



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**



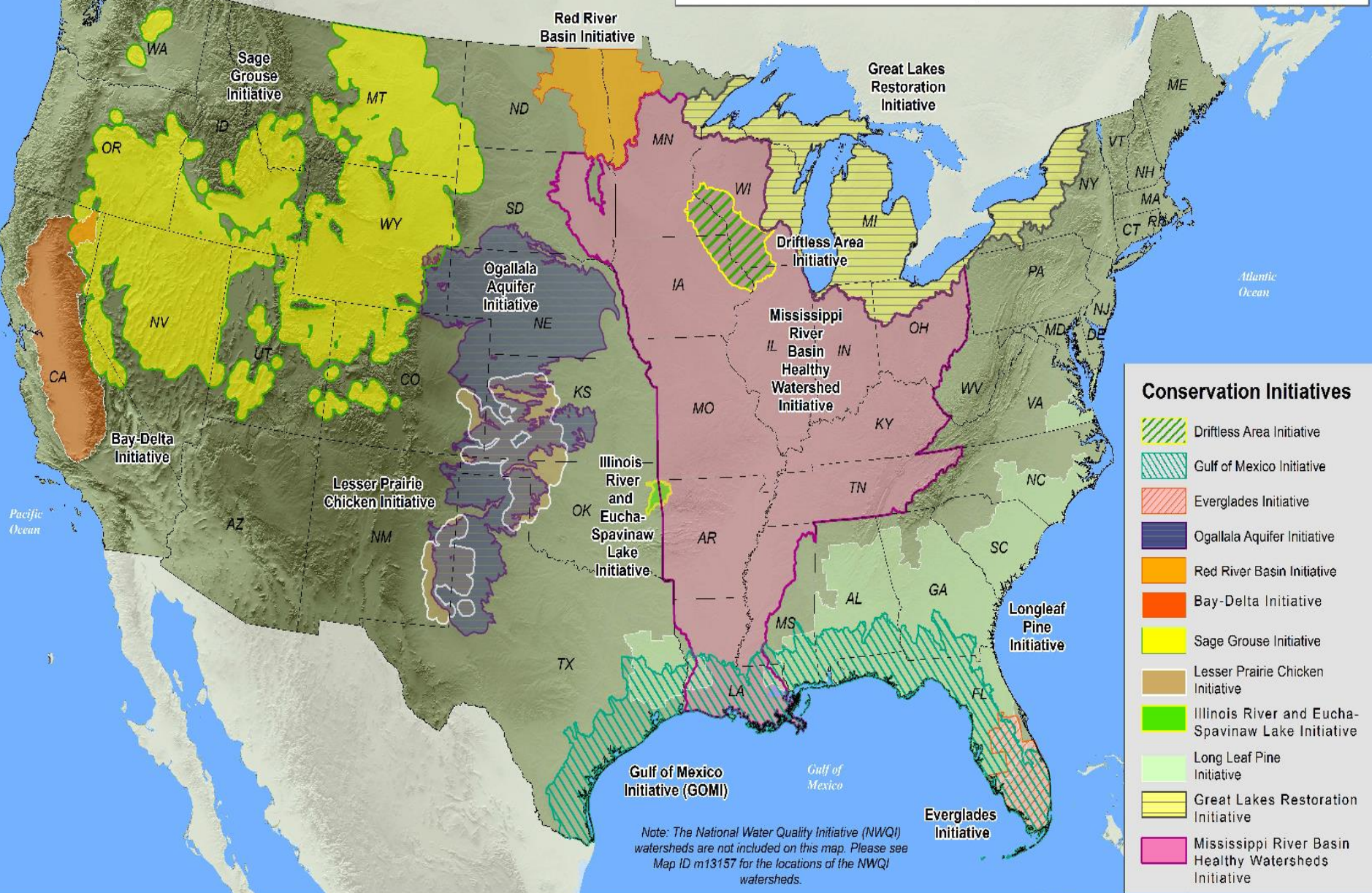


# 21<sup>st</sup> Century Conservation

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



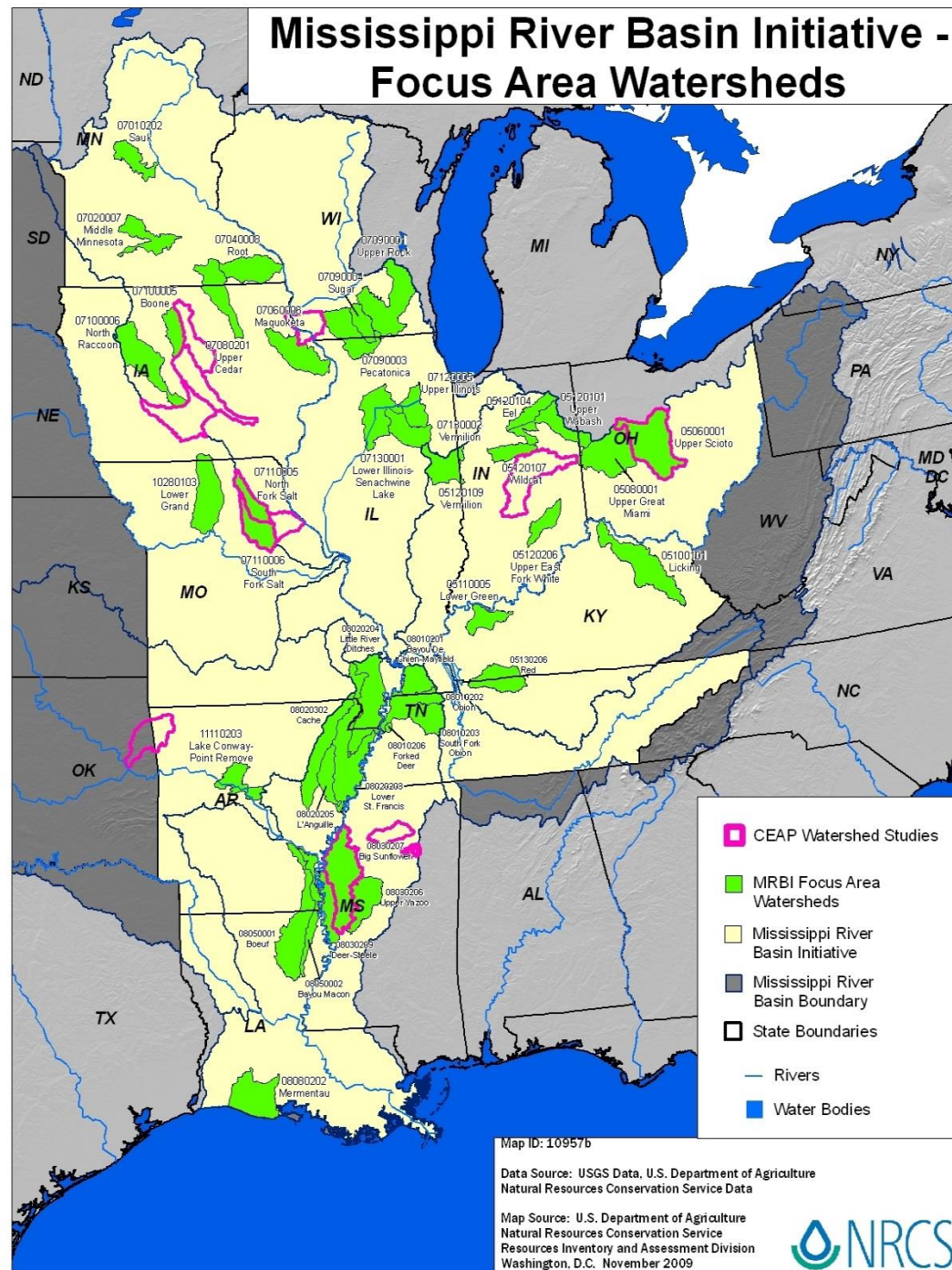
# 2014 NRCS Landscape Conservation Initiatives







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





