



Netherlands Environmental Assessment Agency

Results national applications Globio model

Presentation for the Modelling Planning Workshop

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International Biodiversity Project (2005-2008):

- 10 case studies in tropical countries to find out relations between biodiversity and poverty
- Establishing a network with institutes and scientists
- Working groups (biodiversity indicators, biodiversity modelling, biodiversity-poverty linkage work group)
- Policy embedding:
 - institutionalization, including modelling as part of policy process:
Vietnam: Part of Agenda21 office under MPI. To be used as part of tool set needed to assess biodiversity impact of plans formulated in socio-economic development plan (5yr)

Drawbacks:

- Key persons falling away (both scientists as key management, because of other jobs, health)
- Both top down and bottom up needed

Example Vietnam:

- Death director of MPI and Agenda 21
- (case of Nicaragua: new parlement resulted in reorganisations in institutes -> people fired)
- Difficult to get spatial data. Owned by different institutes who do not want to share with each other
- Institutionalisation (conflict between coordination office and line ministeries / institutions who need to assist modelling, lack of committment, Poor involvement key sceientists from these inst.)
- poor scenarios
- Translation and analysis of information into information understood by policy makers

International courses

- Two MNP international biodiversity modelling courses of three weeks, 15 participants from Latin America, Africa, Asia and Ukraine hosted by ITC (2006 - 2007)
- Two MNP-MPI-EOC biodiversity modelling courses of two weeks and a 3 days introduction Clue model workshop in Vietnam with 10 participants, from Vietnam, Myanmar, Cambodia, Laos, Thailand, Yunnan (province China) (2007 – 2008).
- A three weeks biodiversity modelling course in Kitwe, Zambia at the Copperbelt University (2008)
- A two weeks advanced workshop with 4 trained participants who participated with the ITC courses in Zamorano, Honduras (training trainers) followed by a two week current status biodiversity modelling course with participants from all over Central America (2009). To be followed by another two week course in June 2009 in order to calculate future status biodiversity modelling.

Feedback

Feedback participants first international courses:

- Arisflow model too complex for training
- Global modelling less interesting for policy level at national scale
- MSA definition not clear
- Model input + output is too coarse for national use

Global to national: Scale differences

- Resolution too coarse for national application
Global model 0.5 degree ~ 50*50 km
- Global land use / cover map GLC2000 to general
Detailed information national land use maps lost by grouping into generic classes
- Use of eco-regions (WWF) to determine original ecosystems too coarse and often not used
- Built-in land allocation model in IMAGE is designed for global scale
- Scenarios used in IMAGE model are Global (sub continental)
(Regional models for: economy, demography, agricultural trade, energy supply and demand)

Solution: Use of national input data in combination with high resolution land allocation model

7

- Split the model into relative simple parts per pressure type
Modular version in ArcGis
- Resolution map grid cells set to 1km * 1km
- National land use map
 - Vietnam: More than 43 land cover / use classes
 - Estimate current biodiversity values per land use class based on expert knowledge
- National road map.
Use of 100m buffer zones for calculation of impact zones
- Using CLUE model to allocate future land use

Some results from training in Honduras

Project with IRBIO, Zamorano UV Honduras:

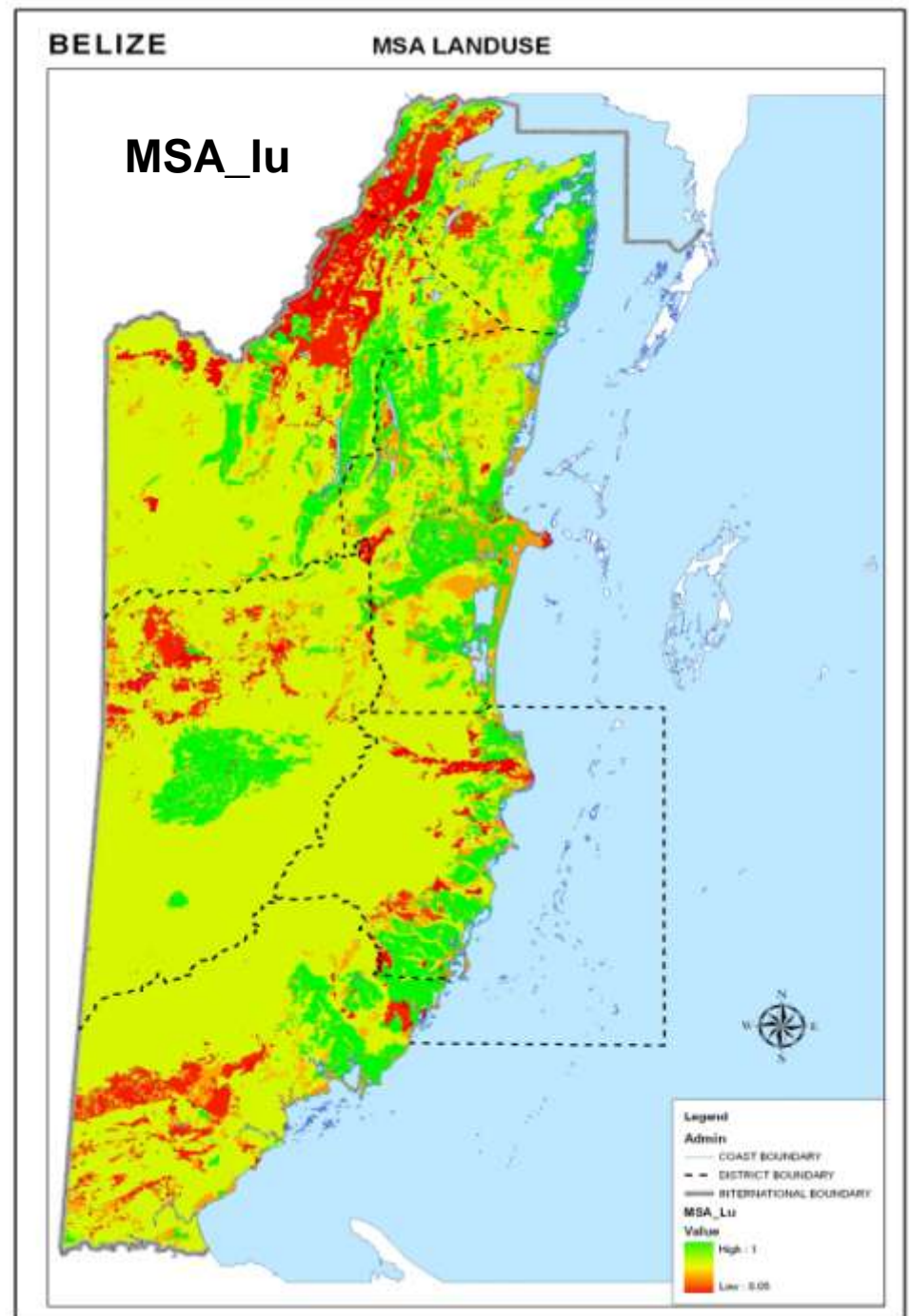
- National biodiversity assessments for 7 Central American countries
- 1st step: Calculation current biodiversity status

Land Use Map

Impact Land Use Change

Poor quality of land use map limits accuracy calculation of msa impact by land use

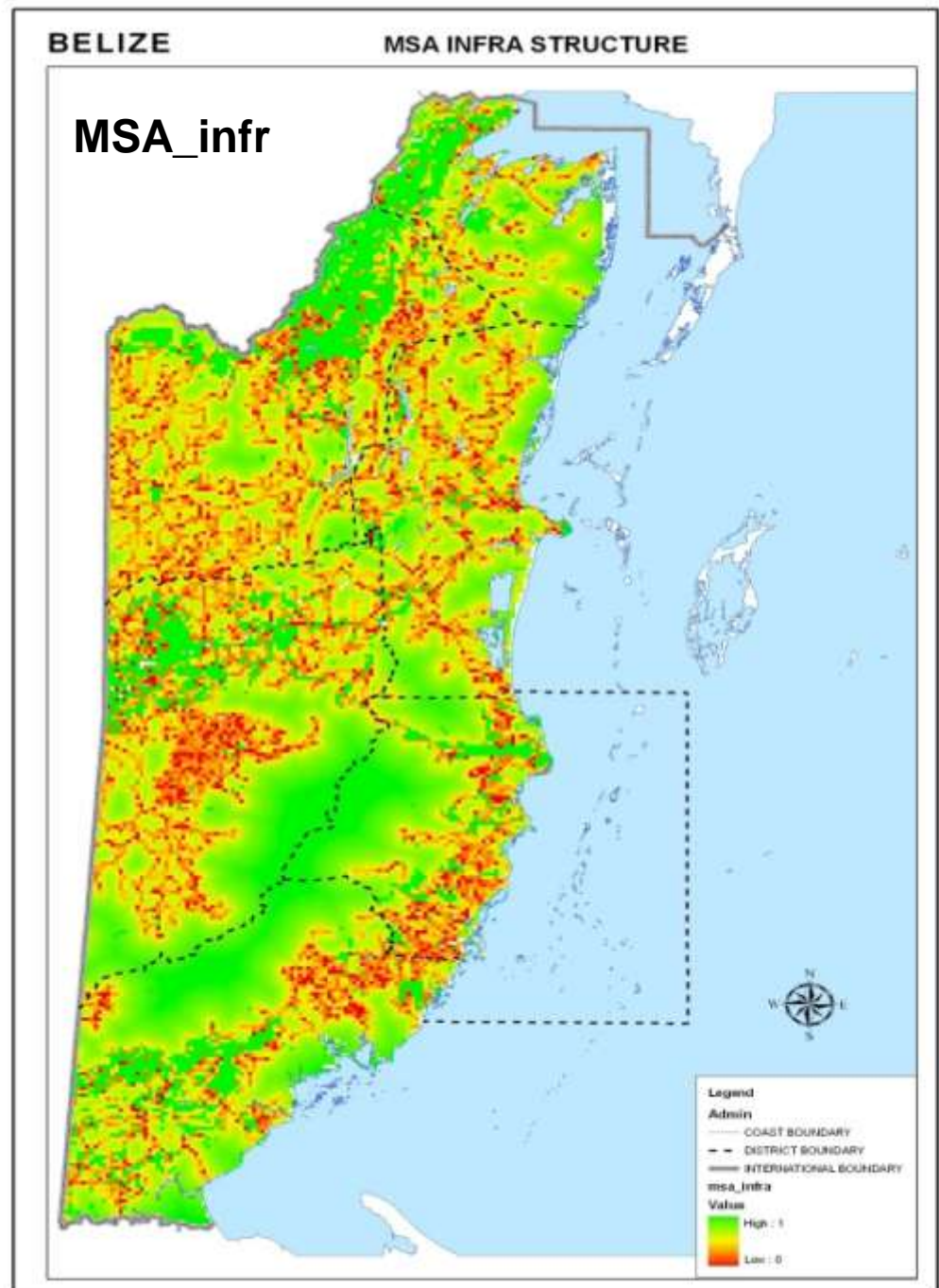
Map large scale, old (1993), and few land use / forest intensity types result in interpretation differences



