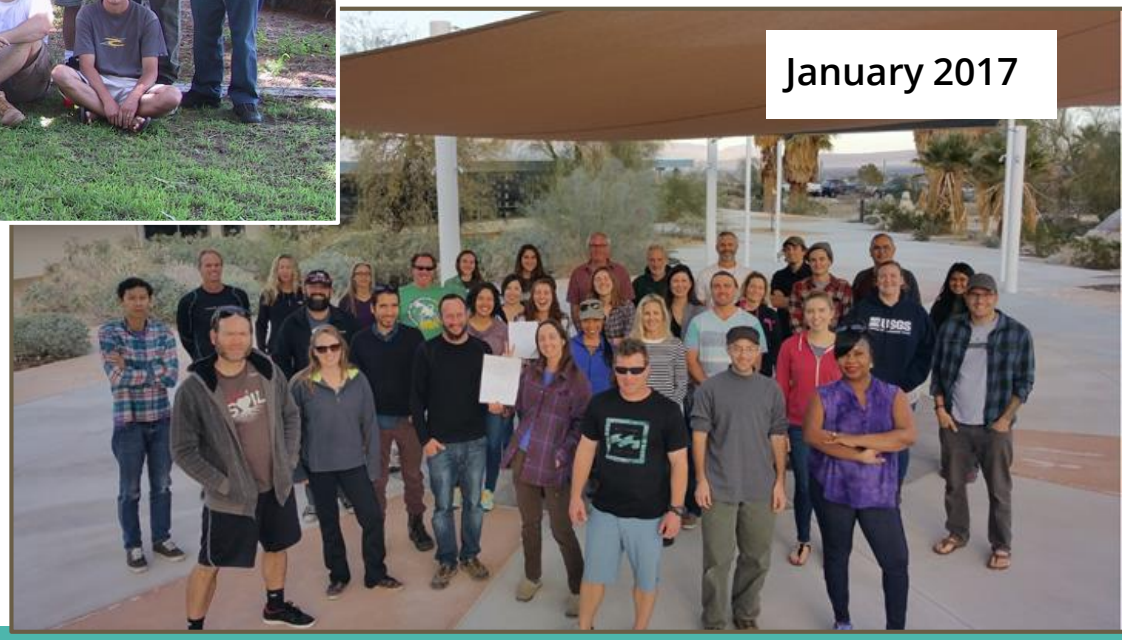
Amphibian IBI and Hydrological Impact Score

The data described in this talk represents almost 2 decades of field work by our team in southern California and by many partners. So many of these people that were here at the beginning of this work are still participating….