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# **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.**



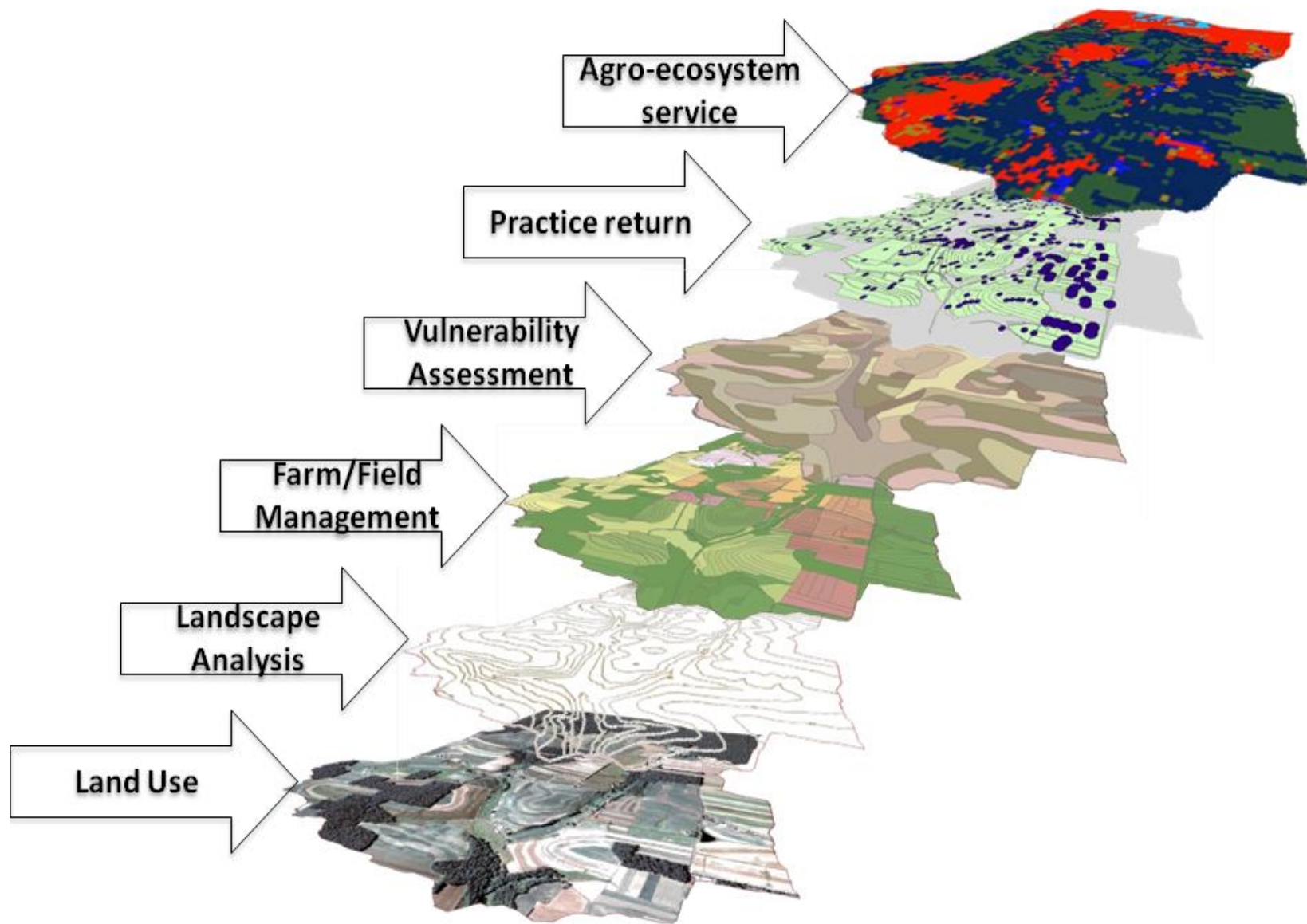
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***Let's talk about scale –  
matching data with program  
delivery***

