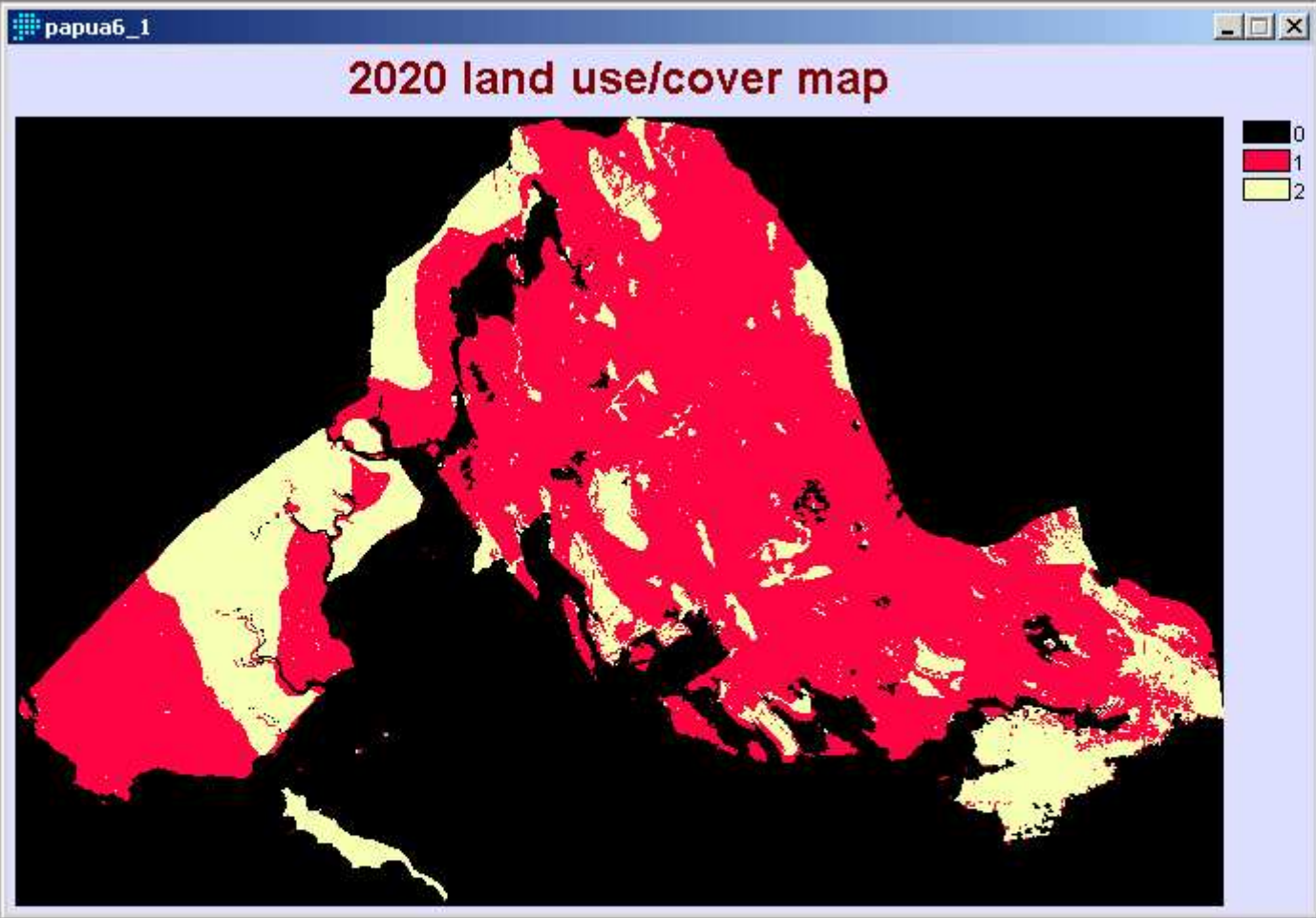
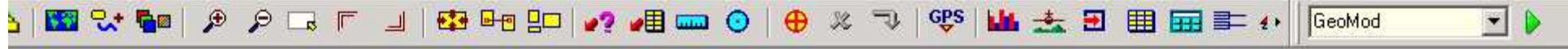
Layer Properties

