

# Designing a dashboard for presenting biodiversity indicator data

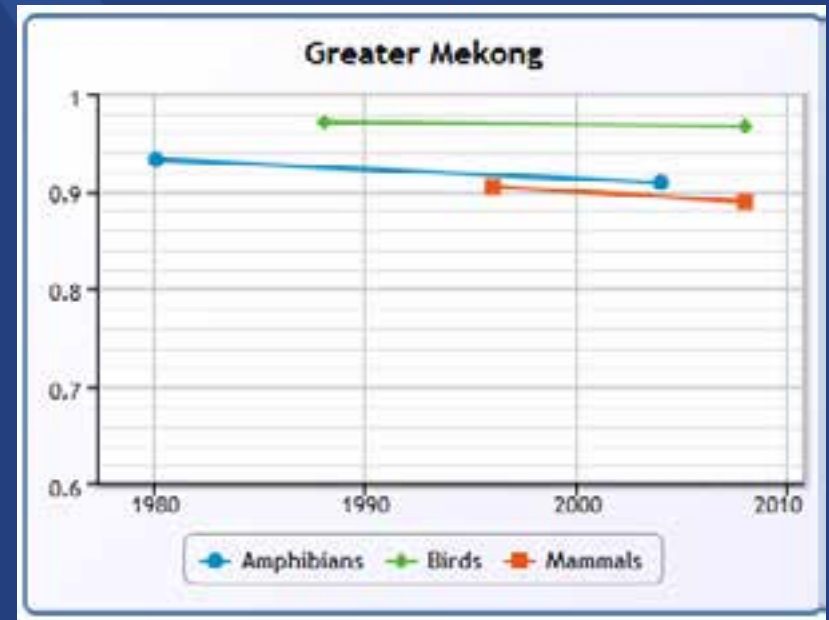
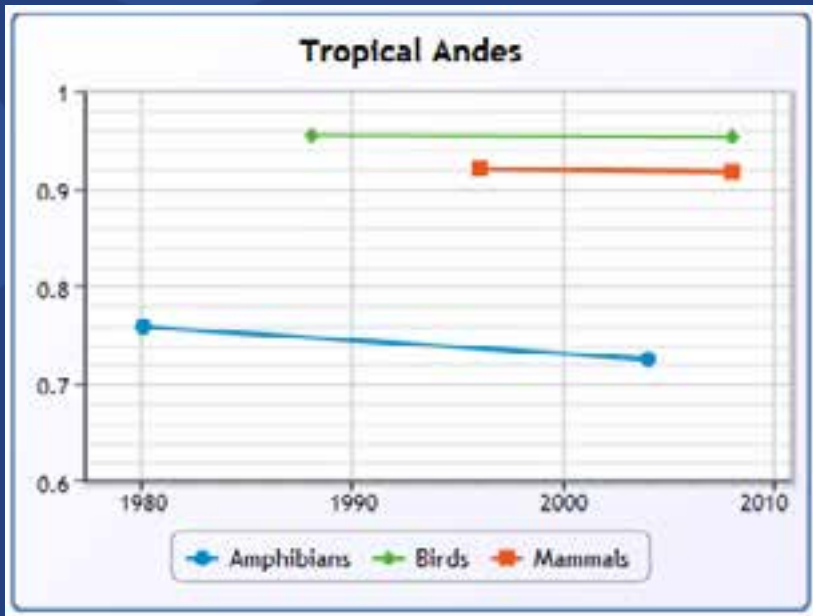
*Lori Scott, NatureServe  
Allen Carroll, Esri*



# Outline

- What is the Dashboard?
- Who uses it?
- Timeline
- Dashboard story map
- Interactive Dashboard demo
- Conclusion
- Questions

*A clear, user-friendly visualization of biodiversity indicators that tracks conservation performance and facilitates adaptive management*