MSA infra

Impact Infrastructure Change

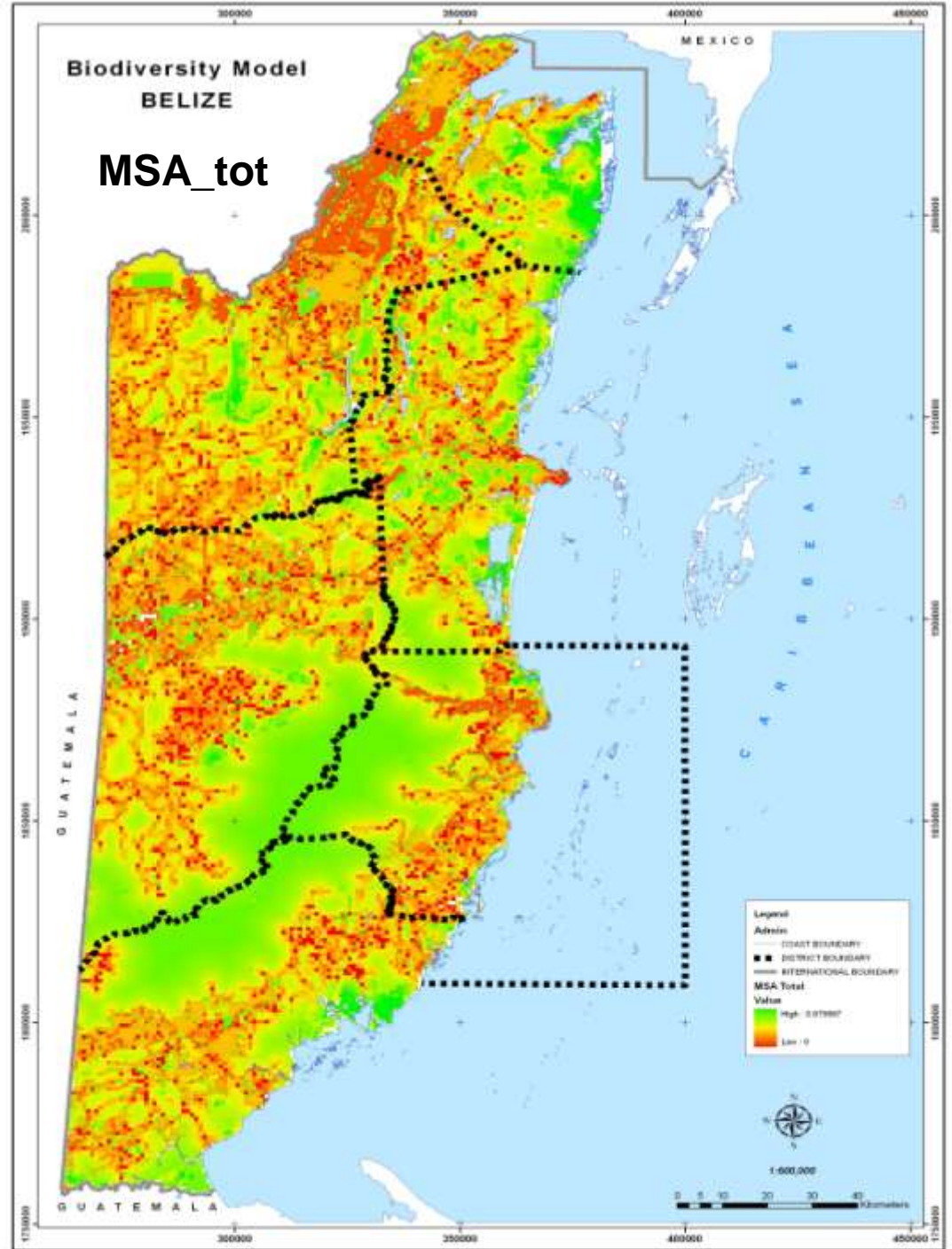
Participants Belize used all roads incl. minor tracks and footpaths. Therefore road impact on this exercise map exaggerated



Total MSA

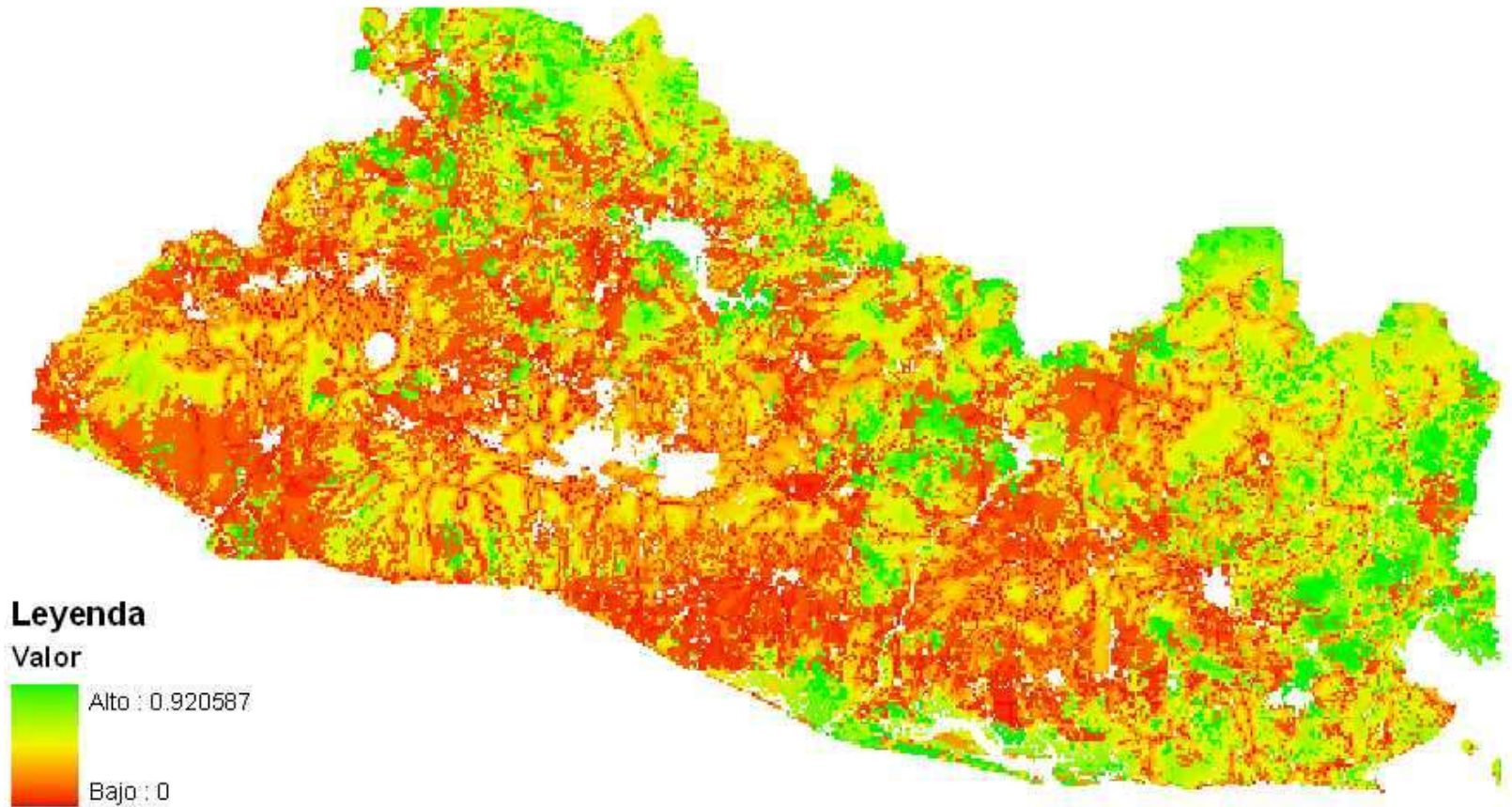
MSA tot = 39%

This training example appears to give an underestimation of Belize's remaining biodiversity because of exaggeration of infra impact and too generalized Lu map