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

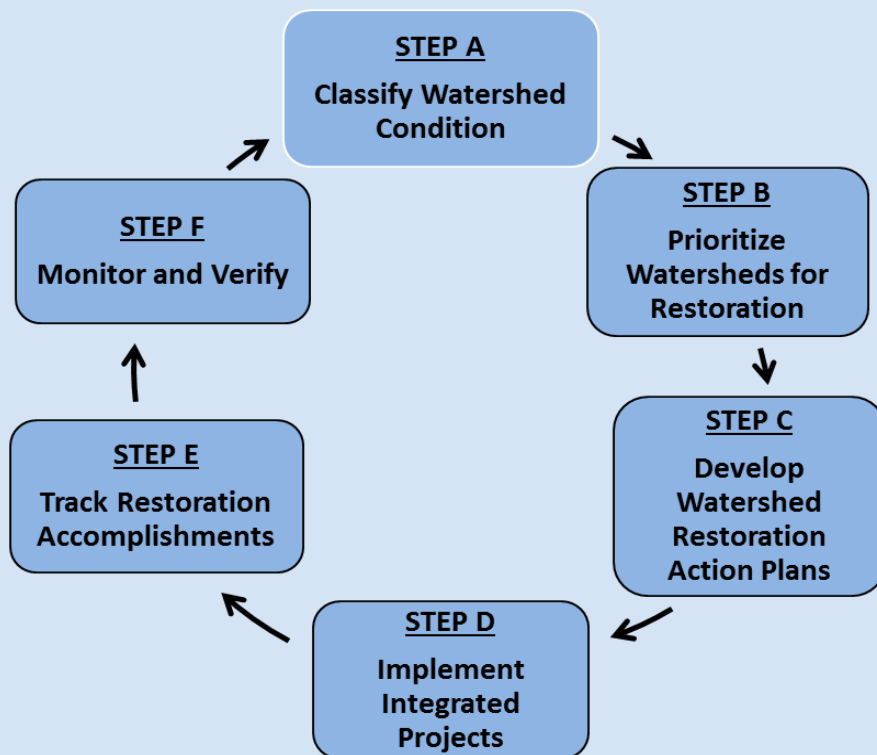








## Watershed Condition Framework Process



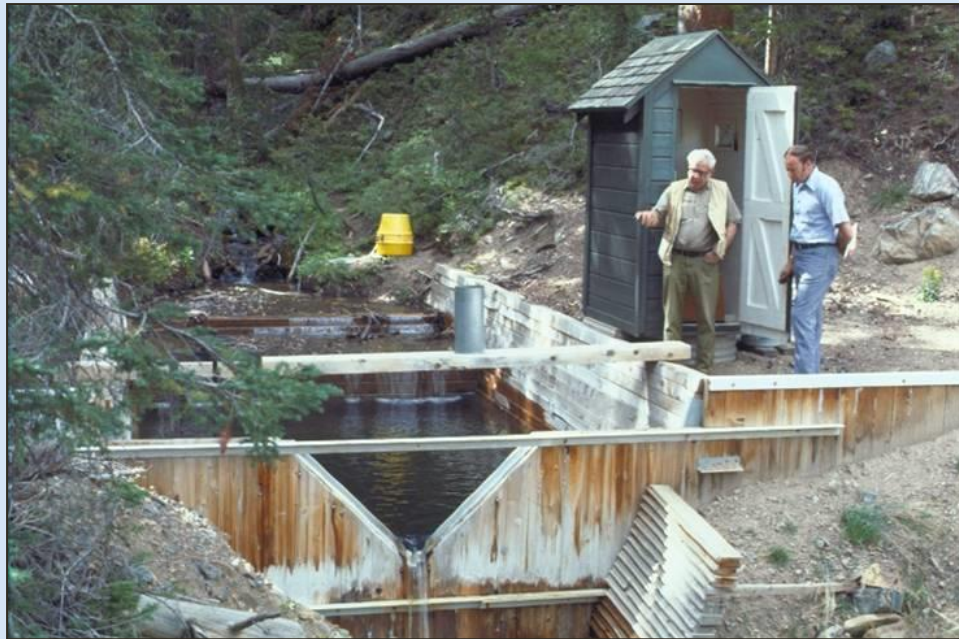




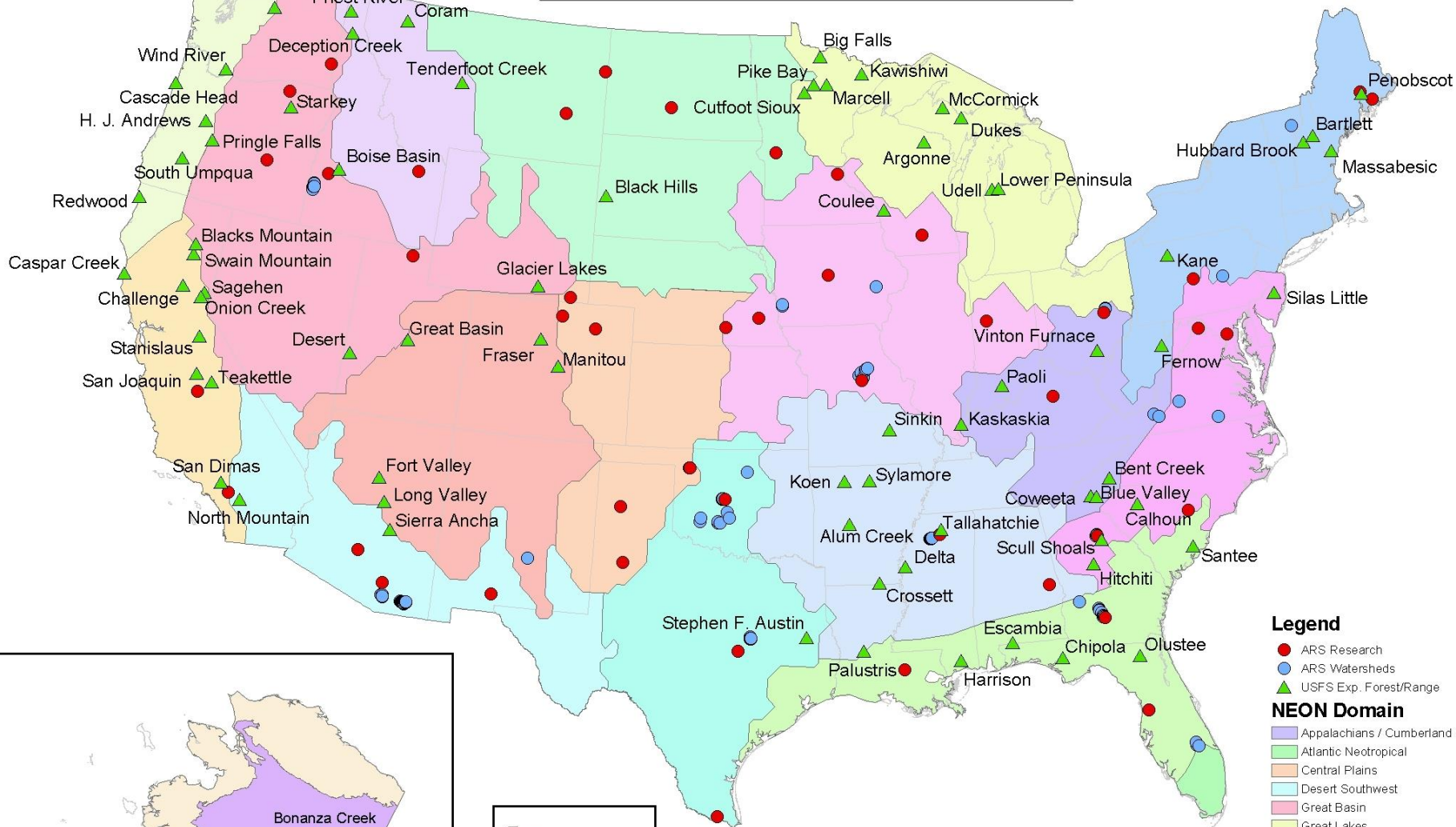