# Dashboard Goals

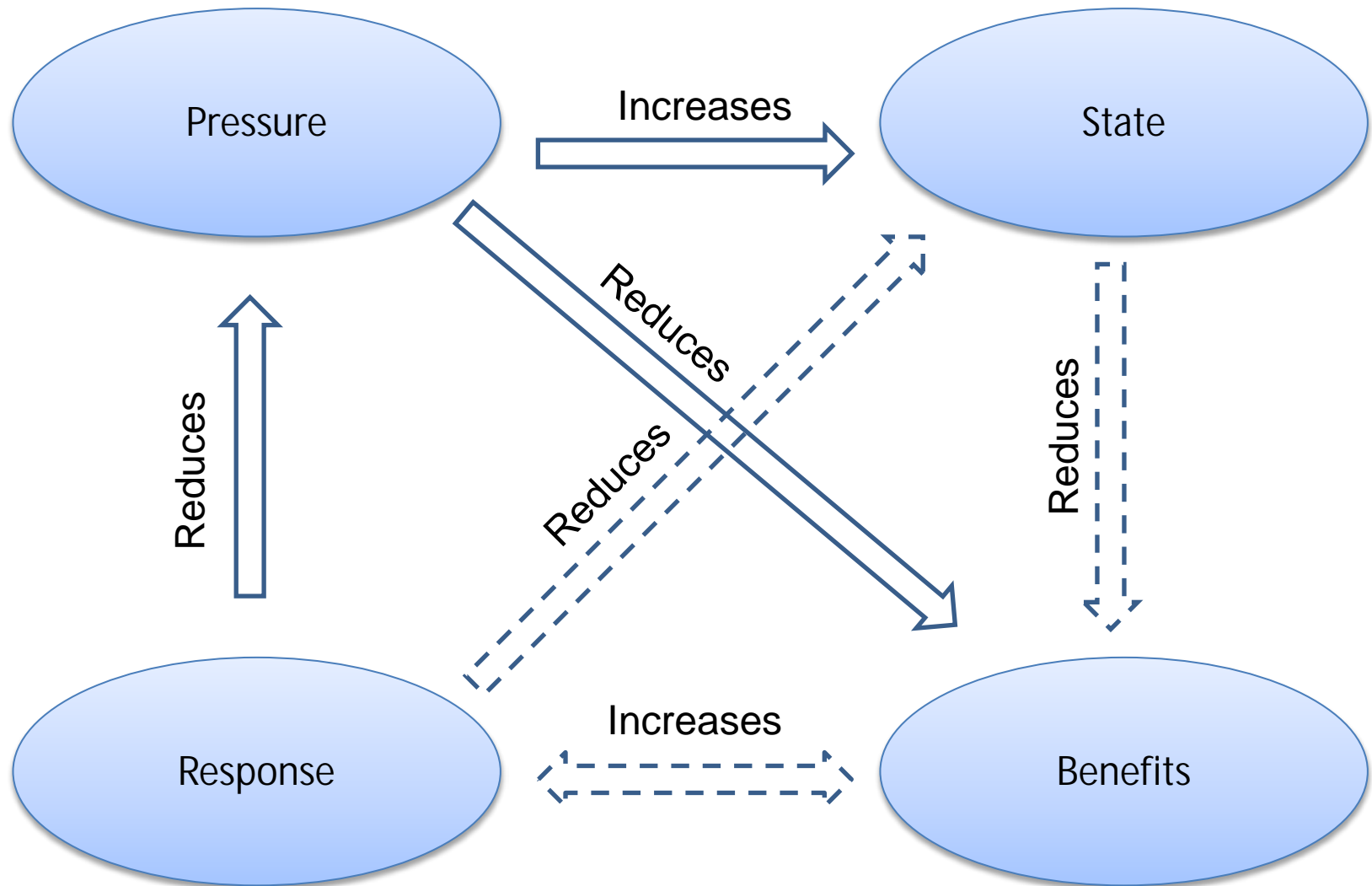
- Establish regional dashboard assessments for reporting on trends in biodiversity
- Develop infrastructure to allow data upload, maintenance, analysis, and reporting
- Catalyze sustainable national investment in the data flow needed to sustain assessments
- Inform adaptive management and investment by better placement of responses within the regional context of status, threats, and benefits to humanity