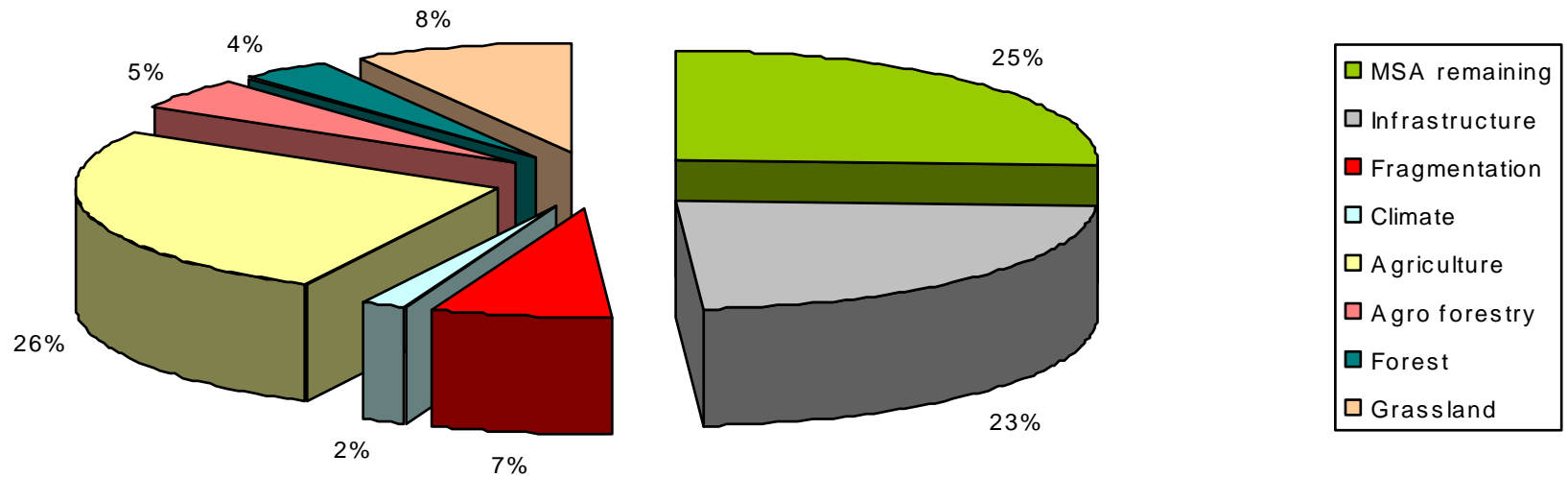
MSA_tot El Salvador

MSA = 25%



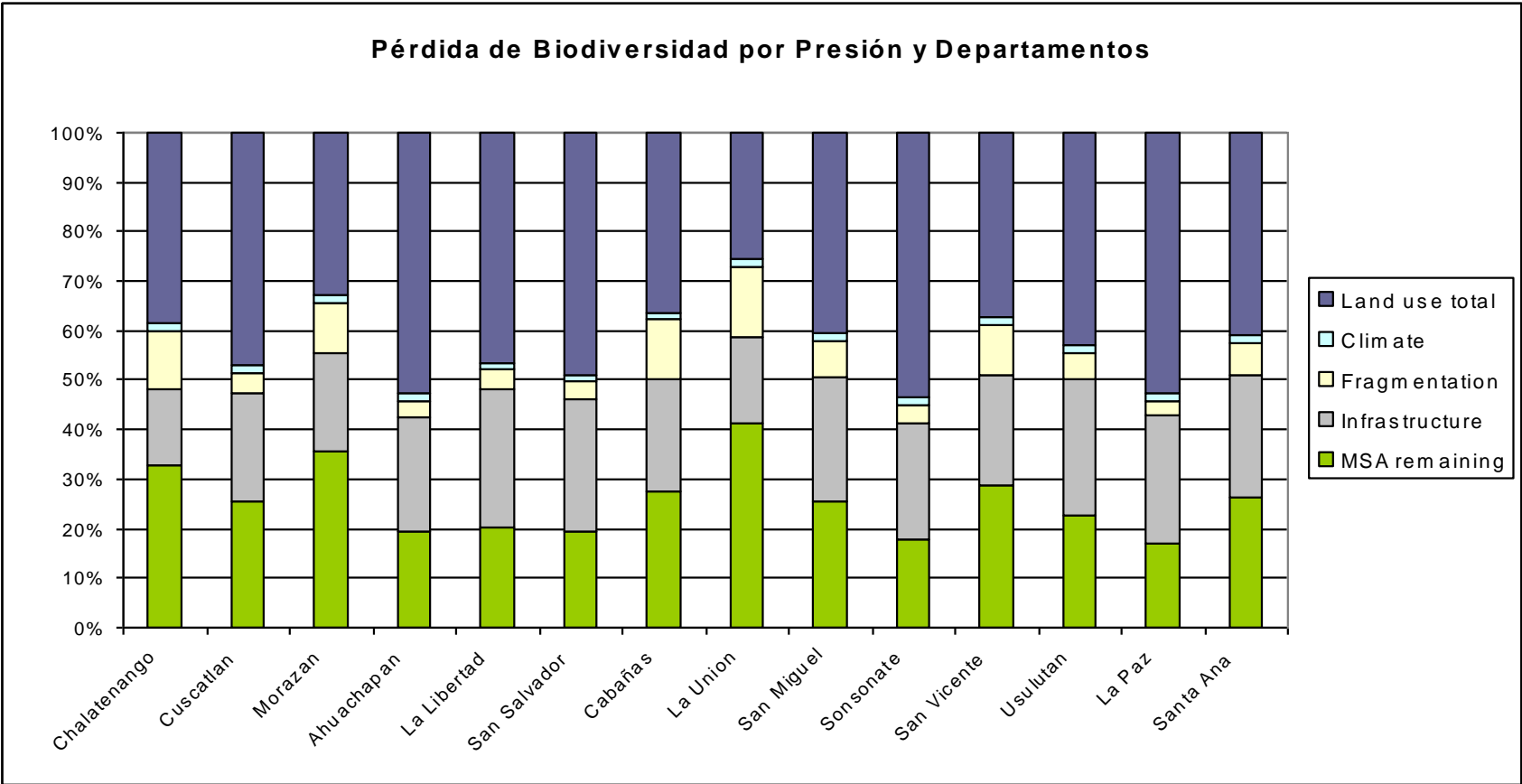
Contribution Biodiversity loss per Pressure type

