

# Implementation of the Southeast Aquatic Habitat Plan in Texas: Conserving Fish Habitat Through Watershed Conservation





**Devils River minnow**

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© Garold W. Sneegas

Rio Grand



gambusia



Rio Grande silvery minnow

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TEXAS  
PARKS &  
WILDLIFE



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blue sucker



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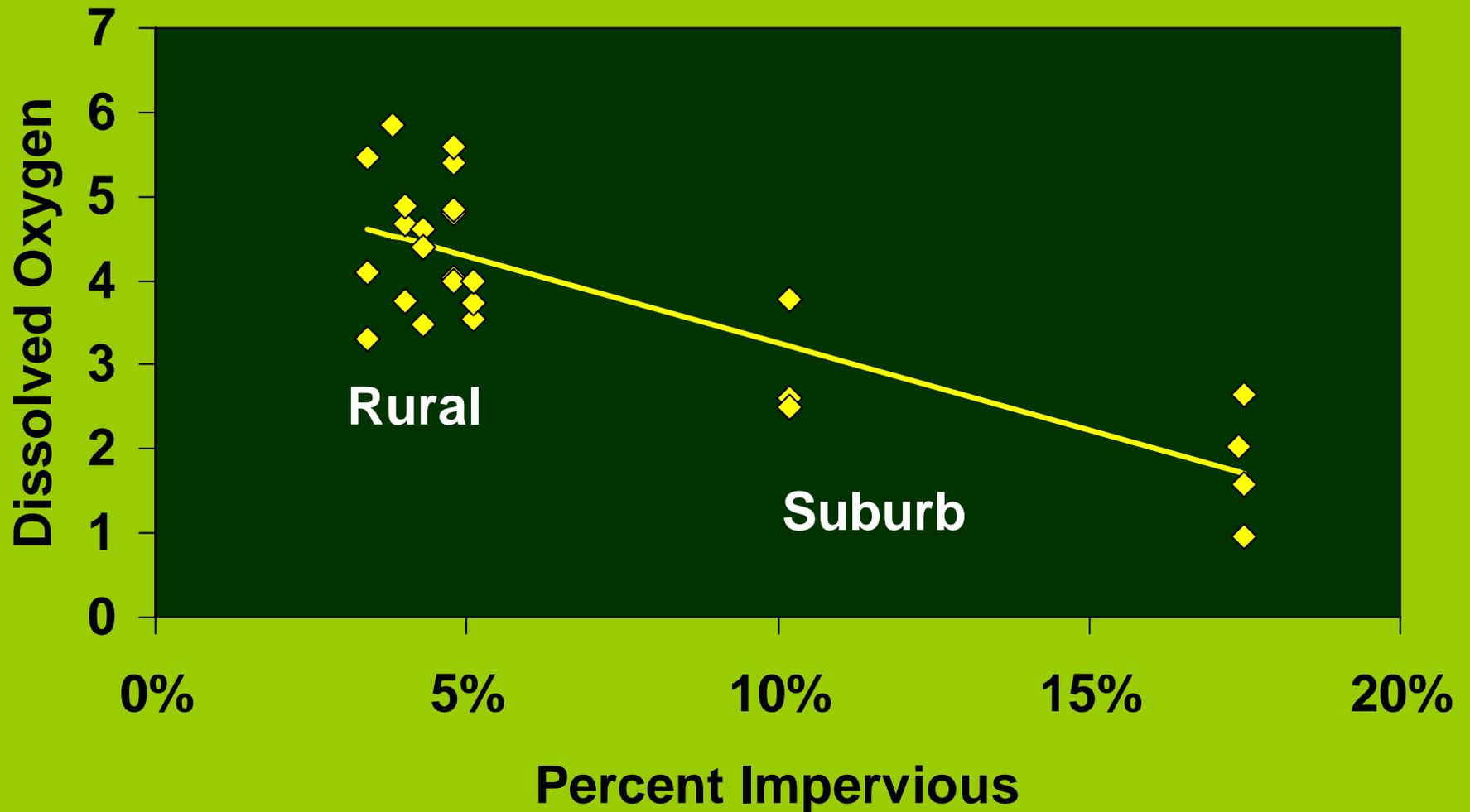


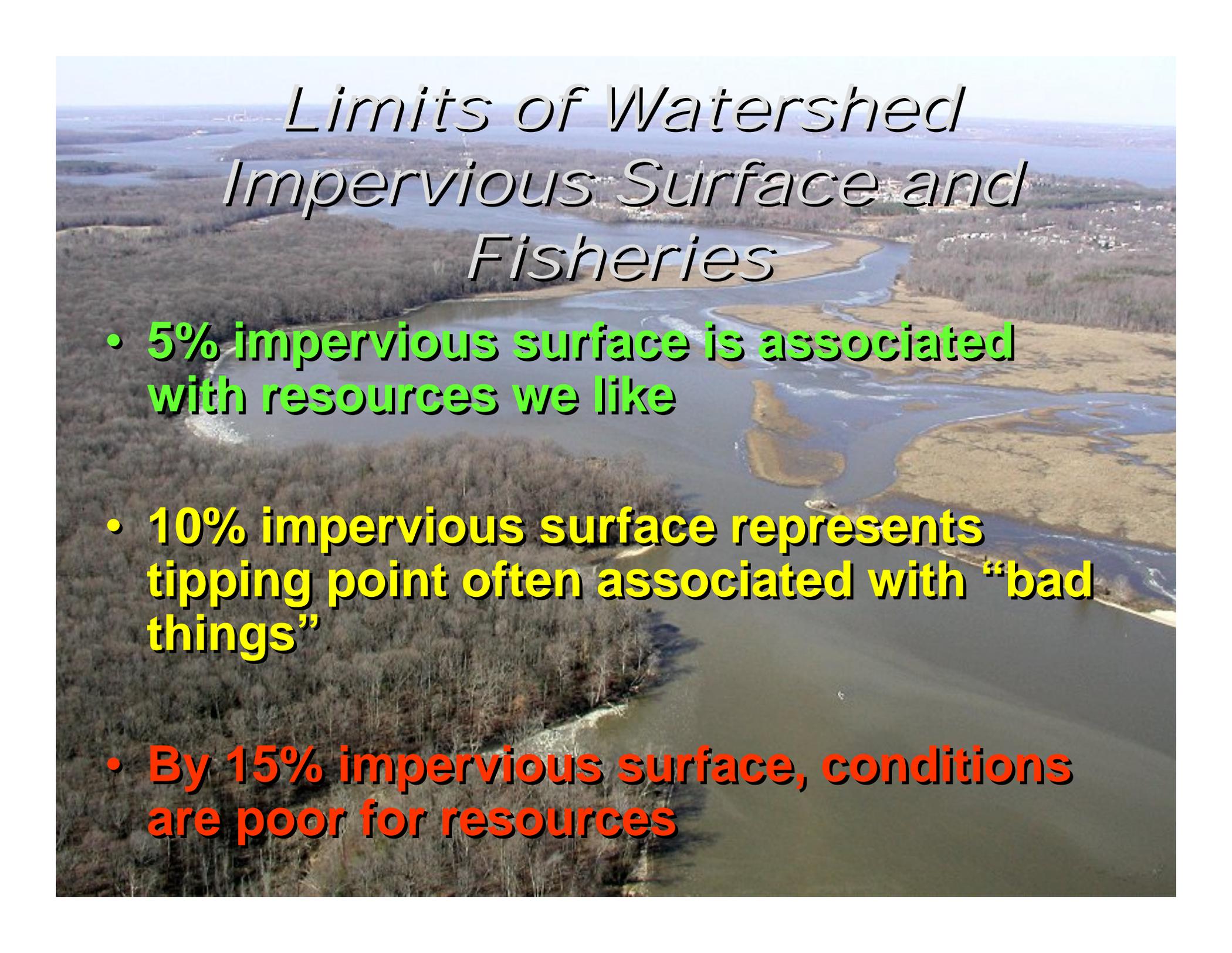
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# Summer DO declines in tributaries with development





# *Limits of Watershed Impervious Surface and Fisheries*

- **5% impervious surface is associated with resources we like**
- **10% impervious surface represents tipping point often associated with “bad things”**
- **By 15% impervious surface, conditions are poor for resources**



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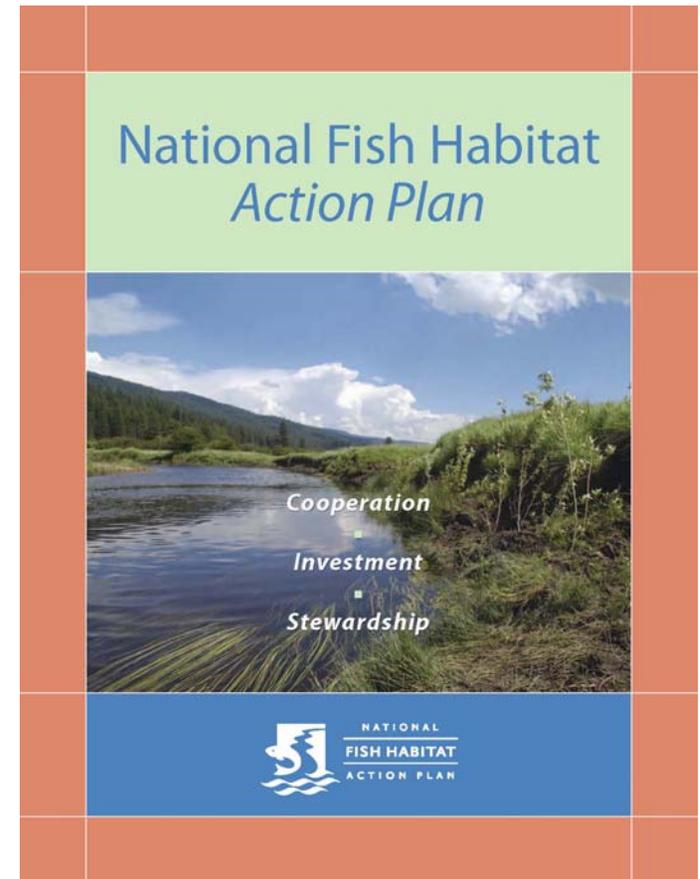


## A Vision for Fish Habitat Conservation in the US

- Nearly 40% of North American fishes (700 taxa) listed as imperiled.
  - More than two-thirds of these are federally threatened or endangered.
- Habitat alteration is the principle contributing factor.
- Habitat is the principle motivation for the development of the National Fish Habitat Action Plan.



- Non-regulatory and voluntary
- Science based
- Driven by grassroots partners
- Strategic Investments
  - Local projects
  - Regional strategies and priorities
  - National attention and funding



A photograph of a largemouth bass fish swimming in a pond. The fish is the central focus, positioned slightly to the right of the center. It has a greenish-brown body with a lighter stripe along its side. The water is clear, and there are several reeds and lily pads visible in the background and foreground, creating a natural aquatic habitat setting.