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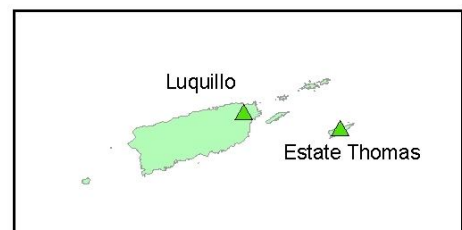
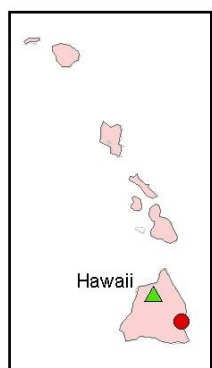
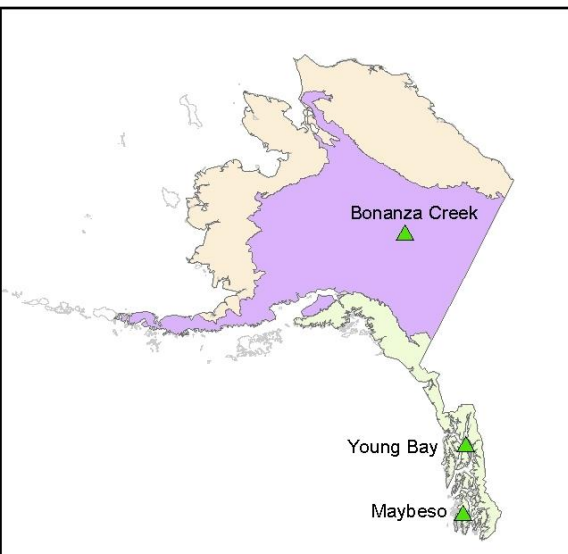
# Finally, we want to ensure we are science-based



