

BIODIVERSITY AND CLIMATE CHANGE

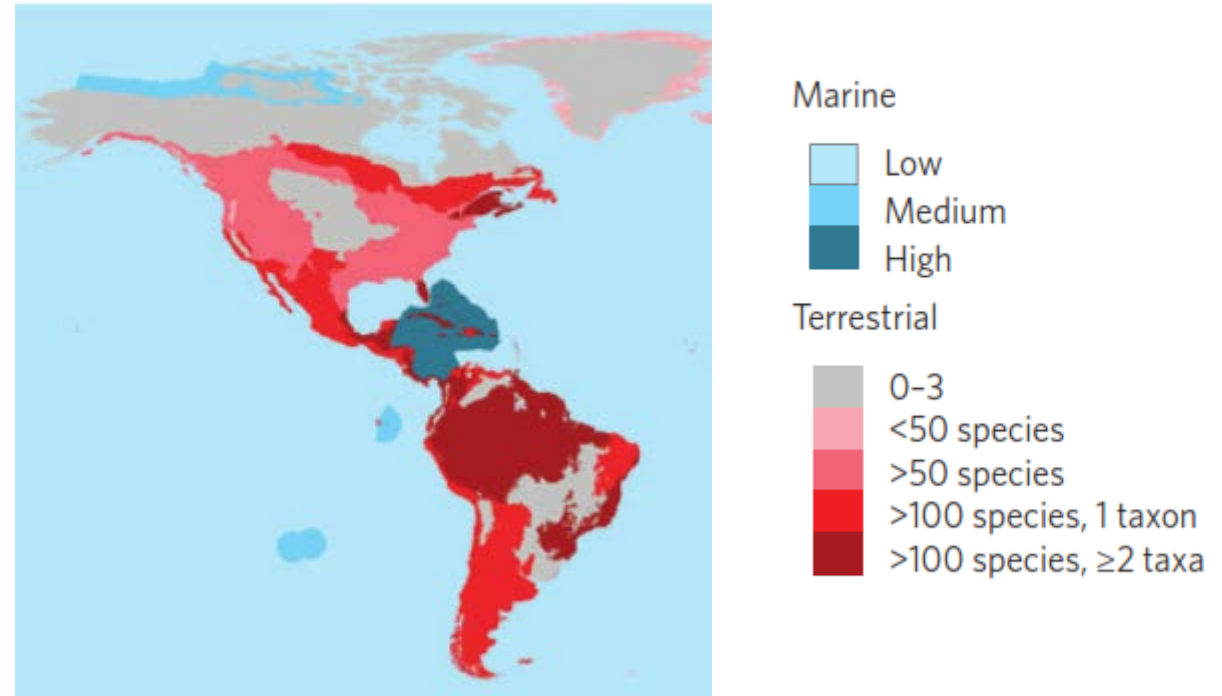
MARTÍN CADENA

Comisión Nacional de Áreas Naturales Protegidas/Programa de las
Naciones Unidas para el Desarrollo
MÉXICO

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Mérida September 8, 2016.

What can biodiversity expect from climate change?

- General shift patterns polewards and upwards
- Changes in abundance
- Individual behaviour or physiology



