



Species Status Assessment

Overview: Species Status Assessment for Decisions under the Endangered Species Act

USFWS Webinar

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Species Status Assessment

It was time for an improved assessment process

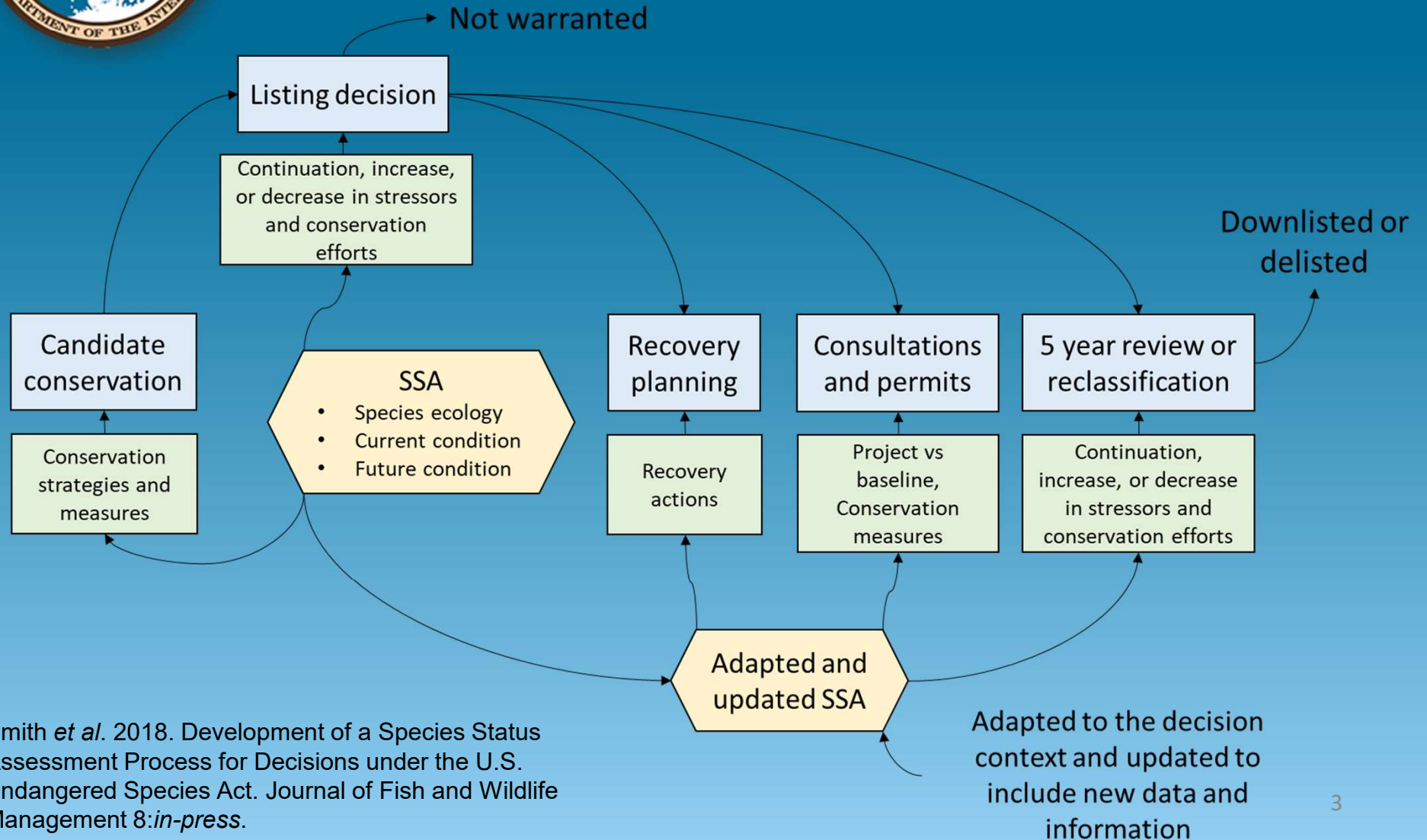
Objectives

- Spend More Effort on Science
 - Cope with Interactive Factors
 - Improve Forecasting
- Improve Transparency & Consistency
 - Distinct Science and Policy
 - Use in Multiple Decisions/Programs
 - Increase Conservation through Collaboration





