



**Ecological redlines  
and ecological  
civilisation**

Alice. C. Hughes

*Xishuangbanna Tropical Botanical Garden*

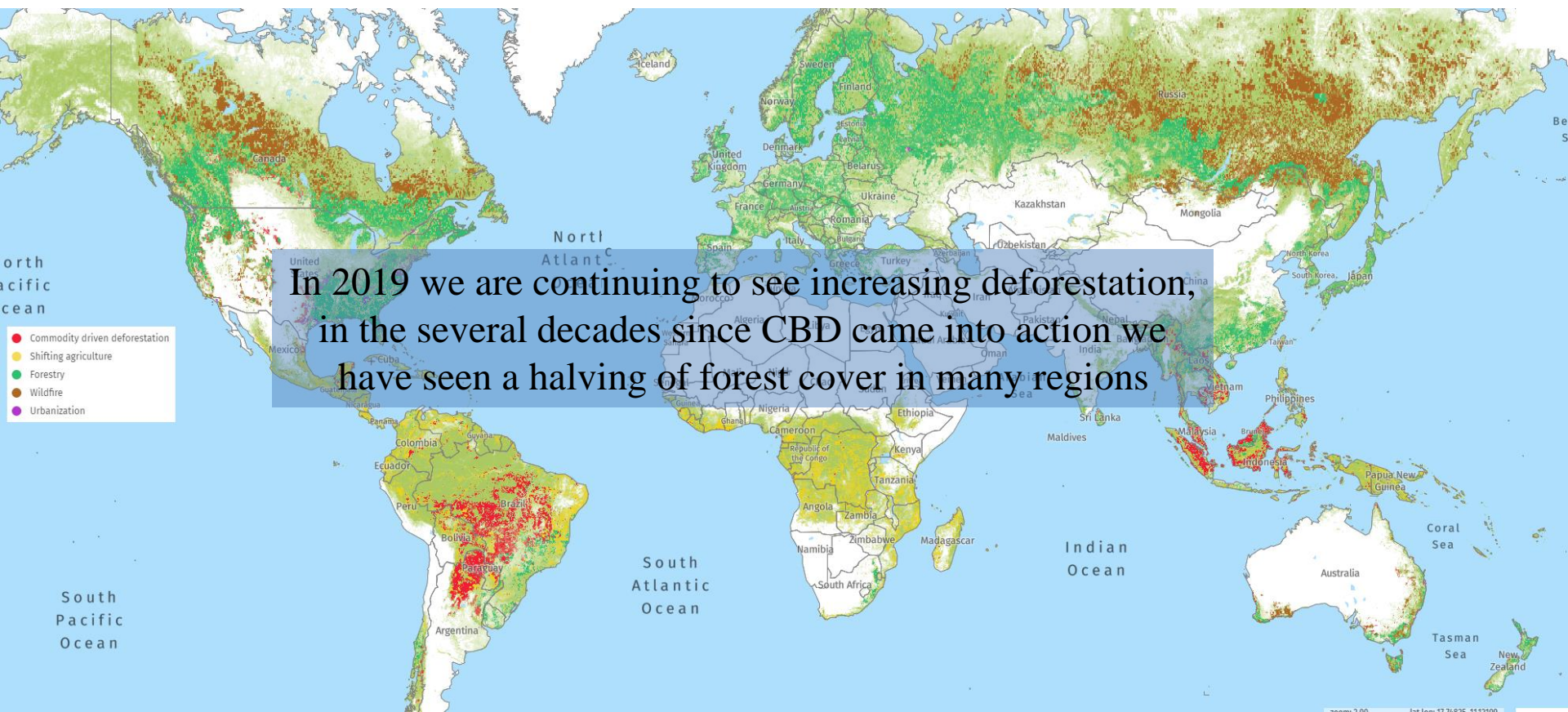
*Chinese Academy of Sciences*

# Making resilient landscapes

- Whilst global approaches often focus on “intact” areas these are applied to a tiny part of the landscape, and are not sufficient for most species
- Developing solutions to maintaining diversity must include targets for across the landscape

# Habitat loss and degradation

From **2001 to 2018**, there was a total of **361Mha** of tree cover loss **globally**, equivalent to a **9.0%** decrease in tree cover since **2000** and **98.7Gt** of CO<sub>2</sub>