Robert Fisher

Supervisory Research Biologist

Western Ecological Research Center

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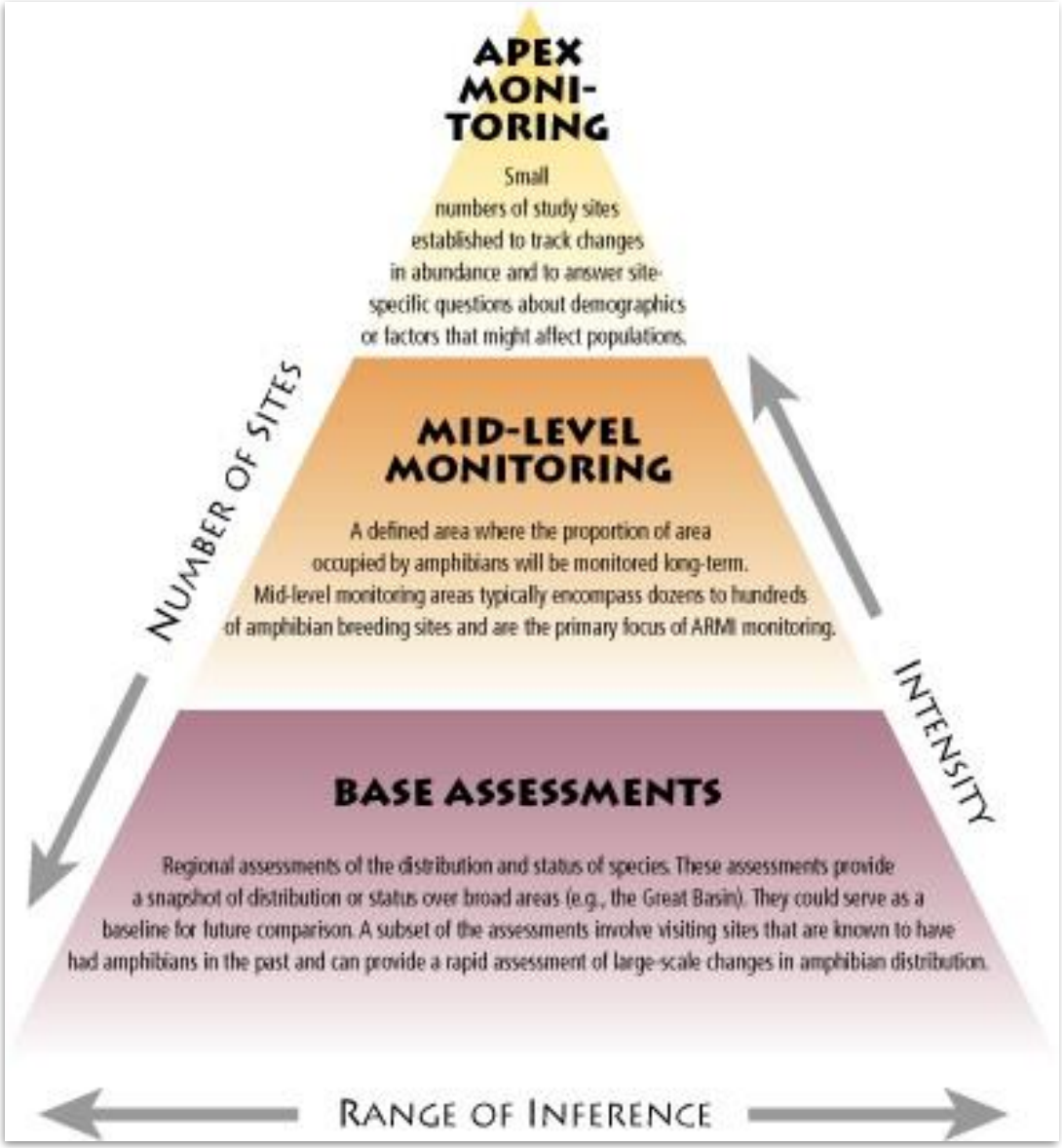
Attempting to Synthesize 20 years of data



Amphibians Assessed Across Southern California

Listed species

Sensitive and
Pre-listed species

Non-listed species

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Native Aquatic Reptiles and Fish

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Invasive Aquatic Species

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Included Species and Observations

Total Observations:

338,067

Taxon	Species	Total Natives	Total Invasives
Frog	**California Red-Legged Frog**	9,603	
	Mountain Yellow-legged Frog	47,755	
	Arroyo Toad	37,330	
	Western Spadefoot	8,066	
	Western and Red-spotted Toads	71,346	
	Pacific Chorus Frog	29,450	
	California Chorus Frog	10,209	
	Bullfrog		19,249
	African Clawed Frog		15,277
Salamander	**California Newt**	2,853	
Turtle	**Western Pond Turtle**	5,302	
	Red Eared Slider		2,237
	Other Invasive Turtles (10 sp)		269
Snake	**Two Stiped Garter Snake**	1,608	
	South Coast Garter Snake	7	
	Coast Mountain Kingsnake	39	
	Southern Water Snake		12
Fish	**Arroyo Chub**	3,589	
	Threespine Stickleback	2,497	
	Santa Ana Sucker	1,315	
	Rainbow Trout - Southern Steelhead	9,169	
	Santa Ana Speckled Dace	447	
	Mosquito Fish		35,430
	Other Invasive Fish (26 sp)		10,890
Invertebrate	*Asiatic Clam*		1,199
	Louisiana Swamp Crayfish		12,875
Megafauna	*Beaver*		44
		240,585	97,482