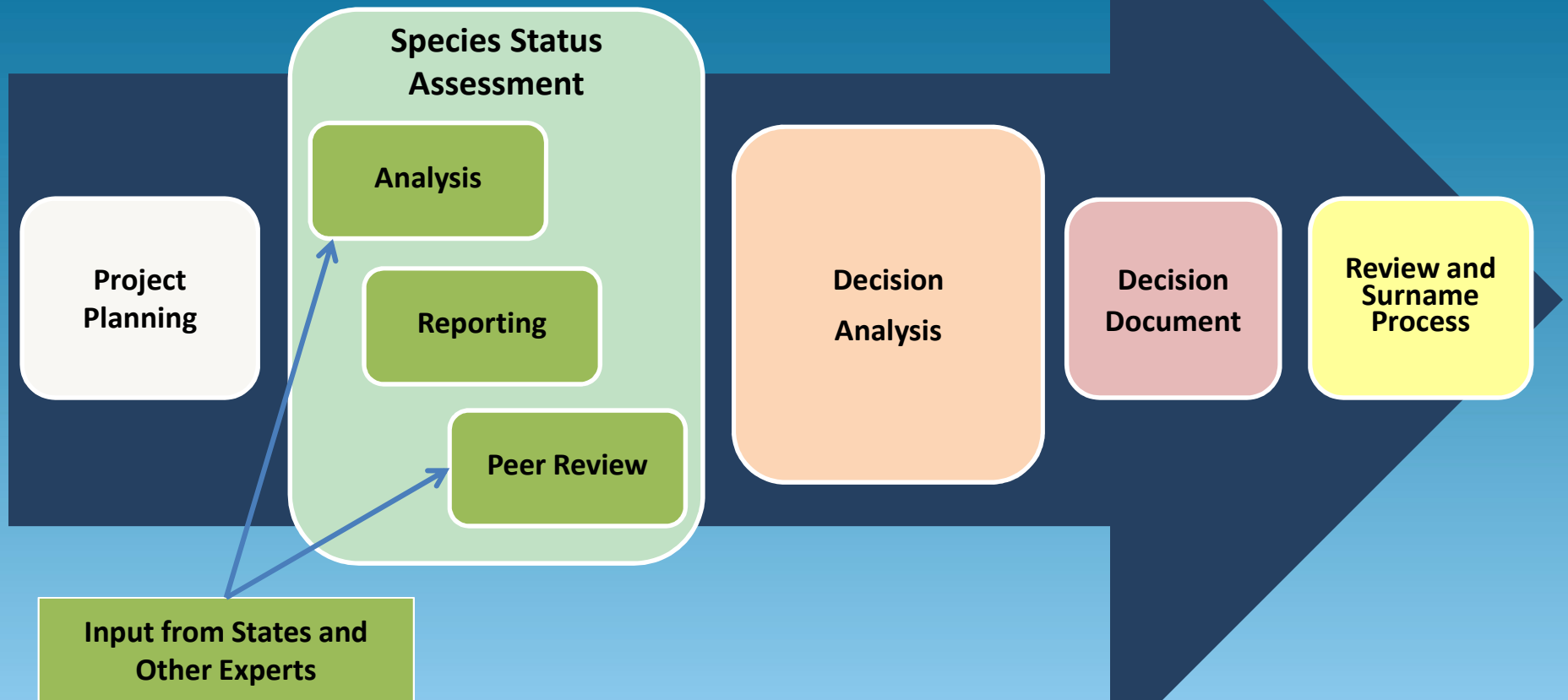
Species Status Assessment





Species Status Assessment

SSA in FWS Work Flow





Species Status Assessment

SSA has 3 Stages:

SPECIES' ECOLOGY



Current Availability
or Condition of
Ecological Needs

**SPECIES' CURRENT
CONDITION**



Future Availability
or Condition of
Ecological Needs

**SPECIES' FUTURE
CONDITION**



Species Status Assessment

Viability is the ability of a species to sustain populations in the wild beyond a biologically meaningful time frame.

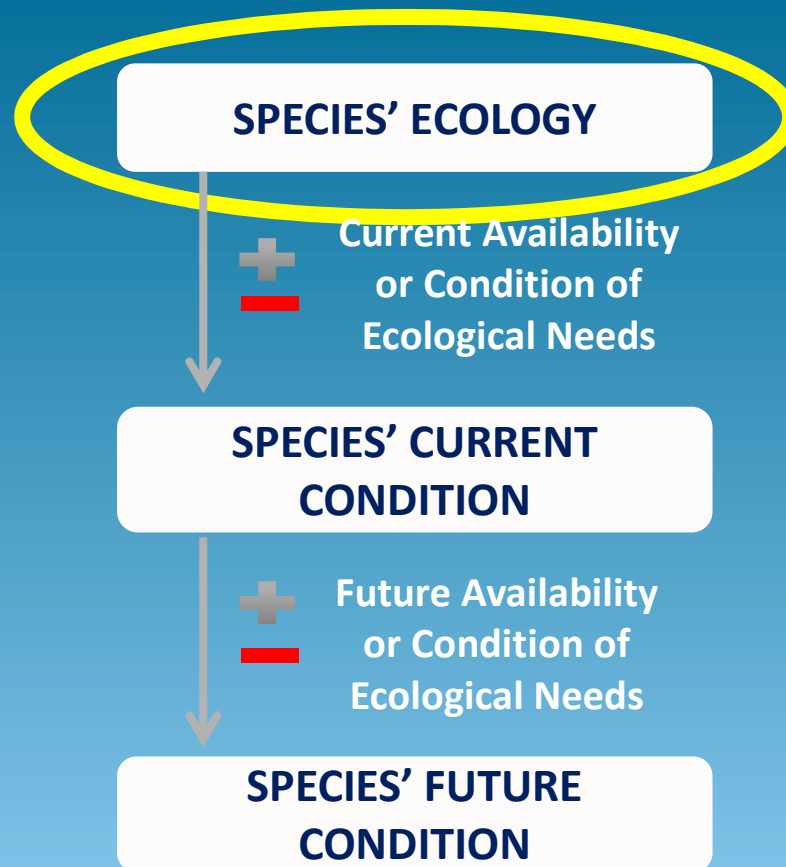
Representation – the ability of the species to adapt to changing environmental conditions
> *Genetic and ecological diversity*

Resiliency – the ability of the populations to withstand stochasticity
> *Population abundance, intrinsic growth rate, other demographics*

Redundancy – the ability of the species to withstand catastrophic events
> *Number and distribution of populations*