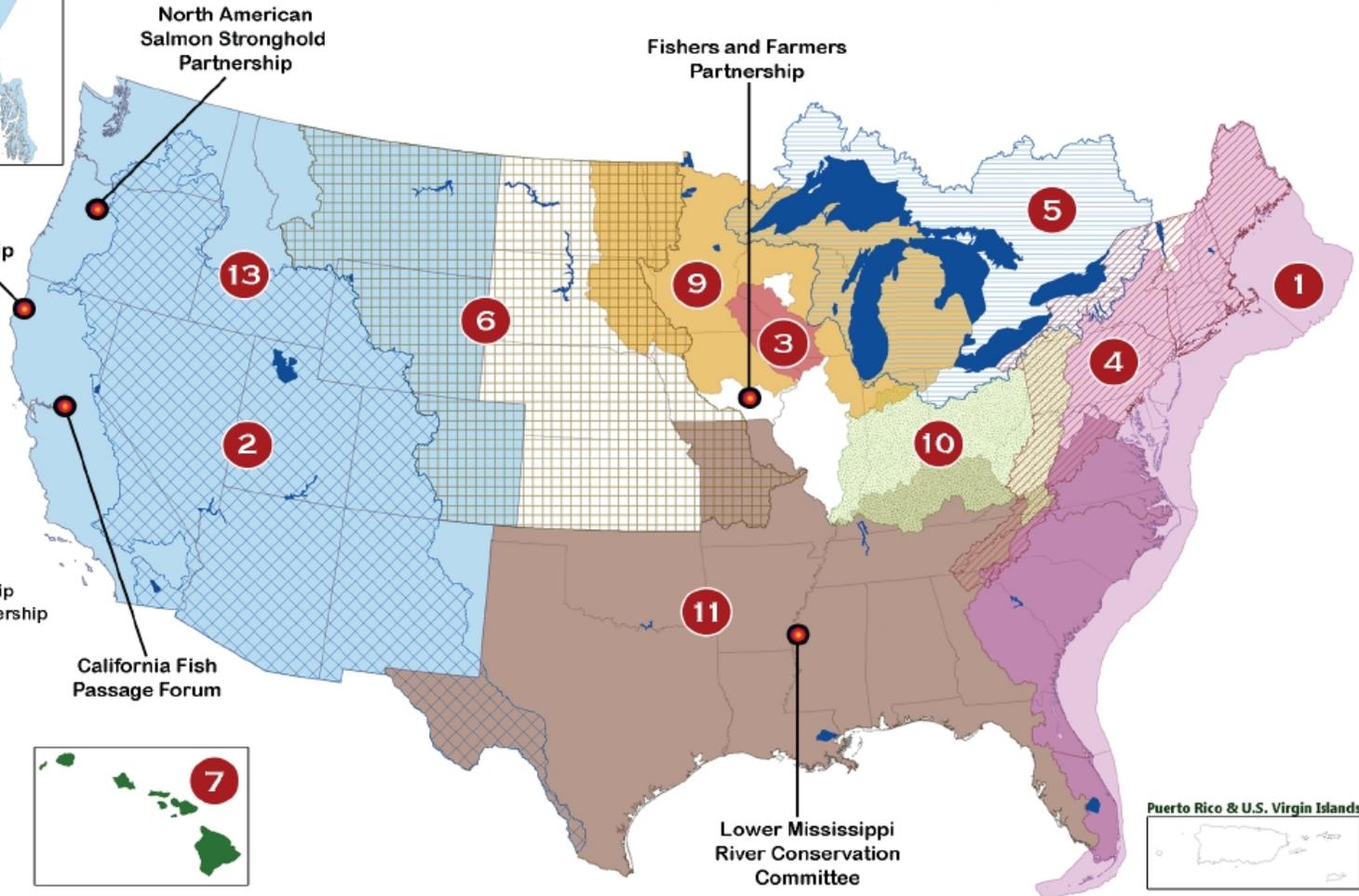
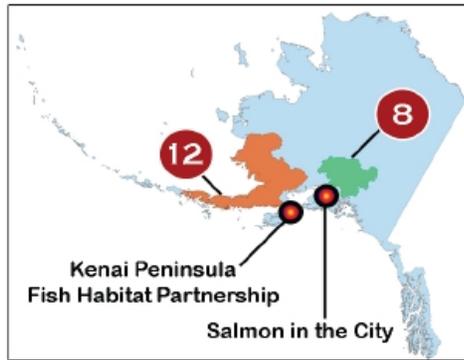
# National Fish Habitat Action Plan Goals

- (1) Protect and maintain intact and healthy aquatic systems
- (2) Prevent further degradation of fish habitats that have been adversely affected
- (3) Reverse declines in the quality and quantity of aquatic habitats to improve the overall health of fish and other aquatic organisms
- (4) Increase the quality and quantity of fish habitats that support a broad natural diversity of fish and other aquatic species

**Result → More Habitat = More Fish = More Angling Opportunities  
= More Dollars on the Ground for Fish Conservation**

# Fish Habitat Partnerships

October 2009



**Geographic/Species Based Partnerships**

1. Atlantic Coastal FHP
2. Desert FHP
3. Driftless Area Restoration Effort
4. Eastern Brook Trout Joint Venture
5. Great Lakes Basin FHP
6. Great Plains FHP
7. Hawaii FHP
8. Mat-Su Basin Salmon Habitat Partnership
9. Midwest Glacial Lakes Partnership
10. Ohio River Basin FHP
11. Southeast Aquatic Resources Partnership
12. Southwest Alaska Salmon Habitat Partnership
13. Western Native Trout Initiative

**System Based Partnership**

- Reservoir FHP

Denotes "Candidate" Fish Habitat Partnership



*Conserving our Southeastern Aquatic Habitat:*

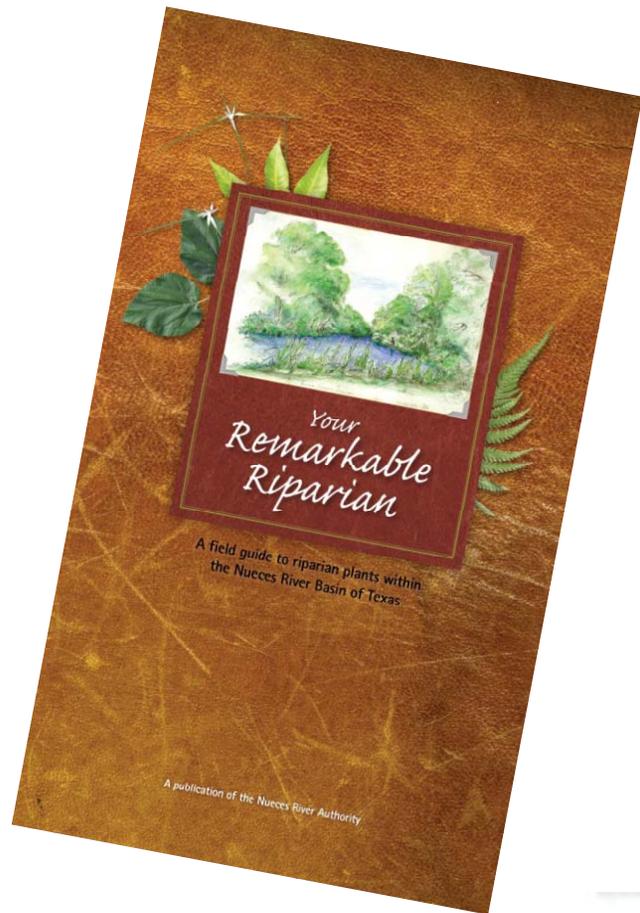
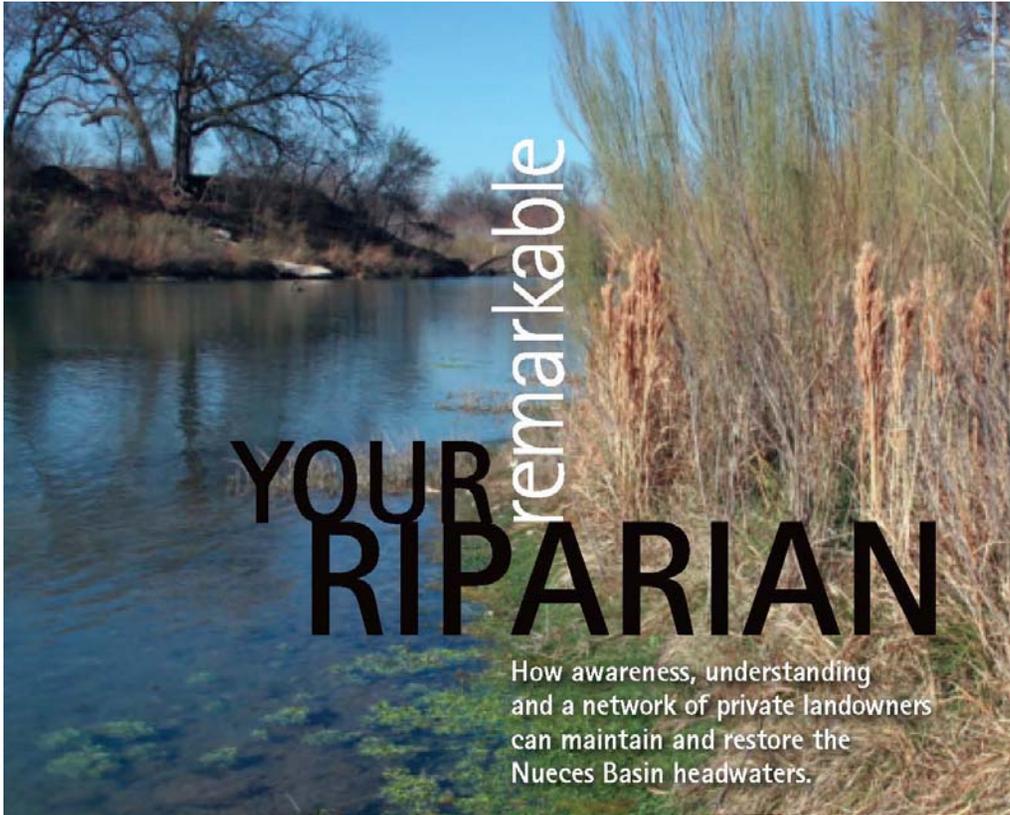
# THE SOUTHEAST AQUATIC HABITAT PLAN





**SAHP Objective 1**  
**Establish, improve and maintain riparian zones**

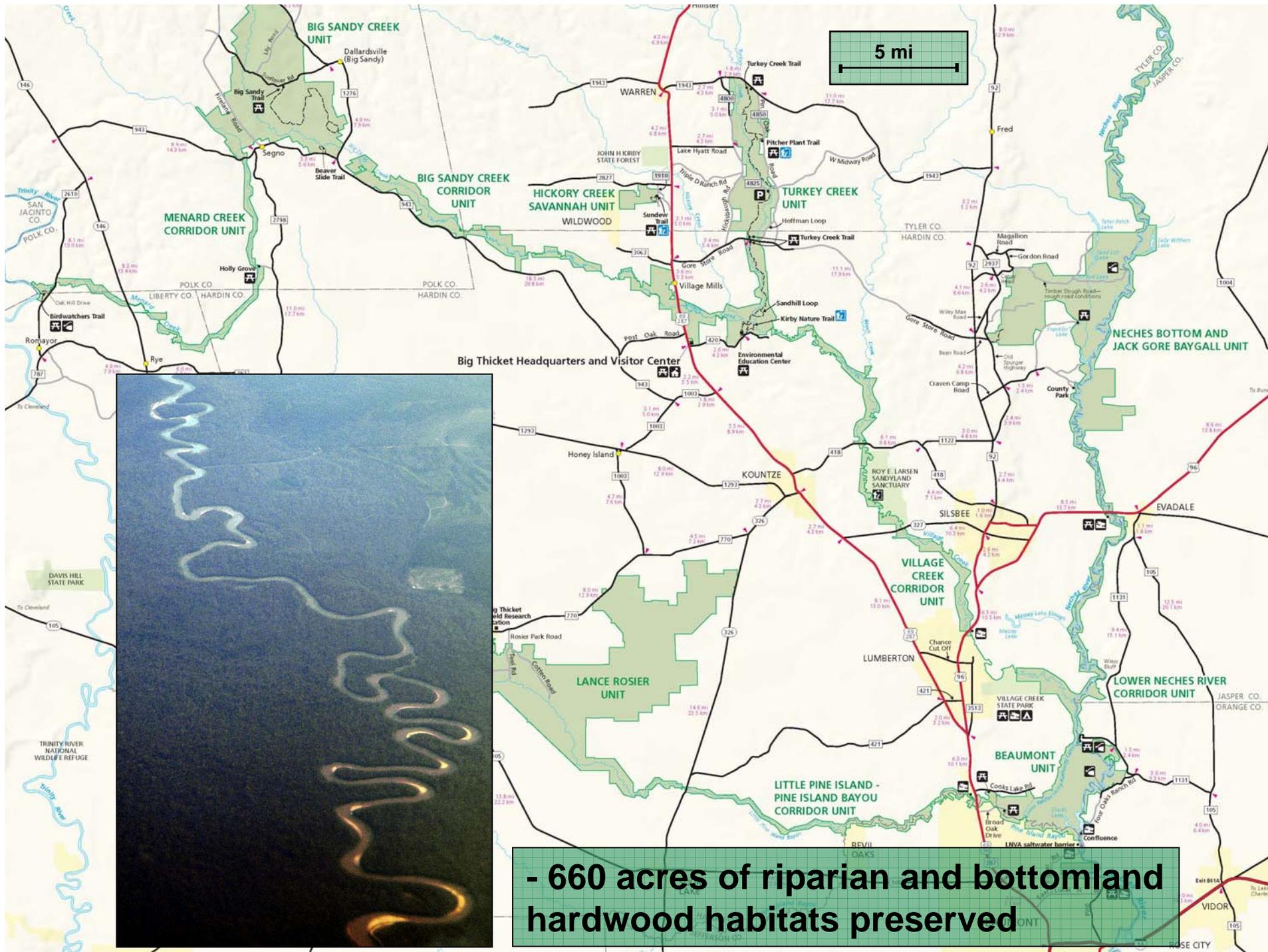
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# Big Thicket National Preserve