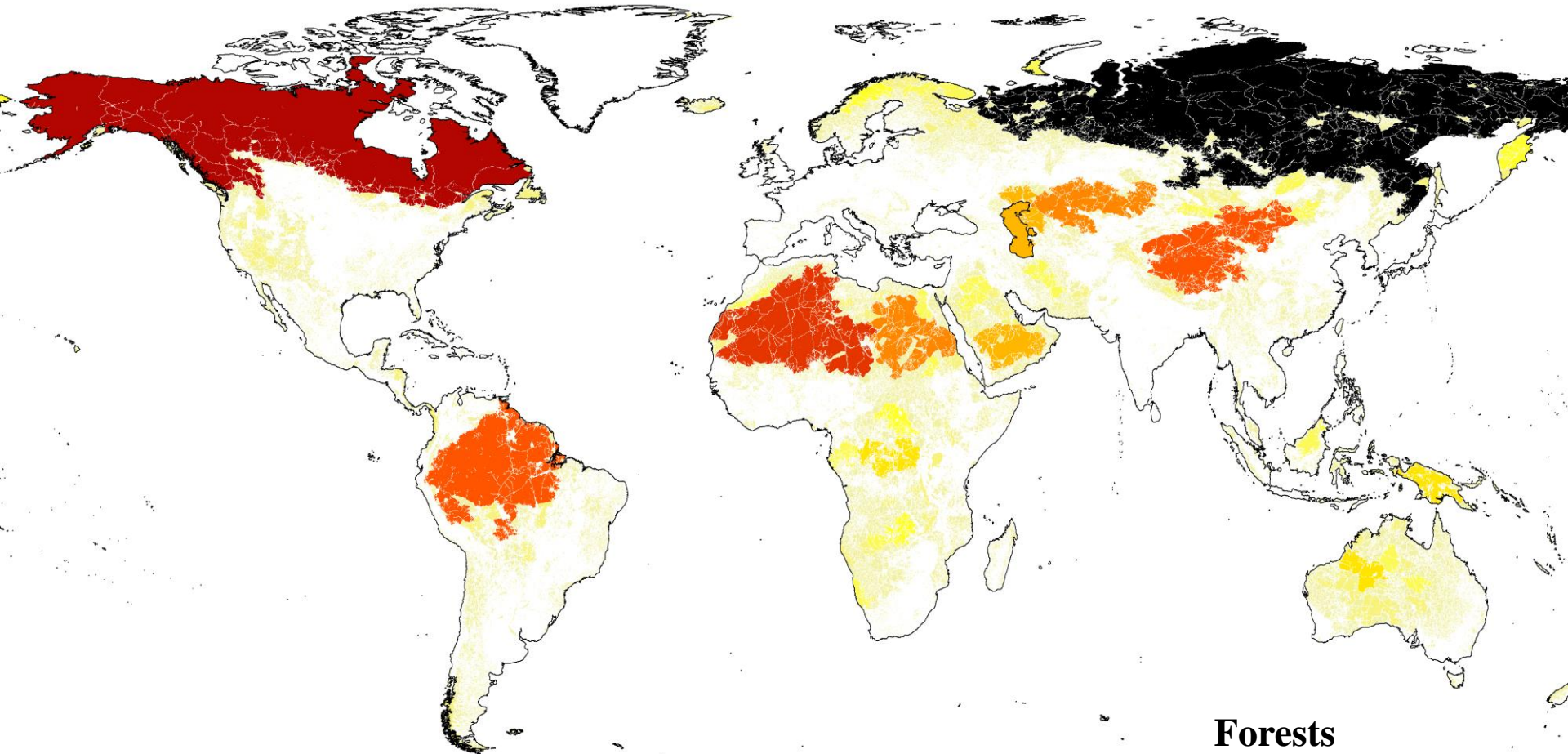
# Other approaches to identifying key ecosystems

- Native ecosystem patchsize
- These kinds of approaches can be used to identify priority systems to protect and connect
- Such approaches are also scalable and ecosystem specific