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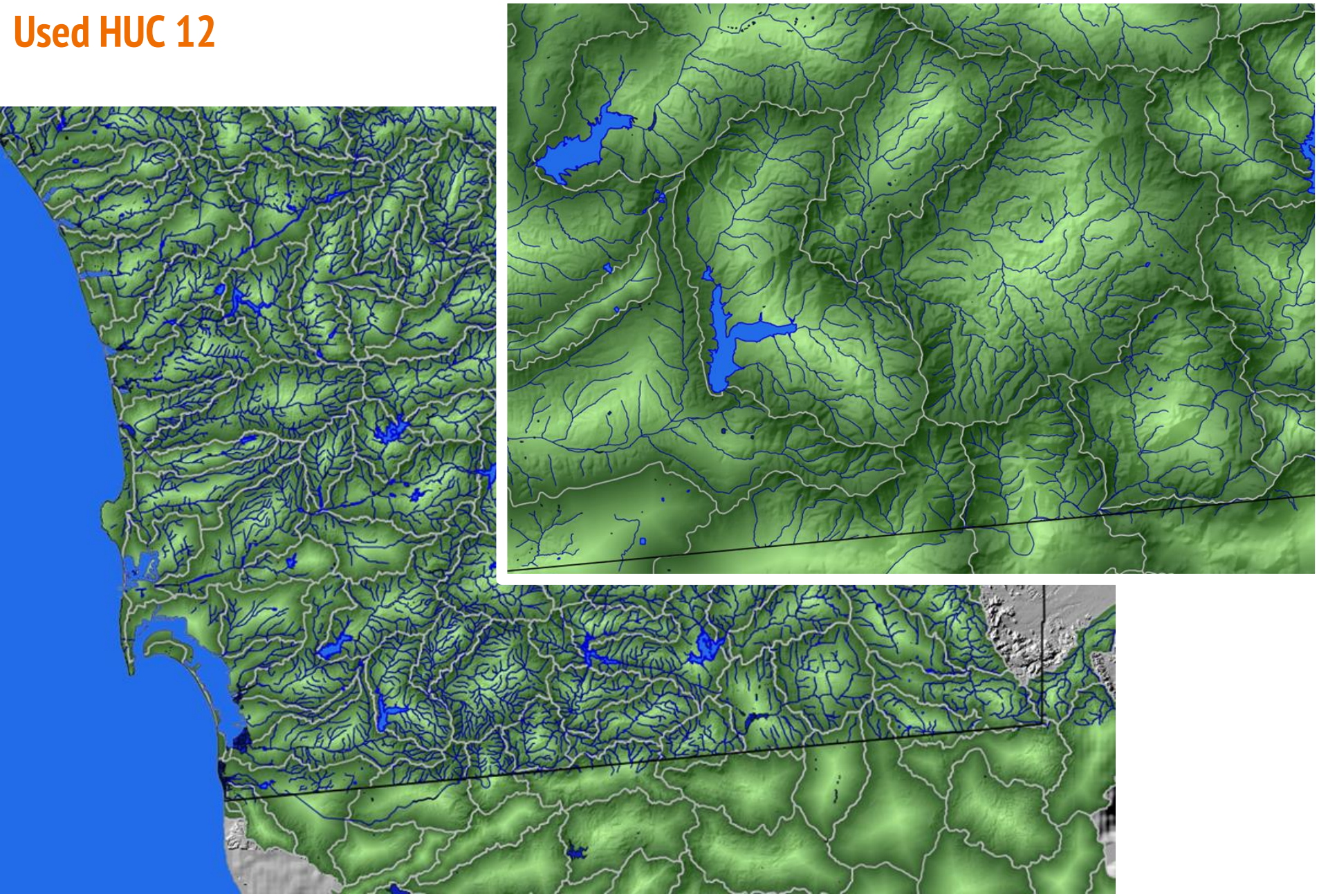
Used HUC 12