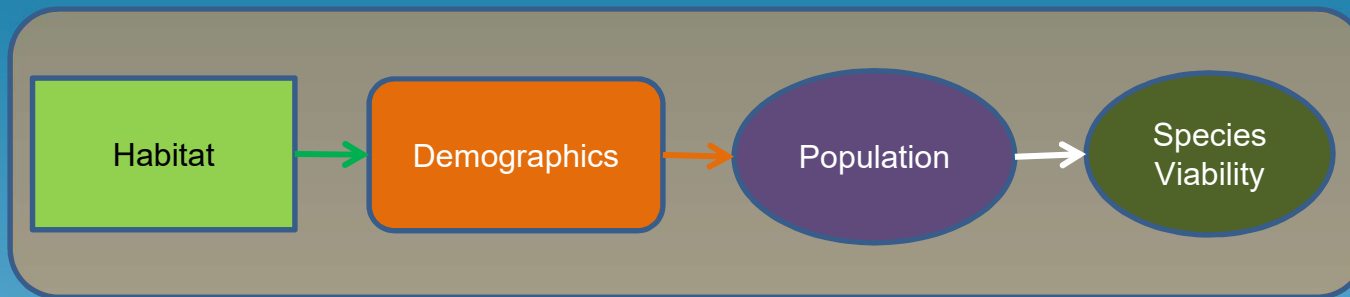
Stage 1: Species' Ecology





Stage 1: Species' Ecology

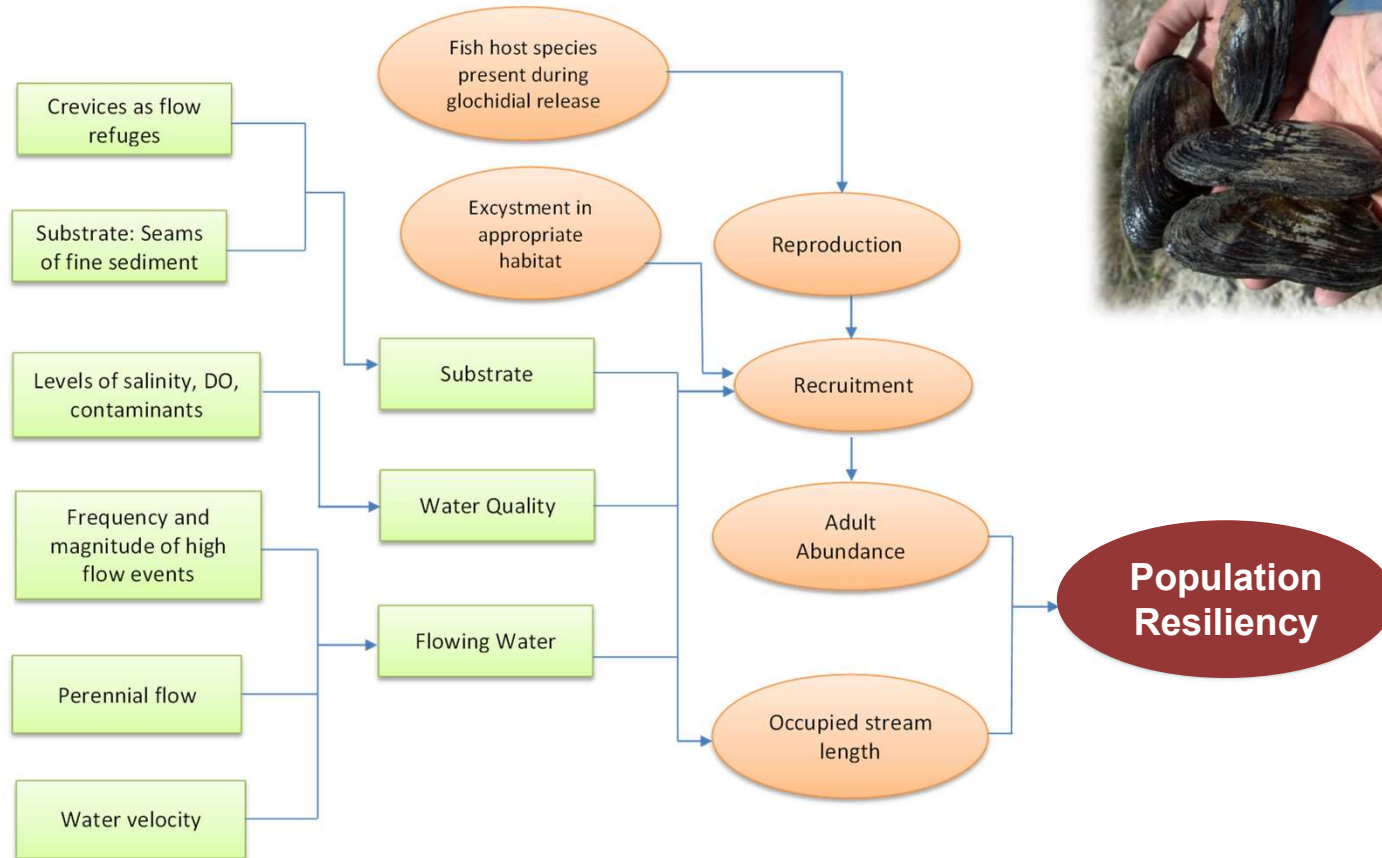
Core Conceptual Model





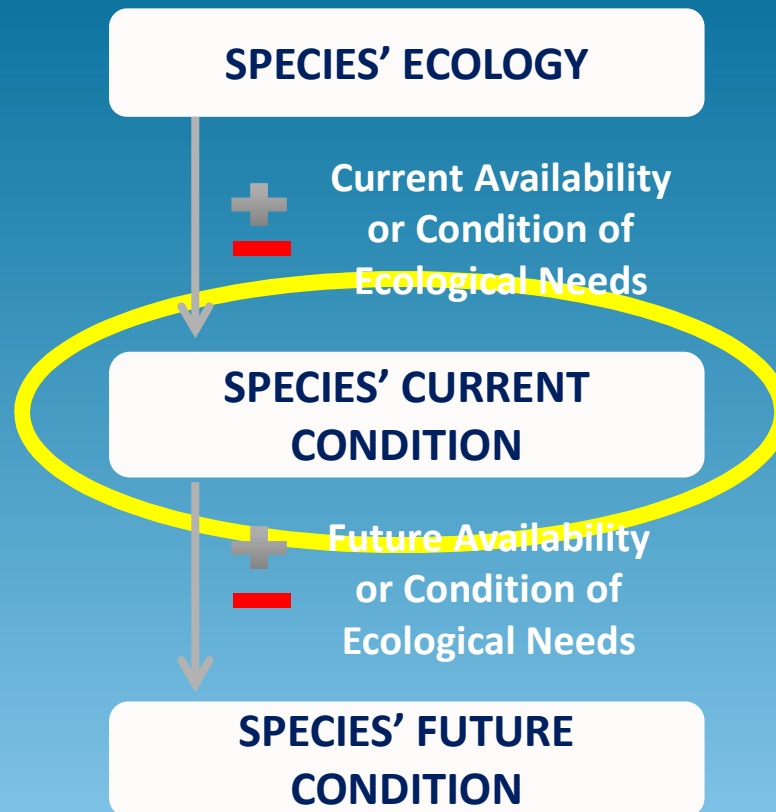
Stage 1: Species' Ecology

Example: Texas hornshell population ecology





