

# Cumulative Effects Assessment, Strategic Environmental Assessment, and the Mitigation Hierarchy

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# Cumulative Effects Assessment and Strategic Environmental Assessment

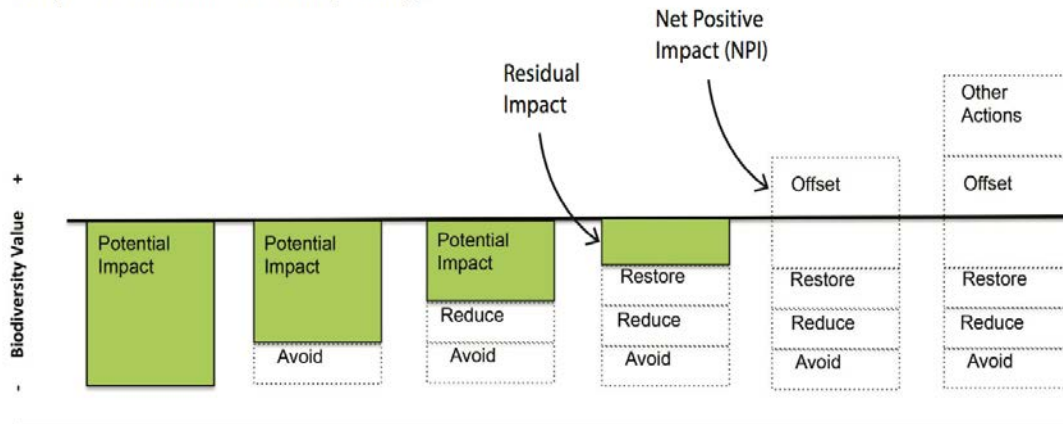
- Cumulative effects assessment (CEA) considers the combined effects of multiple actions (past, present, and future) on selected biodiversity values.
- Strategic Environmental Assessment (SEA) is a systematic public planning and decision process and should integrate CEA with regional development / land use planning.
- SEA and CEA are uncommon in much of the world, but are crucial for informing impact assessment and mitigation planning.

# Mitigation Hierarchy

Effective mitigation planning relies heavily on the information that is generated by CEA and SEA.

SEA = where and what. CEA = how much.

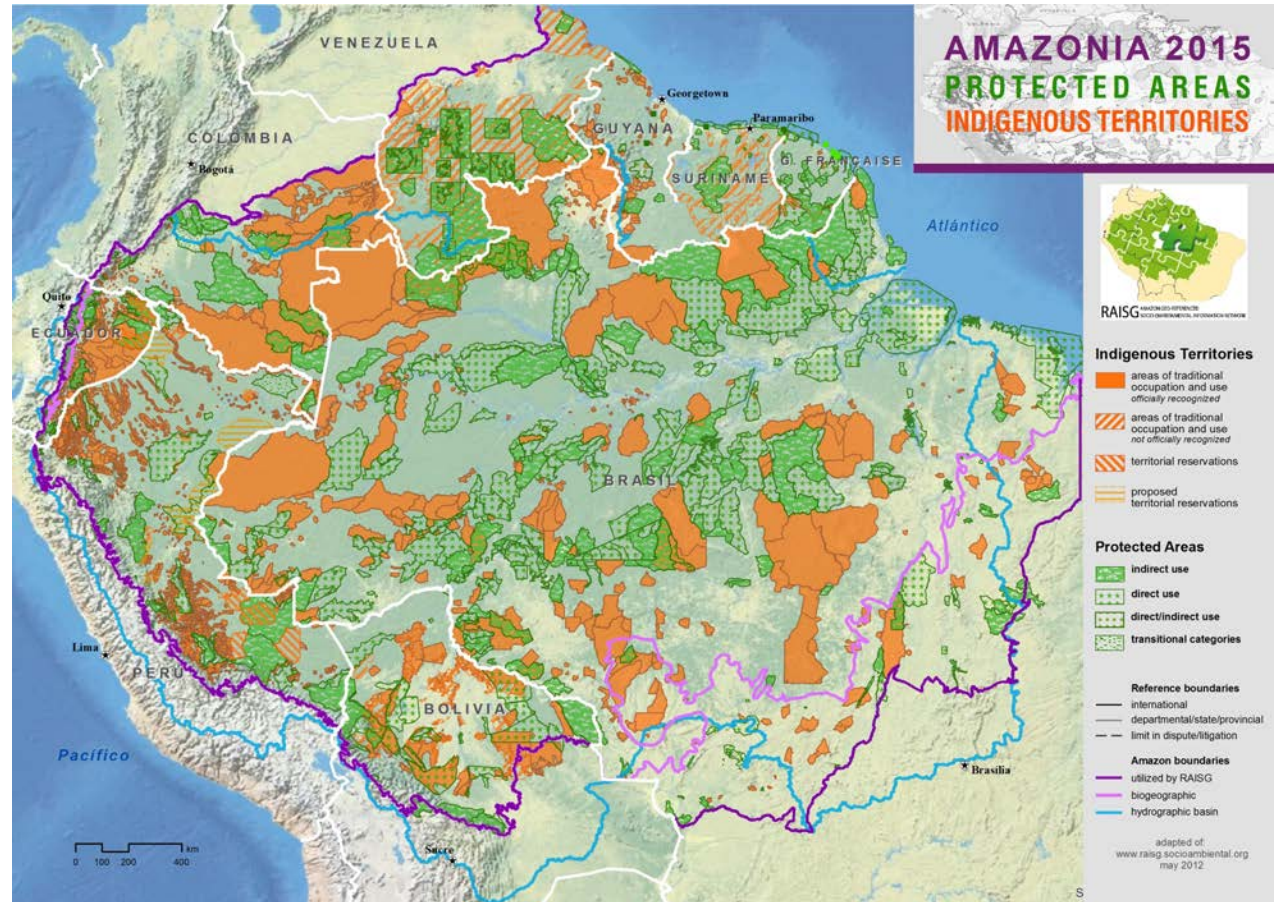
**Biodiversity Mitigation Hierarchy**  
(Adapted from Rio Tinto Biodiversity Strategy)