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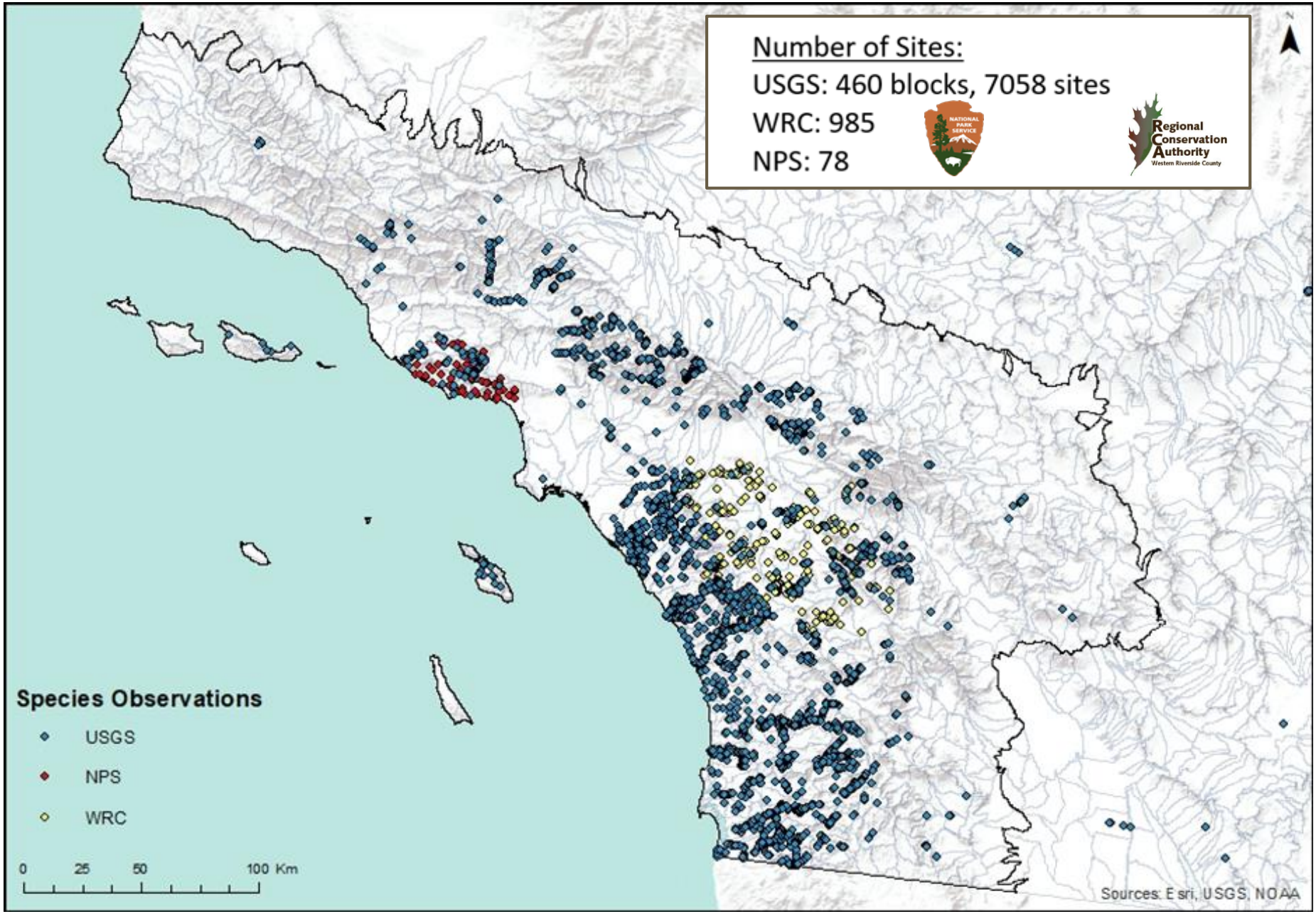

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Field data aquatic species data collected since 2000 aggregated to HUC 12