Map Properties

Feature Properties

Save Print

The 'Composer' panel on the right side of the interface. It features a list of layers with a checked box next to 'papua5_1'. Below the list are several buttons: 'Add Layer', 'Remove Layer', 'Layer Properties', 'Map Properties', 'Feature Properties', 'Save', and 'Print'. At the bottom of the panel are three navigation icons: a double-headed arrow, a crosshair, and a square with a crosshair.

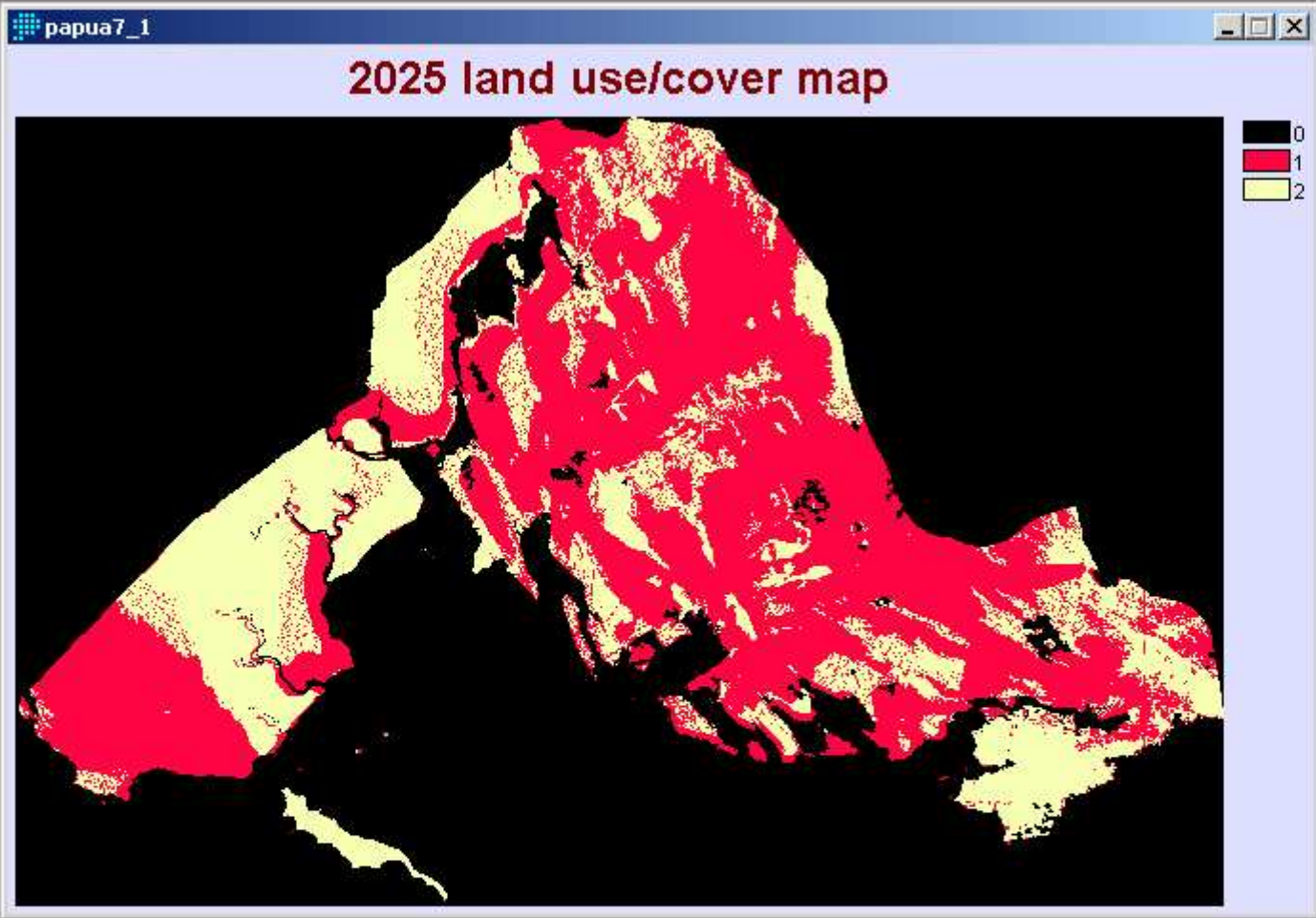


Composer

✓ papua6_1

Add Layer
Remove Layer
Layer Properties
Map Properties