Stage 2: Current Condition





Stage 2: Current Condition

Potential Metrics

Habitat

- Quality
- Quantity
- Connectivity

Demographics

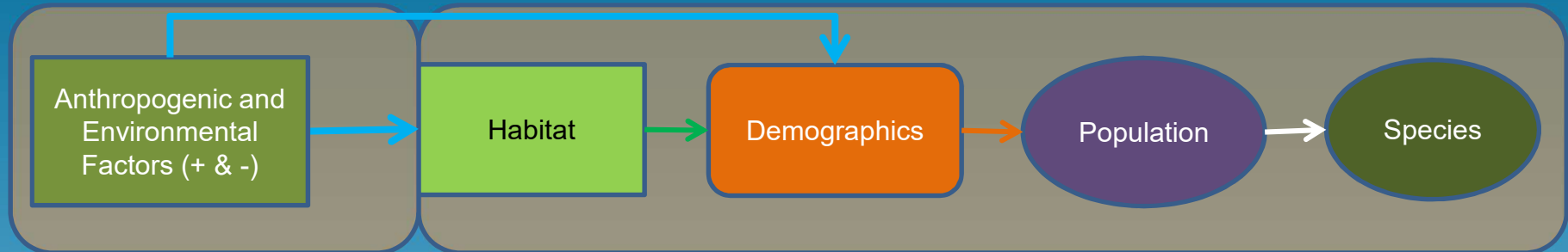
- Population size
- Growth rate
- Number of pops
- Distribution of pops