Terrestrial and marine climate change vulnerable species

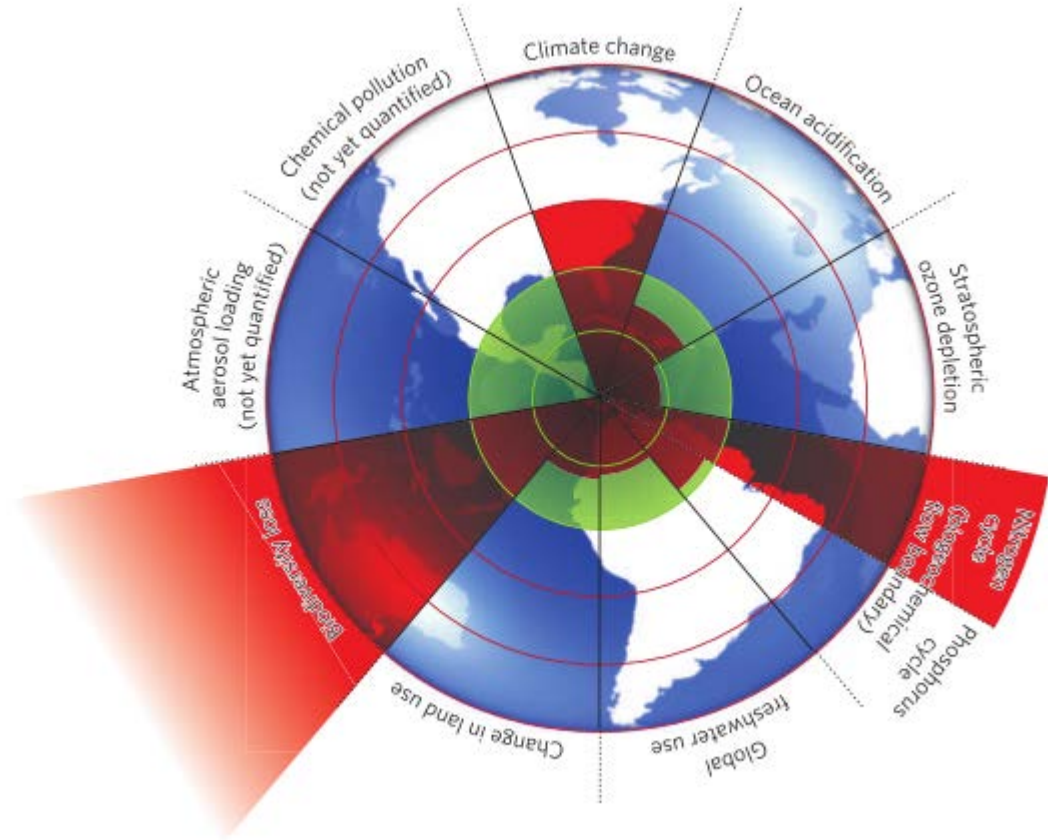
Pacifi, M. et al, Nature Climate Change, 5, 215-225 (2015)



Stephens, et. Al, Science 352, 84-87 (2016)

In a plain language...

- Changes in composition
- Uncertainty in interactions
- Highlands and crops