Feature Properties
Save Print
Navigation icons

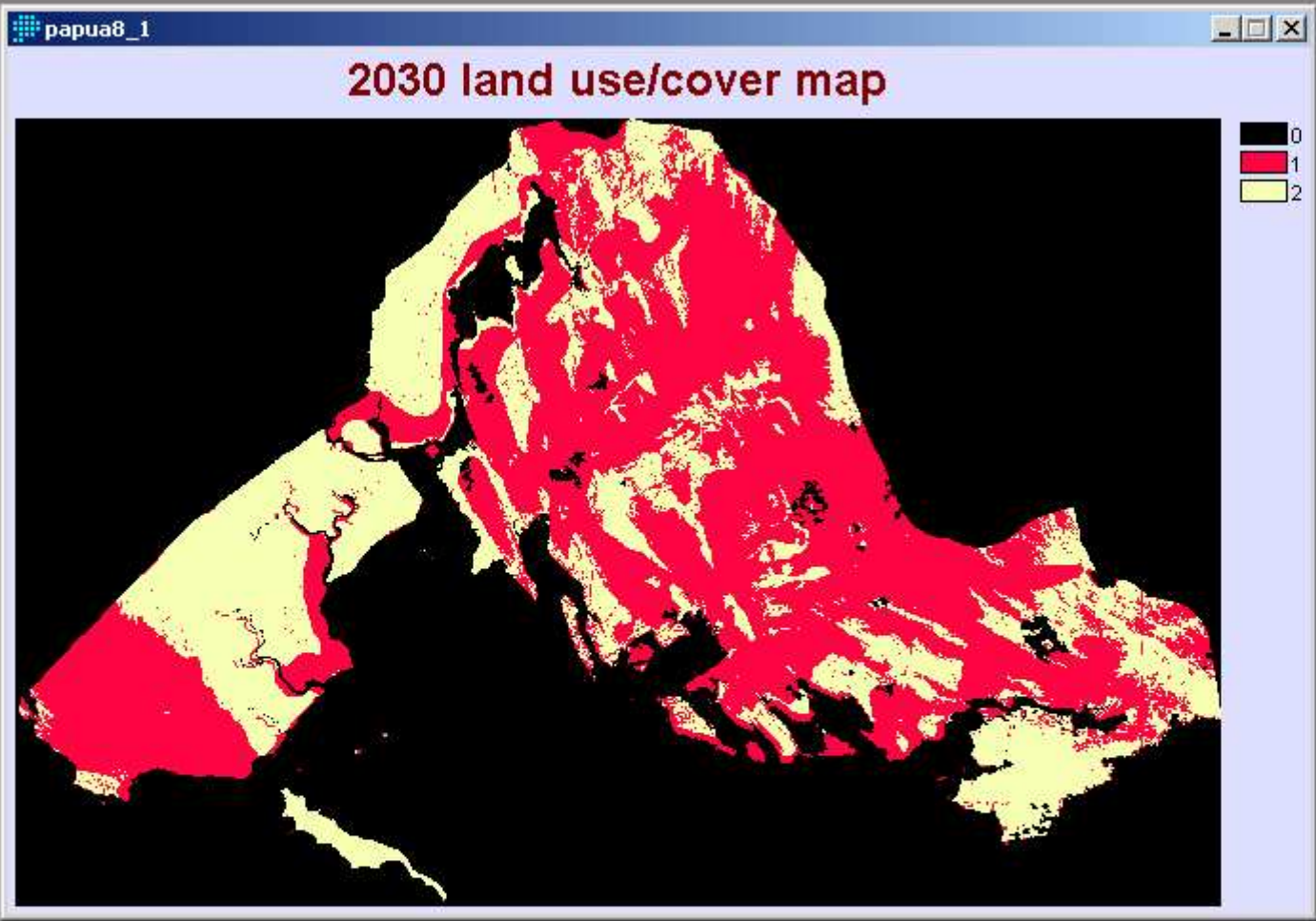
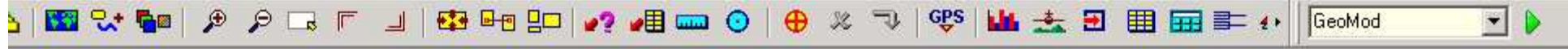
The Composer panel is located on the right side of the application. It contains a list of layers, with 'papua6_1' selected and marked with a checkmark. Below the layer list are several buttons: 'Add Layer', 'Remove Layer', 'Layer Properties', 'Map Properties', 'Feature Properties', 'Save', and 'Print'. At the bottom of the panel are three navigation icons: a double-headed arrow, a crosshair, and a square with a crosshair.