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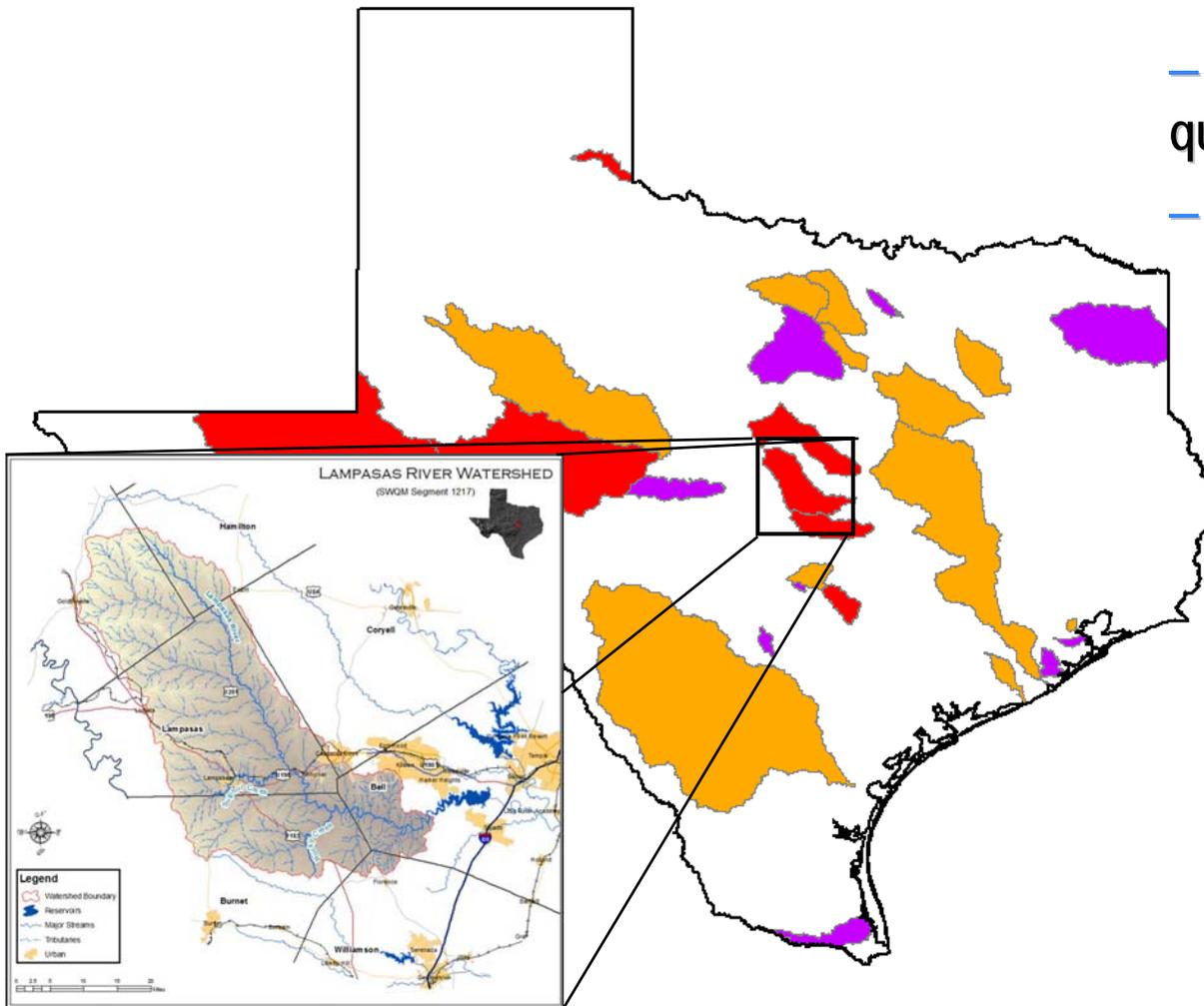


SAHP Objective 2  
Improve or maintain water quality

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# Coordinated Watershed Conservation

- Locally-driven process
- Integrated approaches to water quality protection and restoration
- 29 formal WPPs underway in TX





After completion of the training, Texas Watershed Stewards can:

- Serve as a point of contact and information resource within their community for others interested in watershed conservation
- Implement BMPs in your home or business to improve watershed health (i.e., water quality, water quantity, habitat quality)
- Participate with local governments and other public agencies in watershed conservation efforts
- Coordinate volunteer stream restoration efforts
- Serve on local stakeholder groups (e.g., regional water planning groups, watershed alliances)

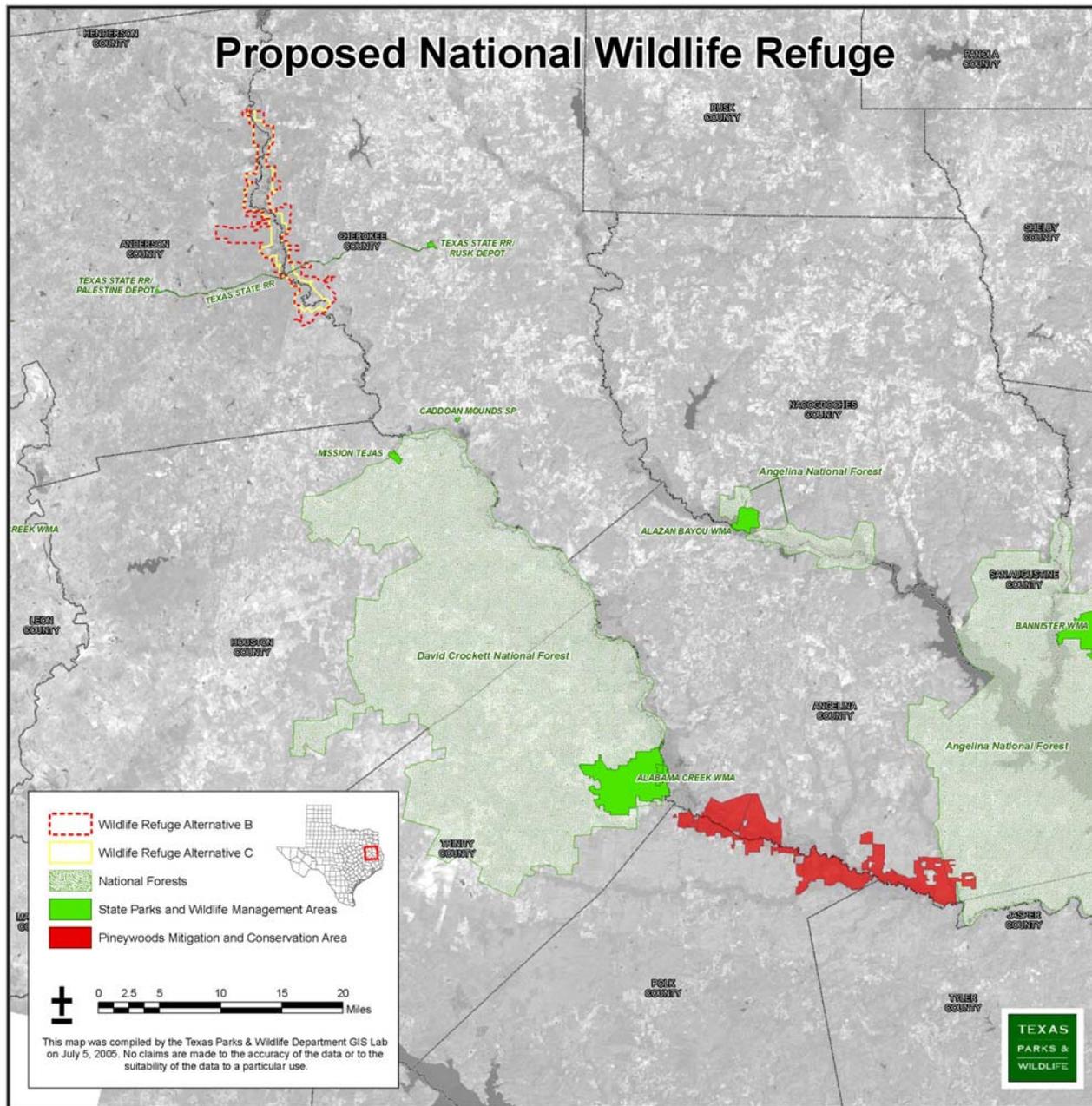
A scenic view of a river with a dam and a red brick building. The dam is a low concrete structure with water cascading over it. To the right, a two-story red brick building with a balcony and stairs is situated on a hillside. The foreground is filled with green grass and bushes. The sky is blue with scattered white clouds.

# SAHP Objective 3 Improve or maintain watershed connectivity

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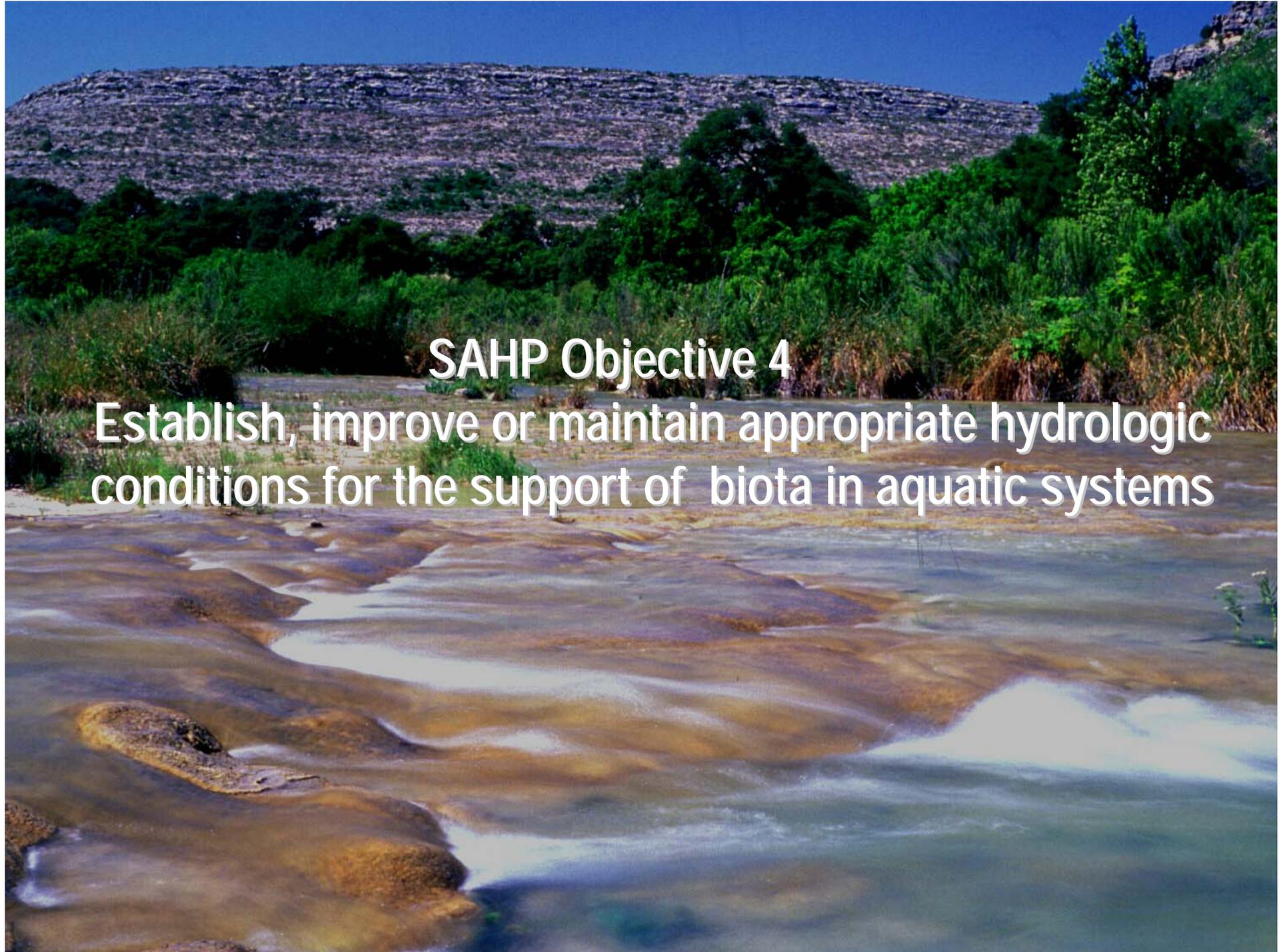