Stage 2: Current Condition

CAUSE/EFFECTS

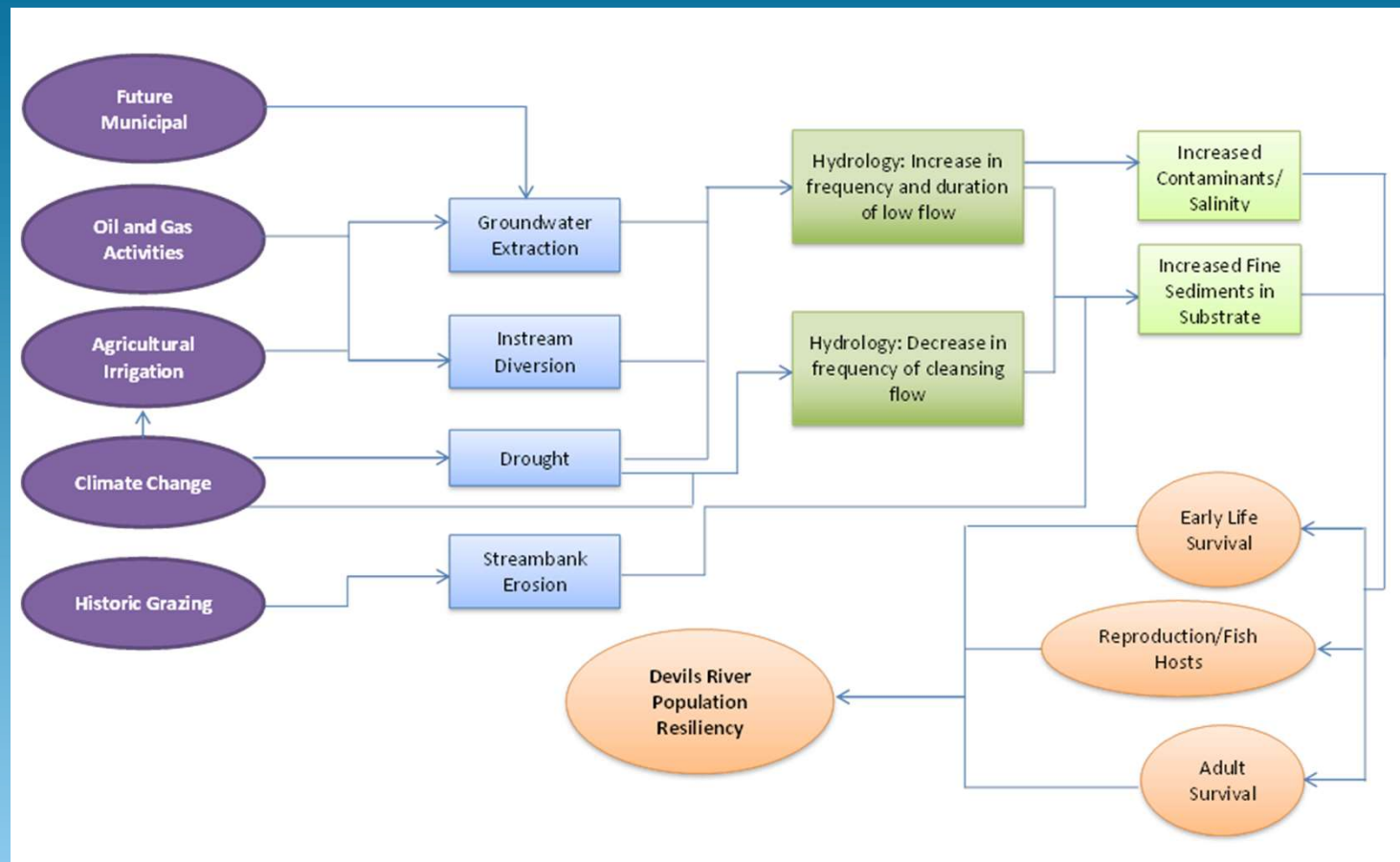
CURRENT CONDITIONS





Stage 2: Cause and Effects

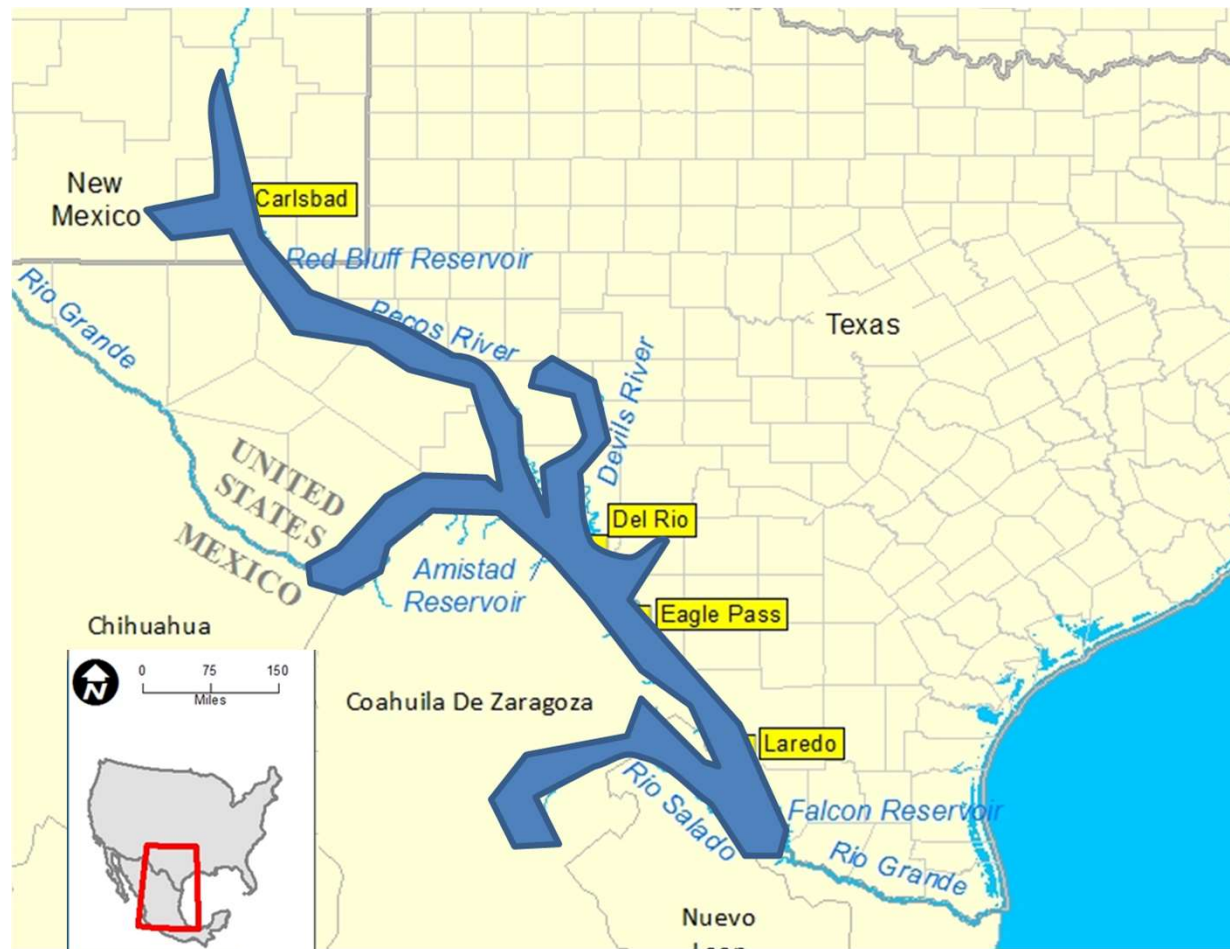
Sources and Stressors to the Devils River Texas Hornshell Population (example)