Composer

✓ papua7_1

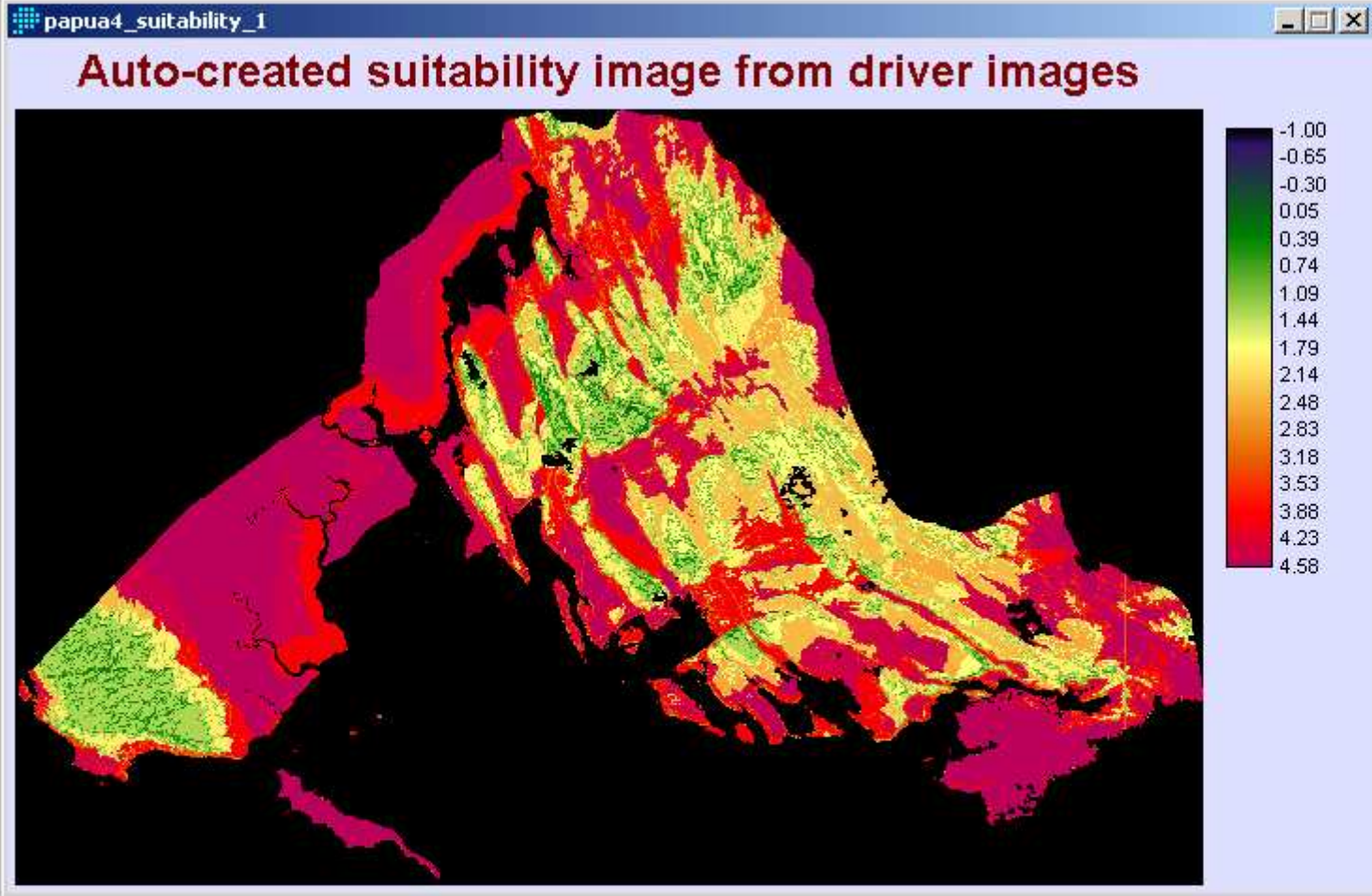
A vertical panel on the right side of the interface, titled 'Composer'. It contains a list of layers with a checkmark and the name 'papua7_1'. Below the list are several buttons: 'Add Layer', 'Remove Layer', 'Layer Properties', 'Map Properties', 'Feature Properties', 'Save', and 'Print'. At the bottom of the panel are three navigation icons: a double-headed arrow, a crosshair, and a square with a crosshair.