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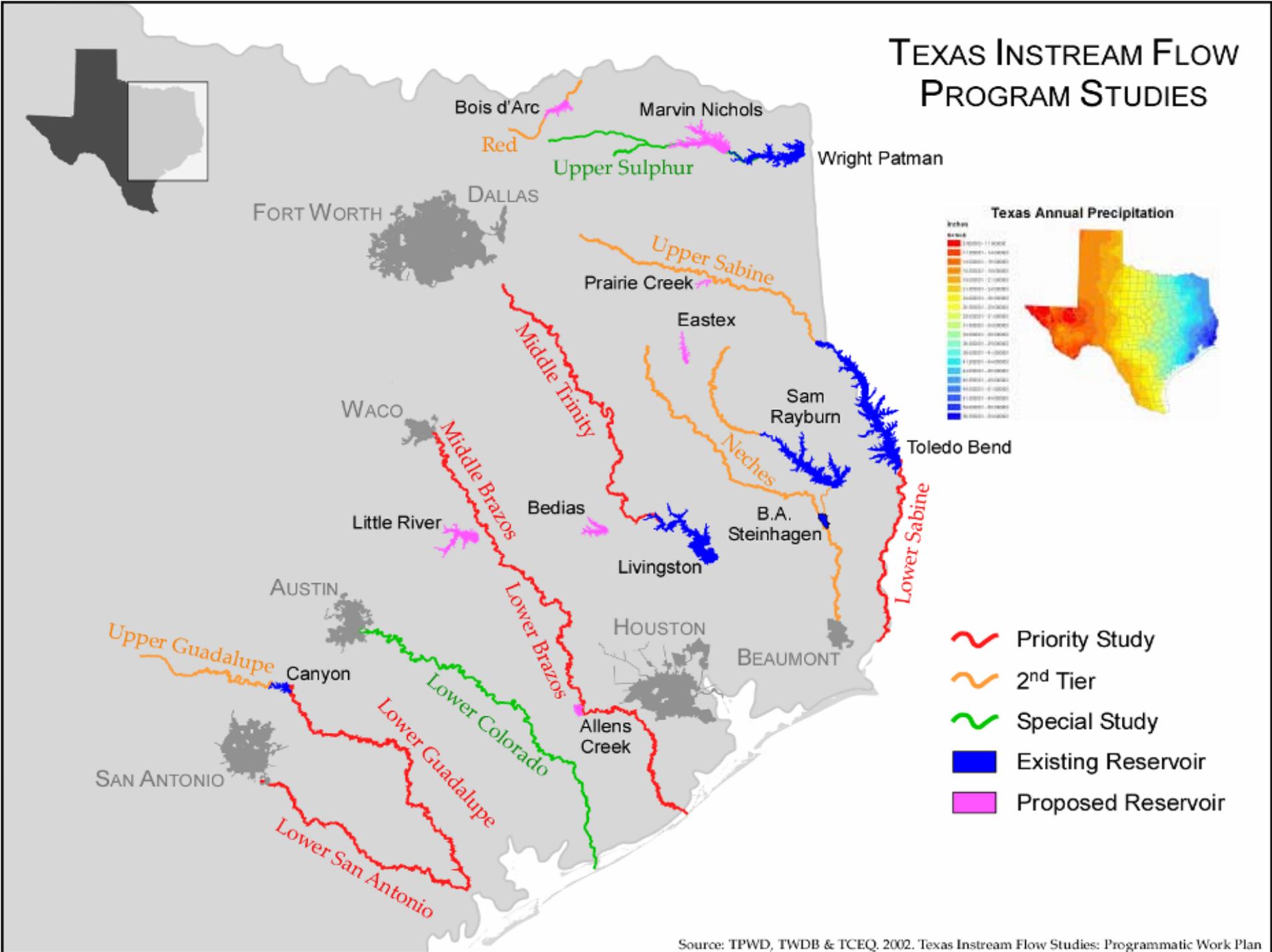




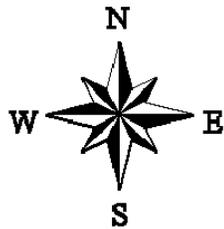
## SAHP Objective 4

Establish, improve or maintain appropriate hydrologic conditions for the support of biota in aquatic systems

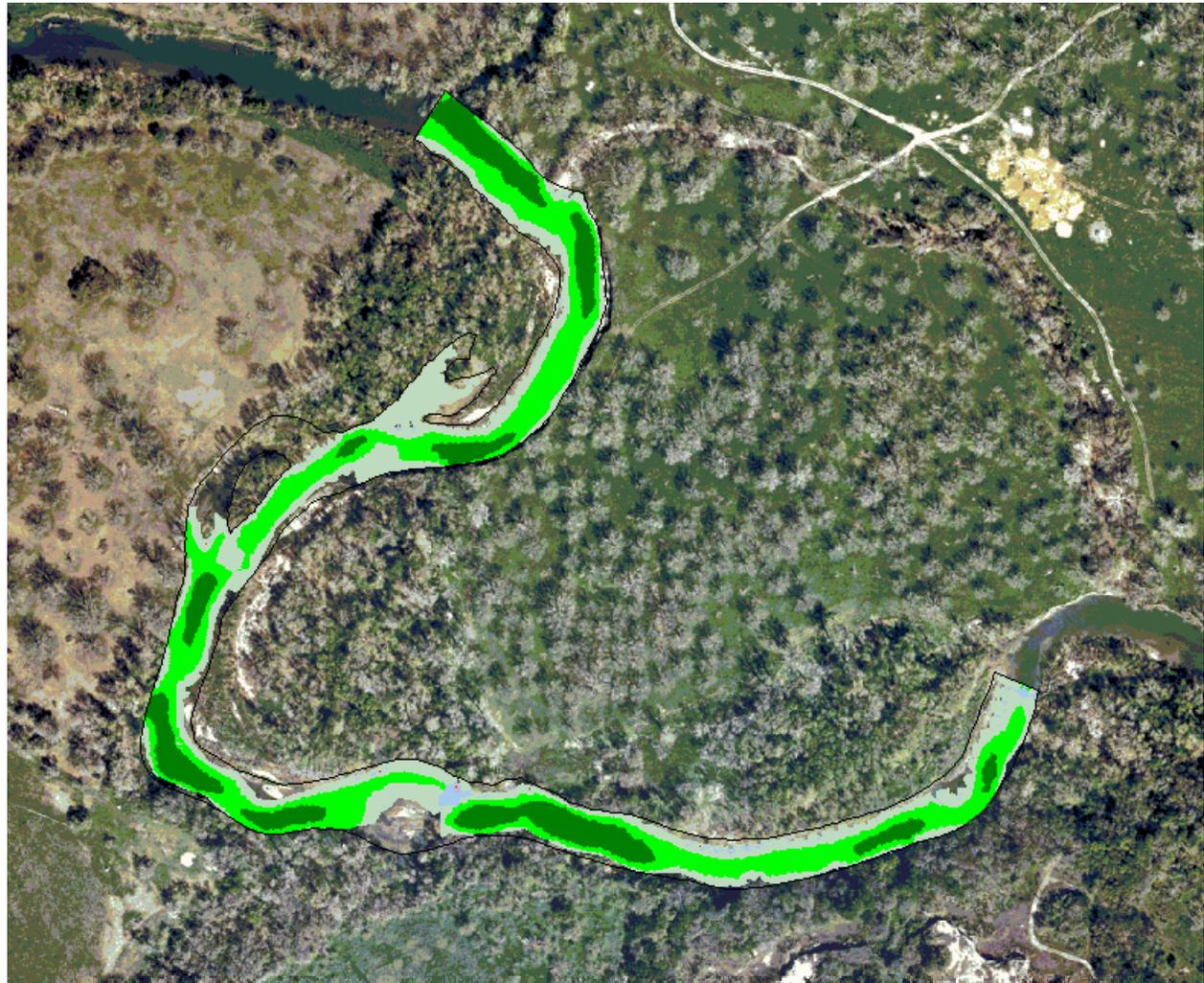
# TEXAS INSTREAM FLOW PROGRAM STUDIES



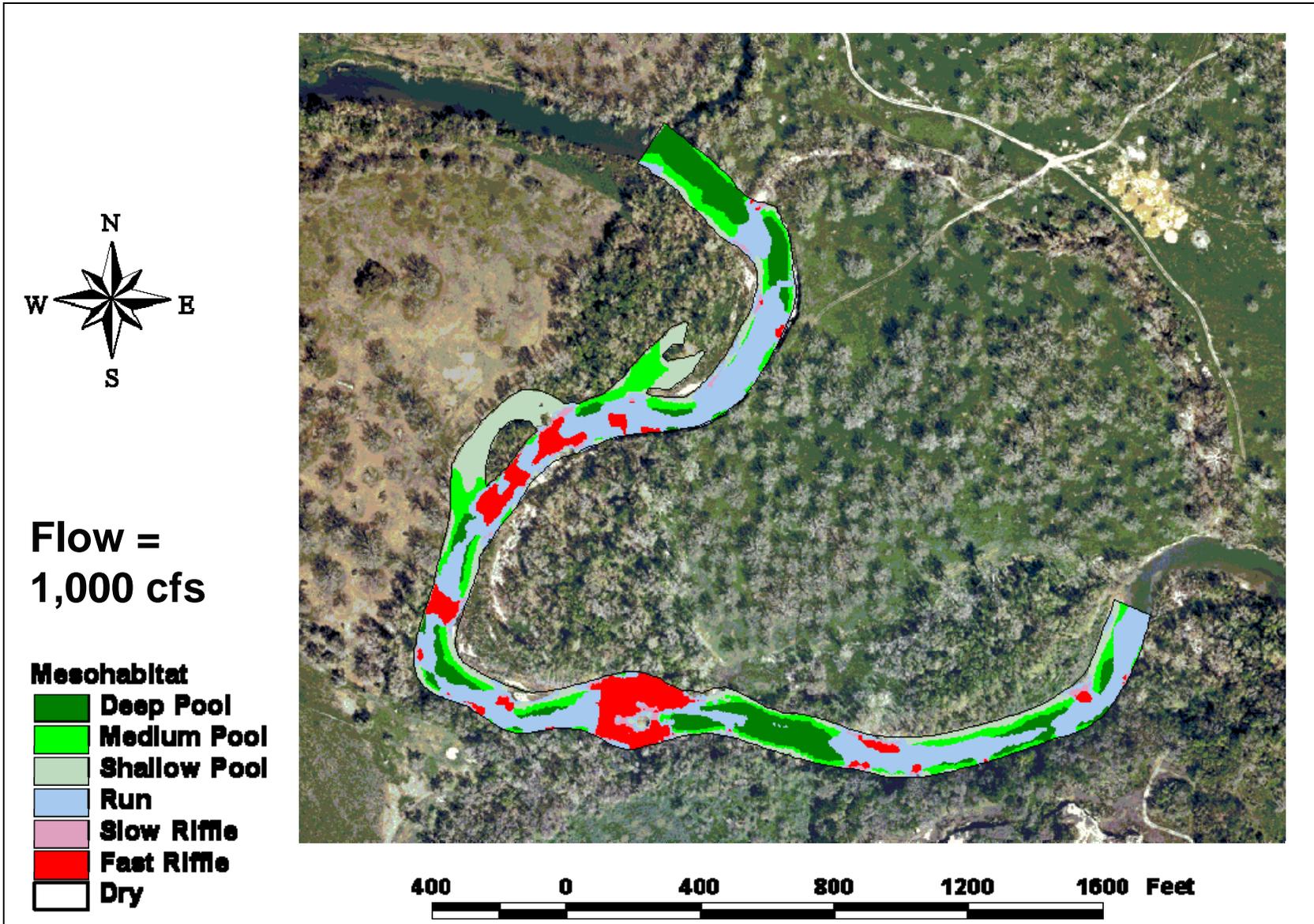
Source: TPWD, TWDB & TCEQ, 2002. Texas Instream Flow Studies: Programmatic Work Plan