# Audiences: Policy and Practice

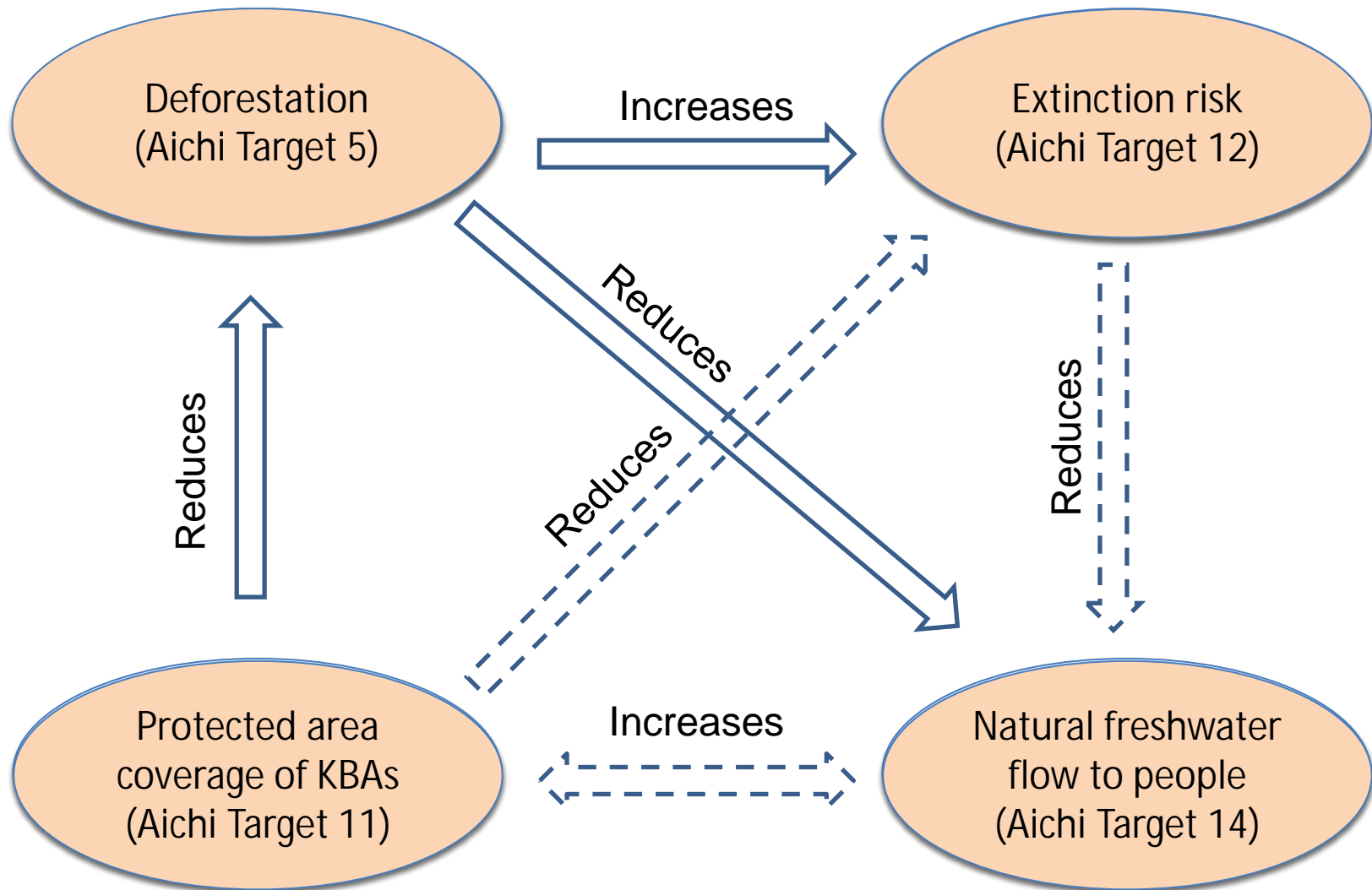
- Regional and global:
  - Support reporting to Convention on Biological Diversity
  - Inform investment by agencies and donors
- National:
  - Strengthen coordination and investment among national government agencies and civil society
- Local:
  - Provide counterfactuals for appropriate reporting of conservation results
  - Support adaptive management of conservation action and investment