Stage 2: Current Condition

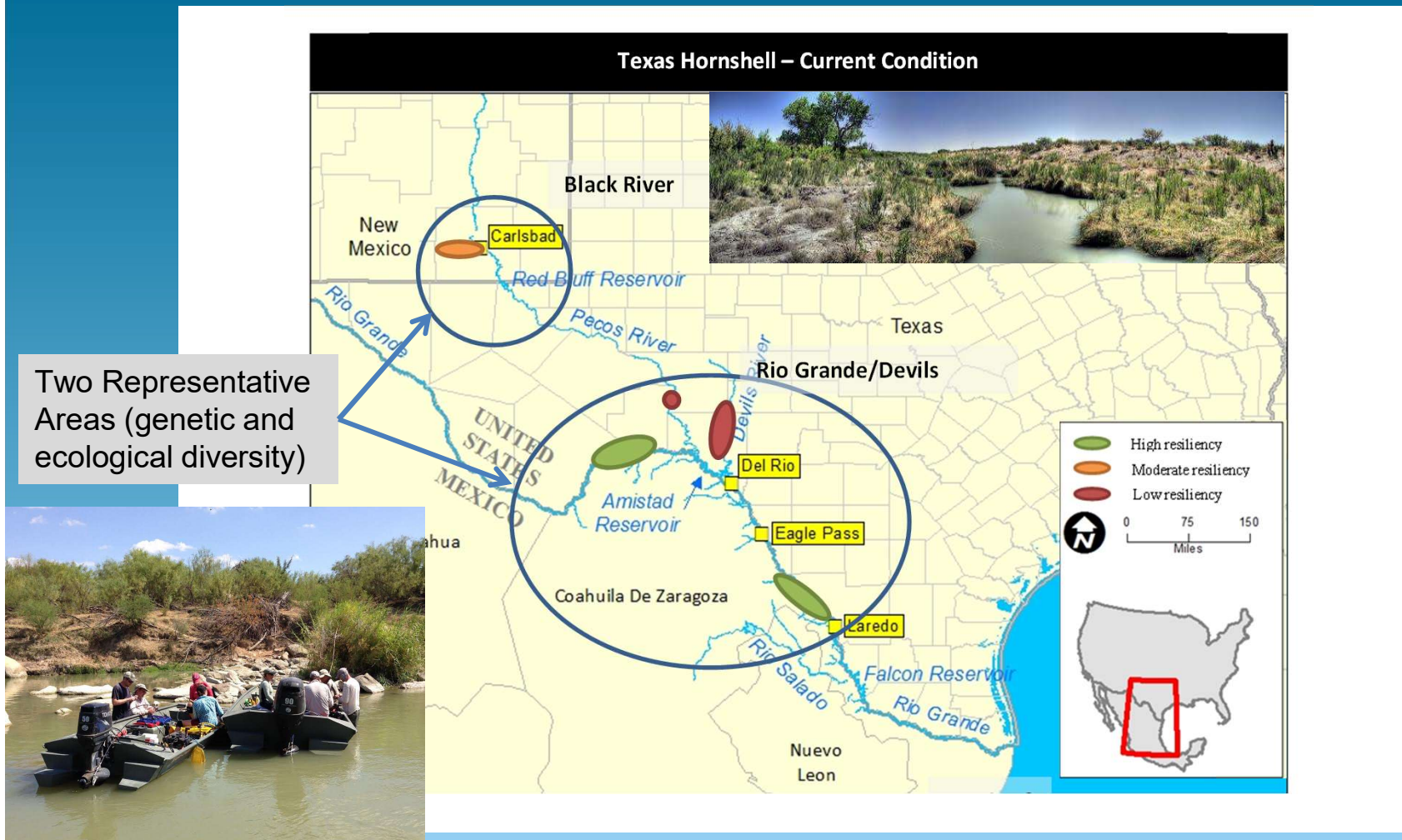
Texas Hornshell Presumed Historical Range