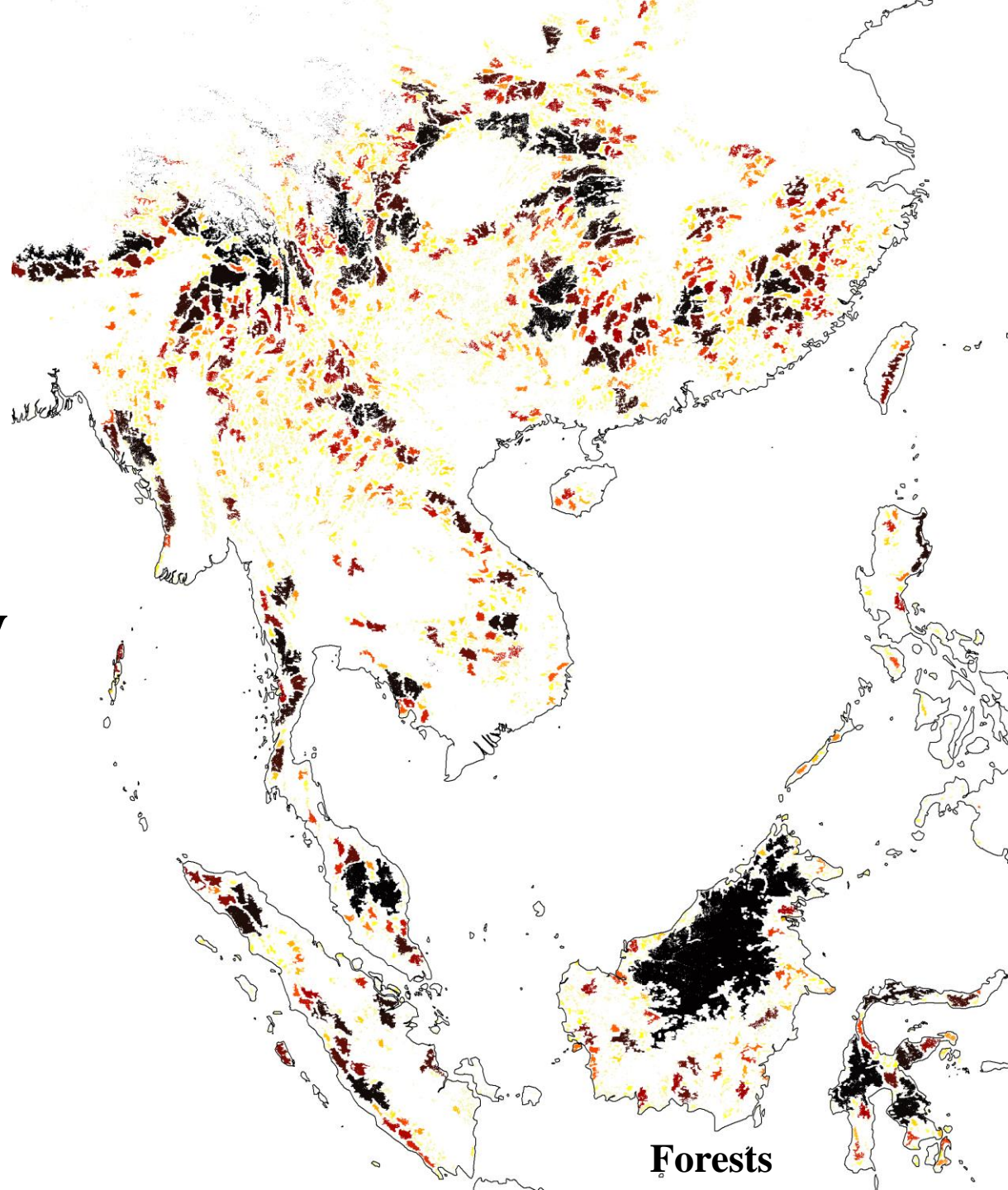


# Other approaches to identifying key ecosystems

- Native ecosystem patchsize



Other  
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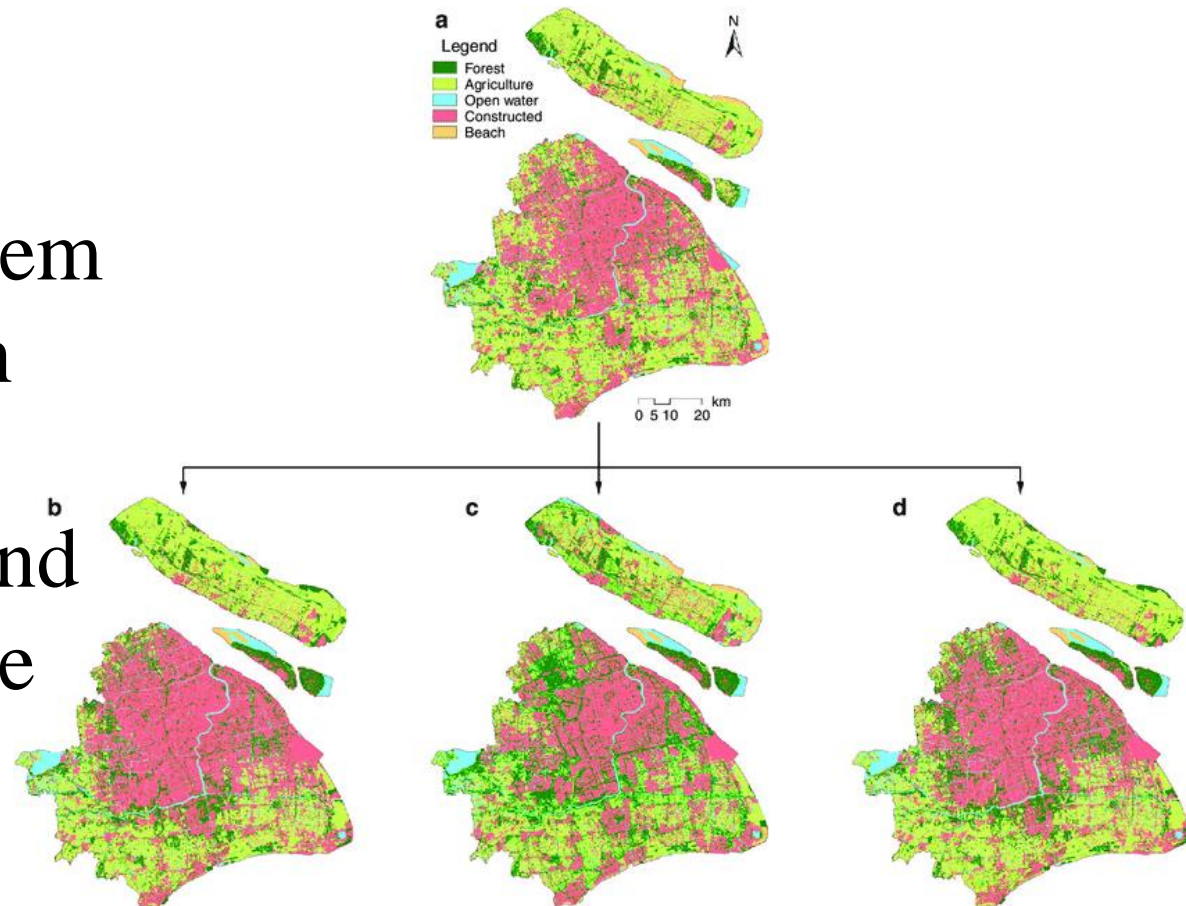


