Federal Early Detection / Rapid Response Activities and Progress from the ANS Task Force EDRR Committee

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Overview

- WHO IS THE ANS TASK FORCE?
- WHAT ARE HORIZON SCANS?
- DEVELOPMENT OF A NATIONAL EDRR FRAMEWORK
- HORIZON SCANS
  - Regional groups
  - National- organisms in trade
  - Transportation
- HOTSPOT ANALYSIS

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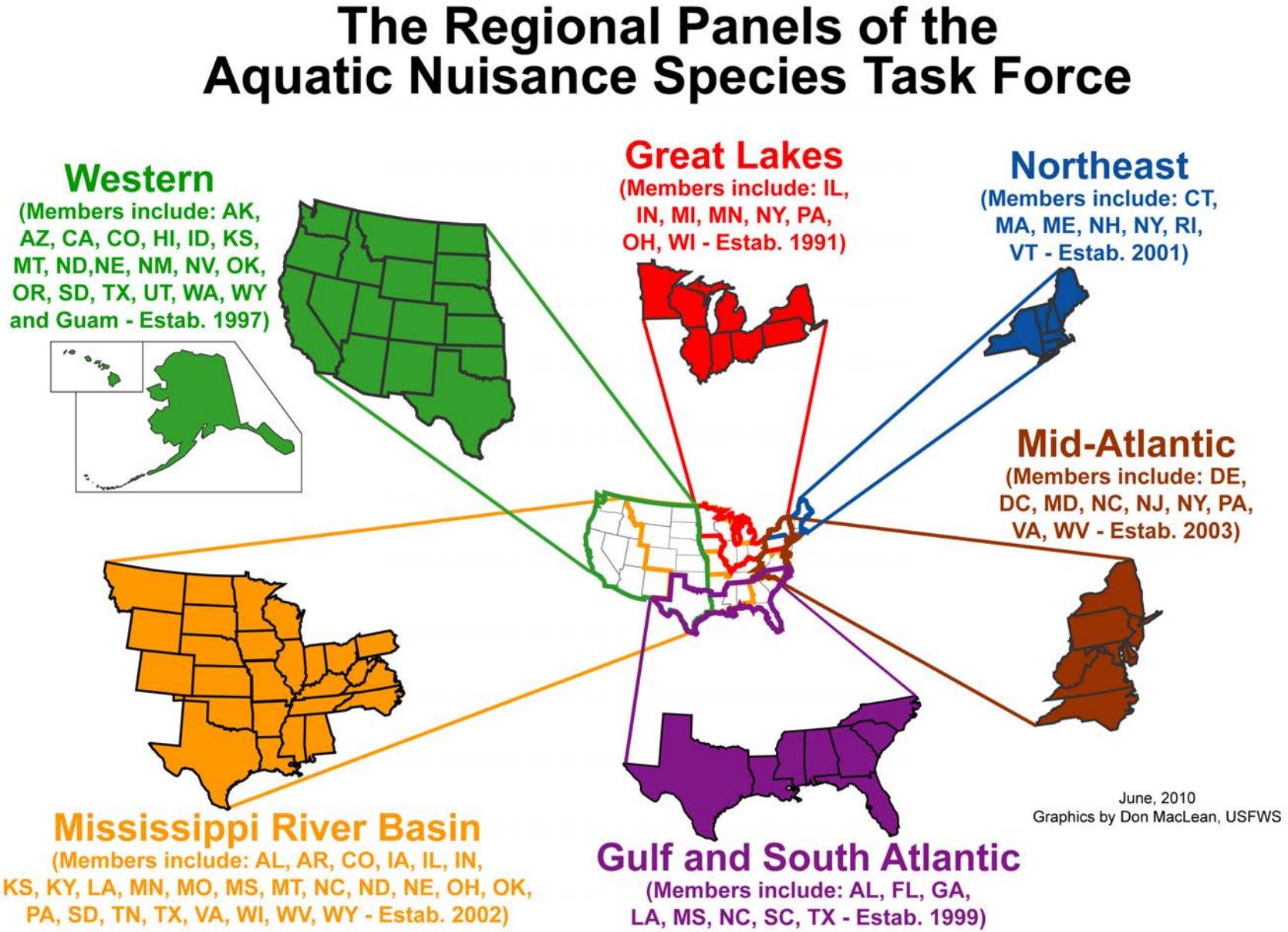
Aquatic Nuisance Species (ANS) Task Force

The was established by Congress in 1990

Composed of 13 Federal and 15 ex-officio members

The only Federally-mandated intergovernmental organization solely dedicated to preventing and controlling ANS.