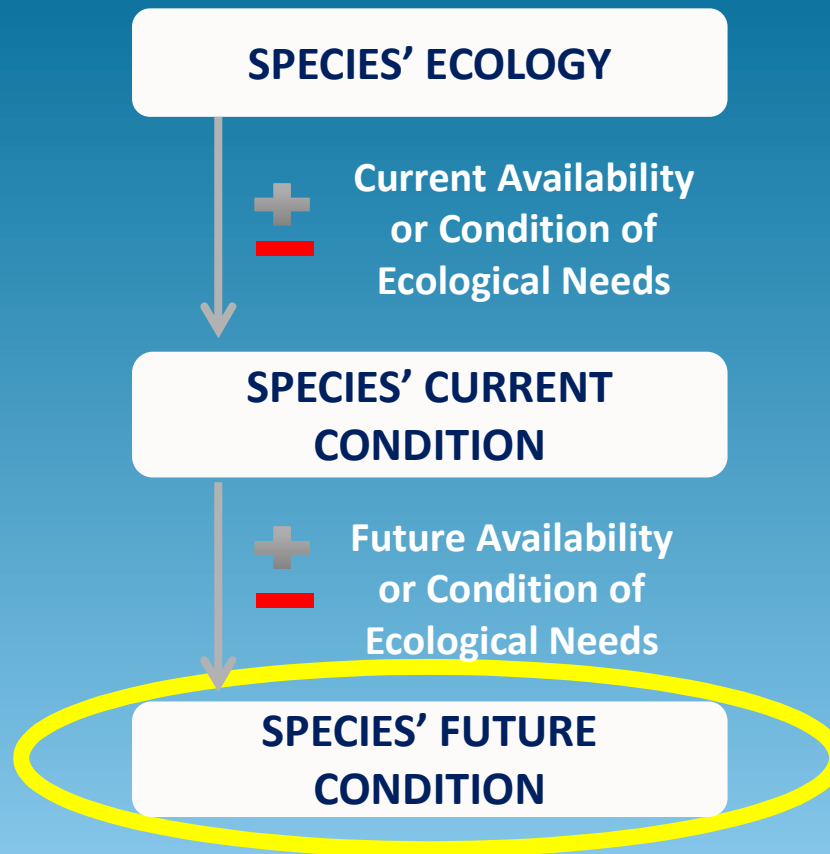
Stage 2: Current Condition

Texas Hornshell Current Condition





Stage 3: Future Condition

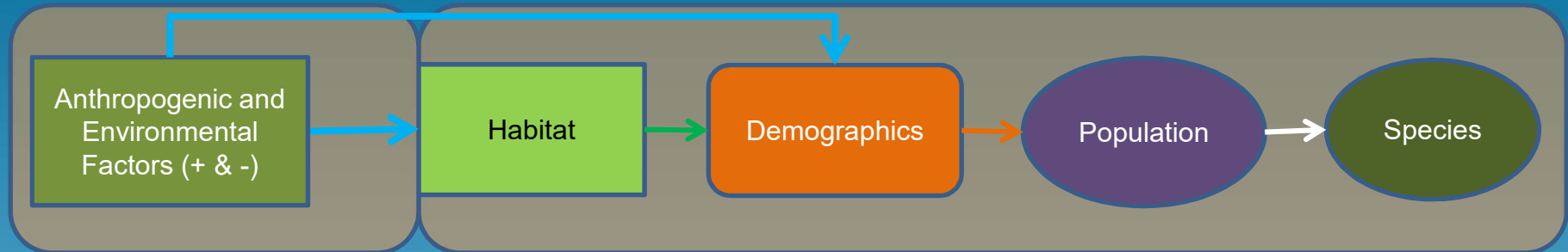




Stage 3: Future Condition

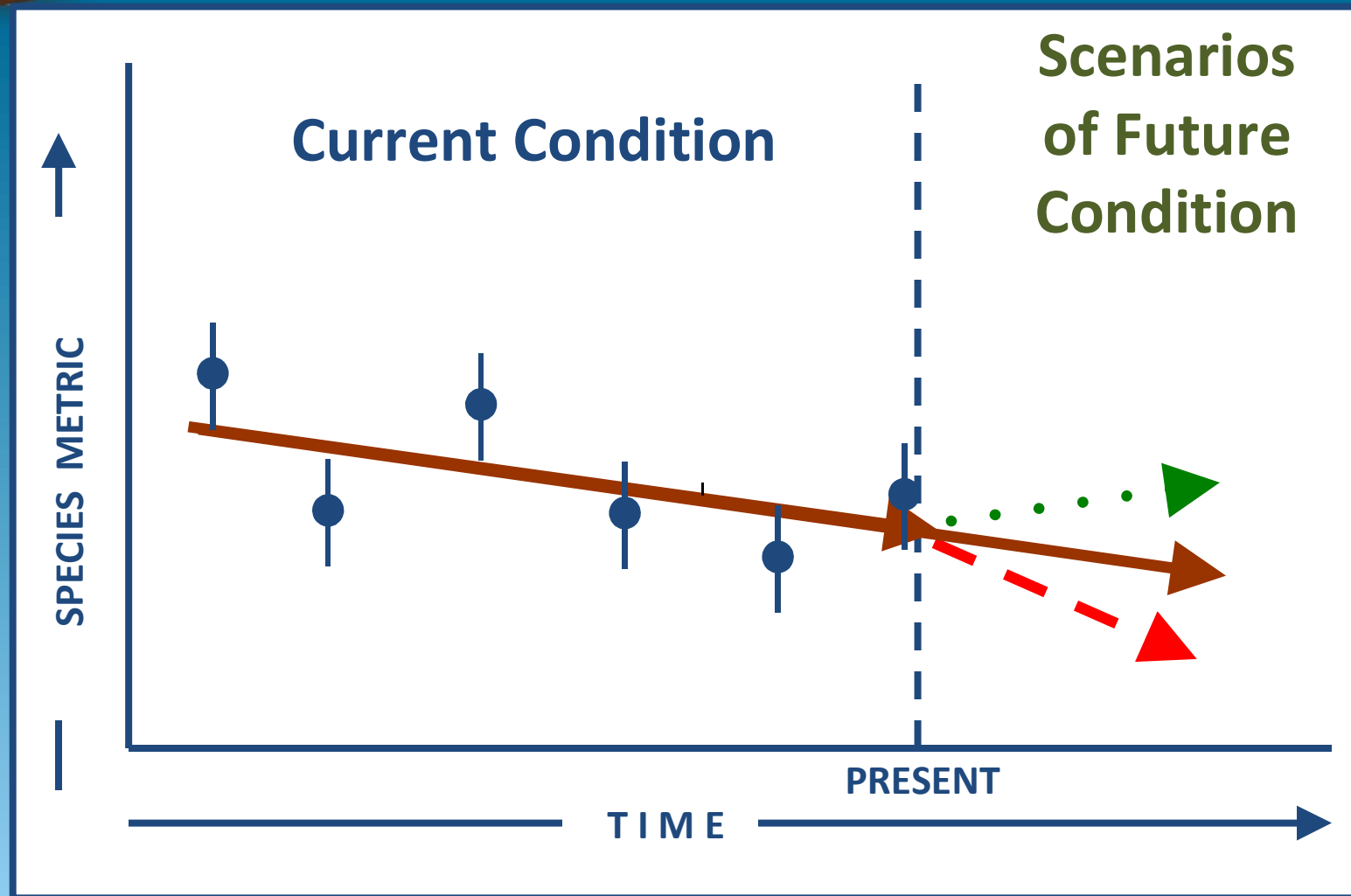
CAUSE/EFFECTS

FUTURE CONDITIONS





Stage 3: Future Condition





Stage 3: Future Condition

Formulation of Texas Hornshell Future Scenarios: Status Quo (Continuation) Scenario Example