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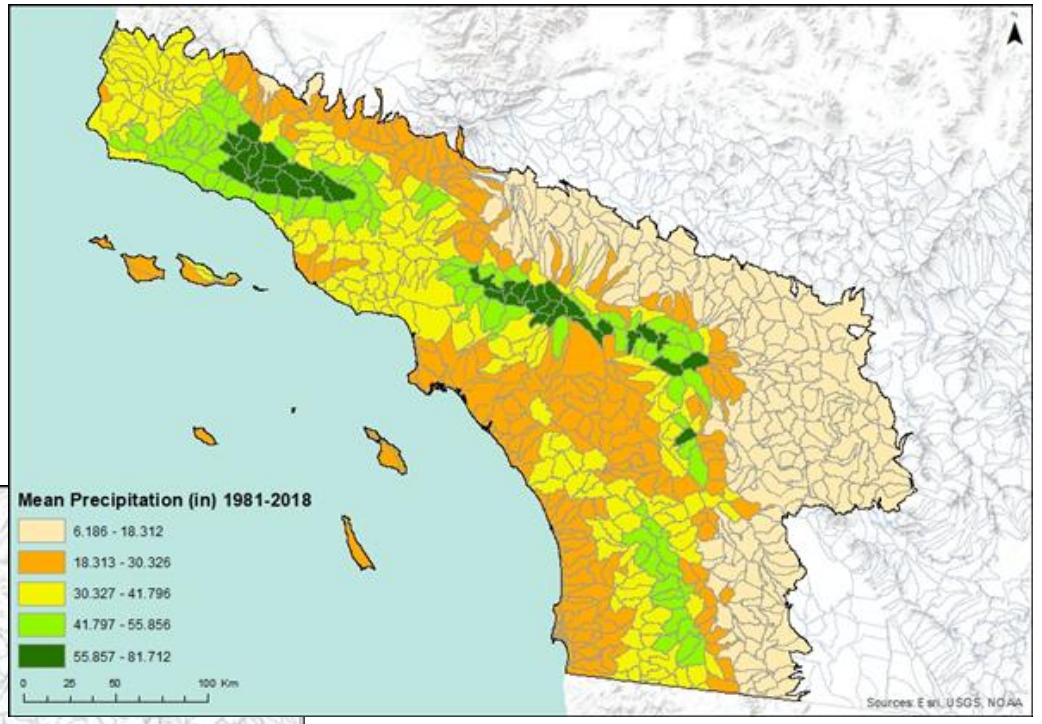
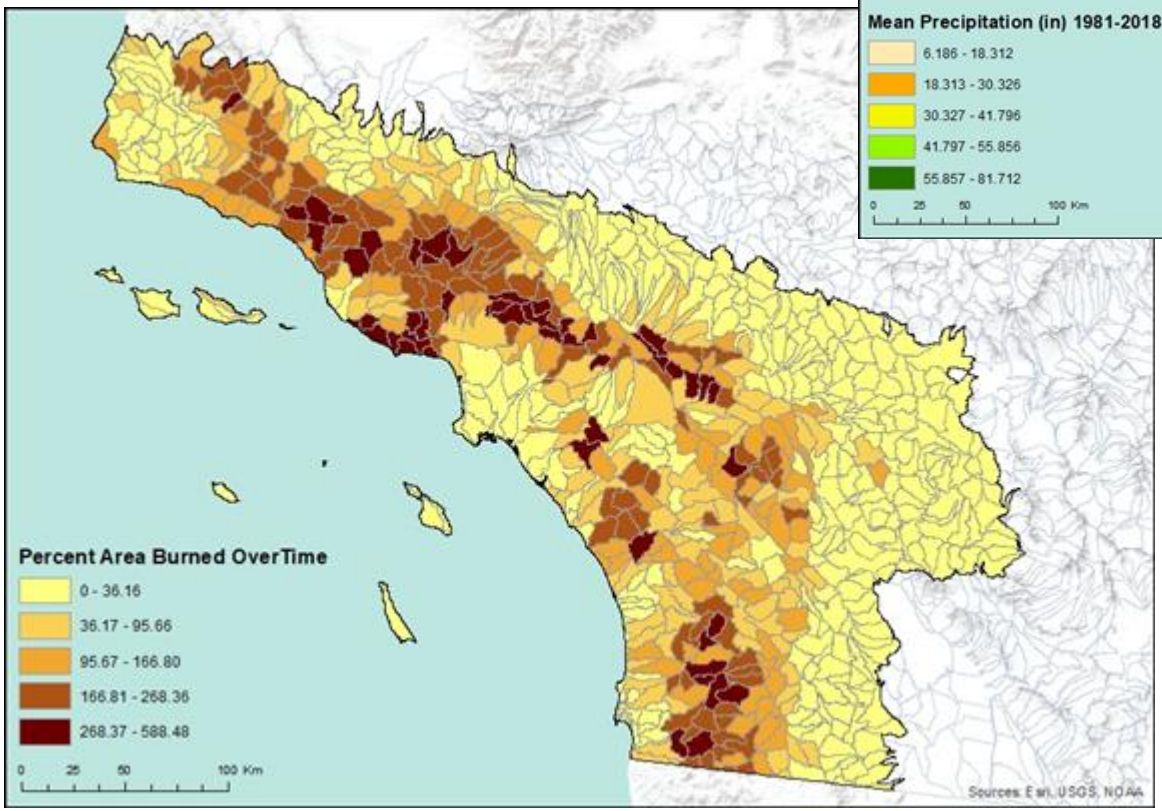
Drivers in the landscape