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

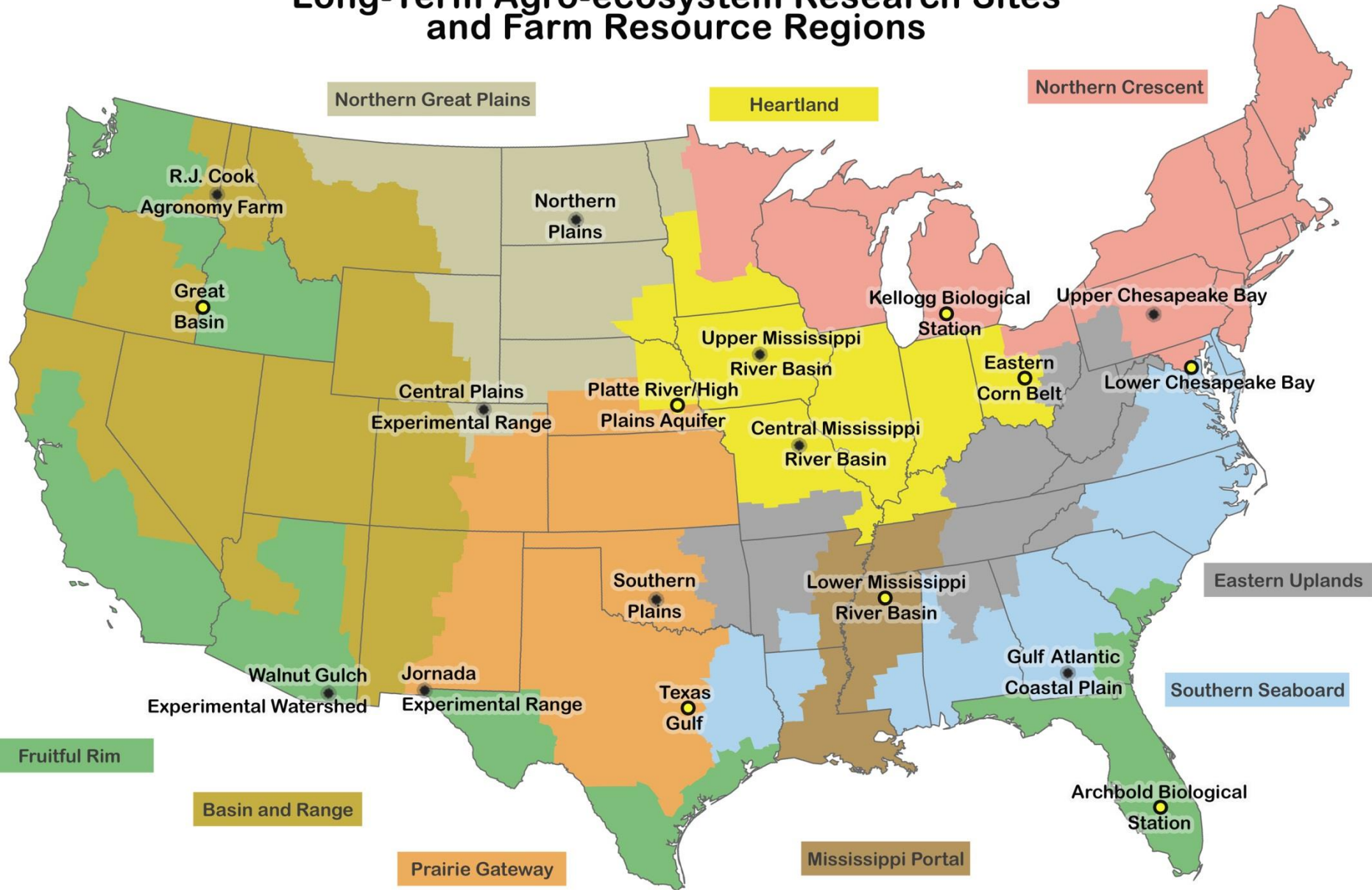


- Legend**
- ARS Research
  - ARS Watersheds
  - USFS Exp. Forest/Range
- NEON Domain**
- Appalachians / Cumberland Plateau
  - Atlantic Neotropical
  - Central Plains
  - Desert Southwest
  - Great Basin
  - Great Lakes
  - Mid Atlantic
  - Northeast
  - Northern Plains
  - Northern Rockies
  - Ozarks Complex
  - Pacific Neotropical
  - Pacific Northwest
  - Pacific Southwest
  - Prairie Peninsula
  - Southeast
  - Southern Plains
  - Southern Rockies / Colorado Plateau
  - Taiga
  - Tundra