MSA El Salvador. Contribución por Presión



Biodiversity loss per district per pressure type

Resultados de MSA para El Salvador



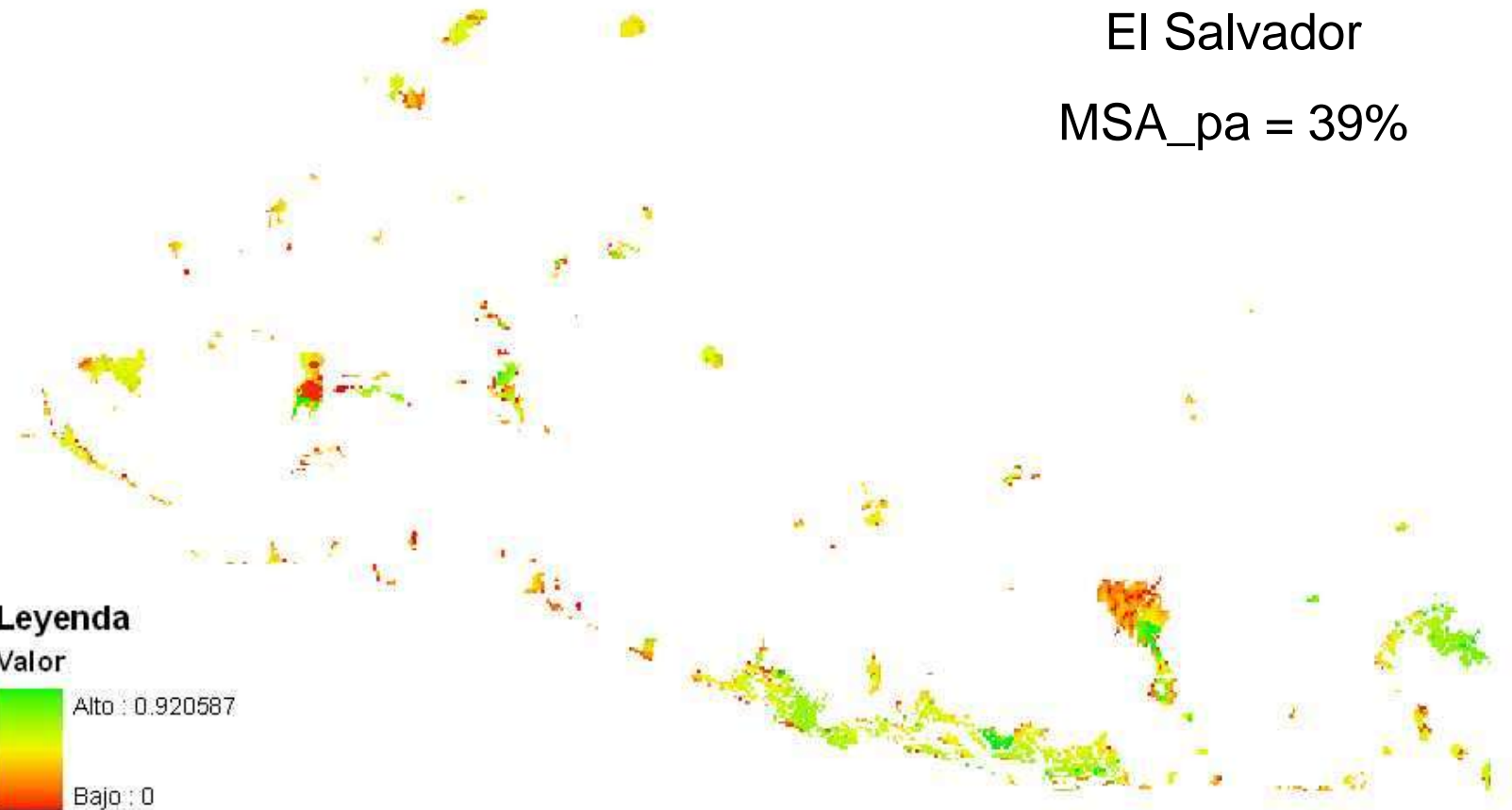
MSA para Áreas Naturales Protegidas

MSA_tot_pa
El Salvador

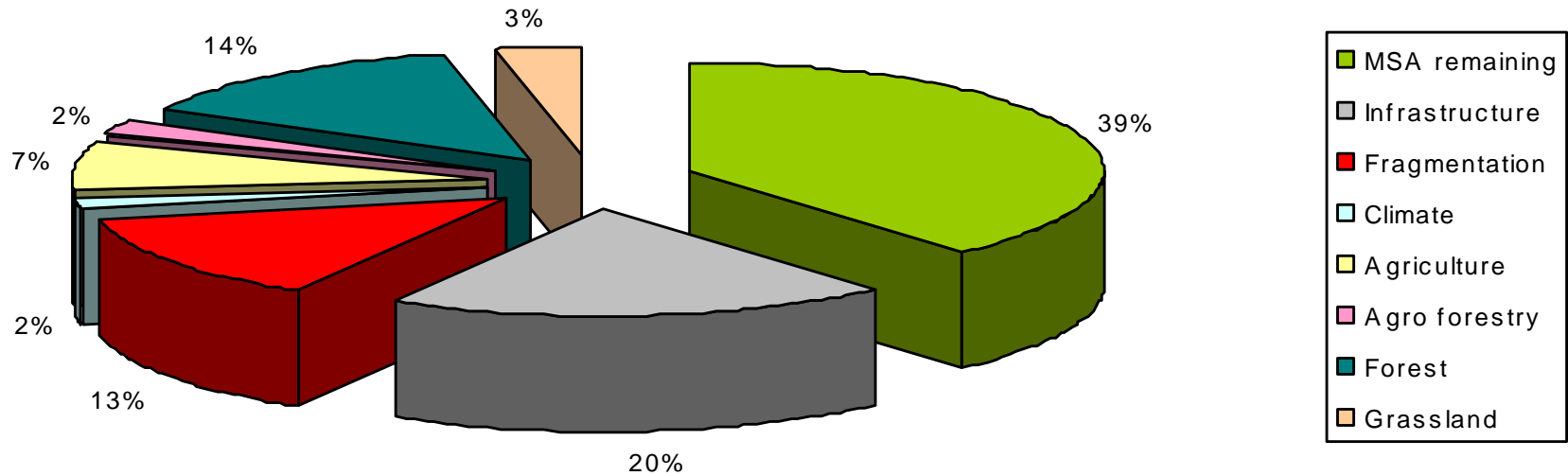
MSA_pa = 39%

Leyenda

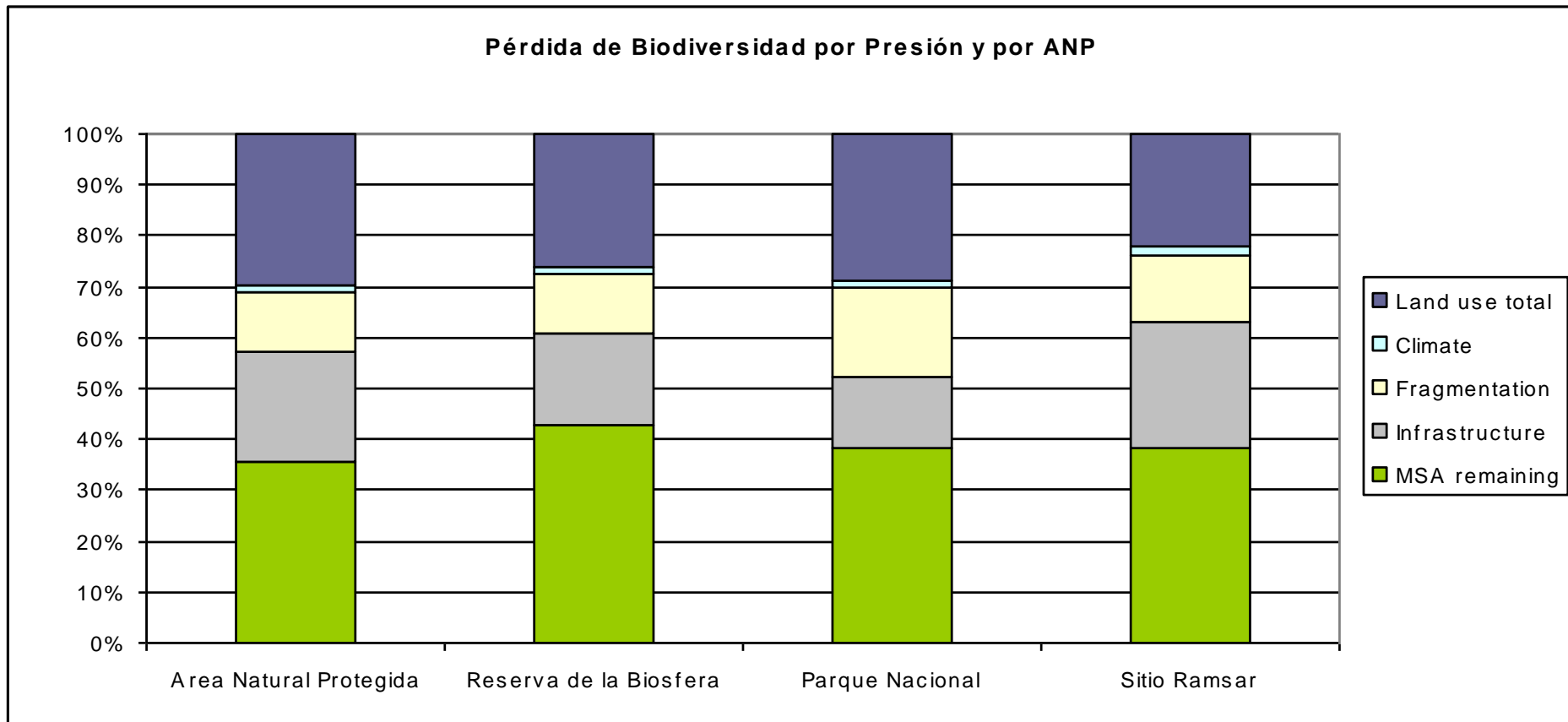
Valor



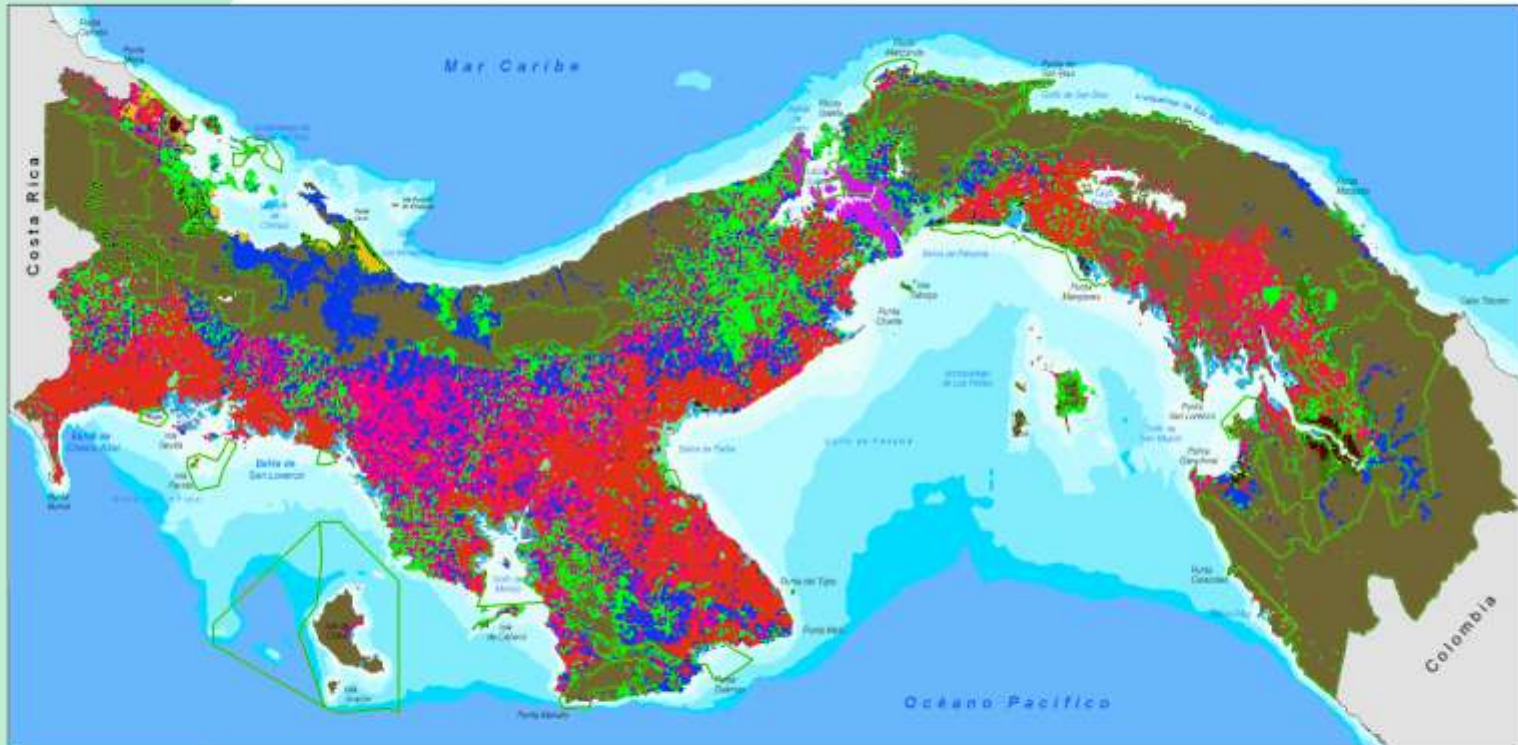
MSA SNAP ES. Contribución por Presión



Resultados de MSA para las Áreas Protegidas de El Salvador