# How can we develop targets across landscapes

- Avoiding further fragmentation requires new approaches to managing landscapes
- Ecological civilization states “Green is Gold” and maintaining a healthy environment is critical to a healthy economy
- Doing this entails both empirical (top-down) analysis, and participative approaches to translate approaches to action

# Valuing and maintaining ecosystems and their services

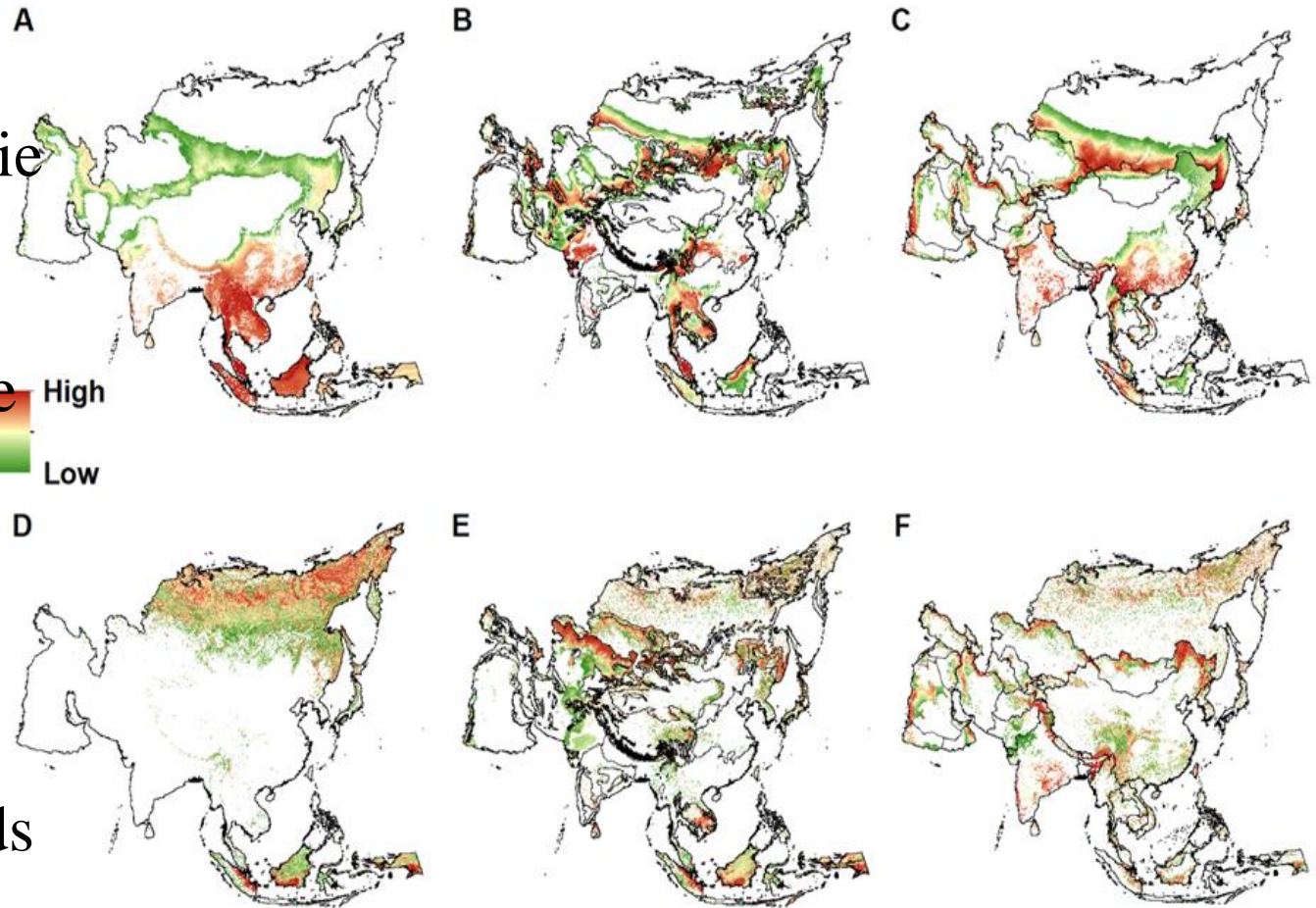
- Managing landscapes to maintain ecosystem service provision means balancing different needs and understanding the trade-offs





# Target setting

Exploring synergies between biodiversity and carbon across scales

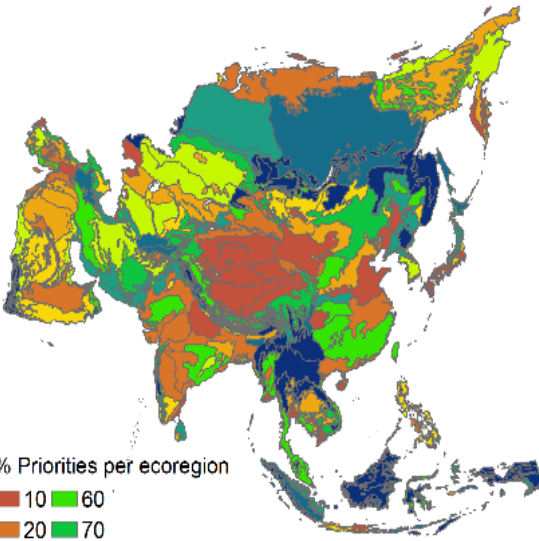


- Complementarities between conventions can exist but must be treated with caution

