



United States Department of Agriculture  
Research, Education, and Economics

# *A few concepts from USDA*

**Dr. Ann M Bartuska**

**Landscape Approaches to Sustainable  
Resource Management – a NAS workshop**

**June 2, 2015**

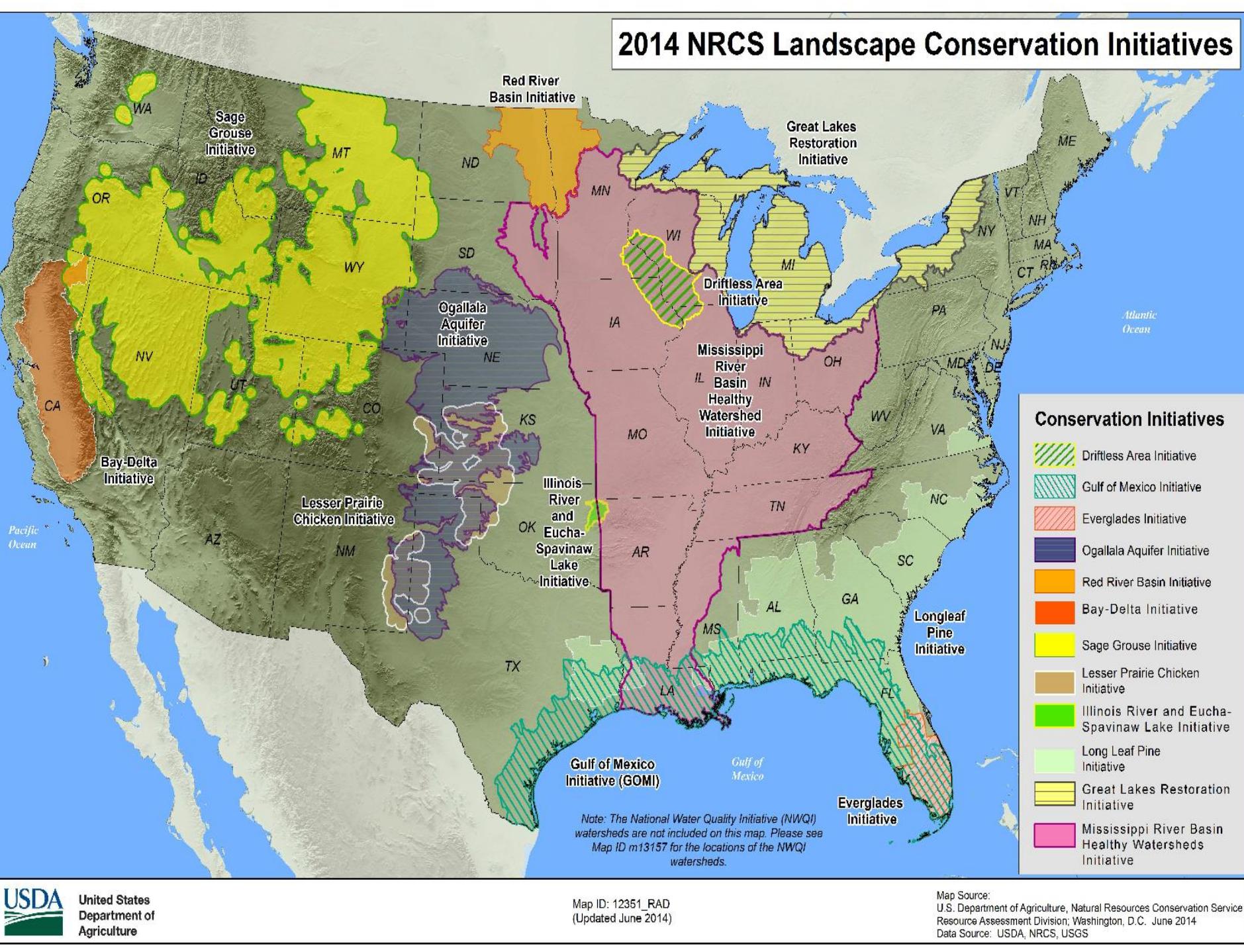




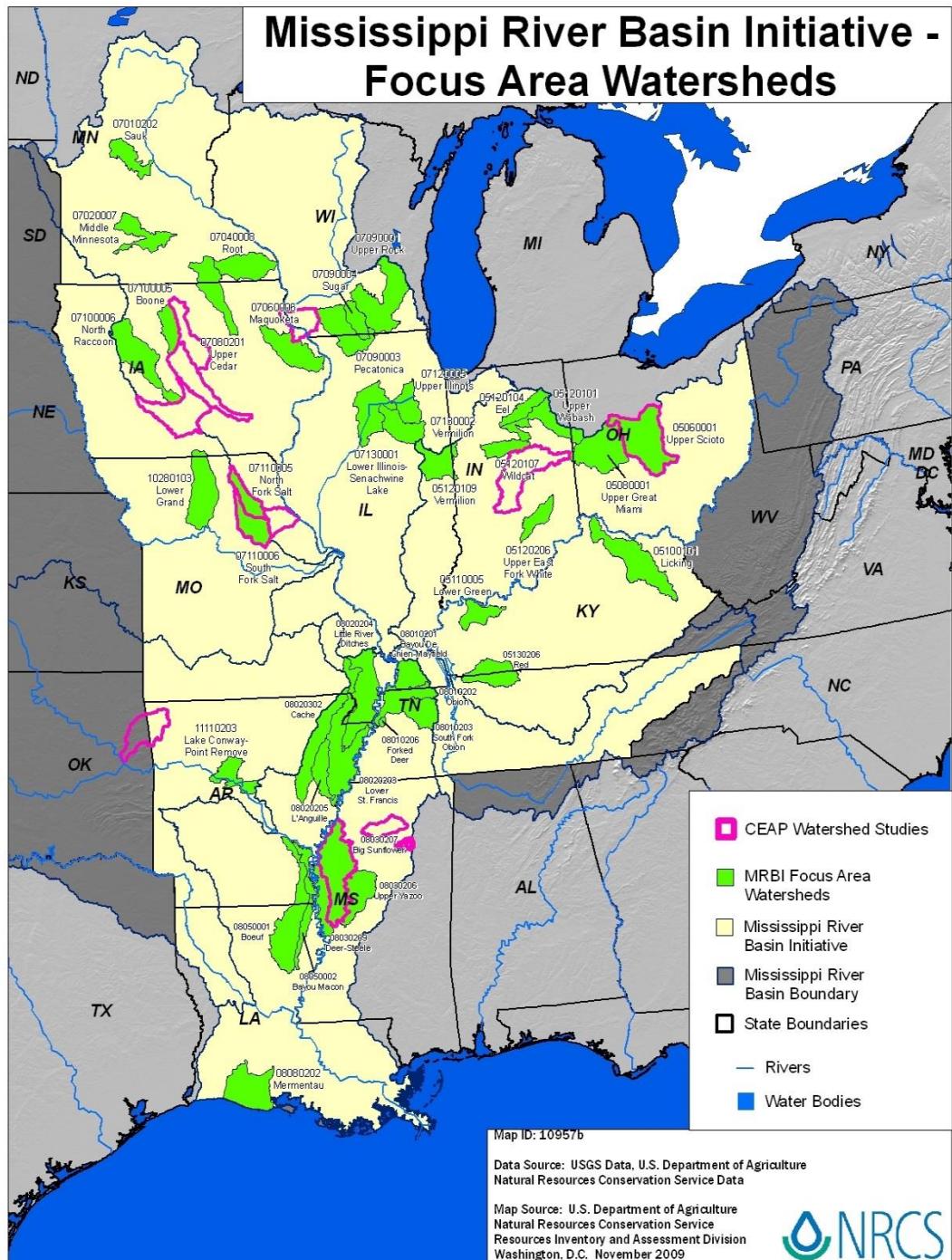
# 21<sup>st</sup> Century Conservation

- **All lands, landscape scale**
- **Strong partnerships, locally driven**
- **Targeted, systems based**
- **Strong science**
- **Results**
- **Innovation**

# 2014 NRCS Landscape Conservation Initiatives



- Not every watershed is created equal – target *critical* ones
- Monitoring at 3-scales to capture impact of changing practices





## **Governance matters:**

**Over 800 Watershed Councils in the U.S. integrate public-private lands and are the emerging governance system for maintaining and sustaining watersheds.**