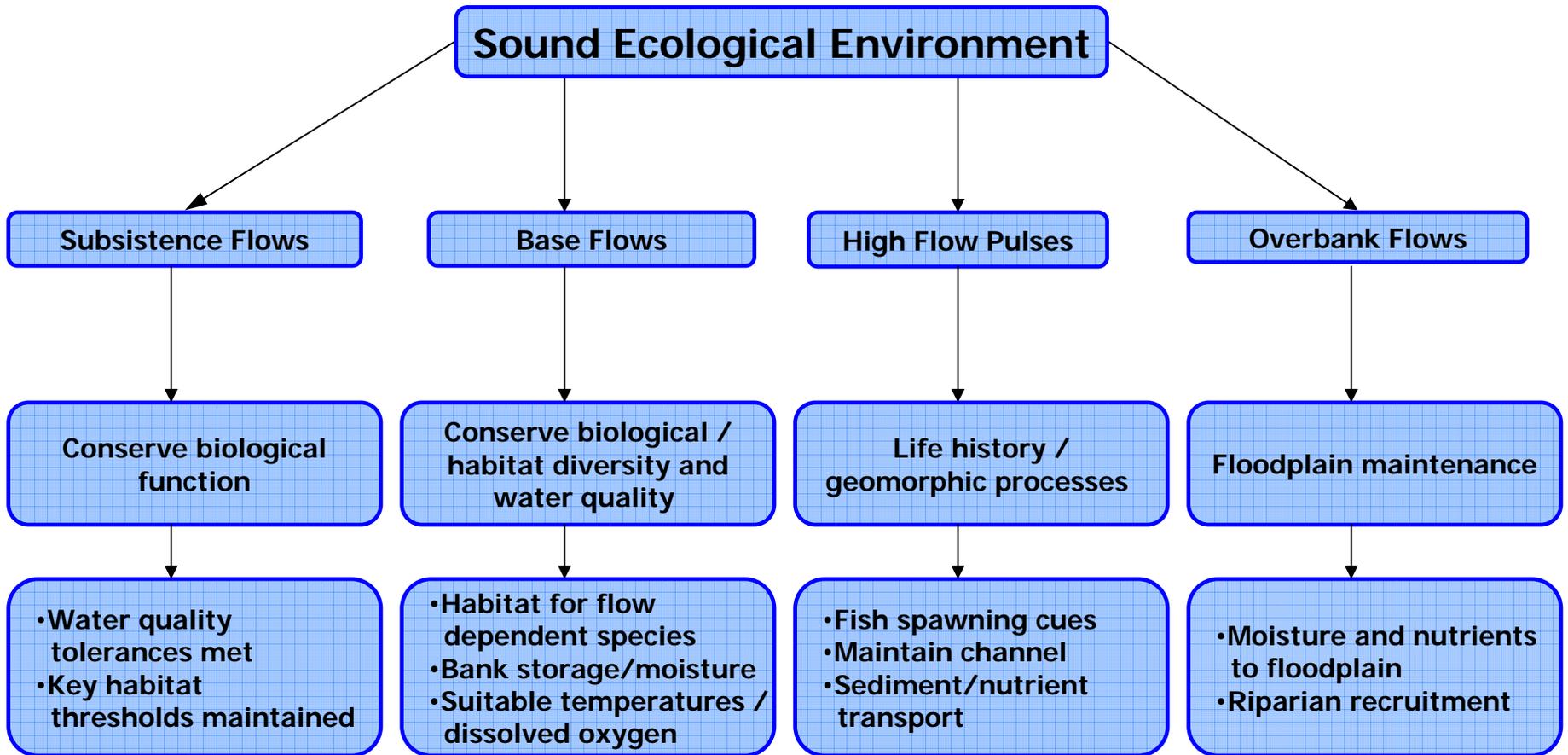
Flow =  
100 cfs



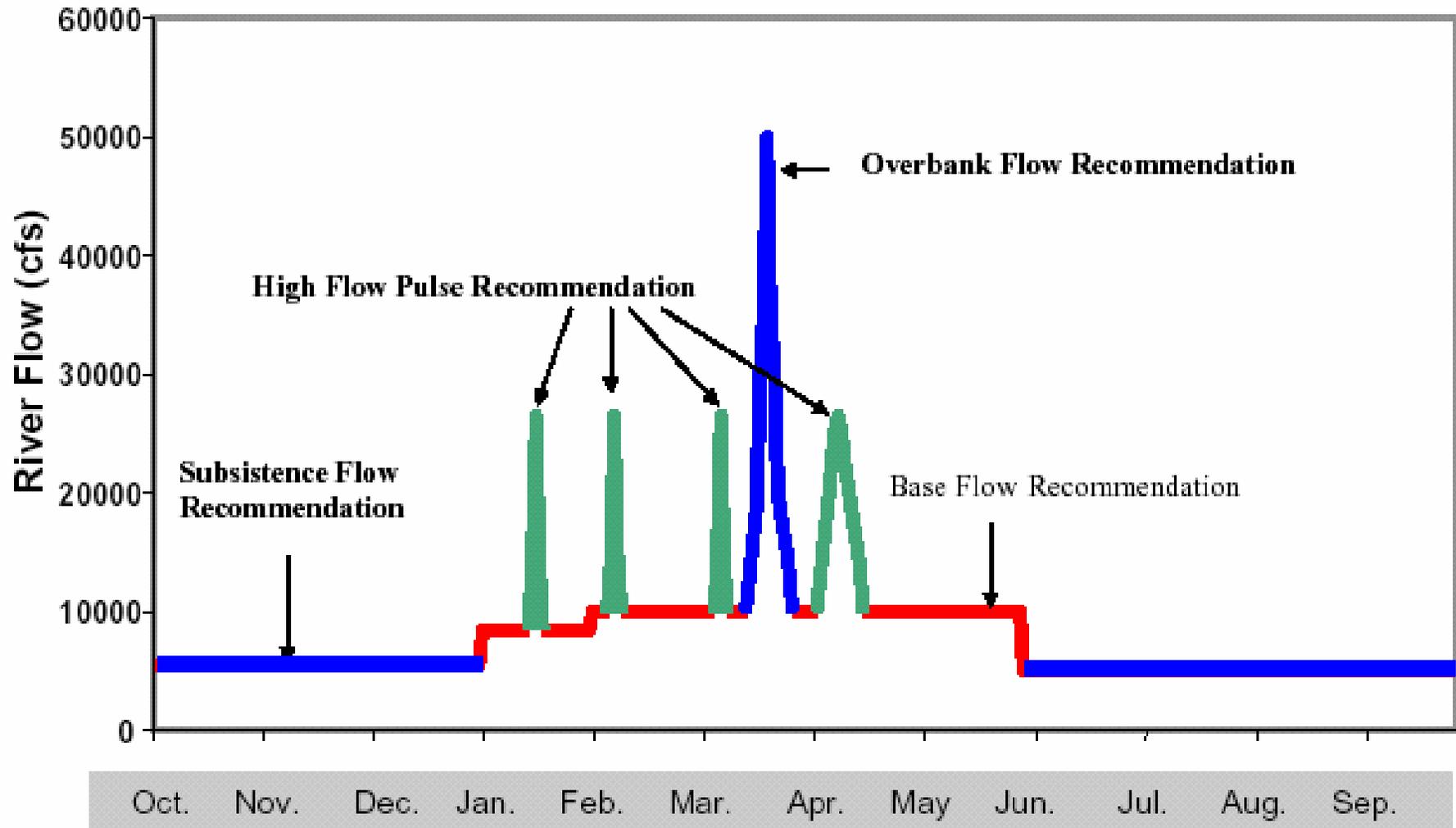
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# Conceptual Model



# Development of Flow Recommendations





## SAHP Objective 6

### Maintain and restore physical habitat in freshwater systems

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**Pecos gambusia**



**Pecos pupfish**



**Pecos pupfish**



**Comanche Springs pupfish**



**Pecos gambusia**

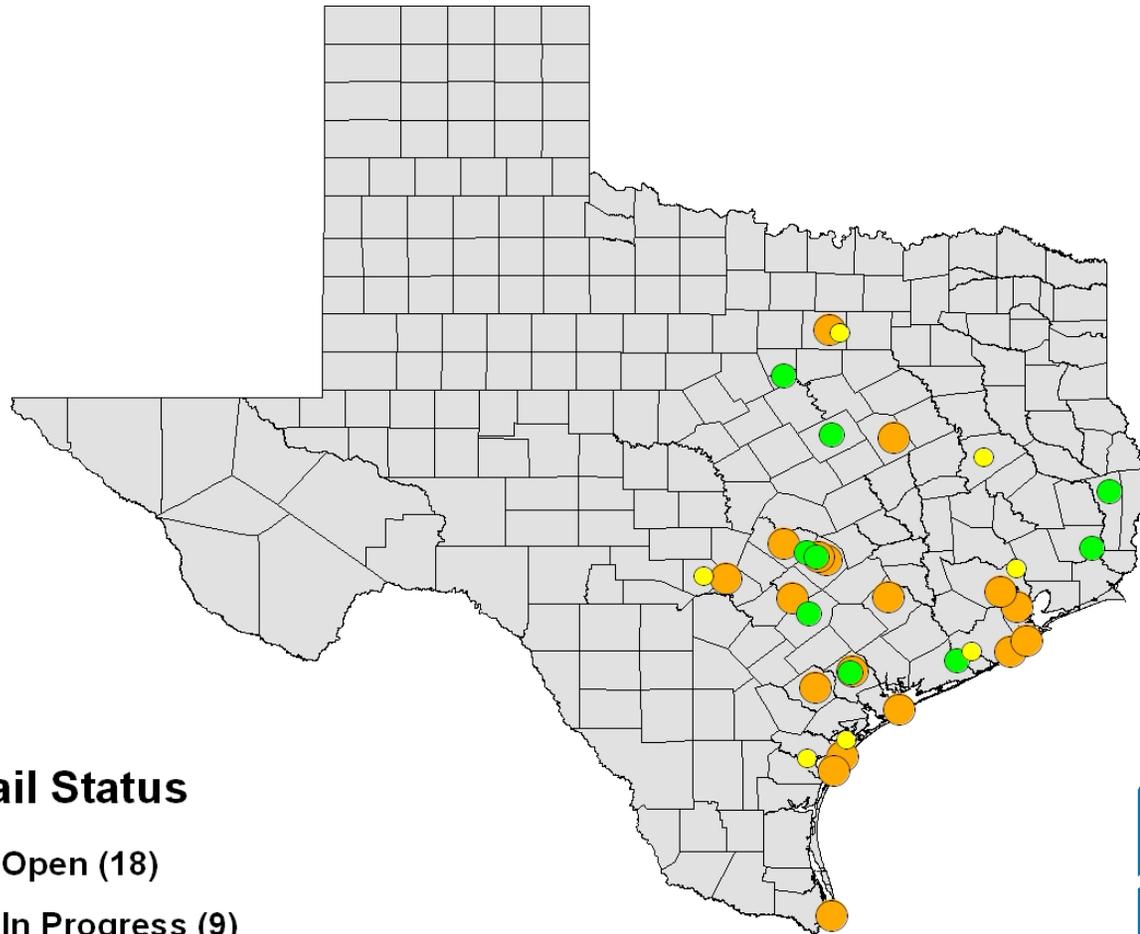




Creating partnerships to enhance recreational opportunities on public waterways while fostering conservation of these vital aquatic resources.