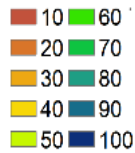
- Multiple methods will be needed

# Target setting

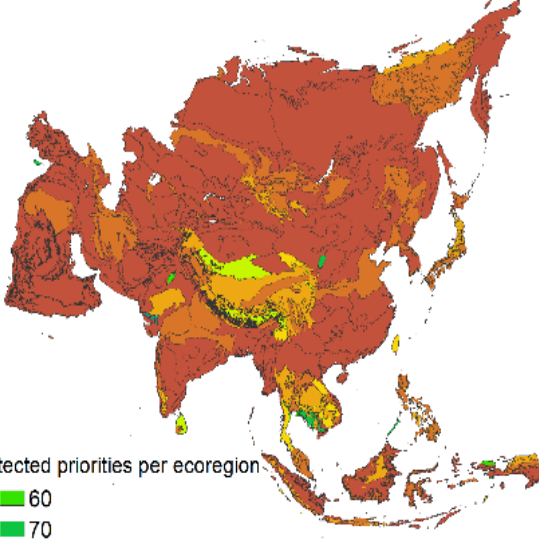
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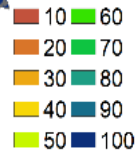
% Priorities per ecoregion



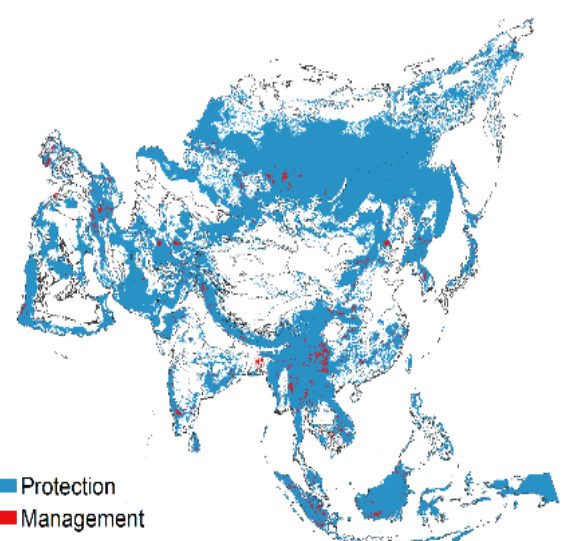
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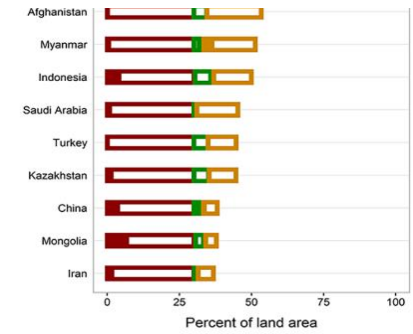
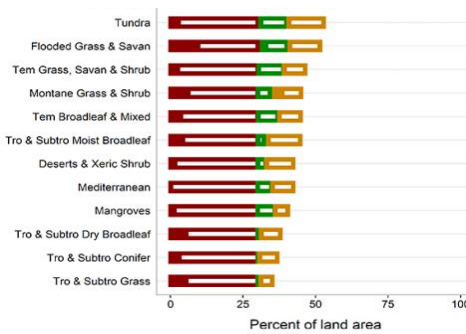
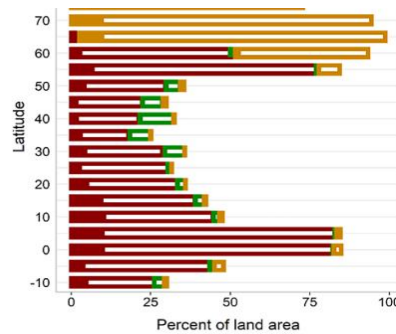
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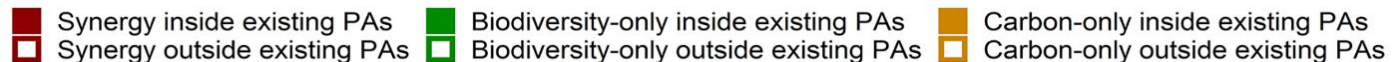
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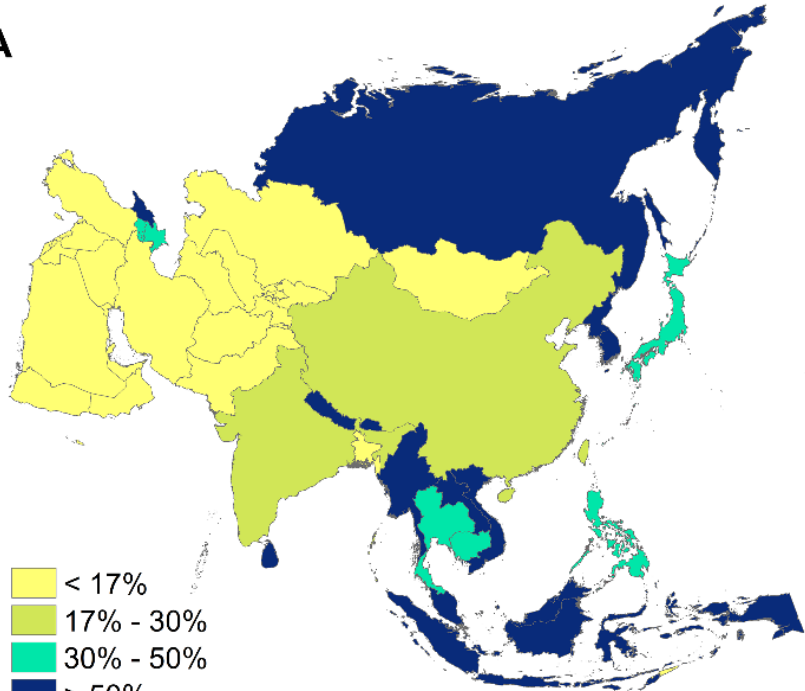
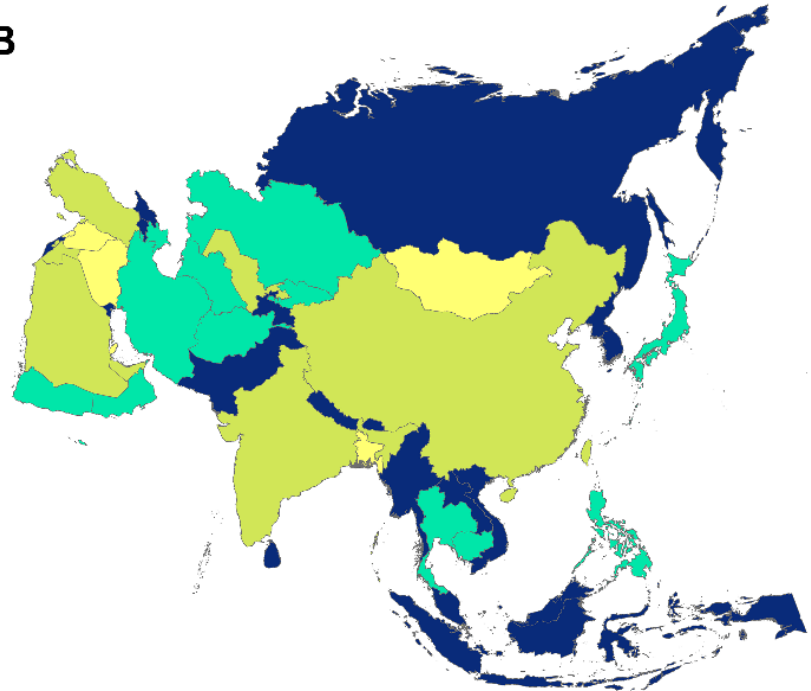
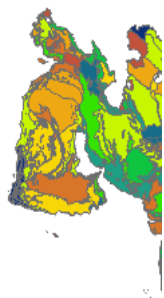