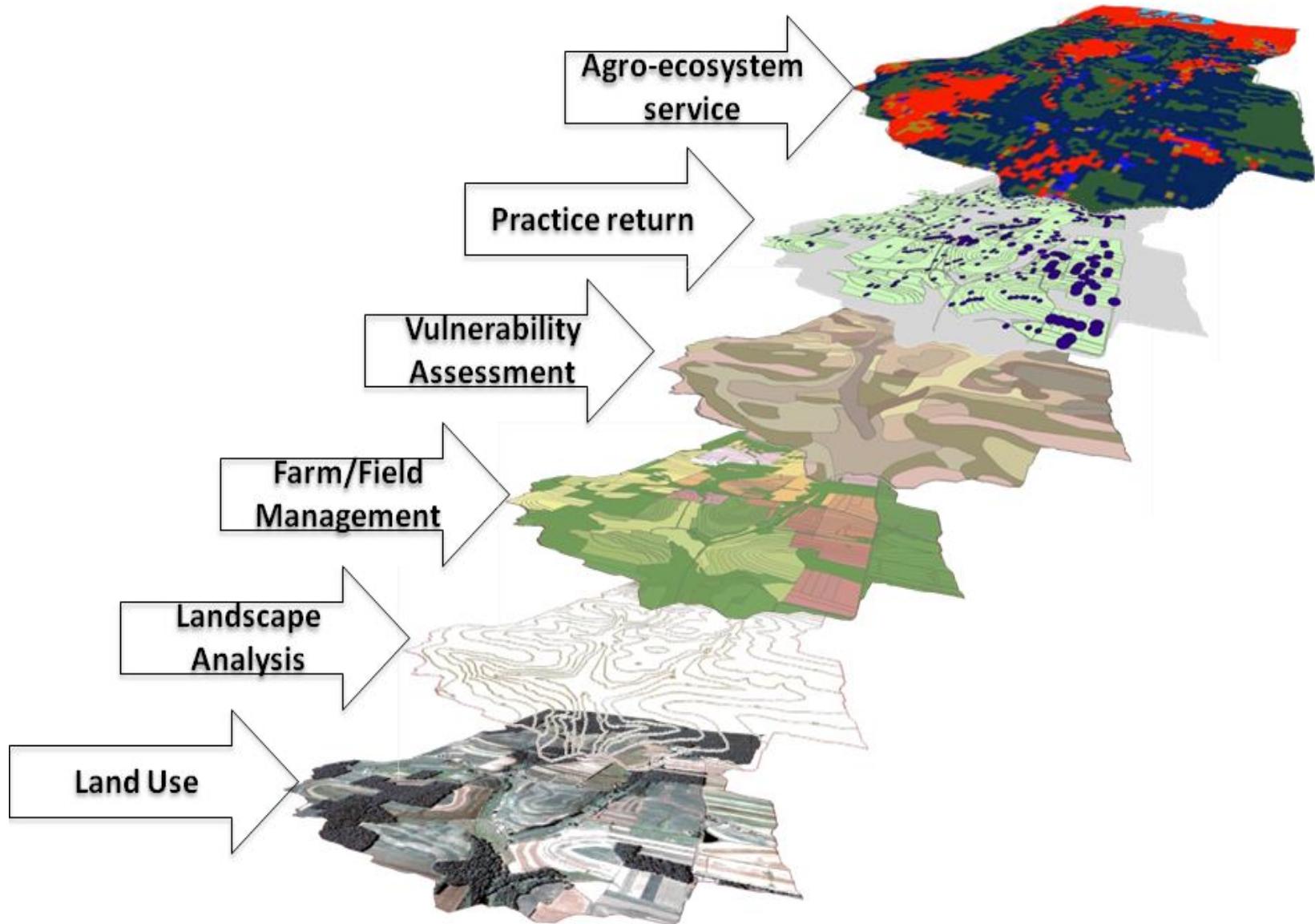


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*Let's talk about scale –  
matching data with program  
delivery*

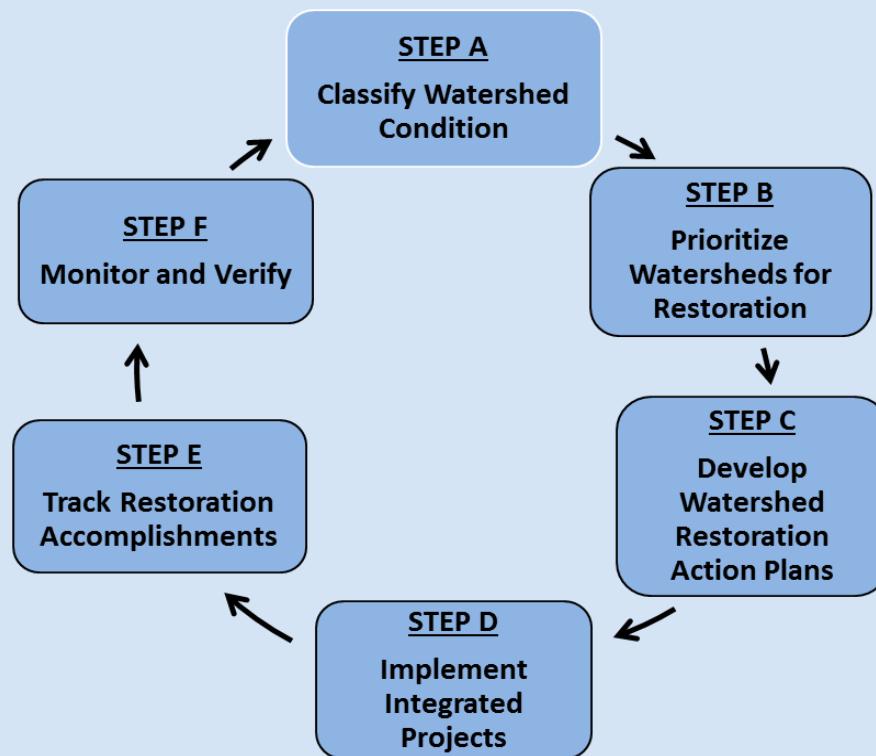
*....and program with the policy decision!*