Composer

✓ papua8_1

A vertical panel on the right side of the application window, titled 'Composer'. It contains a list of layers, with 'papua8_1' selected and marked with a checkmark. Below the list are several buttons: 'Add Layer', 'Remove Layer', 'Layer Properties', 'Map Properties', 'Feature Properties', 'Save', and 'Print'. At the bottom of the panel are three navigation icons: a double-headed arrow, a crosshair, and a square with a crosshair.



Composer

papua4_suitability_1

Add Layer

Remove Layer

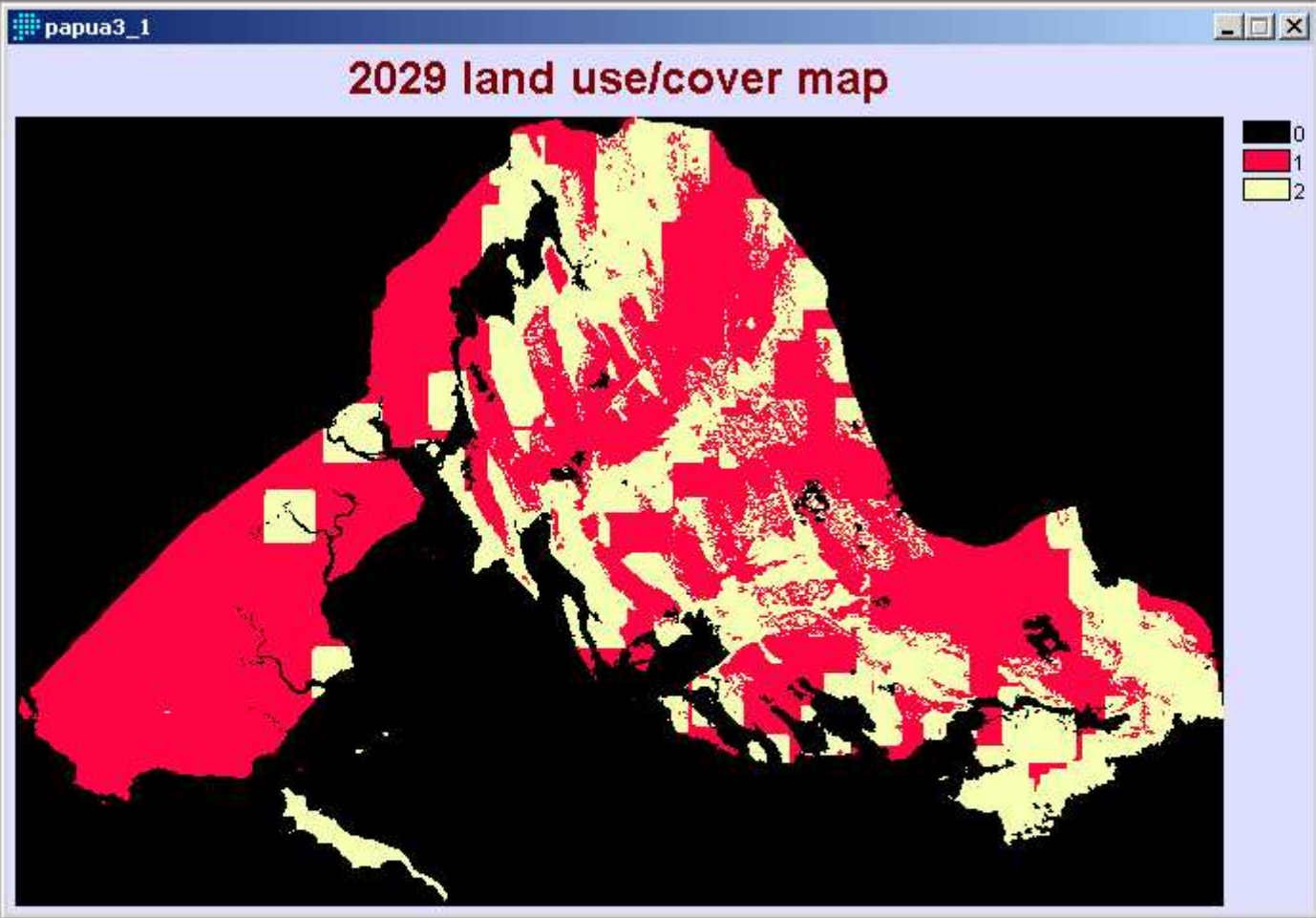
Layer Properties

Map Properties

Feature Properties

Save Print

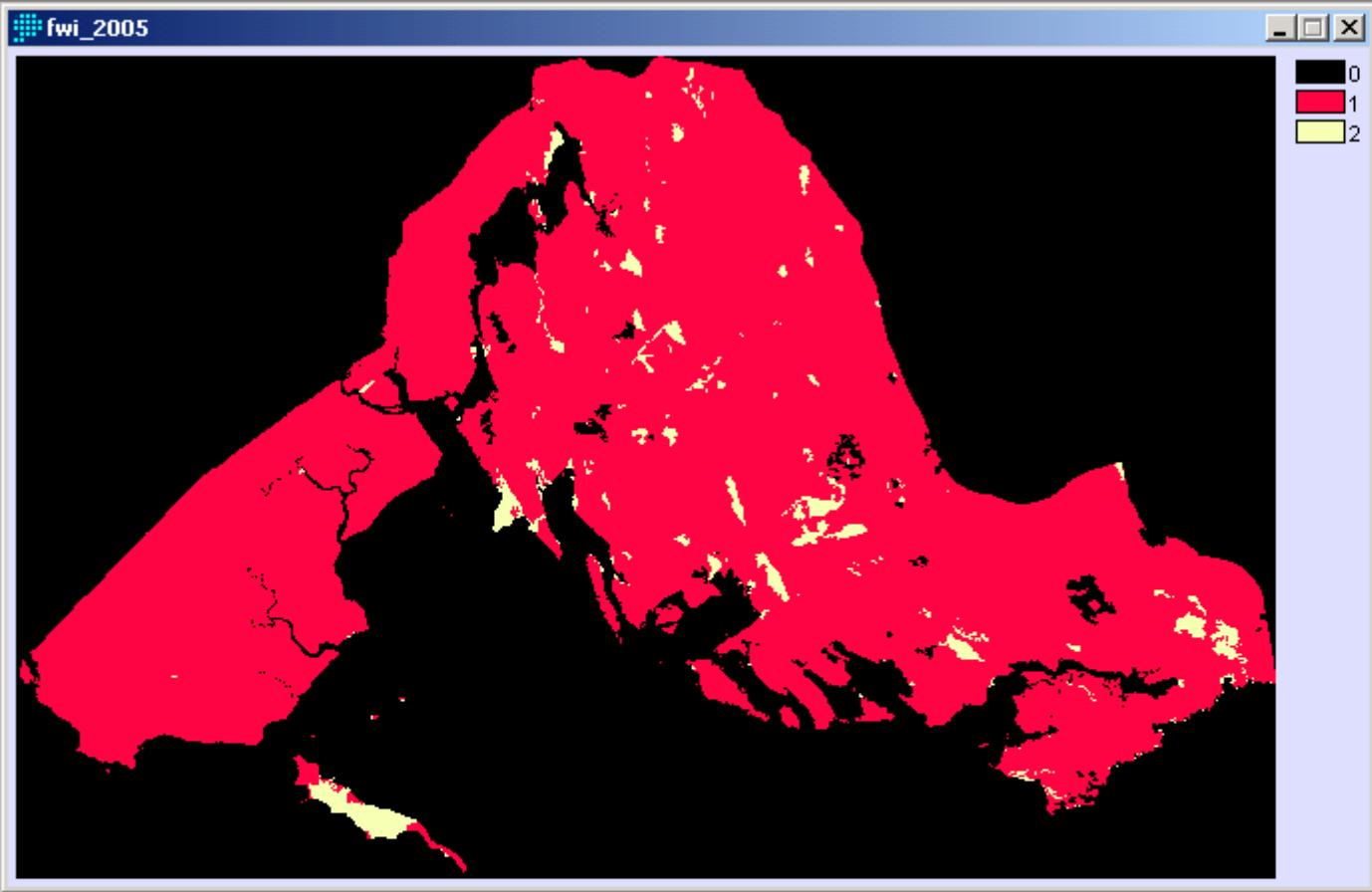
A vertical panel on the right side of the interface, titled 'Composer'. It contains a list of layers with a checked box next to 'papua4_suitability_1'. Below the list