Protection  
Management

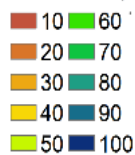
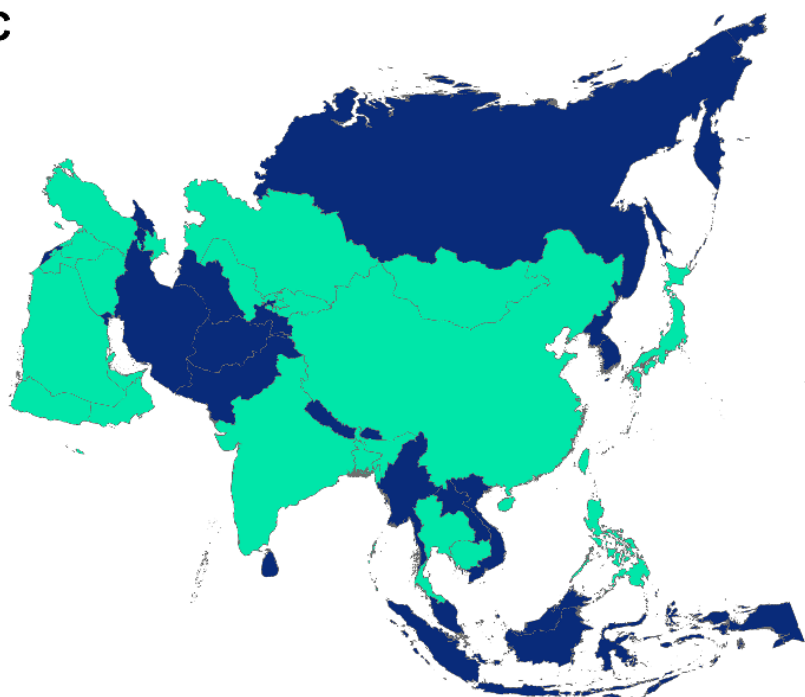
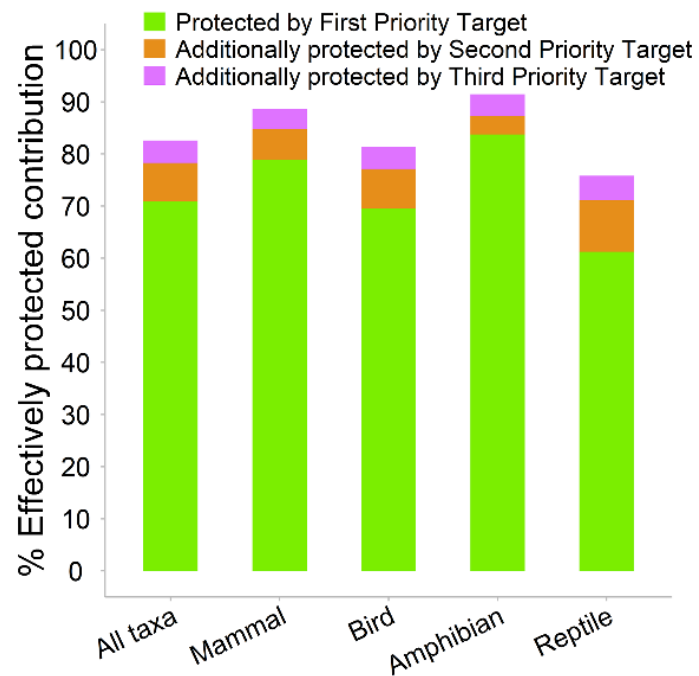