# Texas Paddling Trail Locations



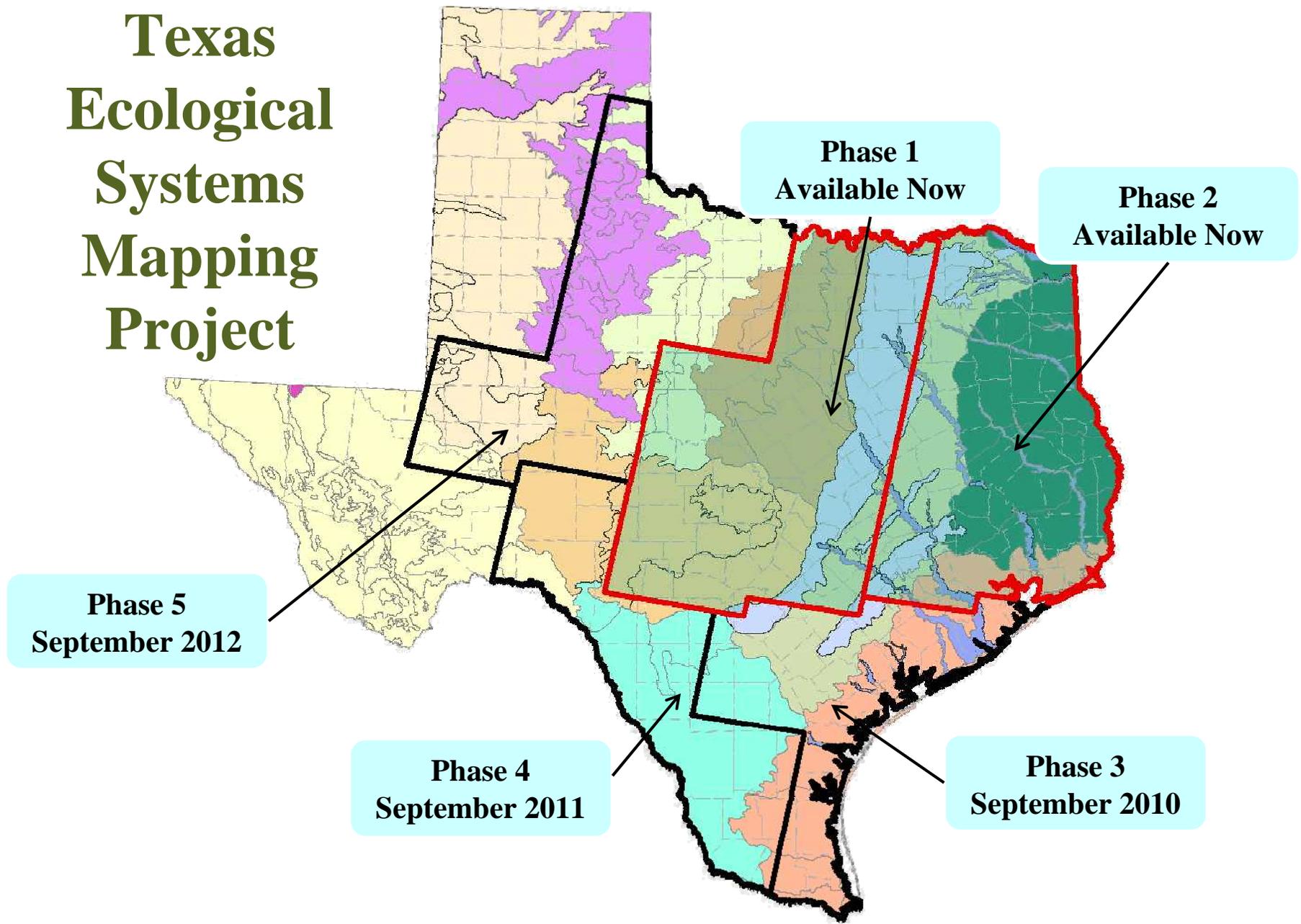
## Trail Status

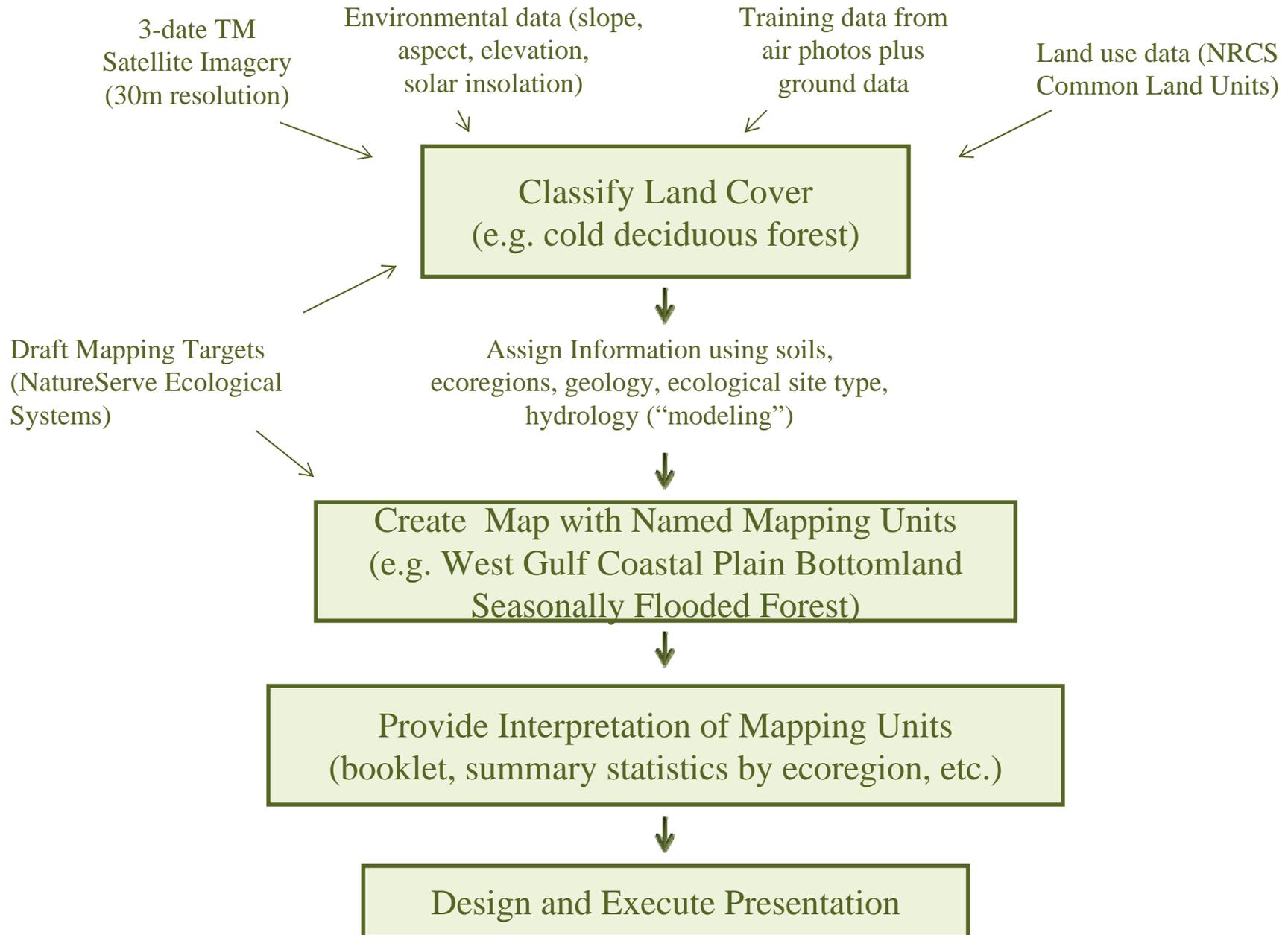
- Open (18)
- In Progress (9)
- Pending (7)



Revised: May 2009

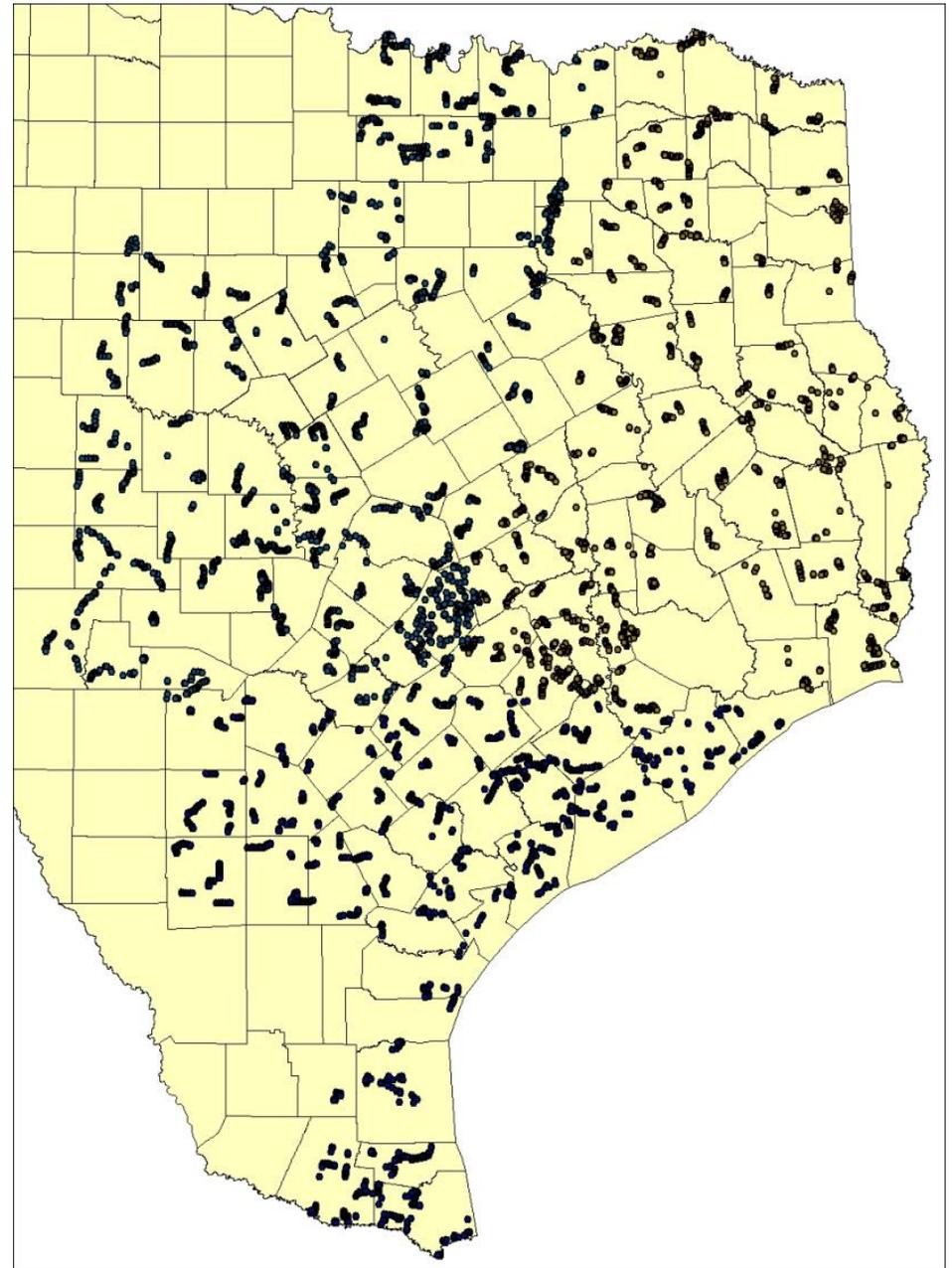
# Texas Ecological Systems Mapping Project