Dashboard User Group	Conservation Need	Dashboard Roles
Multilateral agreements e.g., CBD	Track national indicators of progress toward Aichi Targets	Incentivizes data flow from agreement signatories and benefits from strengthened national capacity in biodiversity monitoring
Governmental and intergovernmental agencies reporting biodiversity monitoring	Develop national indicators of progress toward Aichi Targets	National scale indicator contributor benefits from dashboard information in generating national reports
Conservation investors establishing investment strategy e.g., MacArthur Foundation	Assess success or failure of conservation investments	Incentivizes data flow from grantees and benefits from impact assessment for adaptive re-investment
Conservation grantees implementing investment strategy	Assess success or failure of conservation actions	Investment scale indicator contributor benefits from project-scale information to report results to donors
Other conservation stakeholders, e.g., NGOs and academic institutions	View and compare biodiversity indicators	Sporadic data contributor benefits from viewing and comparing biodiversity indicators at various scales

# Conceptual Framework



# Global Indicator Examples





	Pressure/Driver	State	Response	Benefit (Impact)
Indicator	Forest coverage and rate of gross forest cover loss	Red List Index	Protected area coverage in Key Biodiversity Areas	Quality-weighted freshwater provision from natural ecosystems to downstream human population
Aichi Target	Target 5: Loss of habitats is at least halved by 2020	Target 12: Extinctions of known threatened species has been prevented by 2020	Target 11: At least 17% of terrestrial...areas, especially important areas ....are conserved by 2020	Target 14: Ecosystems that provide essential services are restored and safeguarded by 2020
Data Sources	Global Forest Monitoring Project FAO Global Forest Resource Assessment (2005, 2010)	IUCN Red List assessment for Amphibians , Birds and Mammals	World Database on Protected Areas (2010) Global Key Biodiversity Areas	WaterGAP2 model runoff Hydrological drainage direction Landscan global population GlobCover land cover
Time frame	2000-2005	1980-2008	1950-2010	2010
Collaborator	University of Maryland	IUCN	BirdLife International	Conservation International

# Dashboard Grant Timeline

- Phase I: Proof of Concept, 2011 – 2012
  - Establish four baseline indicators in three regions
  - Access local data capacity through regional consultation workshops
- Phase II: Dynamic Prototype, 2013 – 2015
  - Develop the dashboard platform
  - Analyze dashboard data to assess conservation actions

# Mekong River Story Map



# Mekong Story Map Goals

- Tap the power of maps as a storytelling medium
- Provide background and context for Dashboard users

# The Story Map Journal app

- Newly released
- Accommodates long-form text and a rich mix of multimedia
- Hosted by Esri in the cloud (or, optionally, locally)
- Responsive: Works on PCs, tablets, smart phones
- Includes a “builder” function for easier authoring

# Story Map Demonstration

A story map 



## Dashboard of Conservation in the Lower Mekong Region

Tension is building in the Lower Mekong region, home to a booming human population within ecosystems that harbor some of the world's richest biodiversity. To help understand and resolve that tension, working with partners NatureServe is developing a "digital dashboard" to visualize biodiversity indicators that track the trend of biodiversity and conservation performance at multiple spatial scales across the globe, that can shine a light on the effectiveness of conservation efforts throughout the region.

### The Lower Mekong Basin

The Mekong River is the world's 10th largest river, running some 4,350 miles from the Tibetan Plateau in China through Yunnan province, Myanmar, Laos, Thailand, Cambodia and Vietnam before it empties out into South China Sea.

For the more than 60 million people who live along its winding course, Mekong ecosystems are a source of livelihood at every scale, from subsistence-level agriculture and fishing to a robust, modern commerce that comprises sizeable portions of several countries' GDP (Cambodia 12%, Lao PDR 3%, Thailand US\$750 million).



Esri, DeLorme, FAO, USGS, NOAA



# Dashboard Demonstration



HOME DASHBOARD INFORMATION CONTACT US

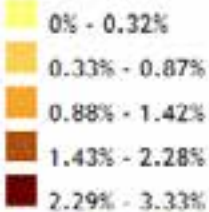
Pressure

State

Response

Protected Area Coverage

Annual Change of Protected Area Coverage % in KBAs (1980-2010)