## Watershed Condition Framework Process

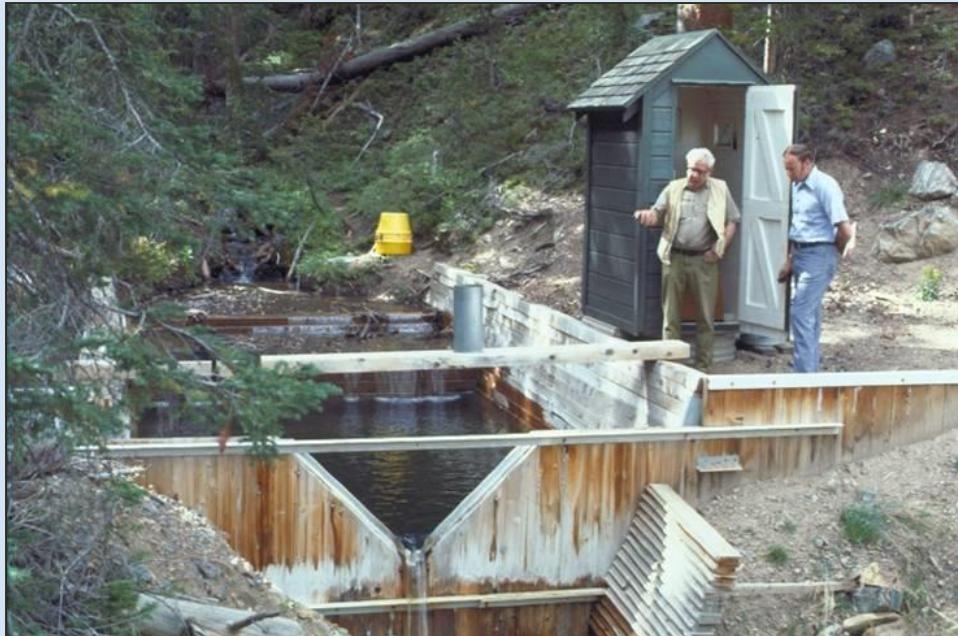




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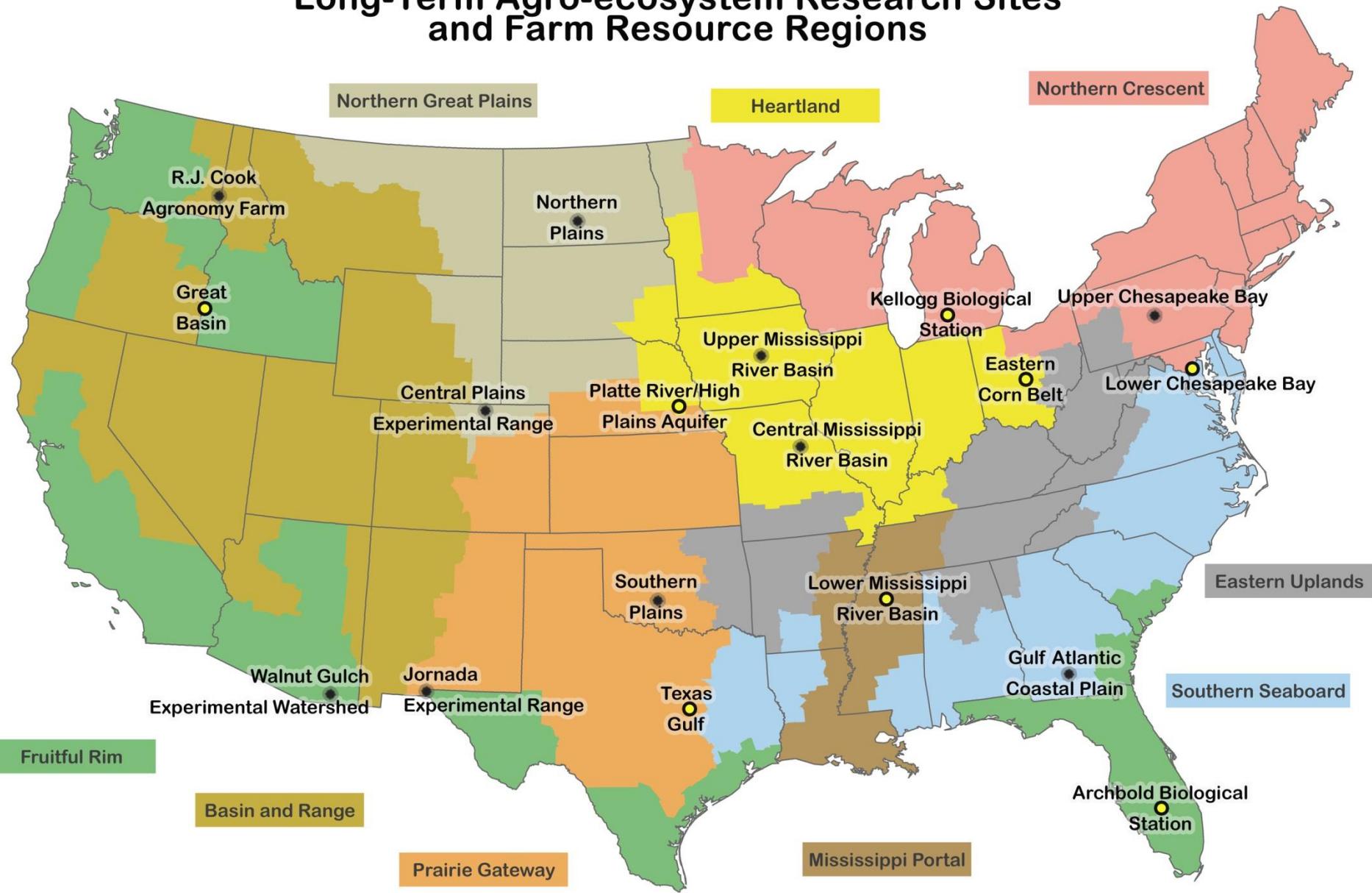
# Finally, we want to ensure we are science-based

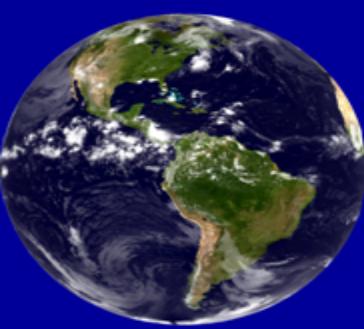


USDA Forest Service Experimental Forests and Ranges, other relevant USDA (ARS) Experimental Areas and Watersheds, and NEON Domains.