LANDUSE_PANAMA VS SINAP

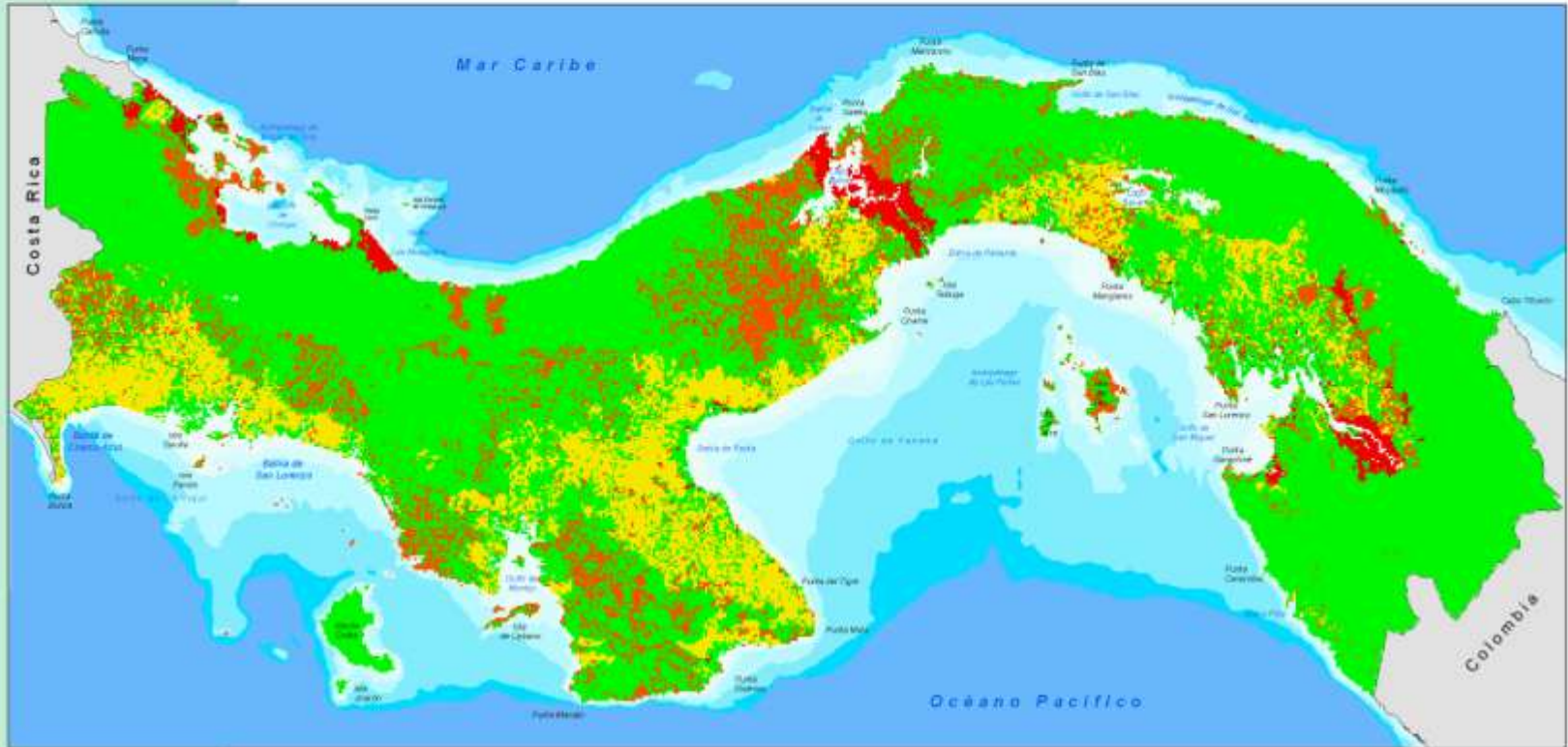


Localización Regional

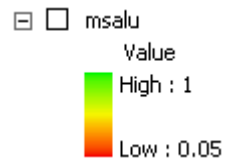


1	Bosque Maduro
2	Uso Agropecuario de Subsistencia
3	Bosque Intervenido
4	Rastrojos (Bosque Pionero)
5	Manglar
6	Uso Agropecuario
7	Agua
8	Otros Usos
9	Bosque de Orey Homogéneo
10	Bosque Inundable Mixto
11	Bosque Secundario Maduro
12	Vegetación Baja Inundable
13	Cativo Mixto/Homogéneo
14	Albinas
15	Plantaciones