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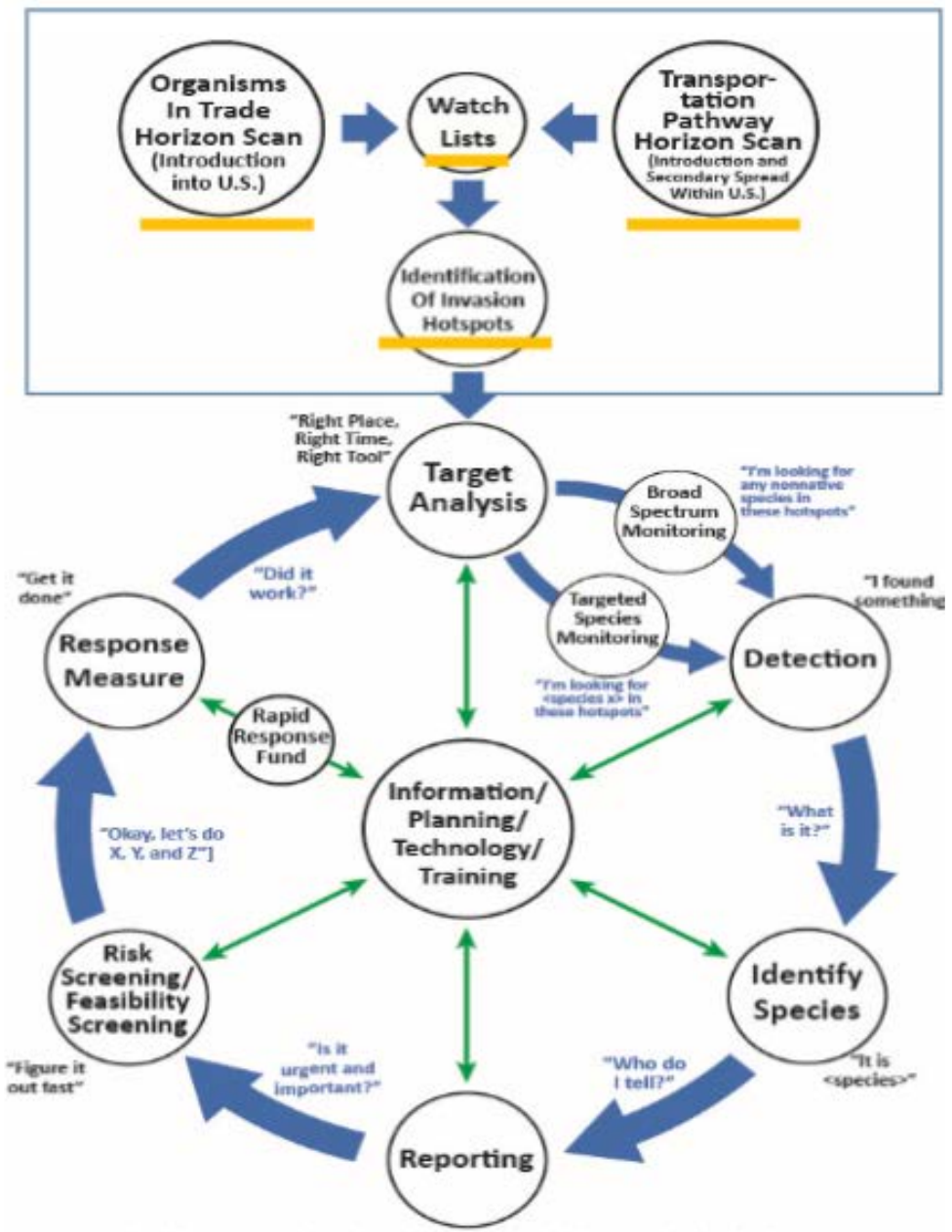
What is horizon scanning?