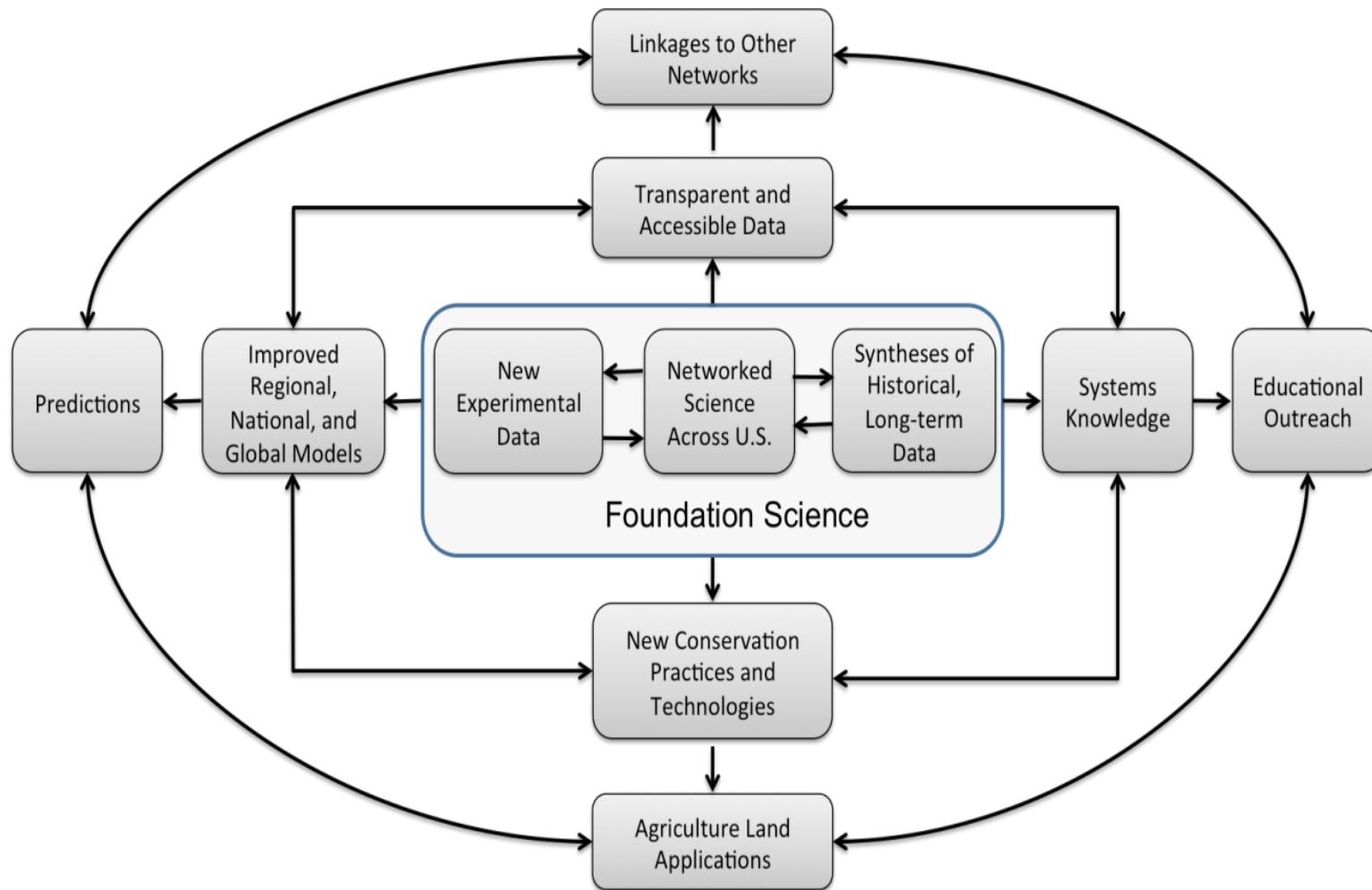
# Long-Term Agro-ecosystem Research Sites and Farm Resource Regions





# Long Term Agro-Ecosystem Research Network

Shared Research Strategy ([www.ars.usda.gov/ltar](http://www.ars.usda.gov/ltar))





Protected  
Primary Forest

Degraded Primary Forest

Secondary forest

Degraded  
Forest Lands

Plantations

Secondary forest

Permanent  
pasture

Permanent  
pasture

Intensive  
agricultural land

Permanent  
pasture



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Mangr

# aapuaha

Upstream  
freshwater  
forest

Marine and  
reef  
habitats

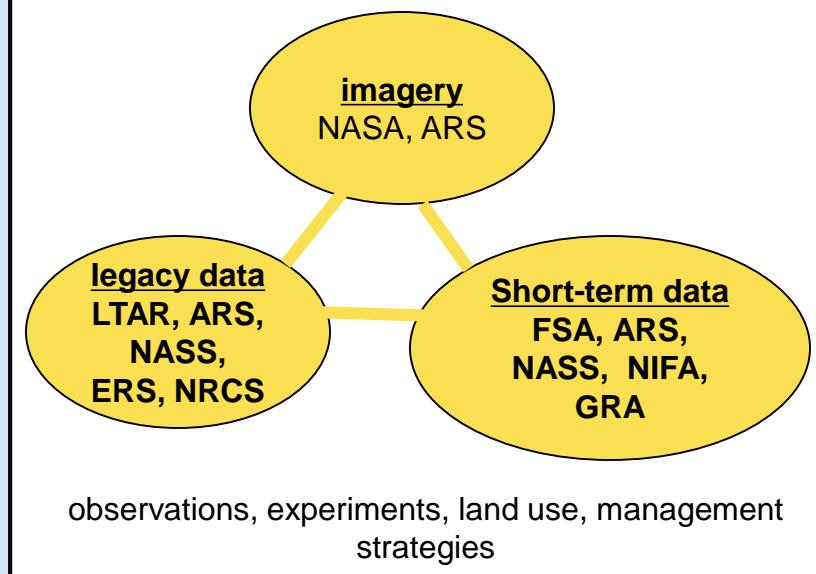
...Ridge to Reef...

*balancing and  
sustaining ecological,  
social, and cultural  
needs*

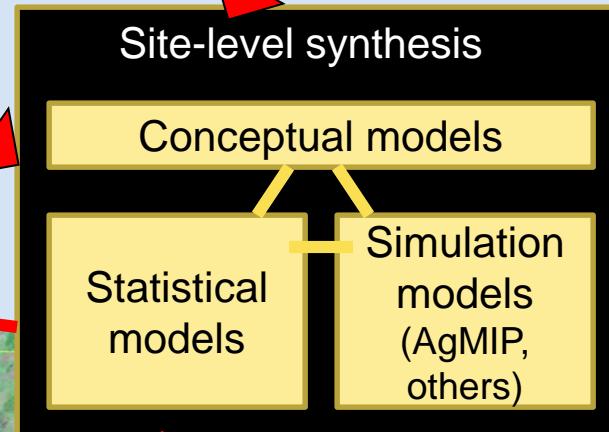
# THE END

This is an intentionally blank slide;  
The following slides are place holders  
In case questions on ecosystem  
Services or Hubs is asked.