Source/Stressor	Plausible Future Environmental Conditions		
Petroleum Spill	Low Risk of Spill		High Risk of Spill
Stream Flow Levels (Climate Change, Withdrawals)	Small Decrease	Moderate Decrease	Large Decrease
Diversion Weir	Weir Not Constructed		Weir Constructed
Water Quality	No Decline	Some Decline	Major Declines



Stage 3: Future Condition

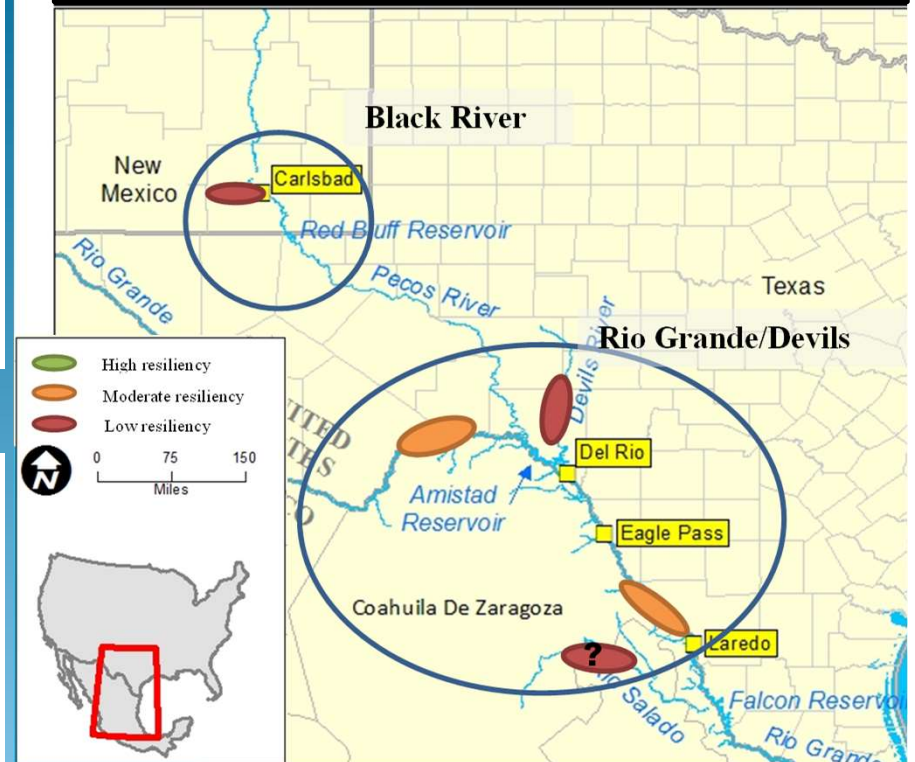
Texas Hornshell – Status Quo Scenario

Population	Population Factors		Habitat Elements			Overall
	Habitat Quantity	Abundance	Substrate	Flowing Water	Water Quality	
Black River	Low	Low	Moderate	Moderate	Low	Low
Pecos River	0	0	?	Low	Low	0
Devils River	Moderate	Low	Low	Low	Moderate	Low
Rio Grande: Lower Canyons	High	Moderate	Moderate	Moderate	Moderate	Moderate
Rio Grande: Laredo	High	Moderate	Moderate	Moderate	Moderate	Moderate

Future Population Condition

Population	Scenario 1 – Status Quo	Scenario 2 – Conservation	Scenario 3 – Considerable Effects	Scenario 4 – Major Effects	Scenario 5 – Severe Effects
Black River	Low	High	Moderate	Low	Low
Pecos River	0	Low	0	0	0
Devils River	Low	Moderate	Low	Low	0
Rio Grande: Lower Canyons	Moderate	High	Moderate	Moderate	Moderate
Rio Grande: Laredo	Moderate	High	Moderate	Moderate	Low

Texas Hornshell – Status Quo Scenario





Species Status Assessment

Capacity & analytical demands

- COSEWIC: 24 mths to complete an assessment
- Bottlenecks: predictive science
- Build capacity: short term vs long term

Complexity	Annual workload
Low	~50%
Medium	~40%
High	<10%

Quality of the assessment



Capacity relative to demand
(time, effort, expertise)



Species Status Assessment

Status-assessment team with diverse science qualifications

- Waples et al. (2013) recommendations
- Regional or national level
- *Virtual Tech Center* concept from Long-Term Listing Transformation

Waples RS, Nammack M, Cochrane JF, Hutchings JA. 2013. A tale of two acts: endangered species listing practices in Canada and the United States. *BioScience* 63:723–734.



Species Status Assessment

Places to go for more information

1. **Videos.** On the NCTC Introduction to SSA Course resource page.
nctc.fws.gov/courses/csp/csp3910/resources/
2. **Manuscript.** Smith et al. 2018. *Development of a Species Status Assessment Process for Decisions under the U.S. Endangered Species Act*. Journal of Fish and Wildlife Management, In Press.
3. **Summary Material.** USFWS Endangered Species Webpage
www.fws.gov/endangered/improving_esa/ssa.html
4. **Talk to an expert.** Contact heather_bell@fws.gov, and she can direct you to a regional expert on the SSA.

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