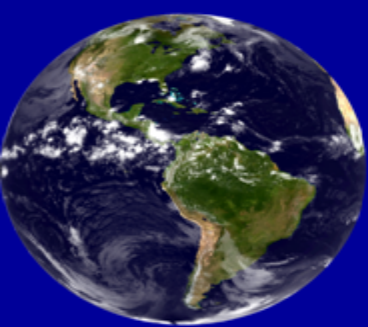




# Long-Term Agro-ecosystem Research Sites and Farm Resource Regions

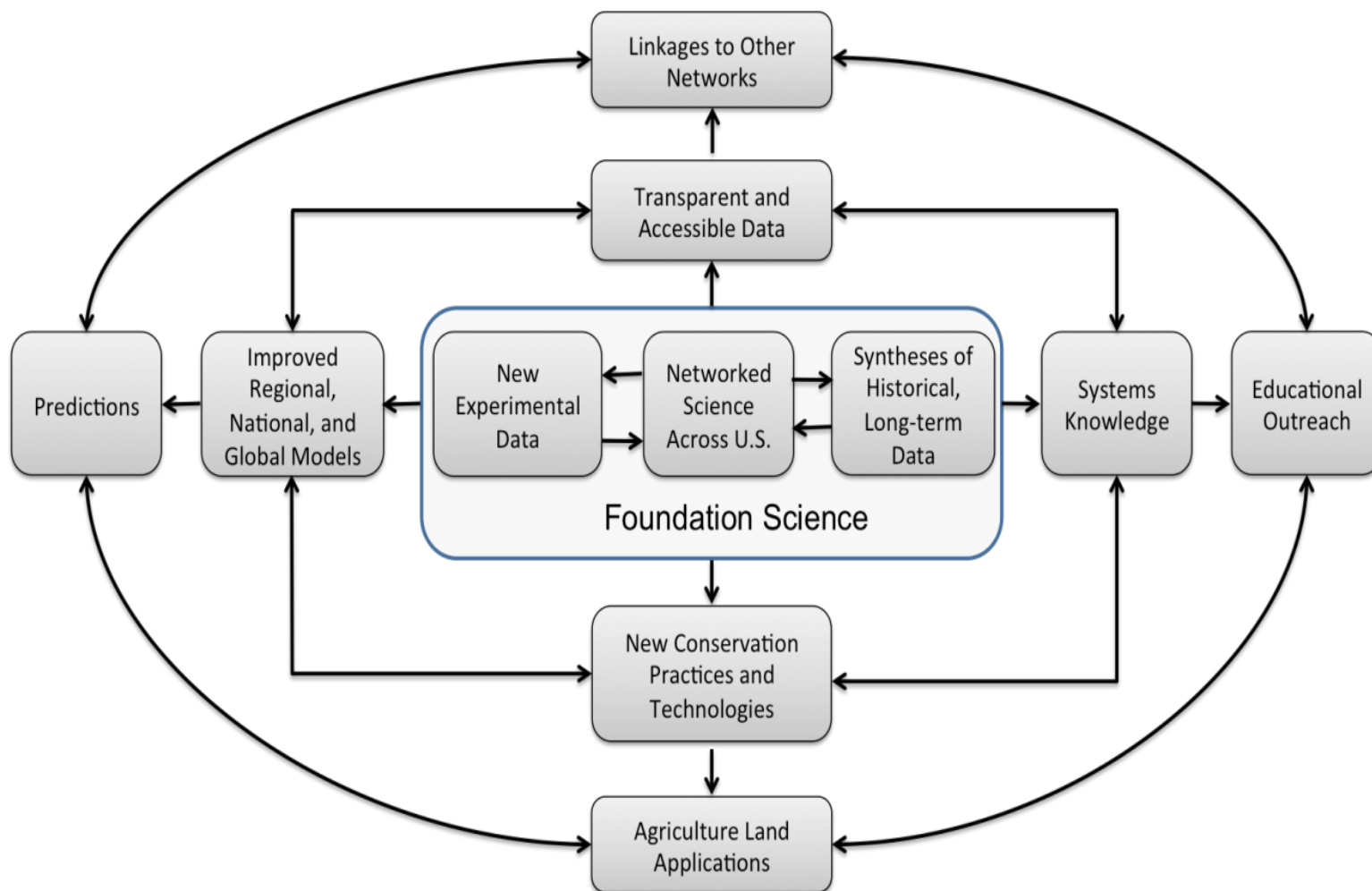






# Long Term Agro-Ecosystem Research Network

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





**Protected  
Primary Forest**

This label points to a dark green, forested area in the upper left of the image, situated on a hillside overlooking the river valley.

**Degraded Primary Forest**

This label points to a forested area in the upper right, appearing slightly less dense than the protected primary forest.

**Plantations**

This label points to a distinct, rectangular area of forest in the middle of the valley, likely a managed tree plantation.

**Secondary forest**

This label points to a forested area on the right side of the valley, showing signs of regrowth.

**Secondary forest**

This label points to a forested area on the left side of the valley, showing signs of regrowth.

**Degraded  
Forest Lands**

This label points to a forested area in the lower left, showing signs of degradation or selective logging.

**Permanent  
pasture**

This label points to a grassy area on the right side of the valley, used for permanent pasture.

**Permanent  
pasture**

This label points to a grassy area in the lower center of the valley, used for permanent pasture.

**Intensive  
agricultural land**

This label points to a cleared, brownish area in the lower right, used for intensive agriculture.

**Permanent  
pasture**

This label points to a grassy area in the lower right, used for permanent pasture.

Upstream  
freshwater  
forest

aapuaha

Mangr

algae

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)

imagery  
NASA, ARS

legacy data  
LTAR, ARS,  
NASS,  
ERS, NRCS

Short-term data  
FSA, ARS,  
NASS, NIFA,  
GRA

observations, experiments, land use, management strategies

## Driver data

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

## Site-level synthesis

Conceptual models

Statistical  
models

Simulation  
models  
(AgMIP,  
others)

