EAHCP 2016-2019 APPLIED RESEARCH PROJECT SCHEDULE

YEAR	Applied Research Program			Other Research Programs & Contracts			
	Research Categories	Research Projects	Biological Goal Reference & Rationale	Salvage Refugia	Refugia	EAA Modeling Plan	Eco Modeling
2013	1. EcoModel SAV	1. pH Drift				1. Develop FE Model	1. Develop EcoModel
		2. Low flow effects on native vegetation (NAS 49)				2. Develop ModFlow Model	
		3. Field vs. lab Study					
	2. EcoModel FD	1. Low flow effects on food source (NAS 44, 45)					
2014	1. EcoModel FD	1. Low flow effects on FD fecundity (NAS 44)				1. Develop FE Model	1. Develop EcoModel
		2. Effects of predation on FD (NAS 44, 45)				2. Develop ModFlow Model	
		3. FD movement under low flow (NAS 41)					
	2. Basic Biology of Species (CSRB)	1. Baseline distribution (NAS 51)					
		2. Plastron functionality					
		3. Low flow effects on survival (NAS 54)					
2015	1. Basic Biology of Species (CSRB)	1. Habitat connectivity		1. Training at SMARC		1. Complete FE Model	1. Develop EcoModel
	2. EcoModel SAV	1. Algae dynamics		2. Produce F^1 TX Blind Salamander		2. Complete ModFlow Model	
		2. *Ludwigia* interference (NAS 44)		3. Work w/ TXSTATE and SMARC researchers			
		3. Sediment (recreation/turbidity) impacts on TWR (NAS 49, 50)		4. Obtain property access for collection research			
2016	1. Basic Biology of Species (CSRB)	1. CSRB tolerances of elevated temperature & low DO* (NAS 54)	Water quality, habitat quality	1. Collection methods/location for TX Blind Salamander		1. FE Model verification	1. Complete EcoModel
		2. Evaluate CSRB life history Phase I* (NAS 51, 52, 53, 54)	Population	2. Collection methods for CSDB		2. ModFlow Model verification	2. FD Random Drop Netting (NAS 42, 44)
		3. CSRB Trophic level & functional feeding group categorization* (NAS 51, 55)	Population	3. Establish suitable surrogates		3. Hardy Thermal Model verification**	3. FD Mortality in Adverse Conditions (NAS 41)
	2. Standard Sampling Methods	1. CSRB quantitative sampling techniques (NAS 55) (#2 Priority)	Population			4. Recharge modeling	
	3. Data	1. Compile data, format, template, normalization; IC consideration in Dec 2015 (#1 Priority)					
2017	1. Basic Biology of Species (CSRB)	1. Evaluate CSRB life history Phase II* (NAS 51, 52, 53, 54)	Population		Refugia research will acomplish the below deliverables for each species; moving onto the next step, only when the previous has been concluded for all listed species.	1. EcoModel verification***	
	2. Habitat Quality & Requirements	1. SAV as FD habitat (shelter, prey habitat) (NAS 45, 46)	Habitat based population			2. Recharge modeling	
		2. Effects of sedimentation on SAV, FD and CSRB (NAS 56)	Habitat, water quality (silt free)				
	3. Standard Sampling Methods	1. CS Dryopid Beetle quantitative sampling techniques	Population				
	4. Data	1. Statistical analysis of data (System Memory/Disturbance Ecology)			1. Collection methods and locations		
		2. Statistical analysis of data (Species)			2. General husbandry (feeding, density, etc.)		
2018	1. Habitat Quality & Requirements	1. Peck's Amphipod quantitative sampling techniques	Population		3. Propagation techniques (egg to adult)	1. HydroModel Runs	
	2. Conservation Measures	1. Evaluate success of SAV restoration & TWR enhancement (coincides w/ 5 yr SAV mapping) (NAS 44, 47, 48)	Habitat		4. Reintroduction/genetics	2. EcoModel Runs	
		2. Confirm species-specific Tables 4-1, 4-21	Habitat		Evaluate Life Histories of Covered Species	3. Recharge modeling	
		3. Evaluate success of flow-split management	Habitat				
	3. TBD	1. TBD/Contingency	TBD				
2019	1. Conservation Measures	1. Evaluate success of removal of invasive animal species and reduction of introduction	Habitat			1. HydroModel Runs	
		2. Evaluate success of Sessom Creek sand bar removal and sediment removal efforts	Habitat			2. EcoModel Runs	
	2. TBD	1. TBD/Contingency	TBD				

Legend/Footnotes

* RFP developed and posted for solicitation

** Use low flow data from 2013 and 2014 for verification of model (desktop exercise)

** May require contract w/ Meadows

*** Use data collected in 2016 to perform a verification analysis

NAS-recommended projects

Funding to be allocated/Research yet TBD

NAS Projects Not Recommended for Implementation

1. Determine the effects from phosphorus sources, cycling, and availability on the productivity of the ecosystems (NAS 58)
2. CSRB population (quantitative) and distribution in Comal (NAS 55)
3. CSRB population (quantitative) and distribution in San Marcos (NAS 55)
4. Evaluate CSRB status as an indicator species (NAS 57)

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