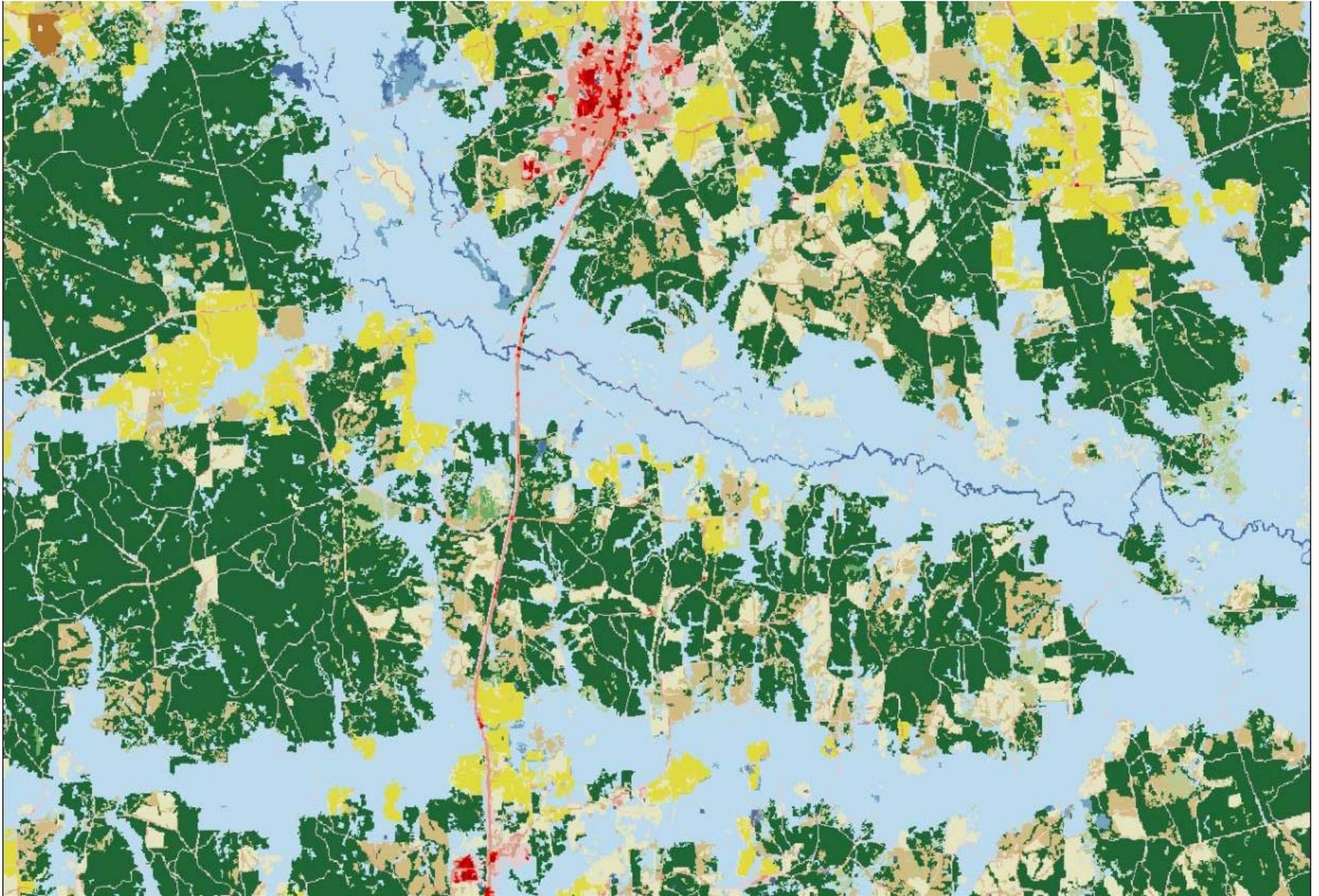




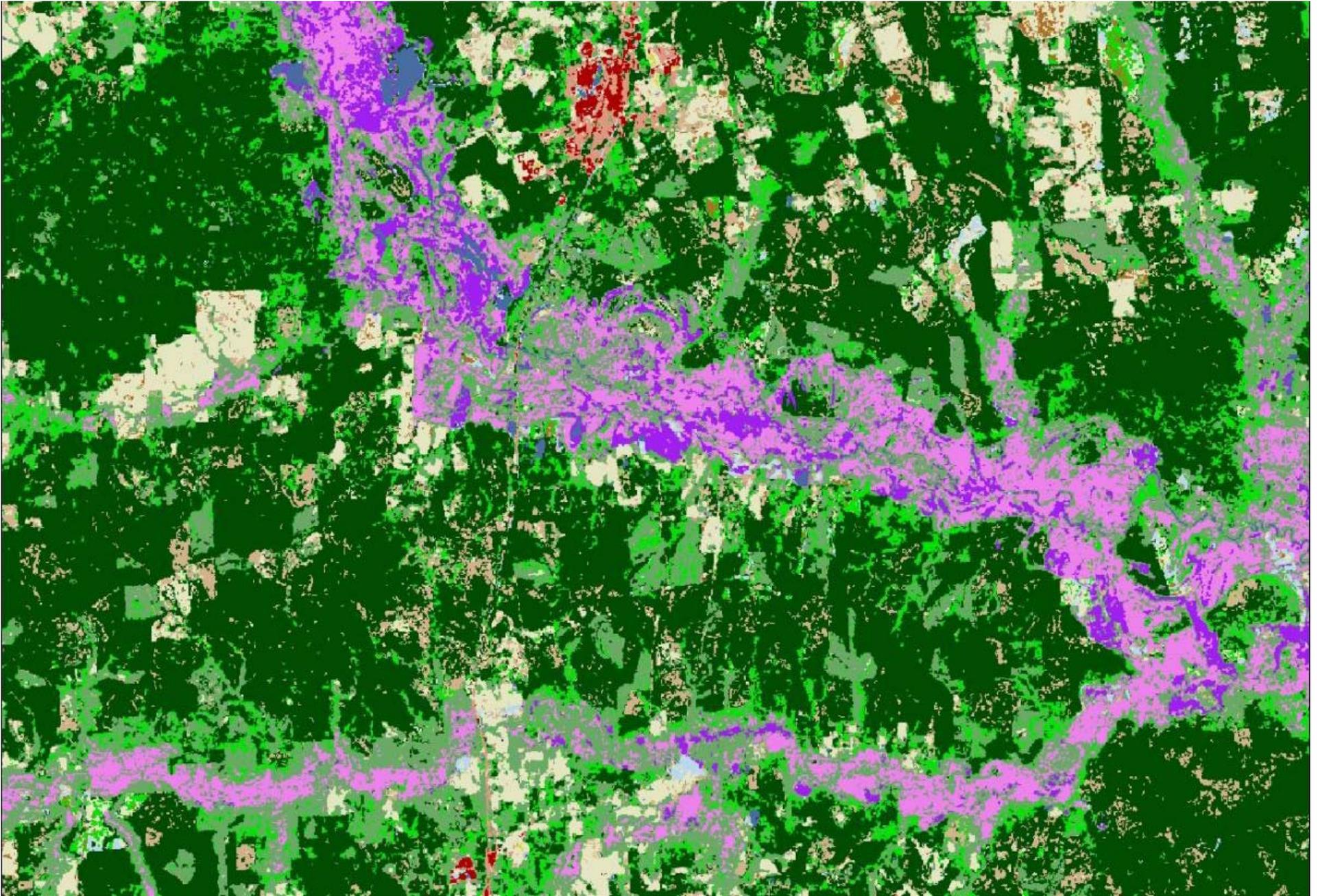
## Field Data Collection

- **6000+ Field Points**
- **Collect species level data**
- **Identify Land cover type**
- **Identify Ecological Mapping System**
- **Document percent vegetative cover**

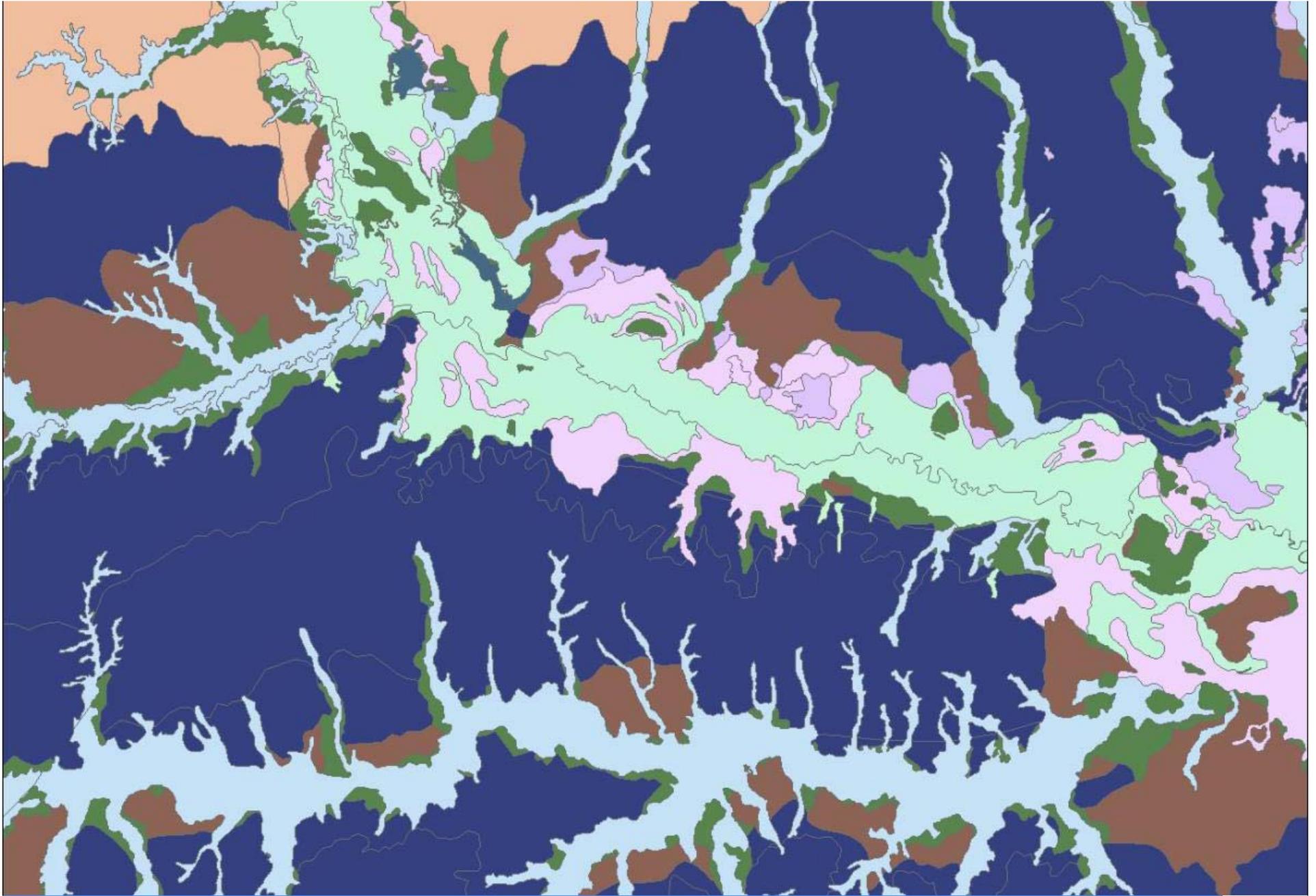




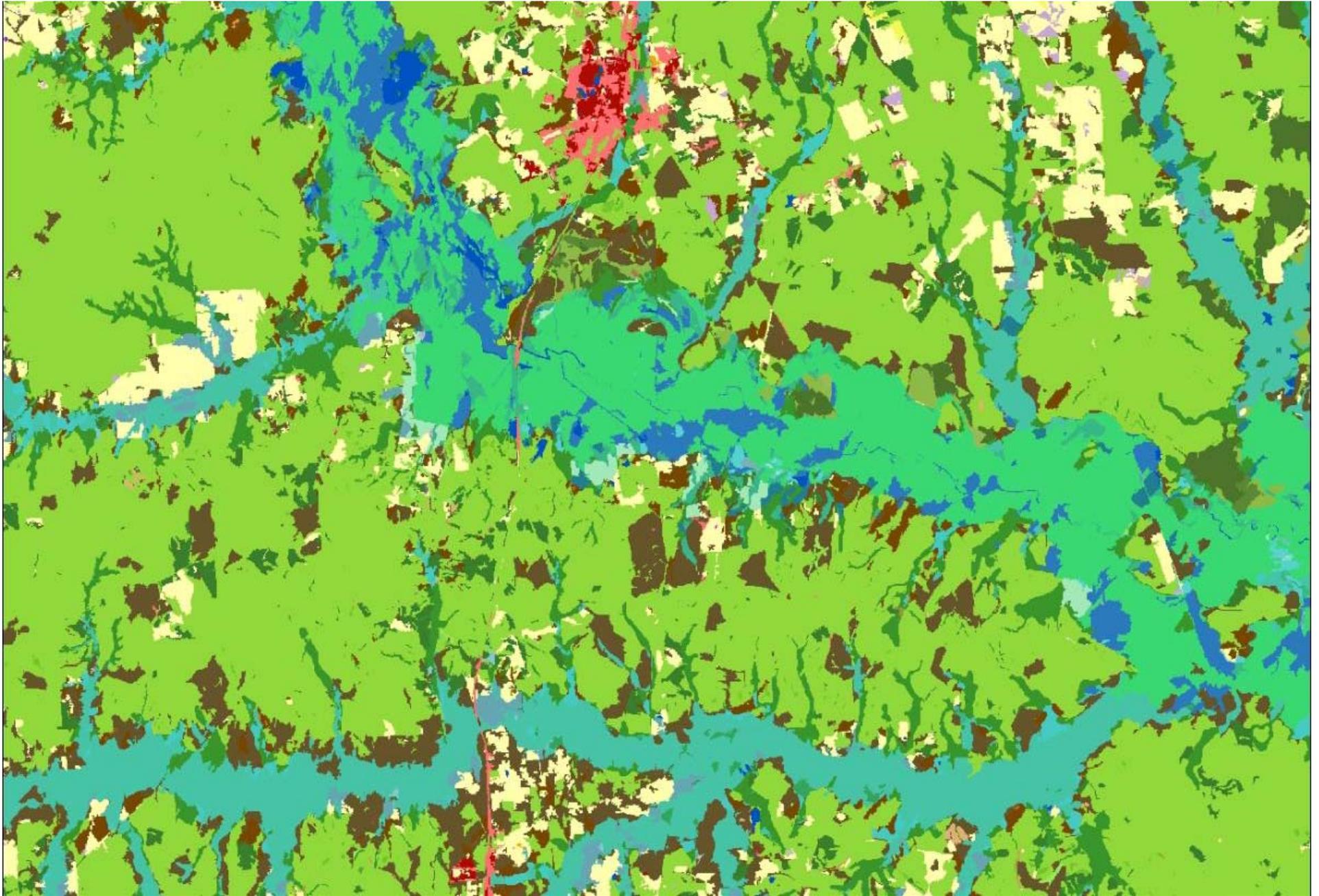
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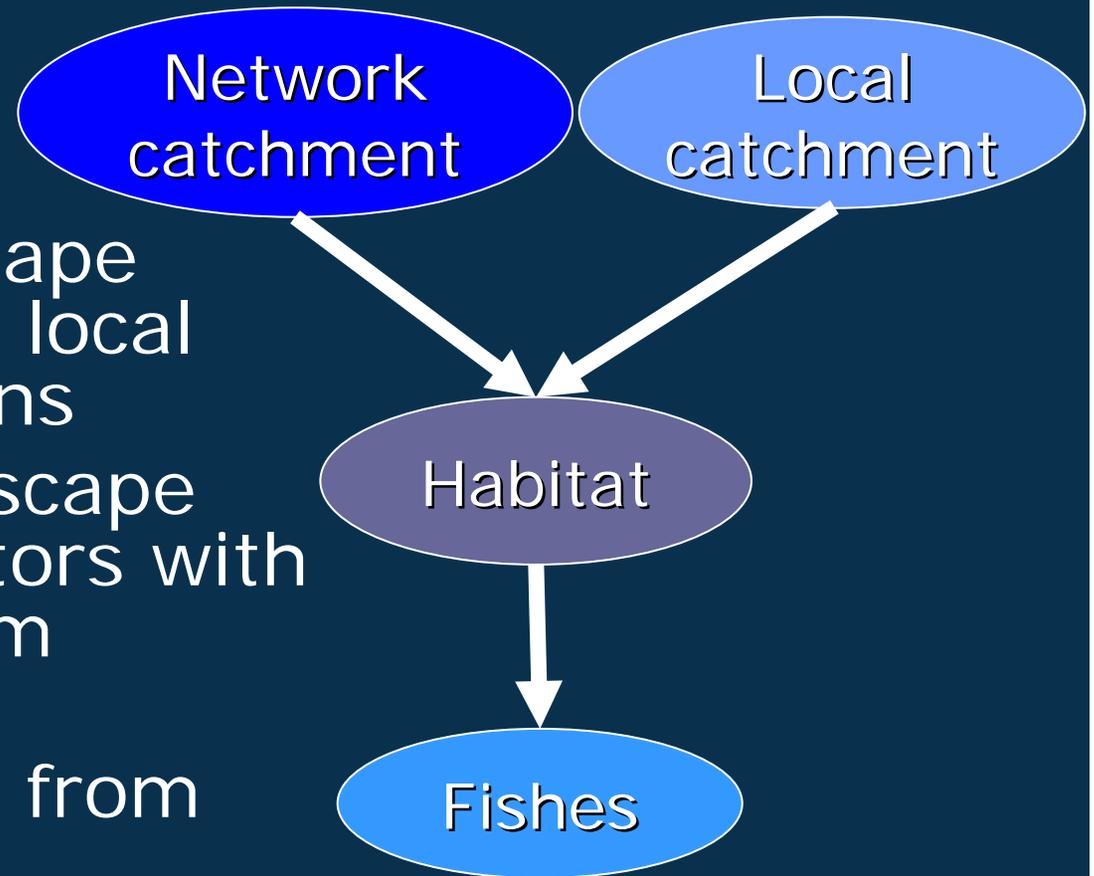
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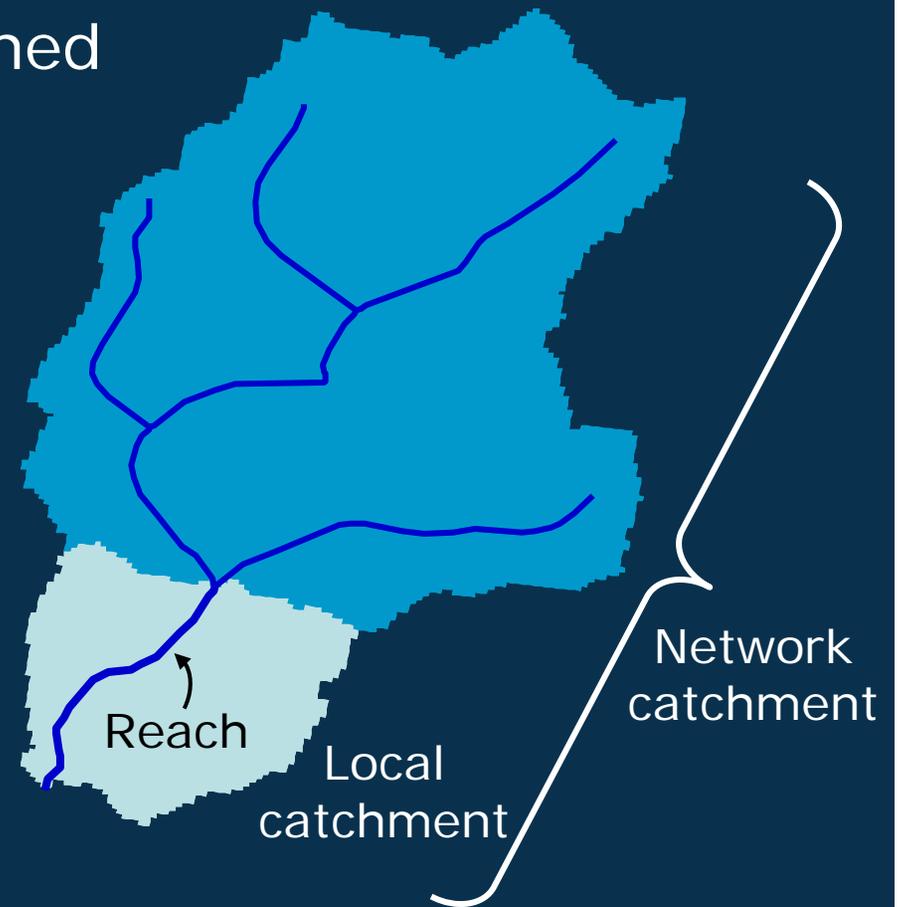
# Initial assessment approach