Rockström, J. et al, Nature, 461, 472-475, (2009).



What biodiversity has experienced from climate change?

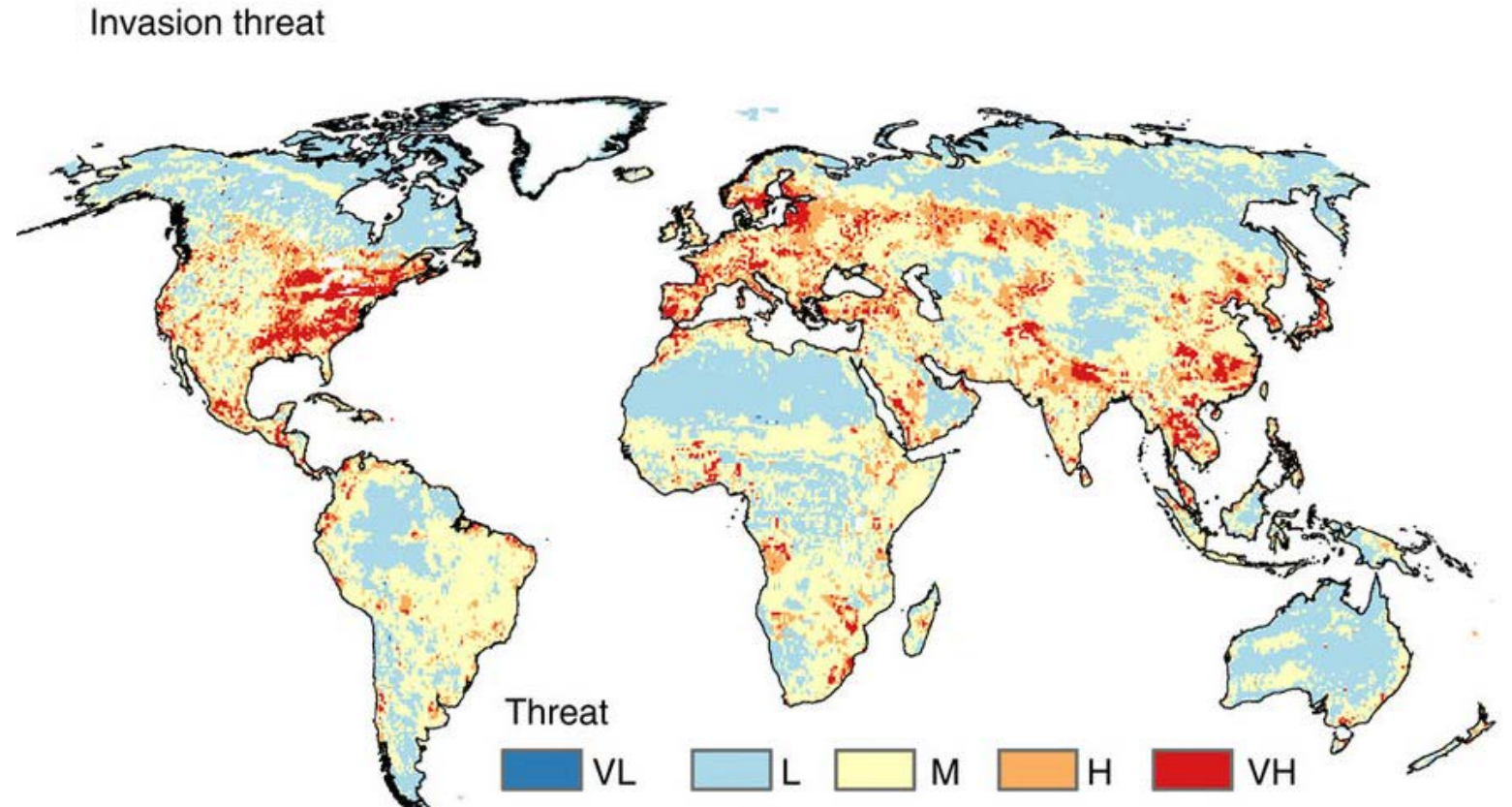
- General consistency between expected and observed effects
- Mixed effects: general trend upward and poleward
- Yosemite: a raise in $\sim 3^{\circ}$ C and a 500m shift upward on a small mammals