**Source:** Hardner, J., et al. 2015. *Good Practices for Biodiversity Inclusive Impact Assessment and Management Planning*. Prepared for the Multilateral Financing Institutions Biodiversity Working Group.

# MH: Avoid

- SEA and regional plans are needed to identify priority sites and species for conservation.
- CEA is needed to understand how much to conserve to avoid threshold effects.



## MH: Minimize

- SEA can minimize impacts of multiple projects by optimizing infrastructure and/or spatial layout.
- CEA shows how multiple projects can reduce impacts together to achieve desired *combined* effect.



# MH: Rehabilitate

- SEA identifies where restoration can be carried out to maximize its contribution to landscape conservation objectives (e.g., connectivity; critical habitat)
- CEA identifies threshold that must be reached/maintained, via combined effort, for conserving biodiversity and ecological function.

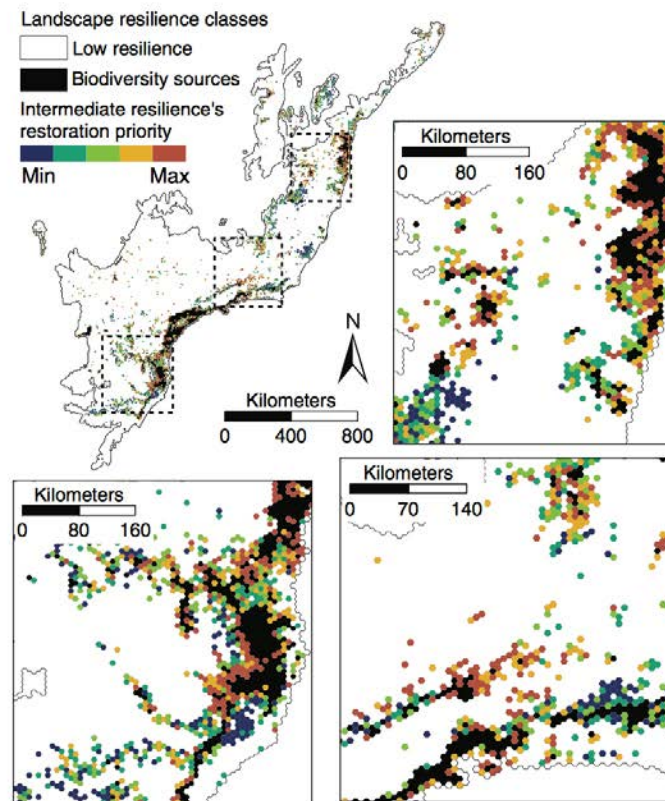
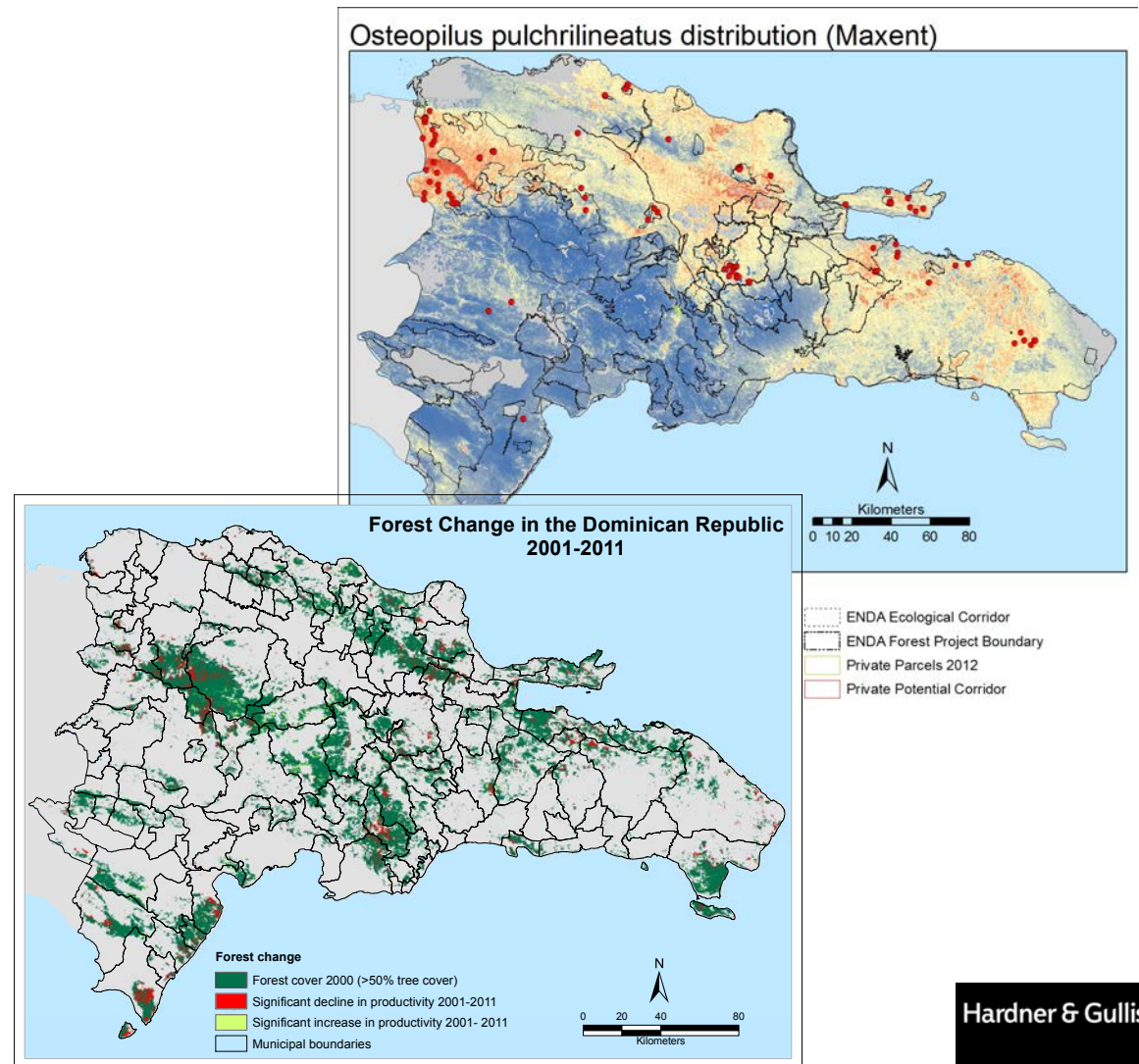


Figure 4. Spatial distribution of the three resilience classes of the Atlantic Forest focal landscapes (top left) and restoration priorities for the *intermediate resilience* landscapes. This figure appears in color in the online version of the article (doi: 10.1111/rec.12049).

Source: Tambosi, L. 2014. Spatial strategies to optimize restoration efforts based on landscape ecology theory. Doctoral thesis: University of Sao Paulo, 116 pp.

# MH: Offset

- SEA should indicate where offsets should be located to support regional conservation priorities based on irreplaceability and vulnerability.
- CEA is needed to understand the cumulative potential of offsets from multiple projects (especially for aggregated offsets).



# Our Responsibility

- Why don't we have more SEA and CEA?
  - SEA is not within scope of ESIA – government responsibility.
  - CEA often found to be difficult to implement.
- Practitioners should be transparent about absence of SEA and CEA in impact assessment and mitigation planning, and negotiate the appropriate level of precaution where information is lacking.
- As a community of practice, we should promote CEA and SEA.