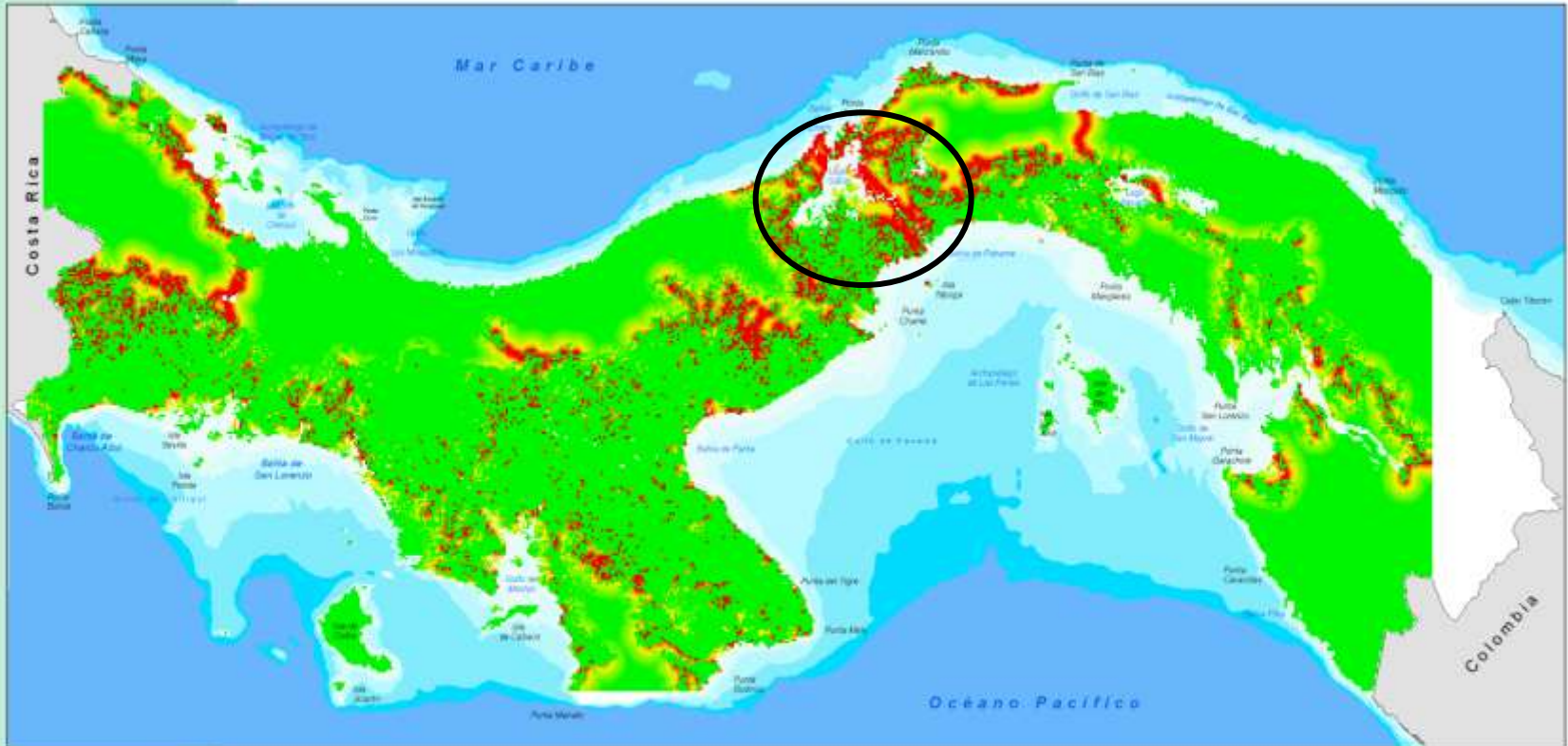
MSA_LU_PANAMA



Localización Regional



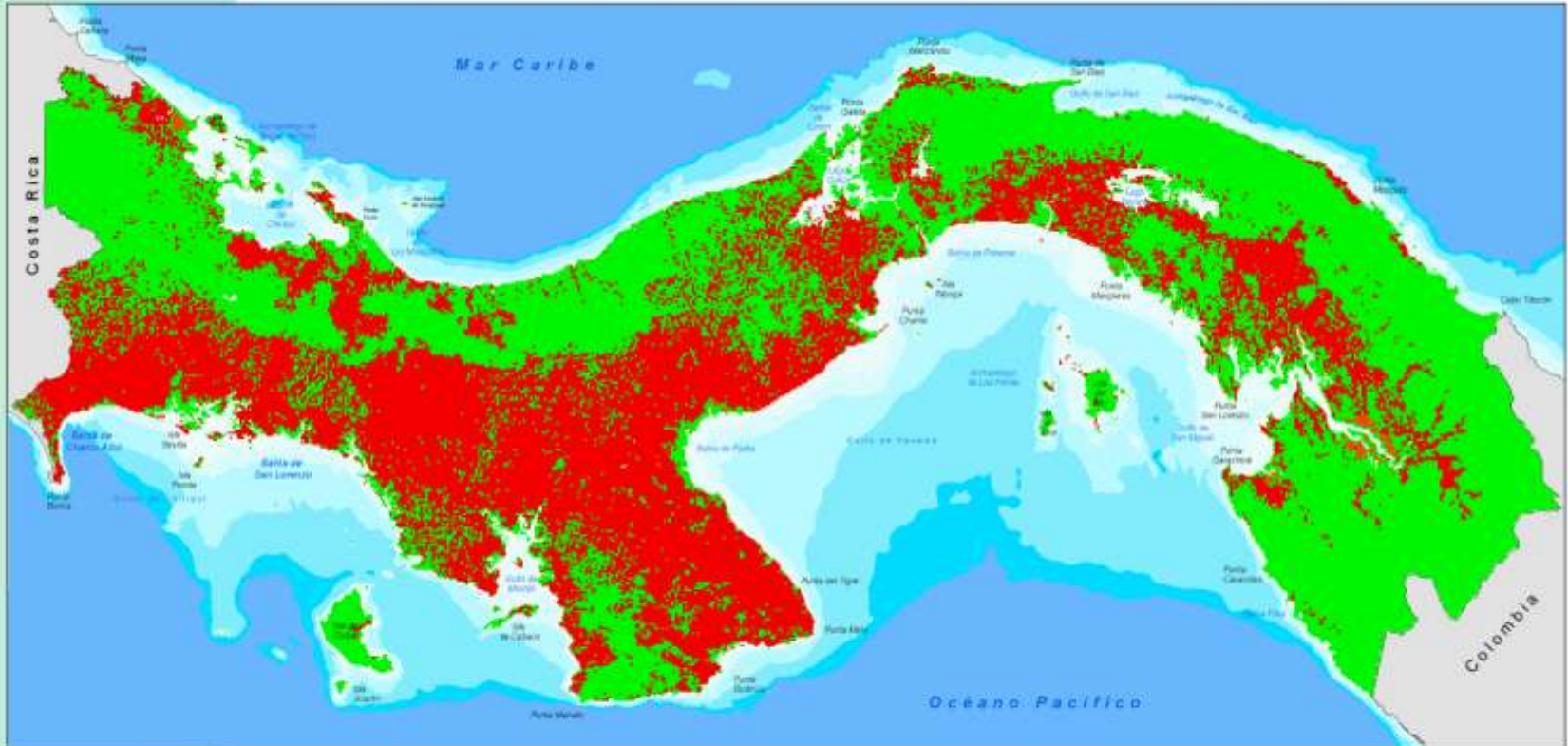
MSA_INFRA_PANAMA



Localización Regional



MSA_CLIMA_PANAMA



Localización Regional



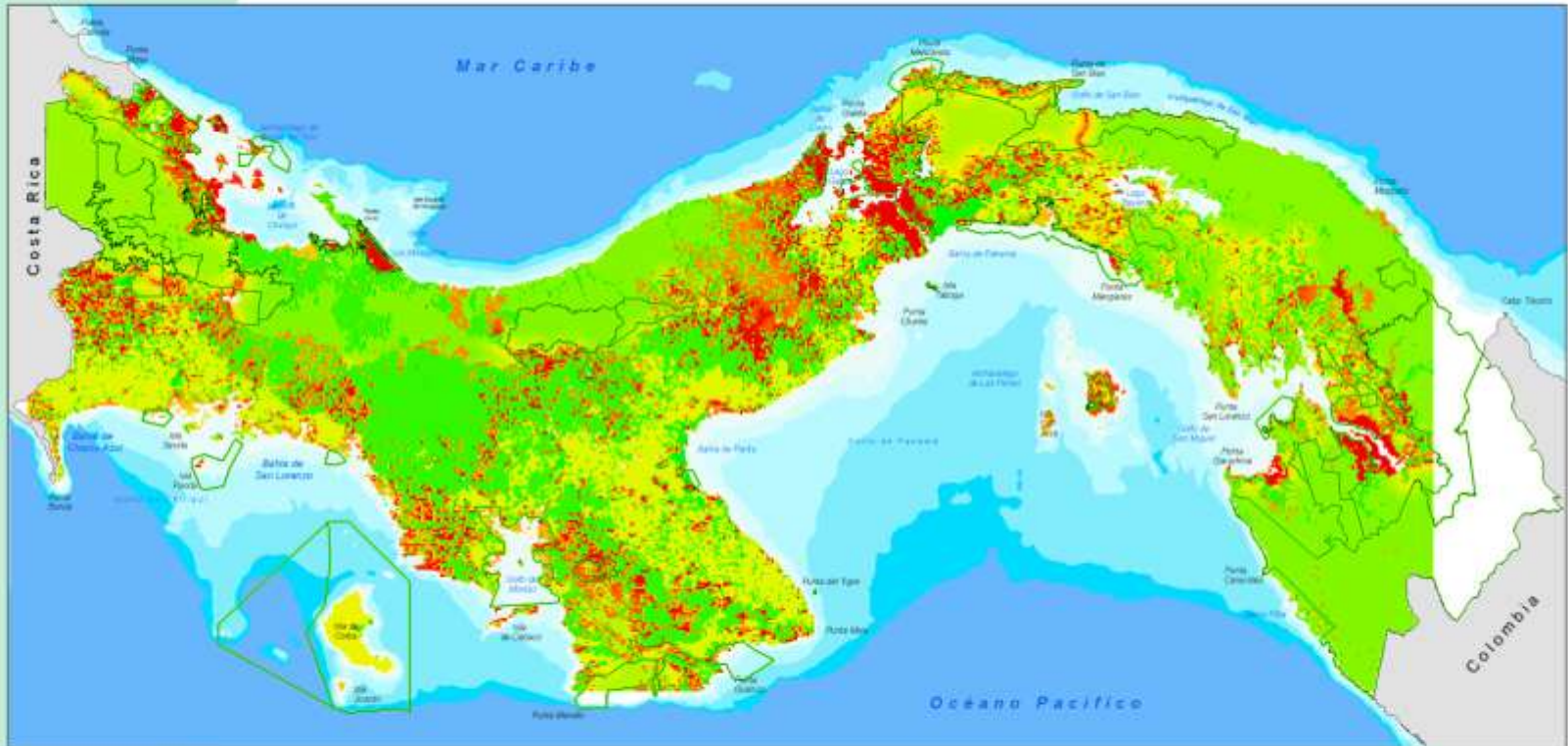
msa_clim

Value