Credits: National Parks Service/ Damon Joyce

What are the consequences for us?

- Invasive alien species
- Emerging zoonoses
- Health problems

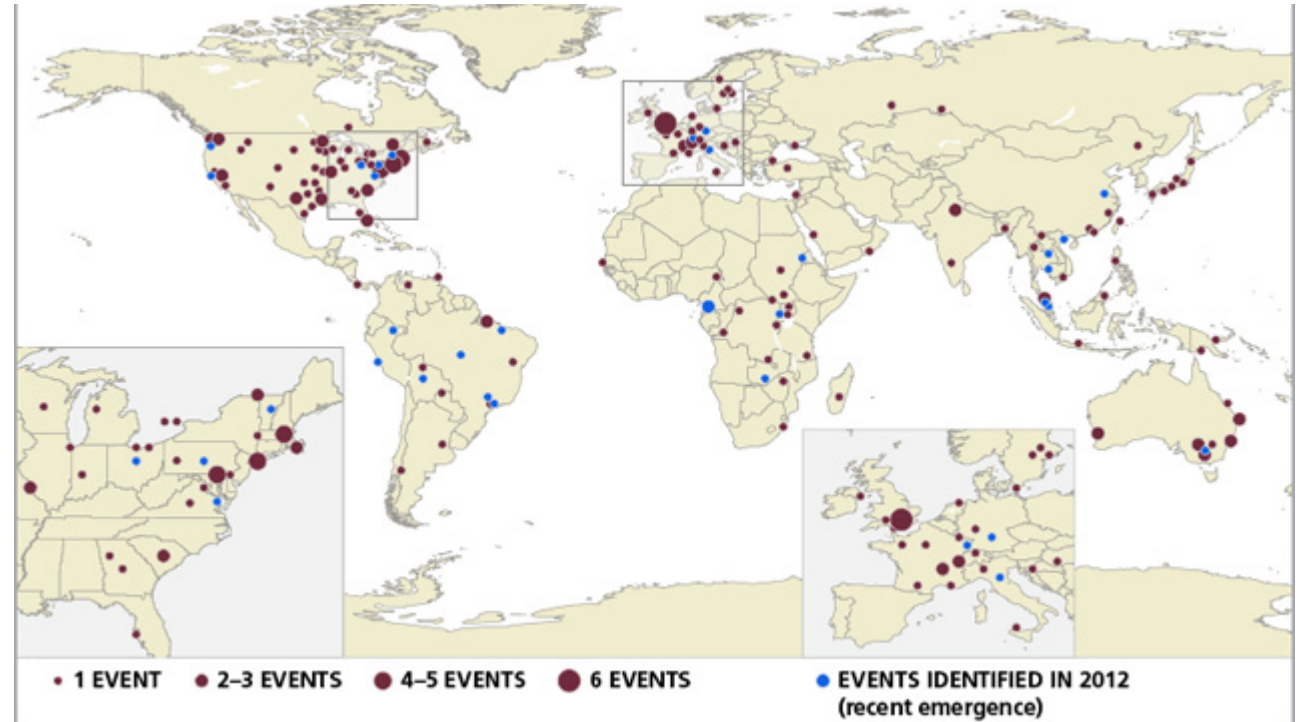


Early, R et al. Nature Communications, 12485 (2016).



What are the consequences for us?

- Invasive alien species
- Emerging zoonoses
- Health problems
- Subsistence- oriented communities
- Designation of Origin



Source: International Livestock Research Institute



Impact in current conservation strategies?

- Protected species “out” of Reserves
- Species- specific efforts vs. ecosystemic functional efforts
- Resist vs. adapt vs. embracing change
- Short term strategies vs. long term changes
- Uncertainty