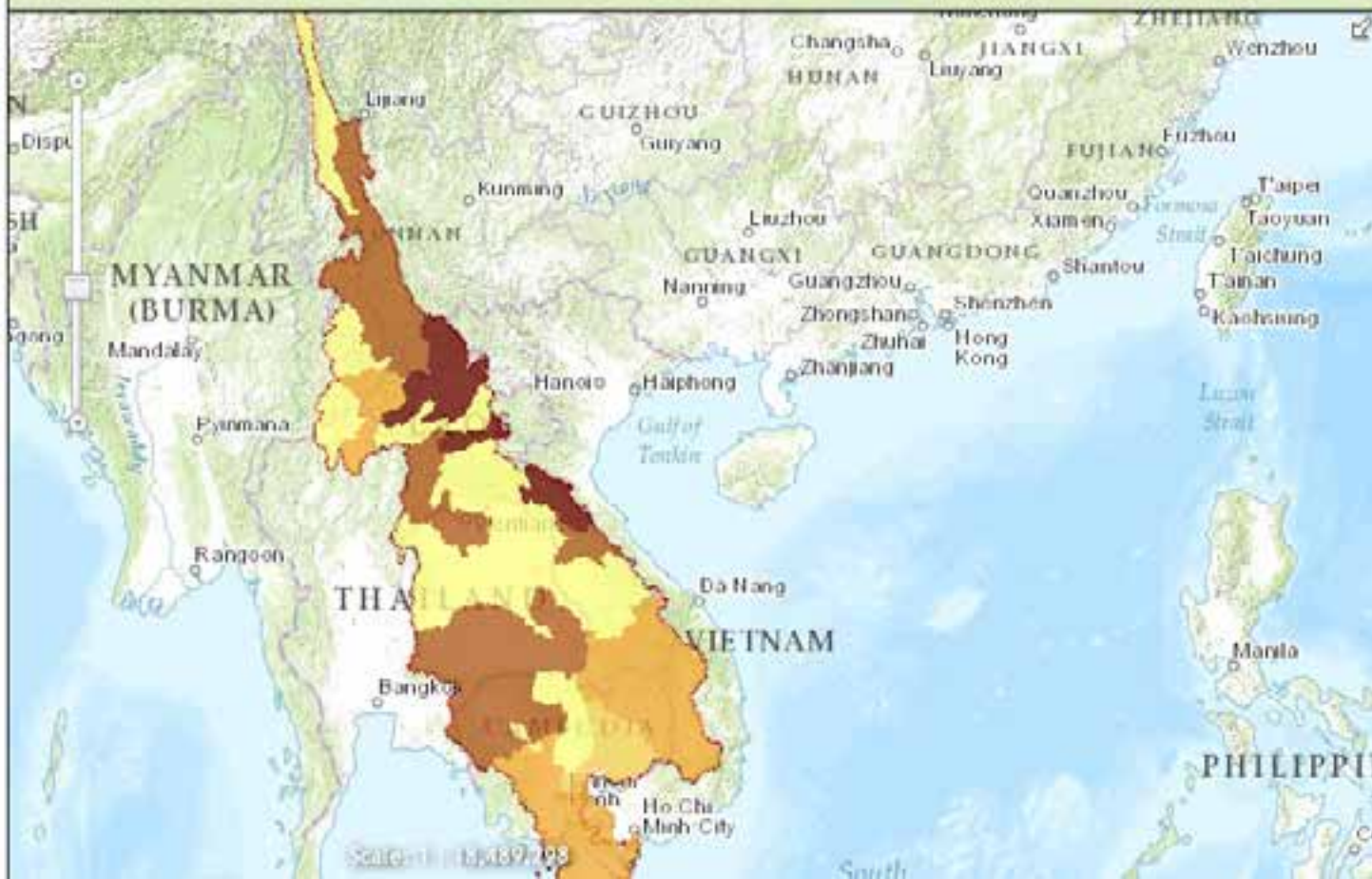
Benefit

Reference Layers

Basin Country Region

Indicator Data to display: Annual Change of Protected Area Coverage in KBAs

Zoom To



**QUESTIONS?**



# Acknowledgments

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MacArthur  
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Collaborators



CONSERVATION  
INTERNATIONAL



CENTRE D'ÉCOLOGIE  
FONCTIONNELLE  
& ÉVOLUTIVE



# Learn more about the Map Journal

## *How to Tell Your Story Using Story Map Apps*

- Tuesday 10:15 Ballroom 06F
- Thursday 3:15 Ballroom 06F

## *Great Story Map Apps and How to Emulate Them*

- Wednesday 1:30 Ballroom 06D

Find us in the Exhibit Hall:

- Story Maps / ArcGIS Online in the Esri Showcase
- NatureServe booth in the Environment Showcase

# For More Information

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