**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**

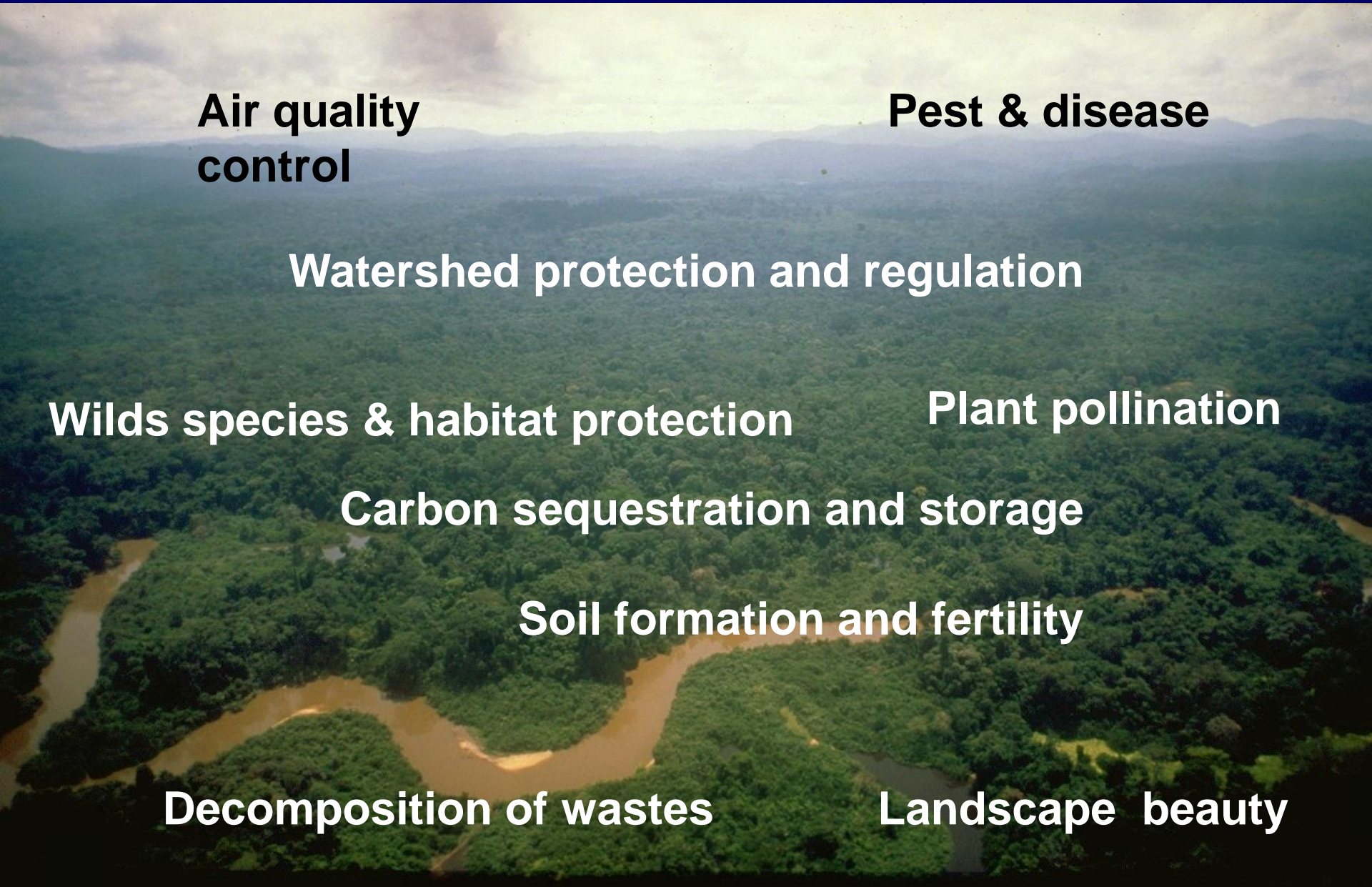
**Plant pollination**

**Carbon sequestration and storage**

**Soil formation and fertility**

**Decomposition of wastes**

**Landscape beauty**







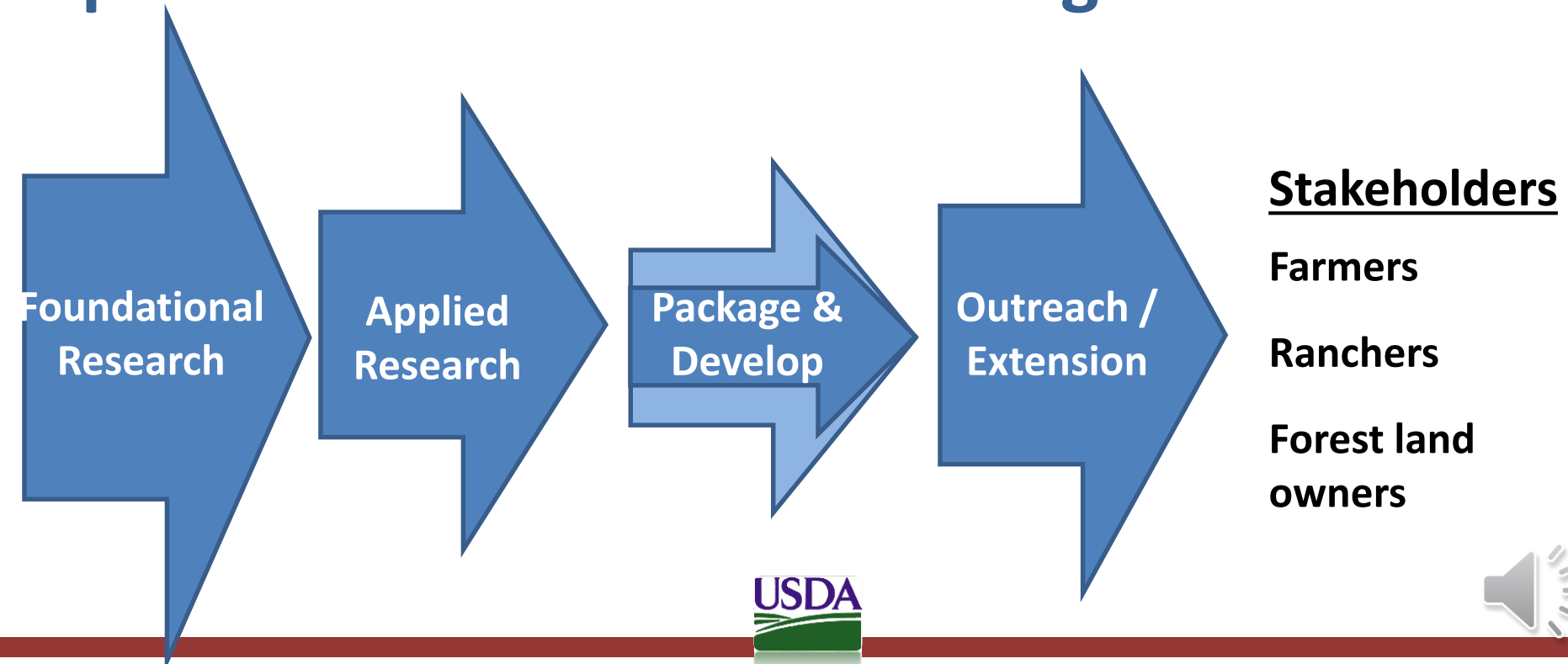
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***Data is not the issue  
.....translating it to usable  
information is!***