High : 0.9807

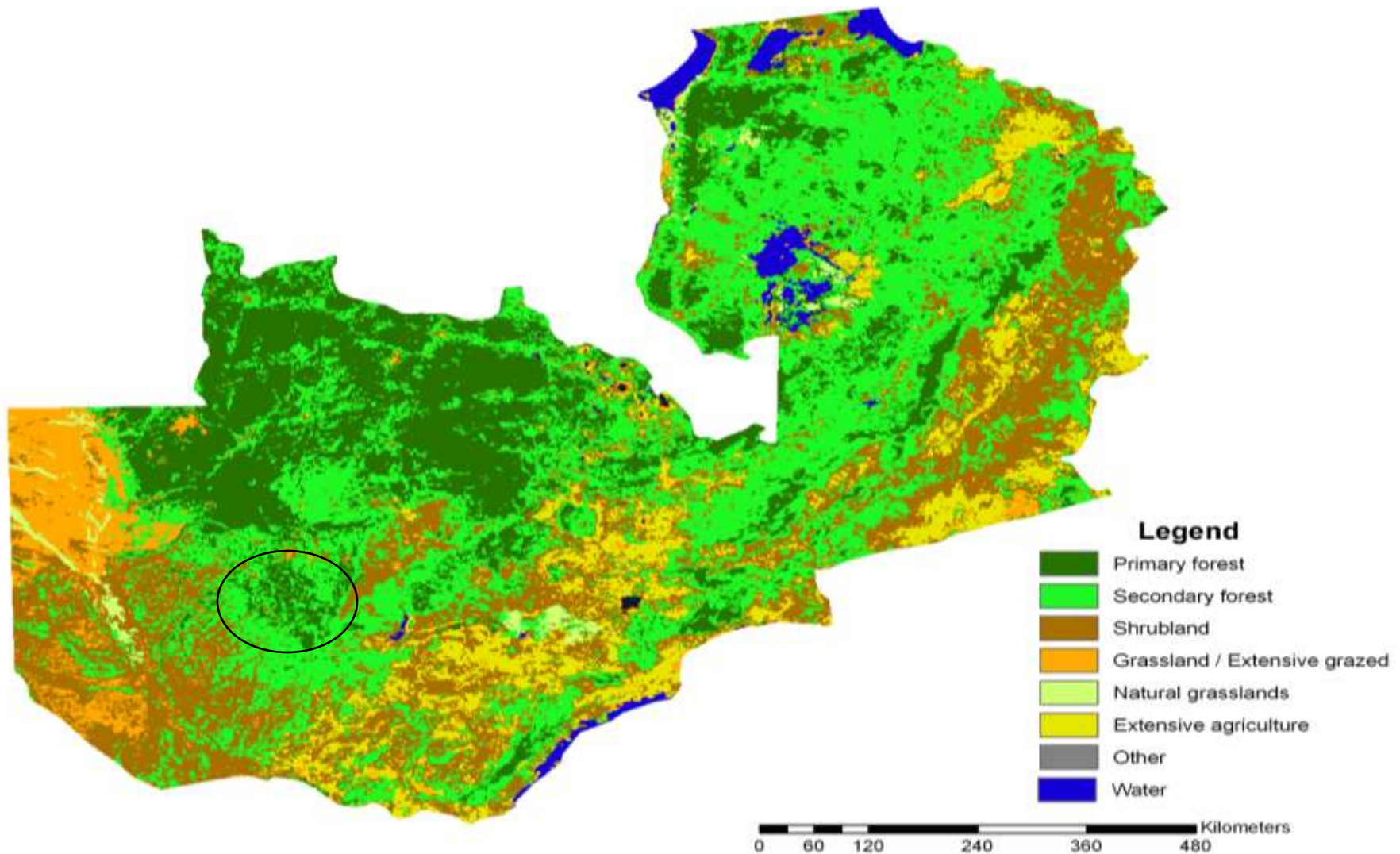
Low : 0.9442

MSA T_PANAMA



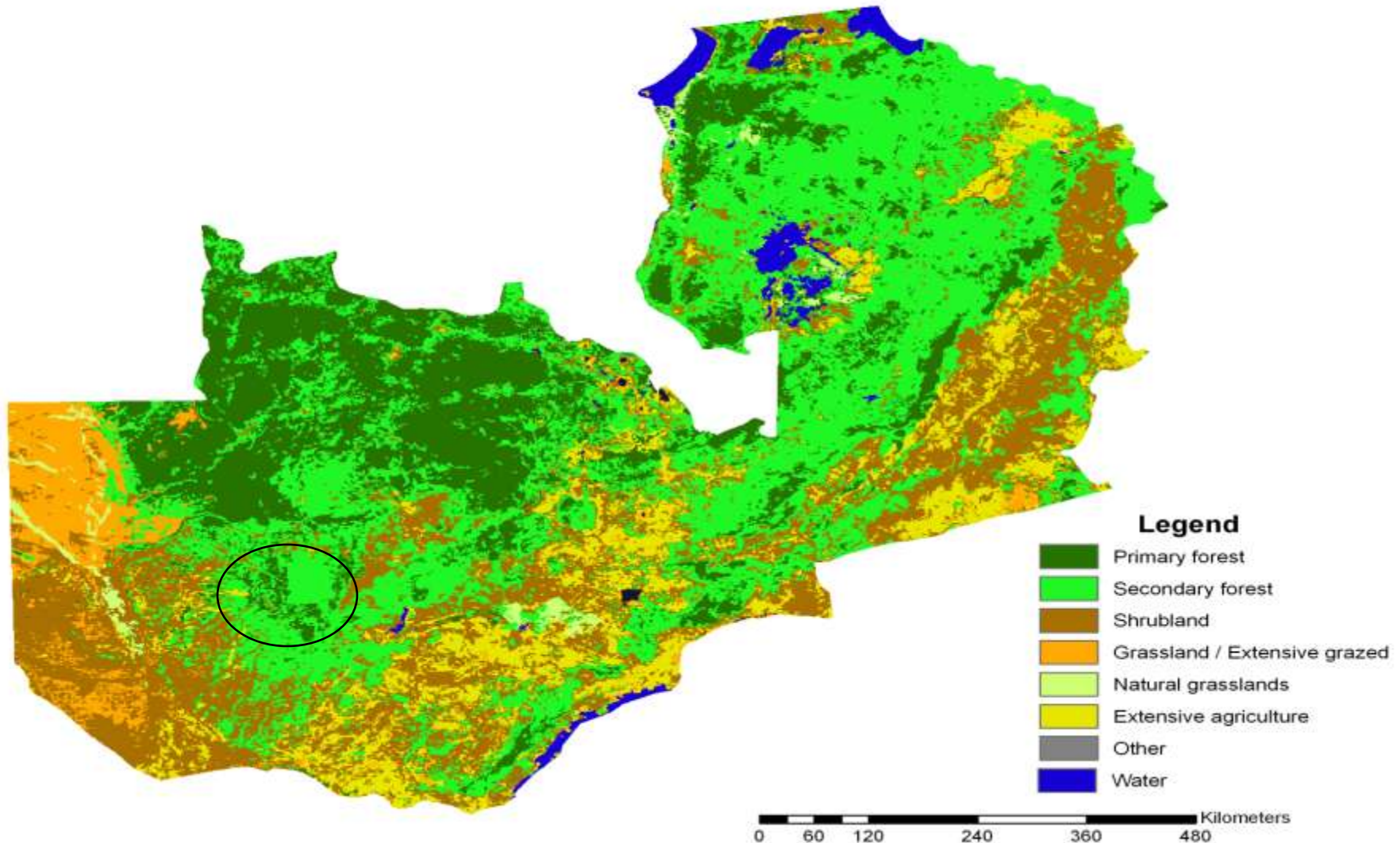
Example Future status calculations Zambia

Landuse 2000



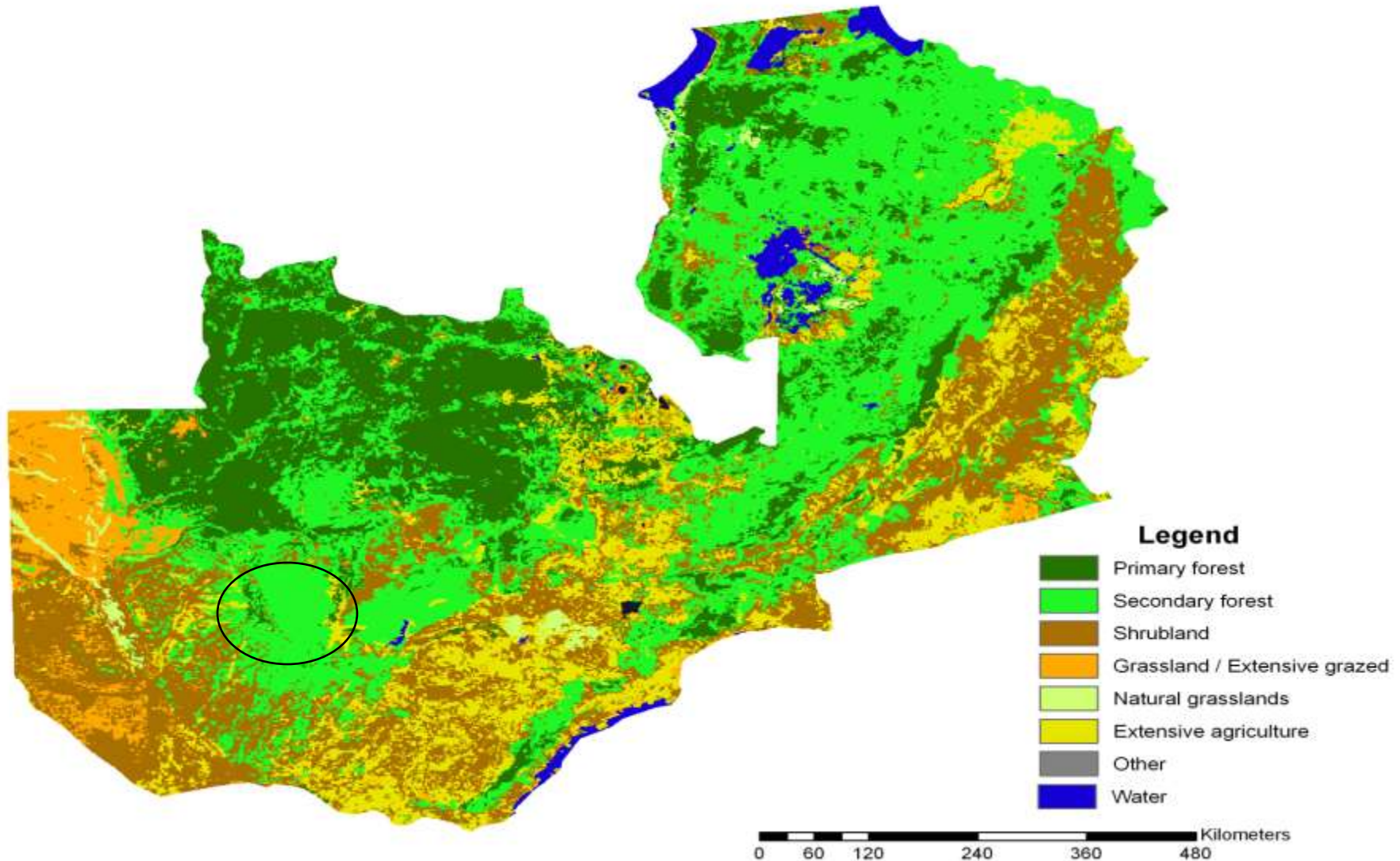
Example Future status calculations Zambia