"A systematic examination of potential threats and opportunities…and likely future developments, which are at the margin of current thinking and planning"

-Roy et al. 2019 Global Change Biology

- What nonnative species could enter the region in the future?
- What nonnative species could survive, reproduce, and establish population in a region?
- What nonnative species pose a risk of harm to the region?



Adapted from Reaser et al 2019. The early detection of and rapid response (EDRR) to invasives.
Graphic by Don MacLean, U.S. Fish and Wildlife Service

A National Framework for Early Detection and Rapid Response

In development by USFWS

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State of Florida

Lead: Deah Lieurance (University of Florida)

Method being used: Helen Roy's Rapid screening tool

Species being investigated: Aquatic (freshwater and marine) and terrestrial vertebrates, invertebrates, and plants

Source of species lists: CABI, NAS and expert option

Time to complete December 2020

Rapid screening tool

Likelihood of arrival (1-5)	X	Likelihood of establishment (1-5)	X	Likelihood of causing impacts (1-5)	=	Max score 125

Confidence

- For each likelihood score
- An overall confidence estimate for the final score
- high, moderate, low, very low

Early contenders—Aquatic inverts

Zebra Mussels

Dreissena polymorpha

125

Red swamp crayfish

Procambarus clarkii

125

Early contenders—Marine

Colonial tunicate

Diplosoma listerianum

100

Bryozoa

Tricellaria inopinata

64

Asian date mussel

Arcuatula senhousia

60

Early contenders—Vertebrates

Crab-eating macaque

Macaca fascicularis

100

Japanese fire belly newt

Cynops pyrrhogaster

100

African clawed frog

Xenopus laevis

80

Gulf Coast (except FL)

Lead: Katie O'Shaughnessy (*National Academies of Sciences fellow, Texas Parks and Wildlife Department)*
Method being used: Aquatic Species Invasiveness Screening Kit (AS-ISK v2.1)
Species being investigated: Marine vertebrates, invertebrates, and parasites
Source of species lists: CABI, LEMIS, NAS, FishBase, SeaLifeBase and expert option
Time to complete: December 2020

Photo Credit: GoogleEarth

Major taxonomic groups

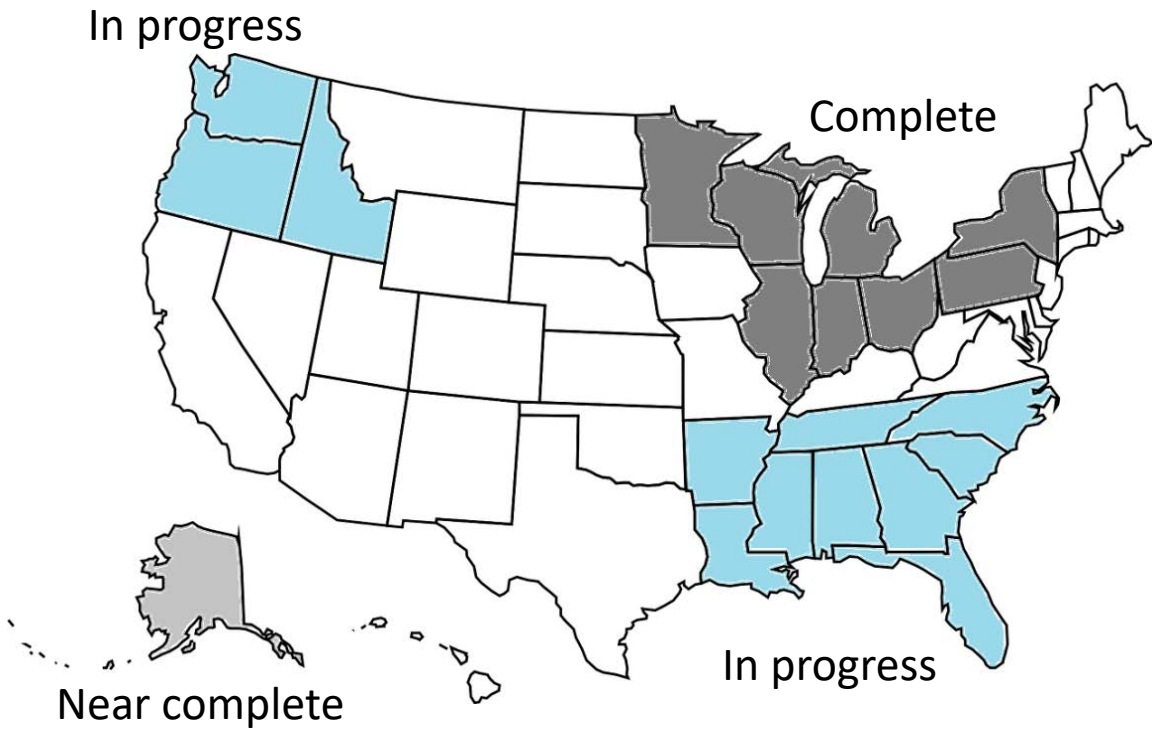
2 major categories:

INVERTS	FISH
Including: Ascidians Bryozoans Cnidarians Decapods Echinoderms Mollusks Porifera Nematodes Platyhelminthes	*Including:* Bony fish Elasmobranchs

+

Parasites – information about parasites which may be associated with species identified as high risk will be included

- *No microorganisms are being assessed*



NEW Southeast Horizon Scan

Lead: Heidi Himes (*U.S. Fish and Wildlife Service)*

Method being used: USFWS Risk Screens

Species being investigated: All groups except microorganism and marine species

Source of species lists: TBD

Time to complete: TBD

National Horizon Scan- Organisms In Trade

Lead: Multi-Centers (USGS)

Area of interest: U.S. and island territories

Method being used: Helen Roy's Rapid screening tool

Species being investigated: Freshwater and terrestrial vertebrates

Source of species lists: LEMIS and Industry List, (future expert option)

Time to complete October 2021

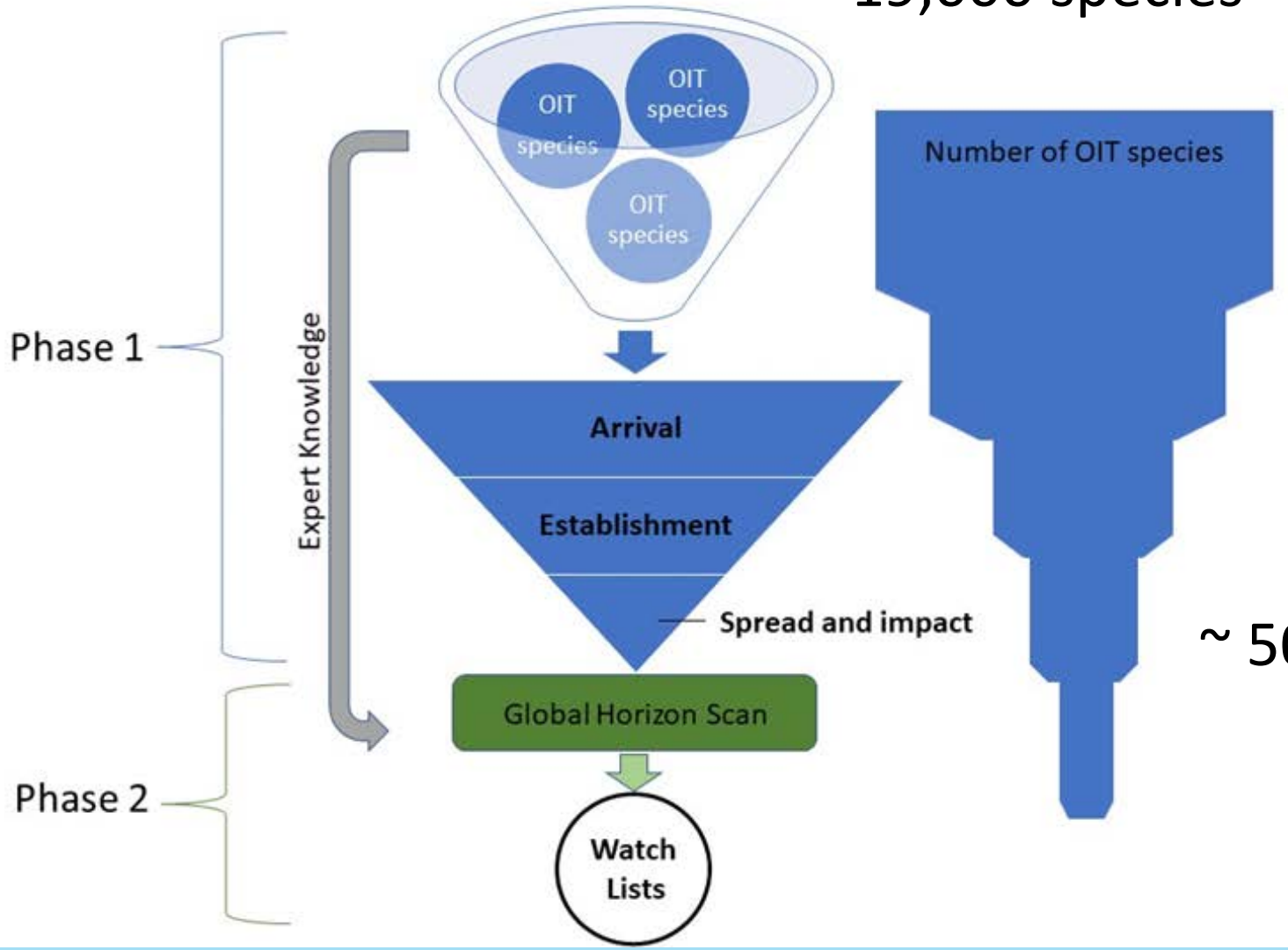
Organisms in trade

LEMIS list (Law Enforcement Management Information System) of species was provided by US Fish and Wildlife, Office of Law Enforcement.

-List of species imported to US over the years 2010-2019

Industry list provided by Marshal Meyers (Industry representative) created from pet store owners in MI.

~19,000 species



~ 500 species

Proposed products

1. A global list of highest-risk traded species that have the potential to become invasive in the U.S.
2. Regional watchlists of OIT species of high risk
3. A public interface on the NAS webpage providing easy access to the watch lists and species profiles highlighting the high-risk species
4. Creation of ArcGIS Server web service layers of any maps for use by stakeholders
5. Publish any automation tools developed on code.usgs.gov
6. A publication of the results of this project

National Horizon Scan- Transportation

Lead: Kate Wyman-Grothem (USFWS)

Area of interest: Conterminous U.S.

Method being used: Ecological Risk Screening Summary **(ERSS method)**

Species being investigated: fresh-and brackish water fish, macroinvertebrates, or plants

Source of species lists: GBIF, NAS, BISON

Time to complete October 2021

Identify species of fresh-and brackish water fish, macroinvertebrates, or plants at risk of arriving in a target region of the United States and establishing populations there via unintentional movement through prominent transportation pathways.

Hotspot analysis of invasion threats

Lead: Wesley Daniel (USGS)