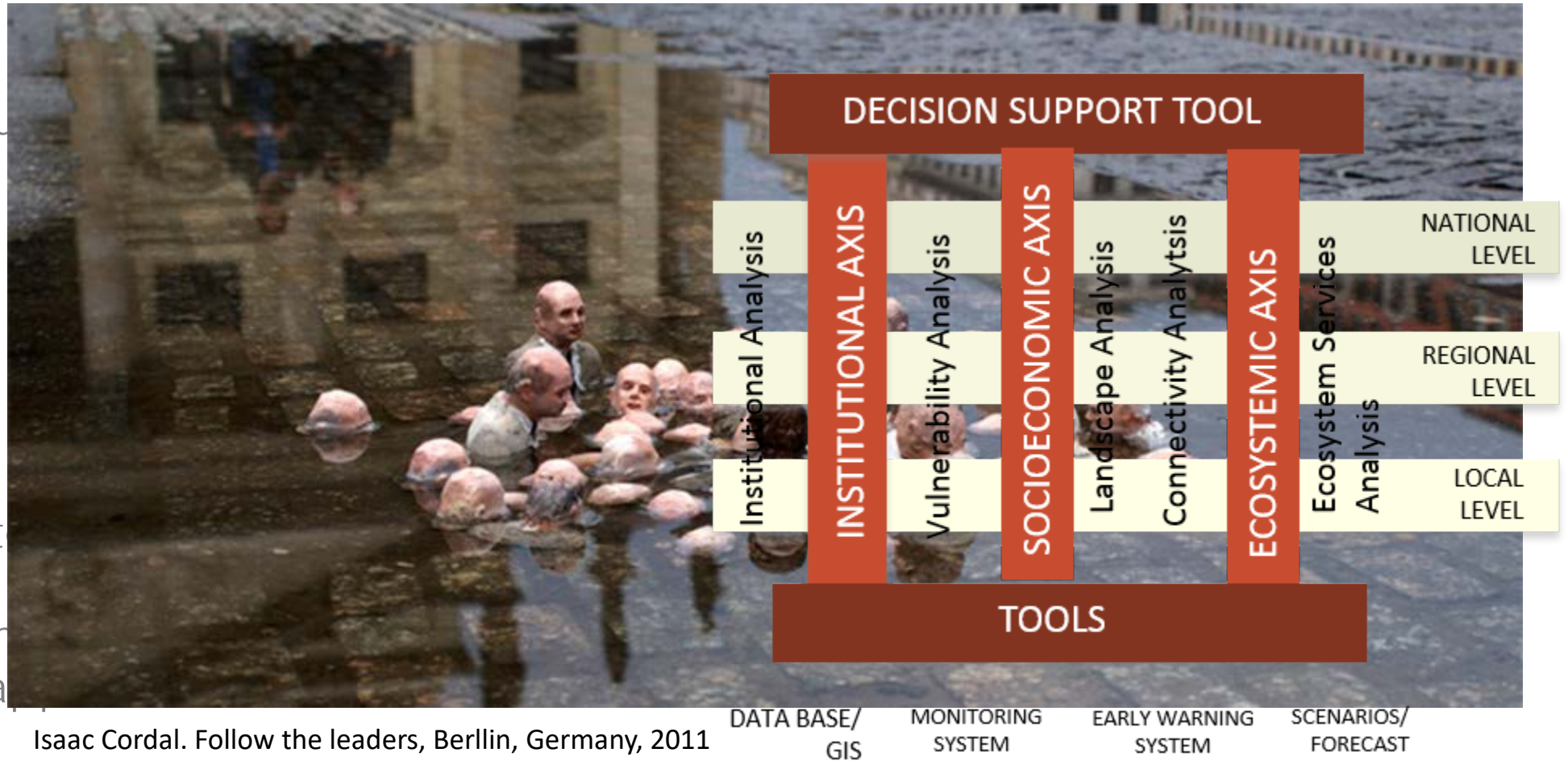


Credit: SEMARNAT



How to react?

- No one formula
- Diversity and
- Governance
- Restoration
- Increase prot
- Multi scale and disciplinary a



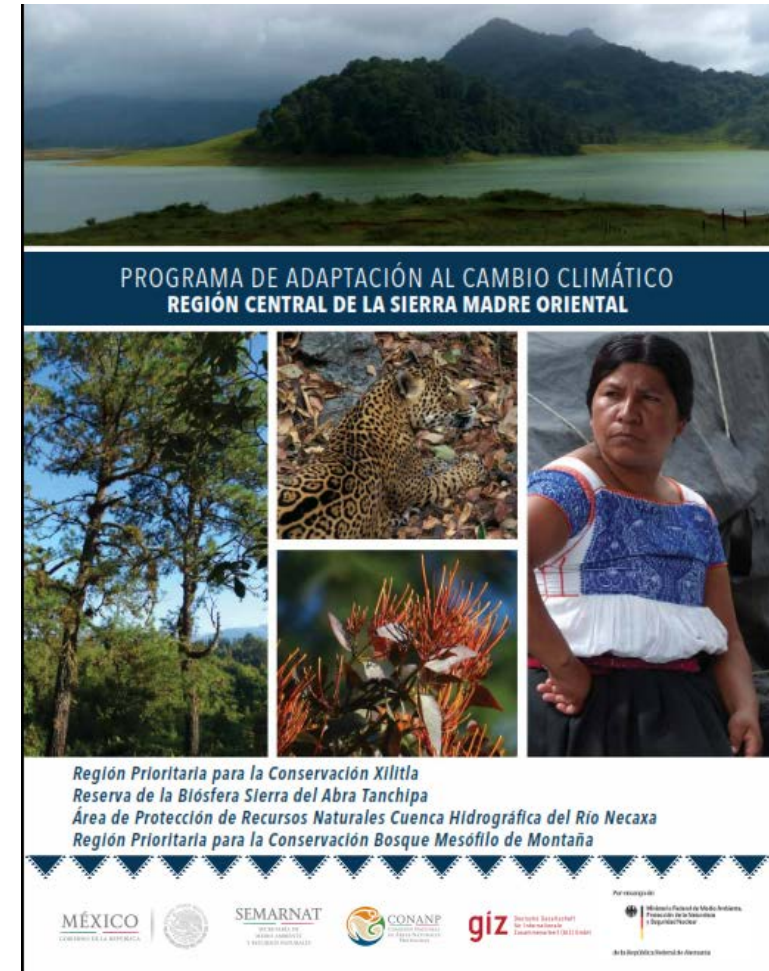
How to react?

- A diversified strategy
- Resist
- Adapt
- Embrace change
- Adaptive management
- Long- term thinking
- Bottom up- Top down complimentary approaches



Legal framework

- Conventions (CBD, UNFCCC, Desertification)
- Climate change Laws (Mexico and some Provinces in Canada)
- Protected Areas
- Implementing conventions
- Landscape approaches
- Standardized monitoring



Remarks

- Cross
 - Sectorial
 - Governmental
- Innovation
- Trust
- Manage uncertainty
- Rigid structures vs. dynamic environment



Credits: PNUD/CONANP Adriana Rodriguez



GRACIAS

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