# **USDA Regional Climate Hubs**



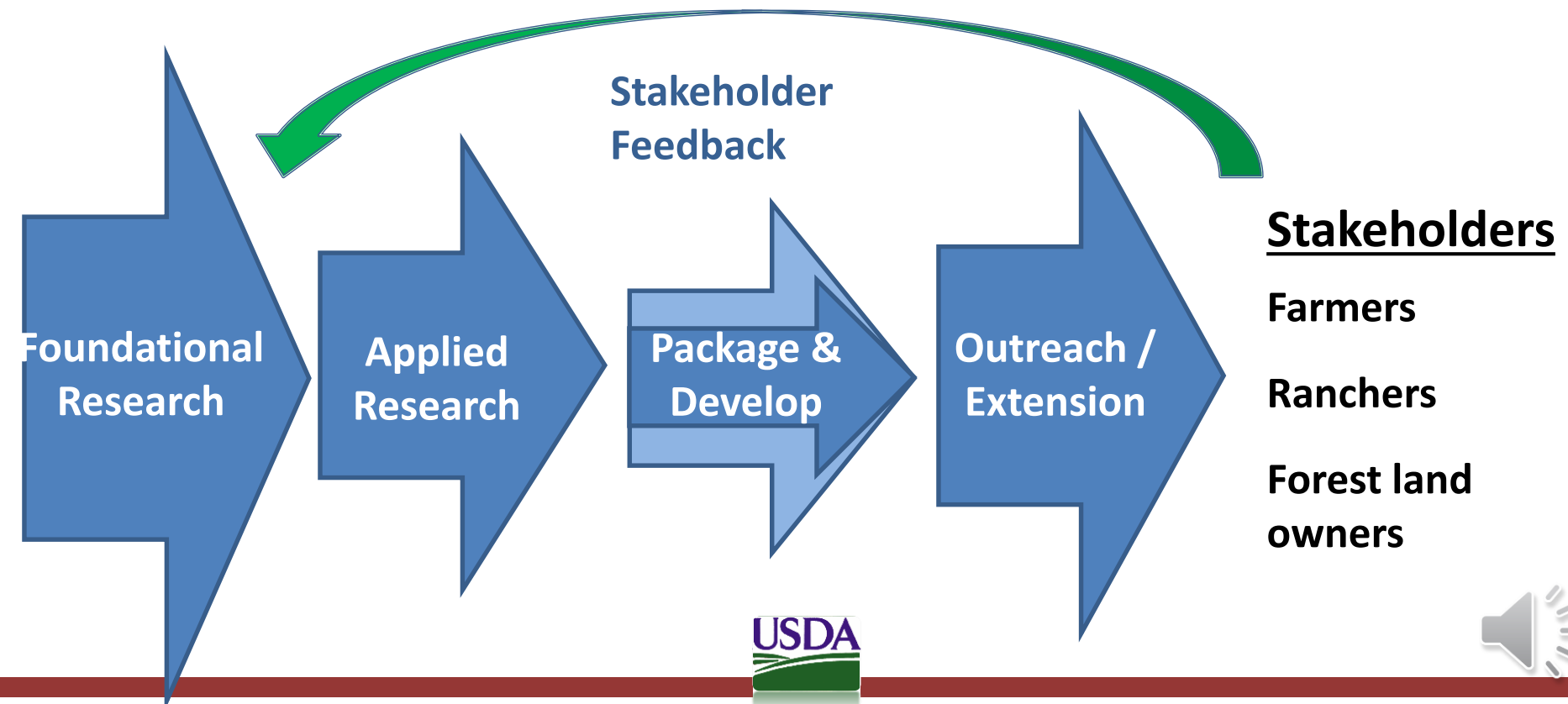
**The Regional Climate Hubs hope to:  
Improve the information flow to stakeholders  
by translating science into tools and  
products useful to land managers**



**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:

### Federal Partners

NOAA RISA  
USGS CSC  
DOE  
NASA  
etc

USDA Intramural  
Research  
(ARS/FS/ERS/NRCS)

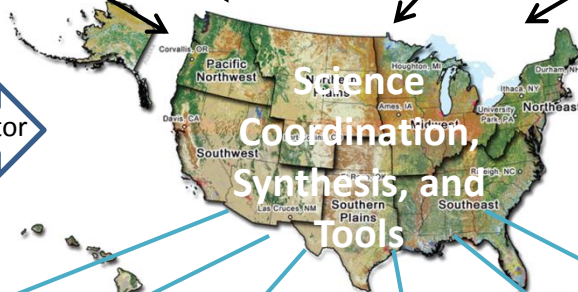
USDA Extramural  
funded Research  
(NIFA)

### Non-Federal Partners

Agricultural  
Experiment  
Stations

Many others

Links with other Hubs & National Coordinator



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

Cooperative  
Extension

USDA Service  
Centers

Forest Service  
Threat Centers

State  
Foresters

State  
Climatologists

Others

## Land Management Stakeholders

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

Foundational  
Research

Applied  
Research

Package &  
Develop

Outreach /  
Extension

Stakeholder  
Feedback