## Crop and range production (area, yield by type, land use, location)



**Driver data**  
[NOAA- climate, weather; NRCS- land use, soils; ARS- invasives, APHIS- pests, pathogens]



**US GLAM** – links imagery with ground observations across contiguous US and globally

Feedbacks to data and knowledge gaps

GOAL: Regional to national- level synthesis and integration

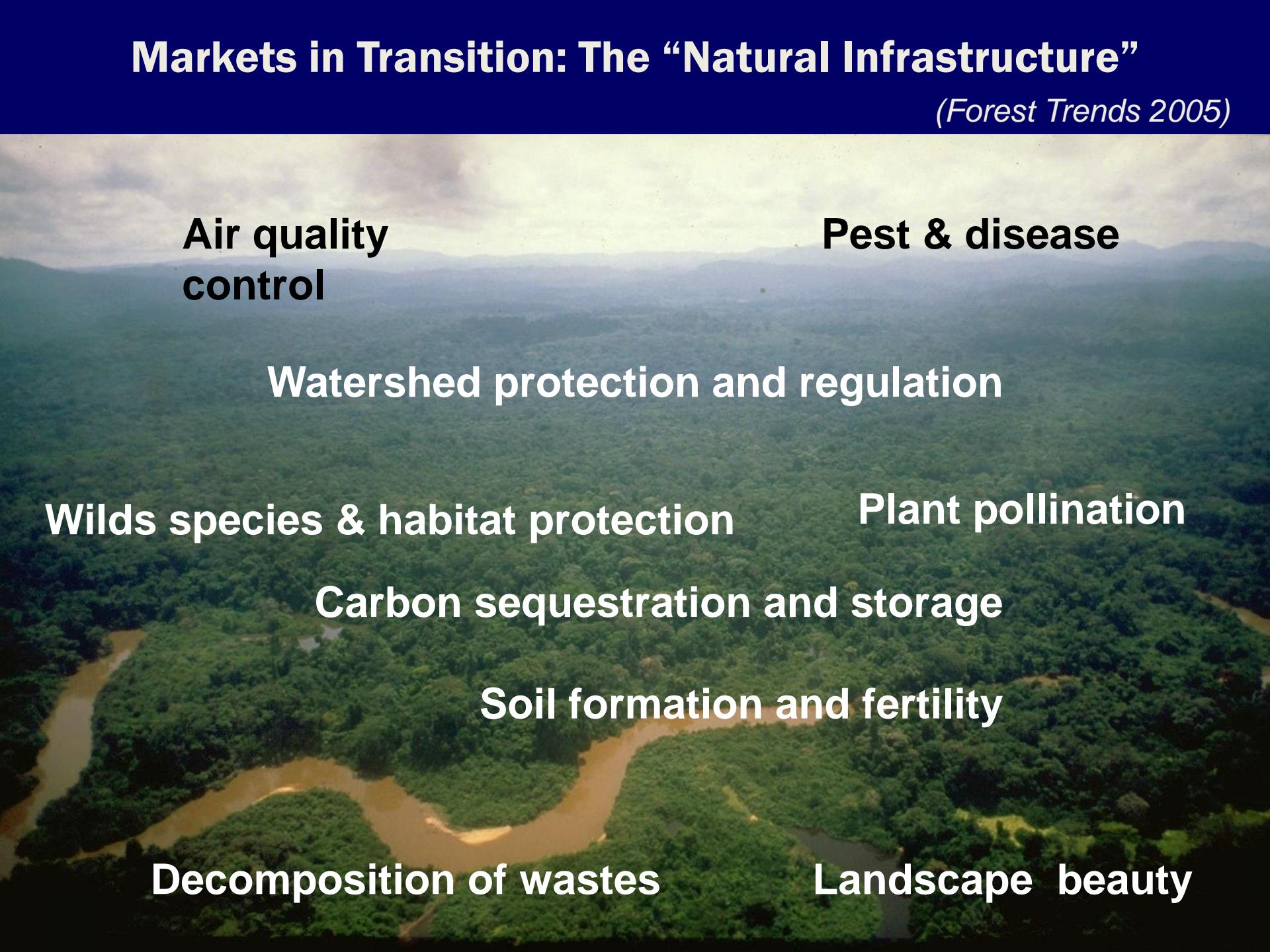
- forecast vulnerability of agrosystems to global change drivers
- develop potential adaptation strategies

Climate hubs

INFORMATION TRANSFER  
Land managers, public, decision makers

# Markets in Transition: The “Natural Infrastructure”

(Forest Trends 2005)