Landuse Baseline Scenario 2010

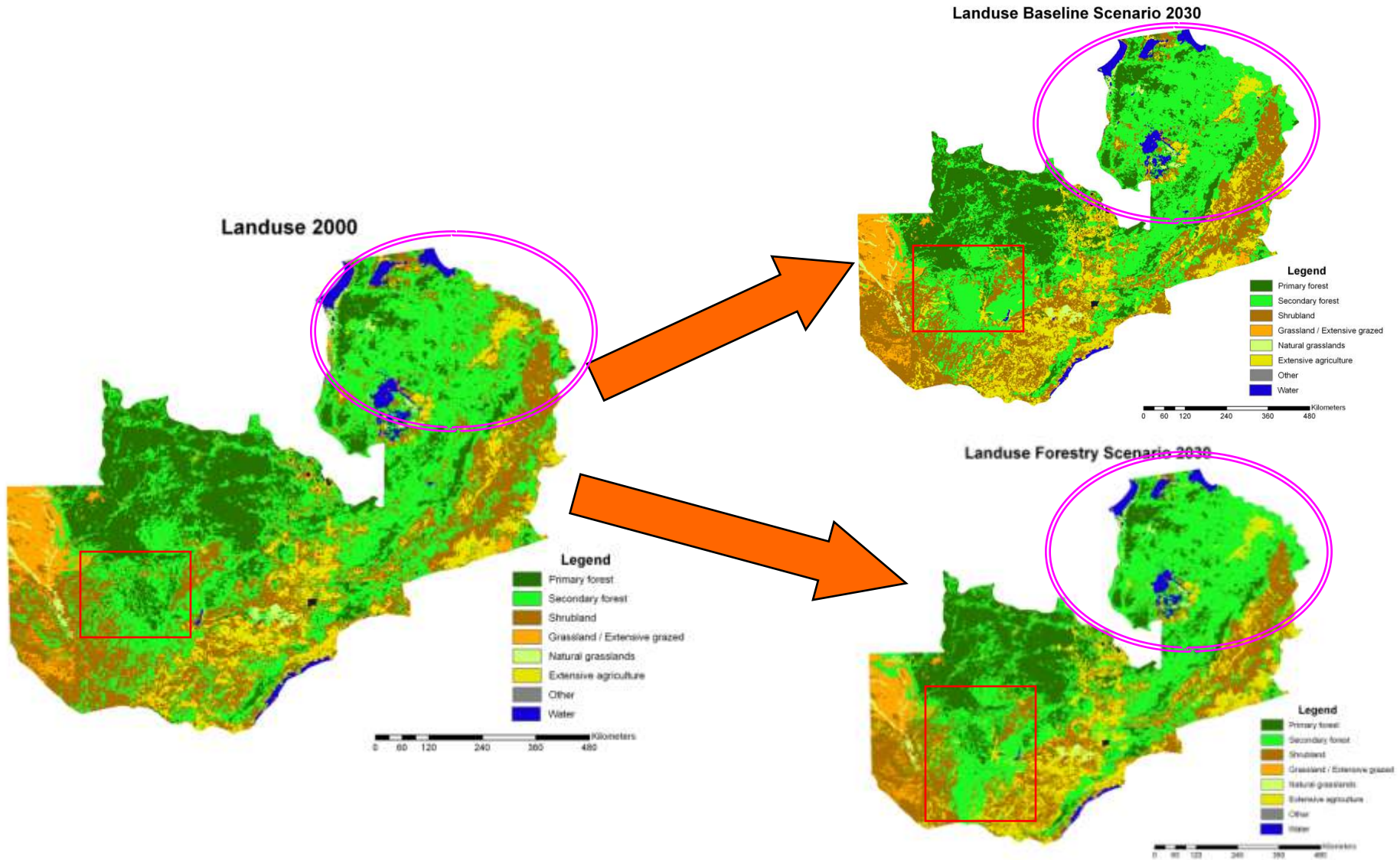


Example Future status calculations Zambia

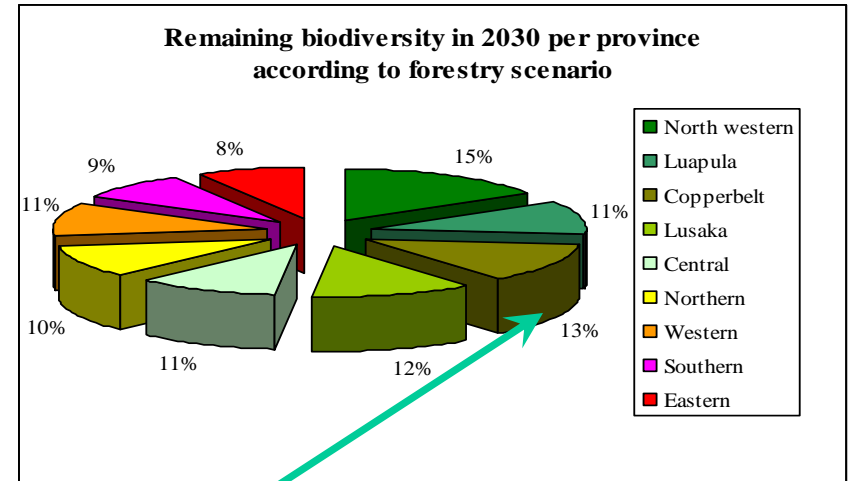
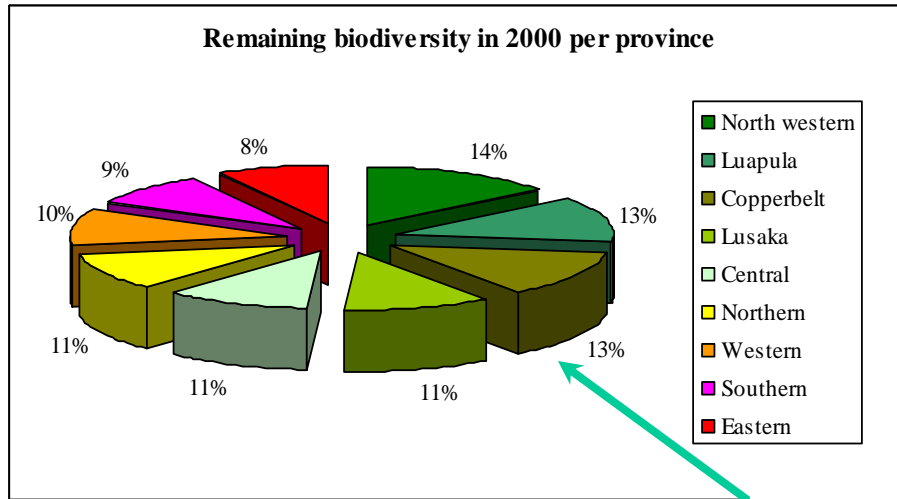
Landuse Baseline Scenario 2030



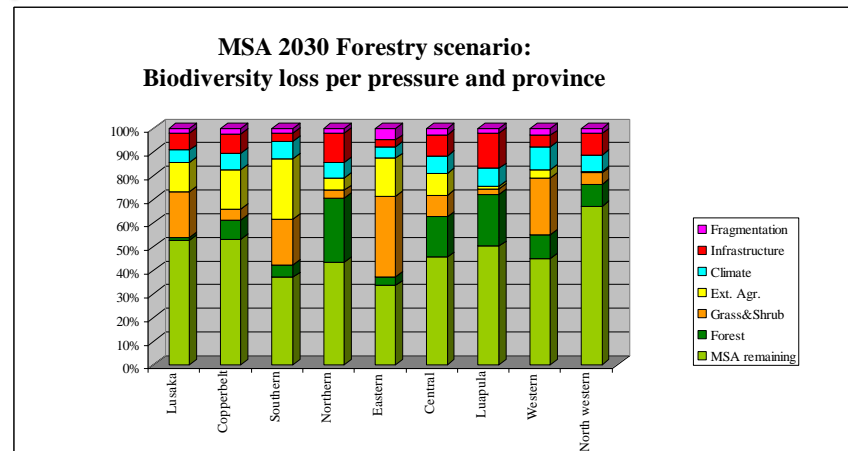
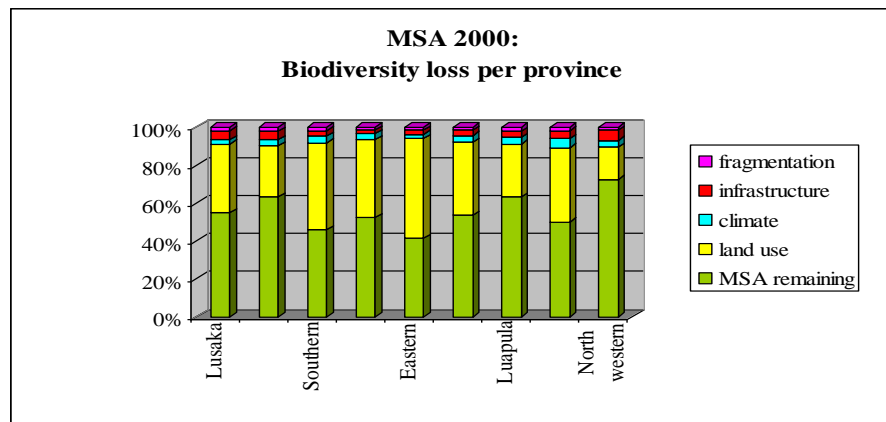
Example Future status calculations Zambia



Example Future status calculations Zambia

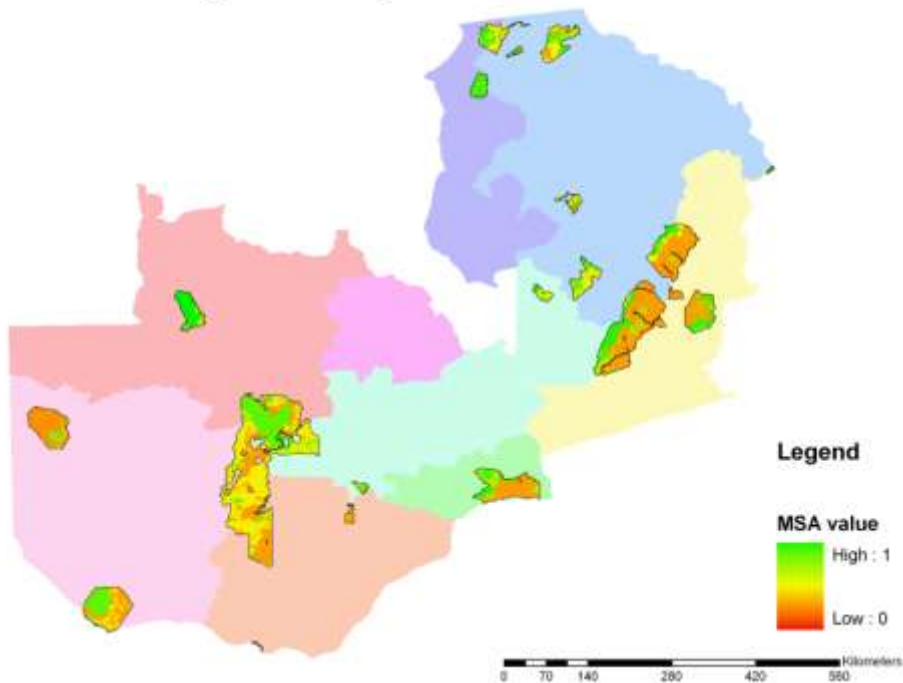


Copperbelt

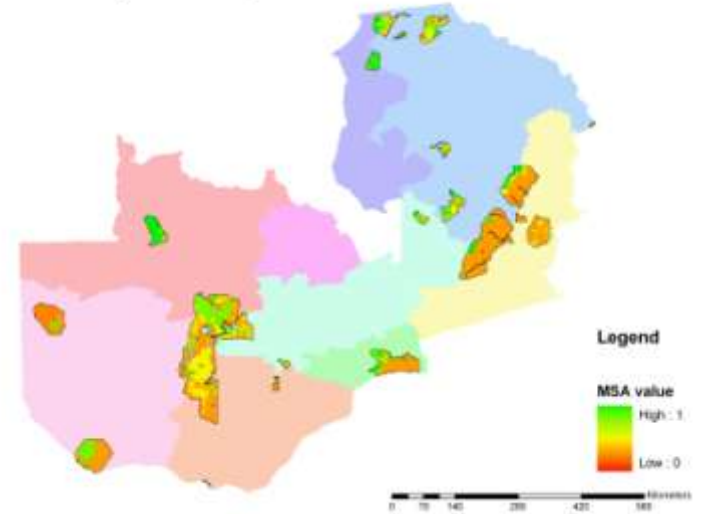


Example Future status calculations Zambia

Remaining biodiversity National Parks in 2000



Remaining biodiversity National Parks for baseline scenario 2030



Remaining biodiversity National Parks for forestry scenario 2030