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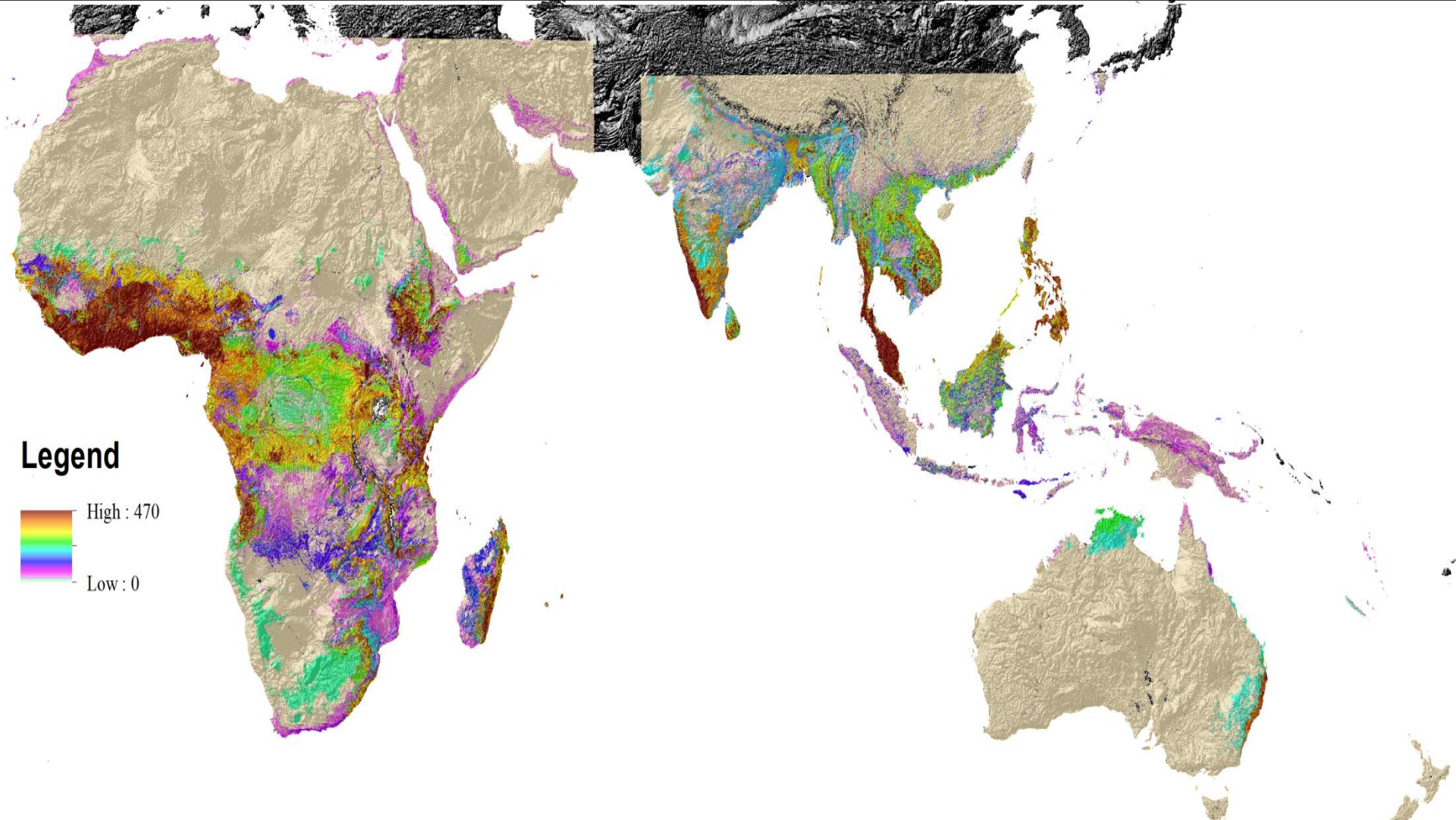
# Services and value