Air quality control

Pest & disease

Watershed protection and regulation

Wilds species & habitat protection

Plant pollination

Carbon sequestration and storage

Soil formation and fertility

Decomposition of wastes

Landscape beauty



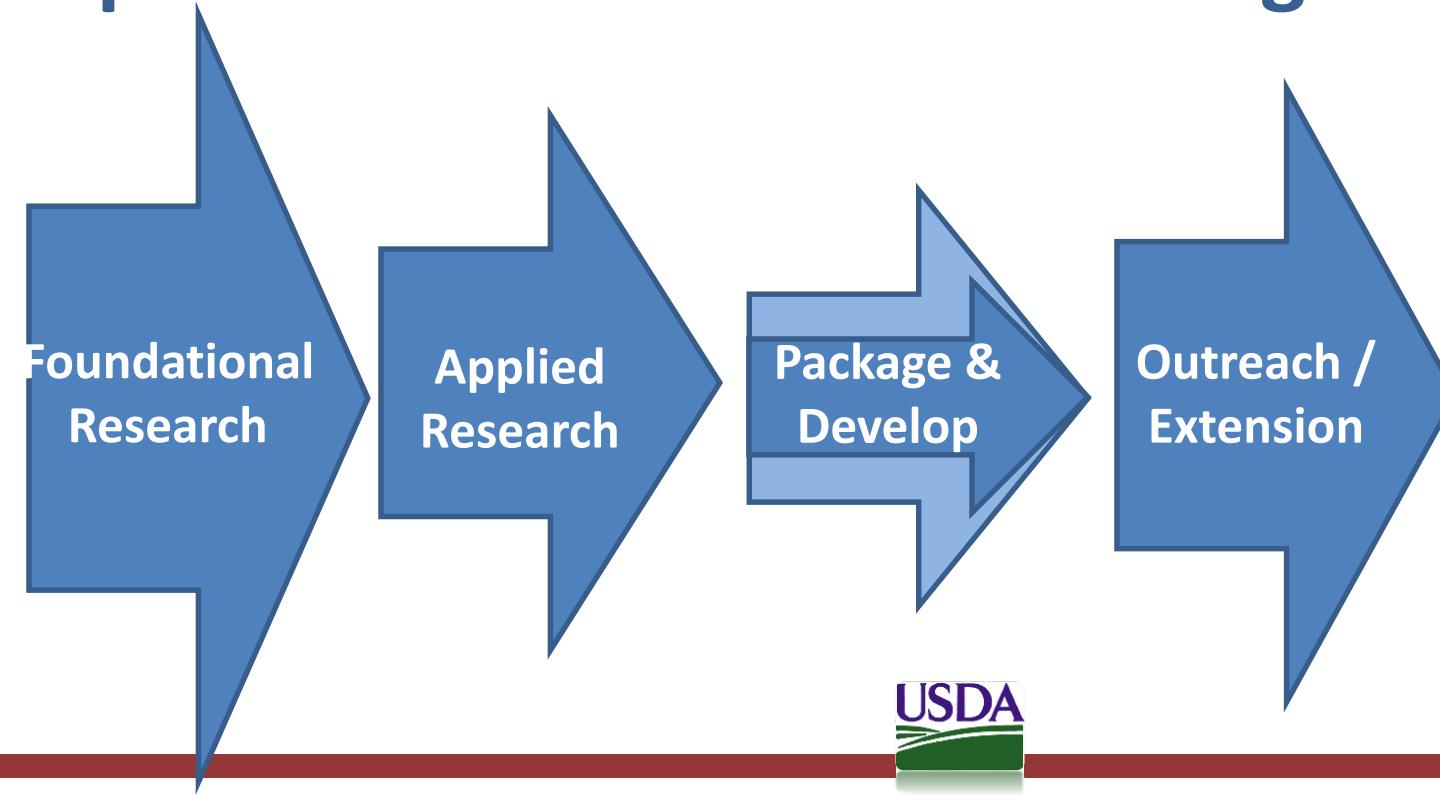
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***Data is not the issue  
.....translating it to usable  
information is!***

**USDA Regional Climate Hubs**



**The Regional Climate Hubs hope to:  
Improve the information flow to stakeholders  
by translating science into tools and  
products useful to land managers**