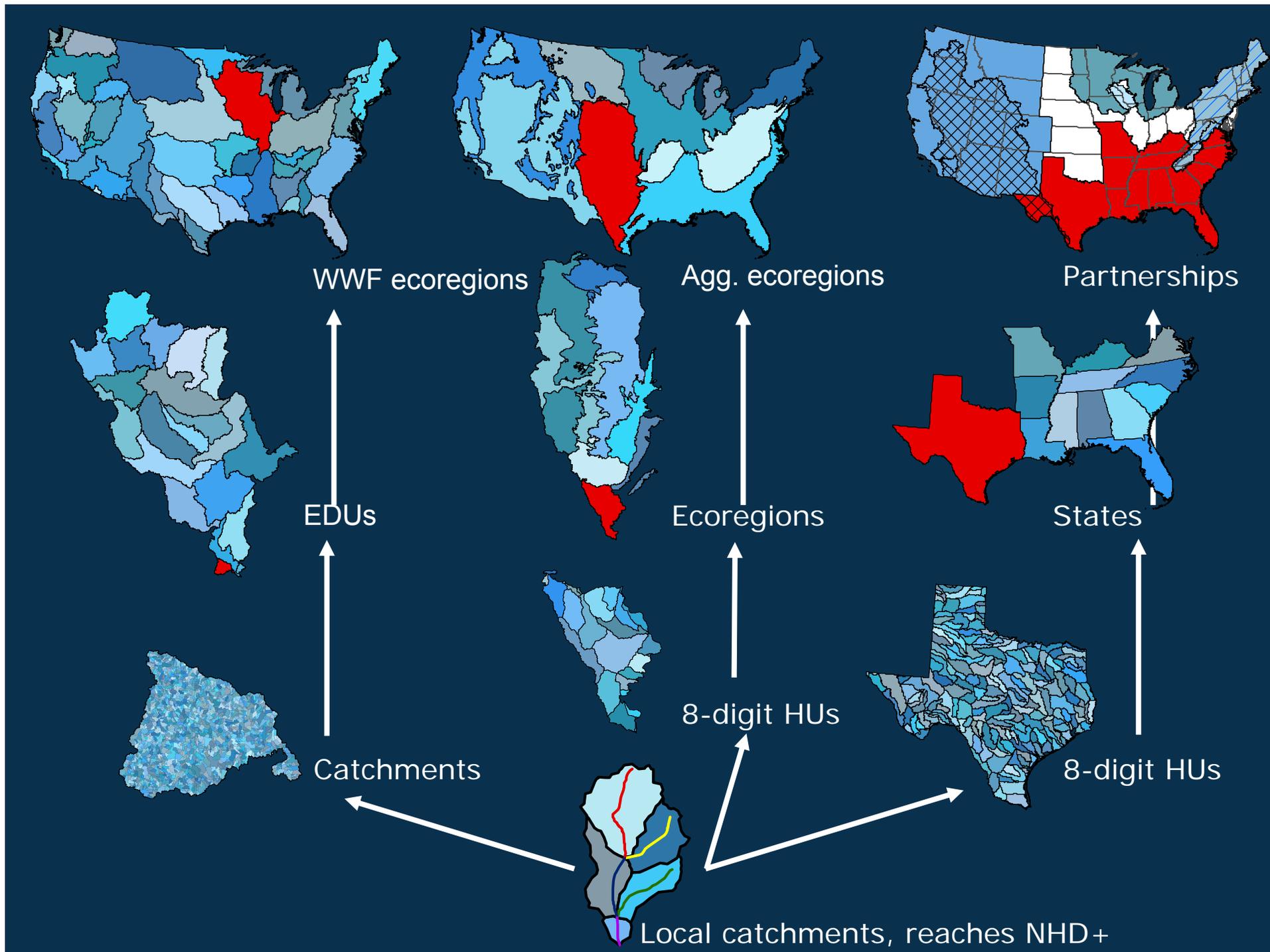
- Landscape-scale assessment
  - Assumes landscape features control local habitat conditions
  - Associates landscape disturbance factors with individual stream reaches
- Multi-scale effects from local and network catchments

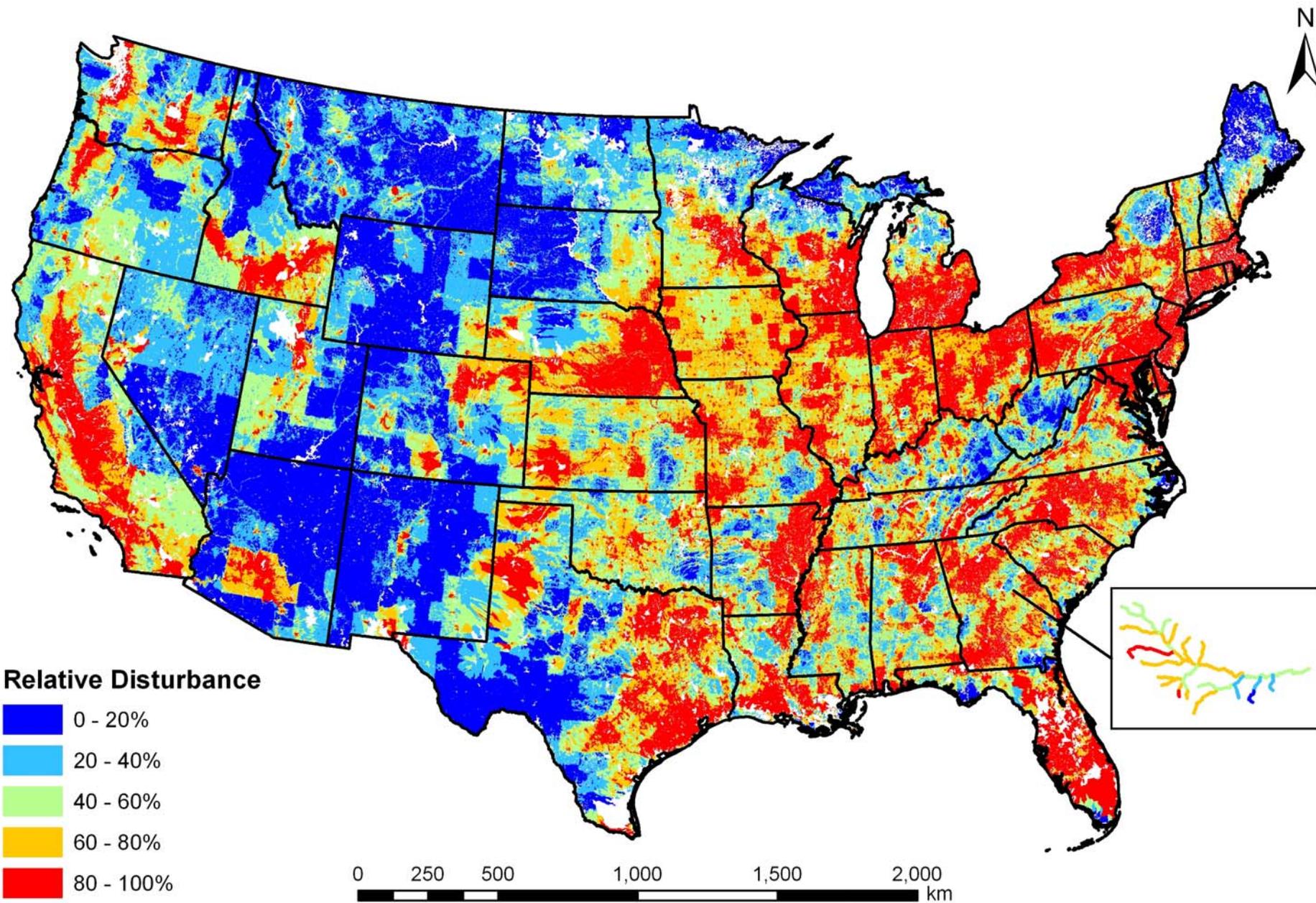


# Assessment framework: Stream reach as basic spatial unit

- National Hydrography Dataset Plus (NHDPlus); 2.6 million reaches w/ catchments defined







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