- Ecosystem services and Payment for ecosystem services provides another means to prioritise systems and obtain funds to protect them



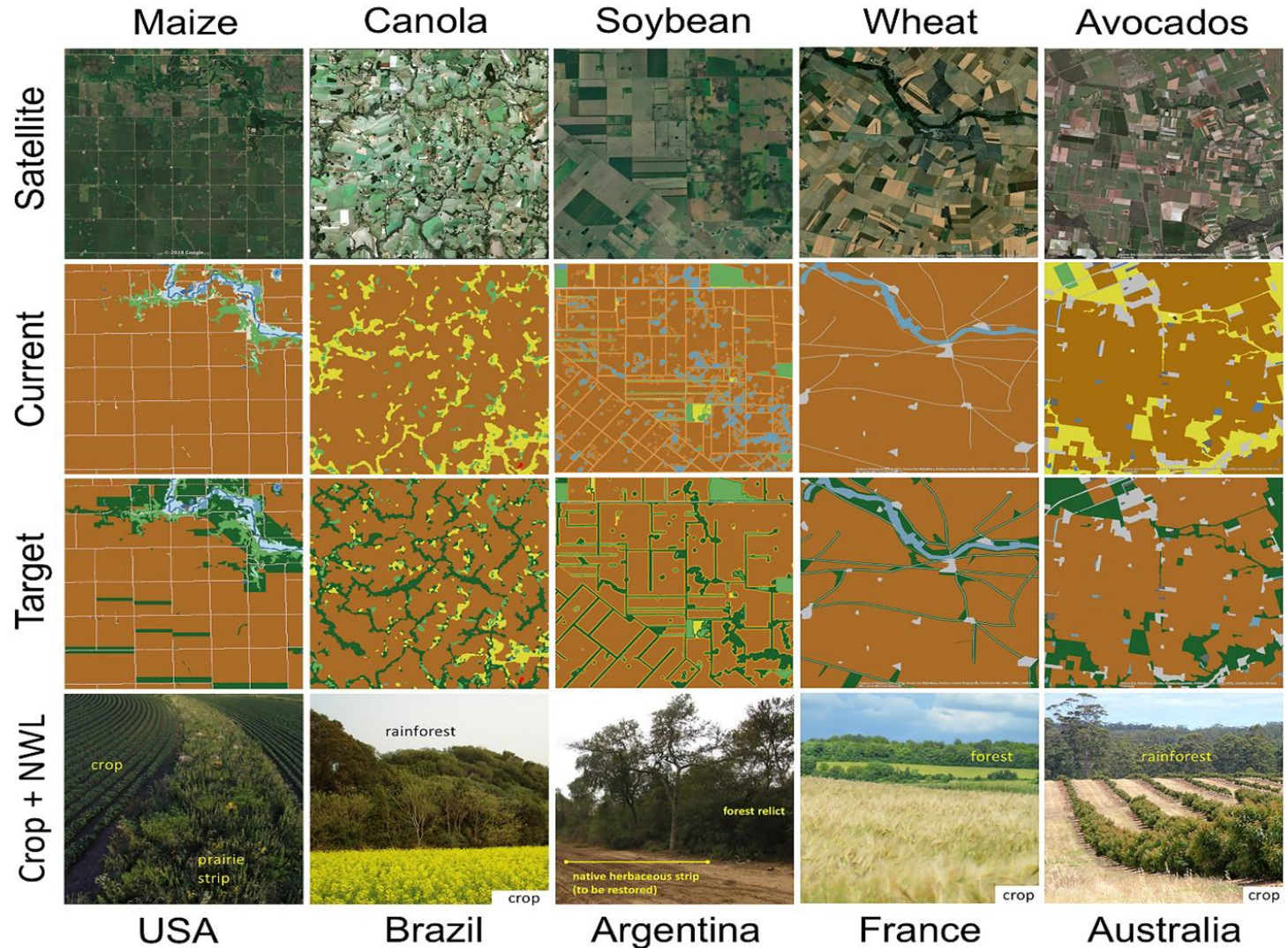
# Services and value



New database with over 5000 bat-plant interactions used to model service provision and interactions



# Services and value



New database with o



# Integrating solutions

- From a global target standpoint global targets call for a protection of 17%-which may be increased to 30 and 50% in 2030 and 2050
- **This is not practical**
- We need landscape solutions-which means targeting working and urban landscapes
- Diversifying margins (i.e. building on the European set-aside act) may both provide services and make matrixes permeable to biodiversity; and provide natural enemies

# Implementing change

- With investment in collecting the baseline data needed for prioritization and monitoring coupled with new technologies and careful planning we have the tools to find new ways to maximize sustainability and develop a new normal
- Ultimately sustainability needs to be a common thread through all development, not an optional add on at the end
- We have the data to set reasonable targets, but more methods are needed for monitoring, and more efforts are needed for effective implementation, and financial tools and tracking can facilitate and mechanise change





*Questions?*