**Stakeholders**

**Farmers**

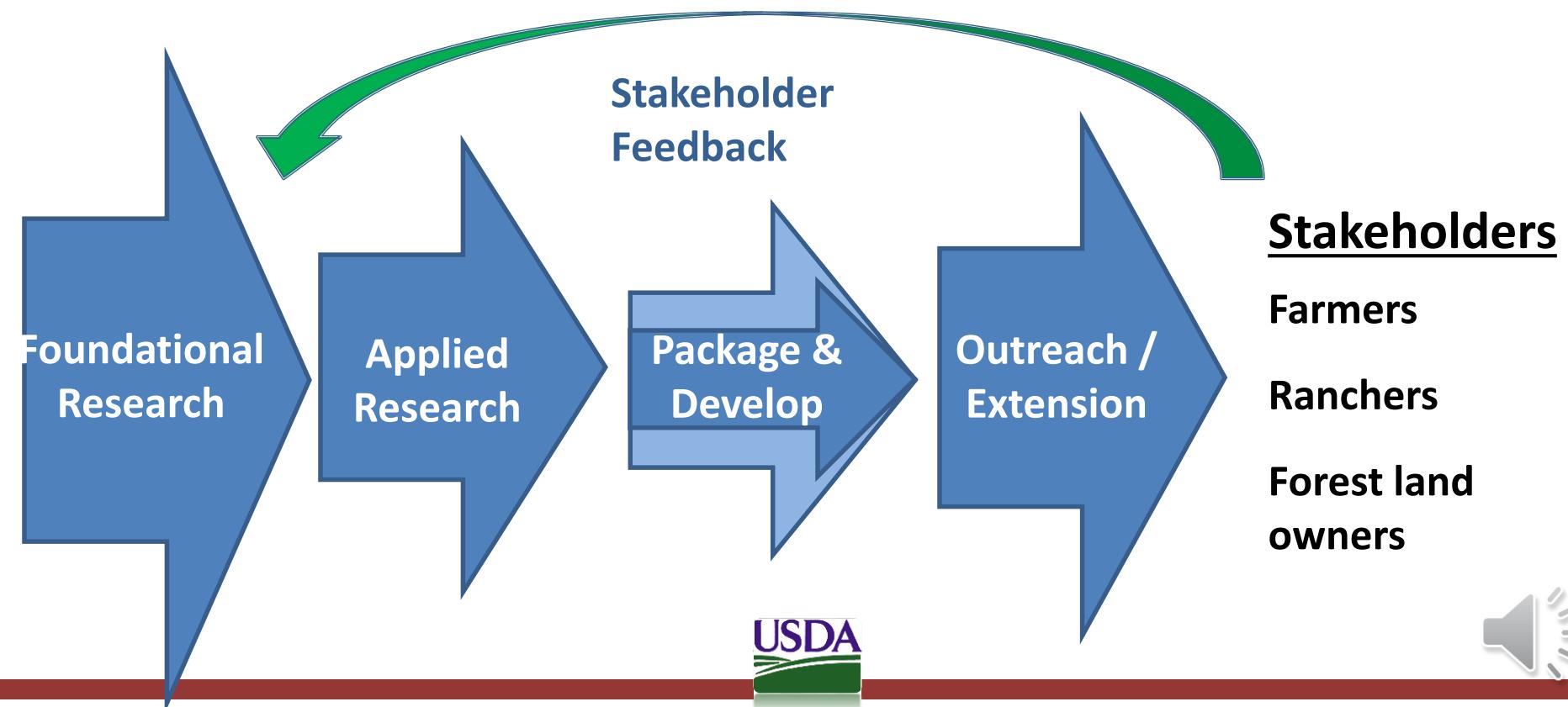
**Ranchers**

**Forest land  
owners**



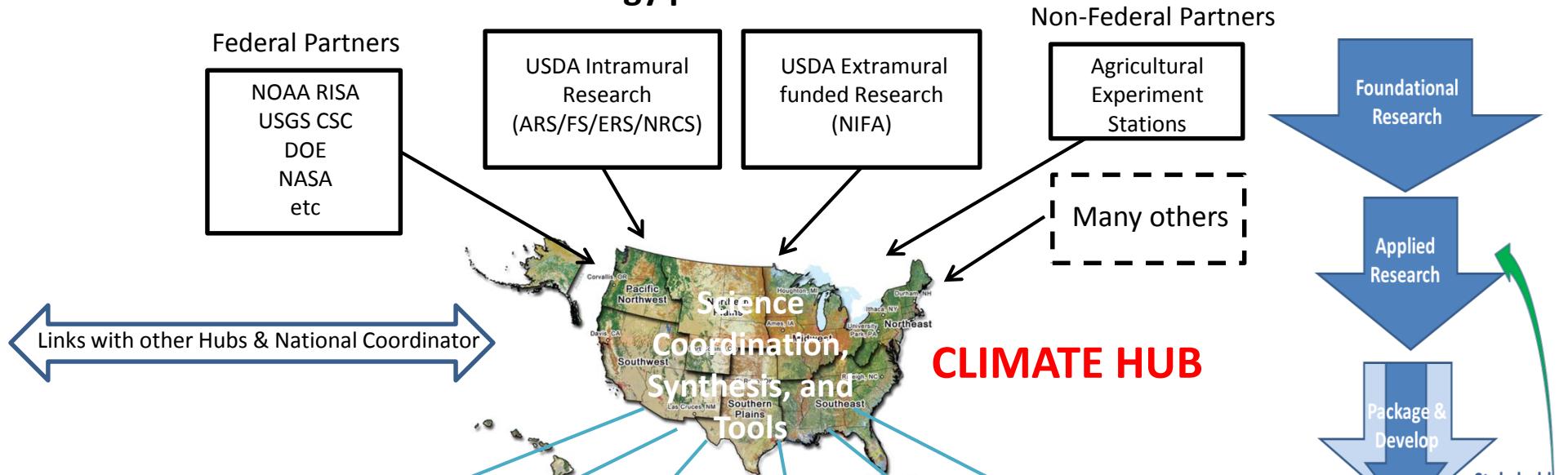
**The Hubs hope to:**

**Improve the information flow to stakeholders**  
**And provide feed back to research agencies**

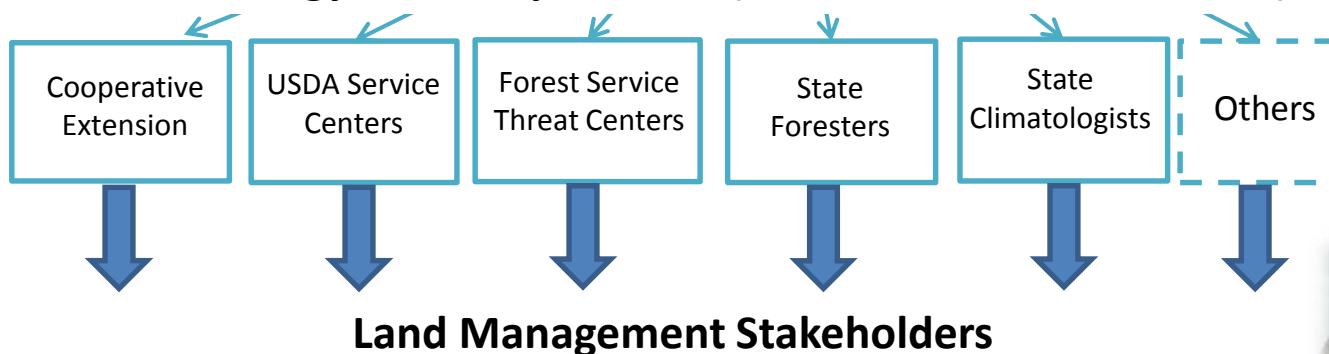


# Conceptual Framework of a USDA *Regional Hub*

## Science and Technology providers:



## Technology Transfer providers (Tech-Transfer Stakeholders):



Farmers / Ranchers / Forest Managers / Tribes / States / Feds / LCCs / Others