are several buttons: 'Add Layer', 'Remove Layer', 'Layer Properties', 'Map Properties', 'Feature Properties', 'Save', and 'Print'. At the bottom of the panel are three small icons: a double-headed arrow, a crosshair, and a square with a crosshair.



Composer

✓ papua3_1

The Composer panel includes a list of layers with a checkmark next to 'papua3_1'. Below the list are several buttons: 'Add Layer', 'Remove Layer', 'Layer Properties', 'Map Properties', 'Feature Properties', 'Save', and 'Print'. At the bottom of the panel are three navigation icons: a double-headed arrow, a zoom in icon, and a zoom out icon.



Composer

- fwi_2005

Legend icons: cyan, red, green, blue

Add Layer

Remove Layer

Layer Properties

Map Properties

Feature Properties

Save Print

Navigation icons: pan, zoom, home

The 'Composer' panel on the right side of the interface provides a list of layers currently displayed on the map. The 'fwi_2005' layer is checked and highlighted in blue. Below the layer list are several control buttons: 'Add Layer', 'Remove Layer', 'Layer Properties', 'Map Properties', and 'Feature Properties'. At the bottom of the panel are 'Save' and 'Print' buttons, followed by three navigation icons for panning, zooming, and returning to the home view.



Limitations

Only 2 land-use categories

Link Stella-GeoMod is not interactive

Advantages

Suitability maps created by participants

Simple



Thank you!

Sandker, M., B.M. Campbell, M. Ruiz-Pérez, J. Sayer, R. Cowling, H. Kassa, A. Knight. 2010 **The role of participatory modeling in landscape approaches to reconcile conservation and development** - *Ecology and Society in press*