Support by Michigan State University

Area of interest: Conterminous U.S., Alaska, and Hawaii

Method being used: Hot spot analysis with multiple landscape variables

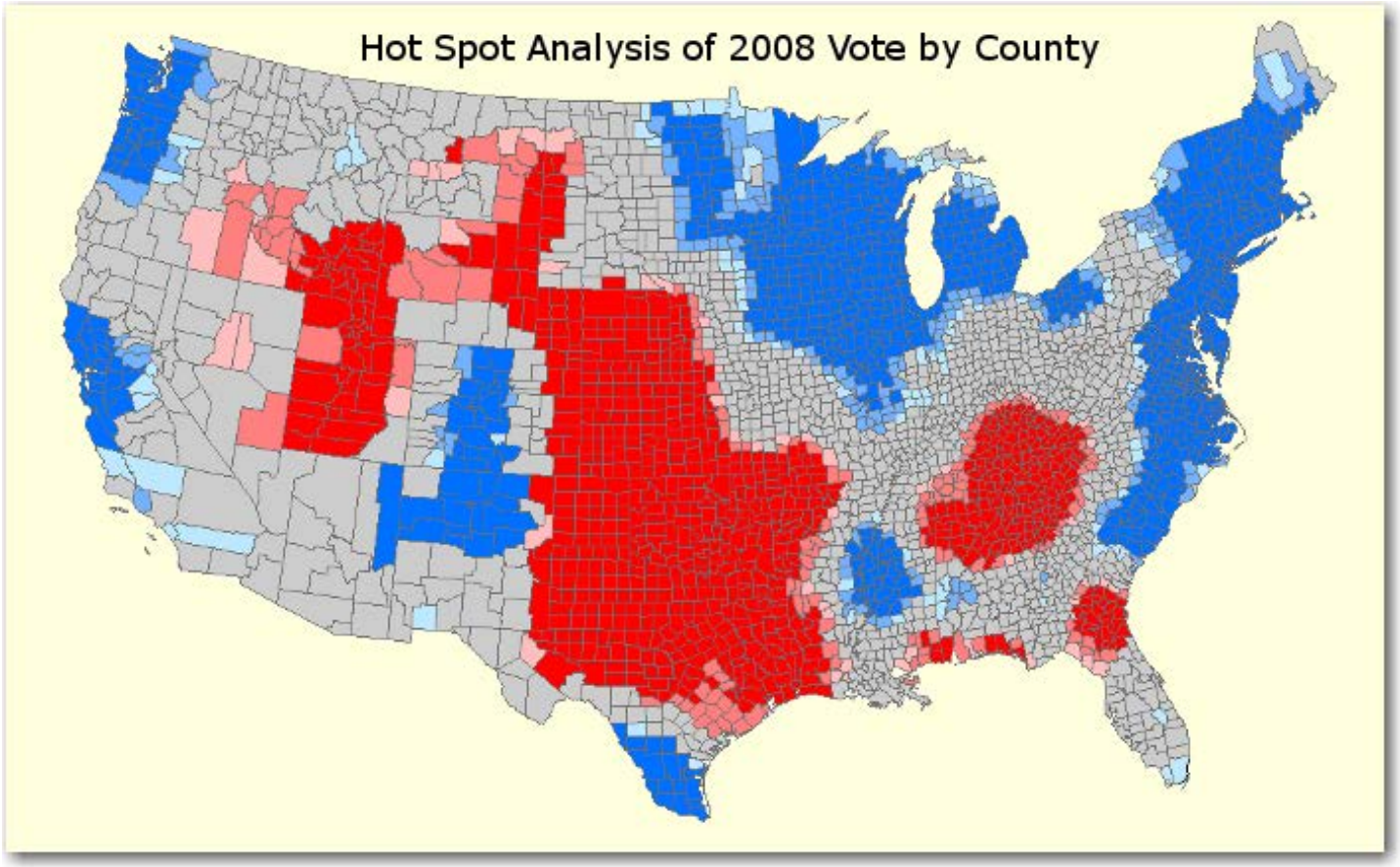
Species being investigated: Freshwater vertebrates

Source of species lists: Watch lists from numerous horizon scans

Time to complete October 2021

The goal of this project is to identify regional hotspots at the highest risk of invasion from watch list freshwater species.

This information will be provided to stakeholders through online interactive maps housed on the **NAS Database.**



Proposed products

1. Regional invasive hotspot analysis results.
2. New “public access to waterbodies” variable data layer.
3. Interactive hotspot map (accessible on the NAS Database).
4. Publication from the project.
5. Presentation of the project results at the ANS Task Force.

Thank you

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