Historically natural drivers such as rainfall, temperature, geology

Impact where species occurred naturally





Climate modified drivers such as wildfire, drought, increasing temperatures

Impact where species can now occur

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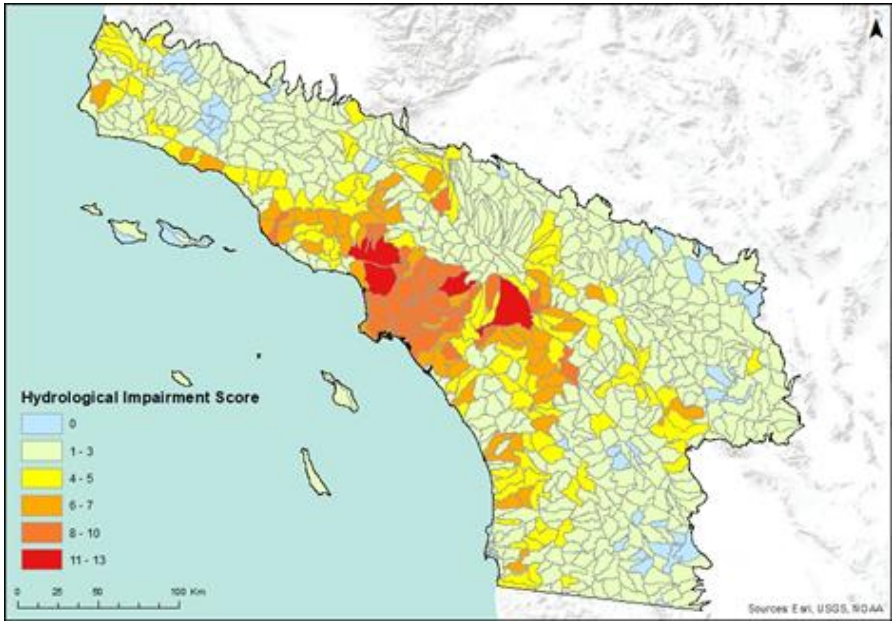

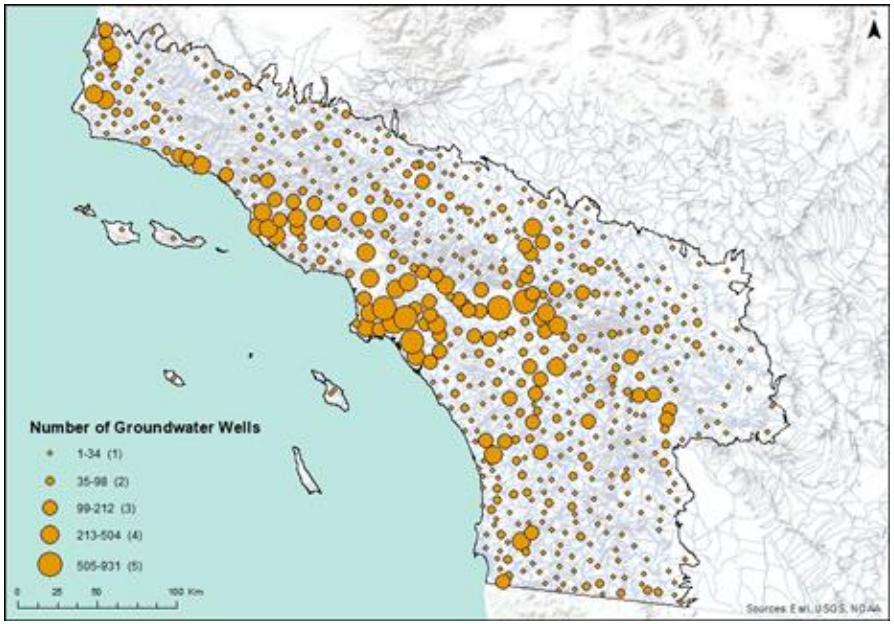

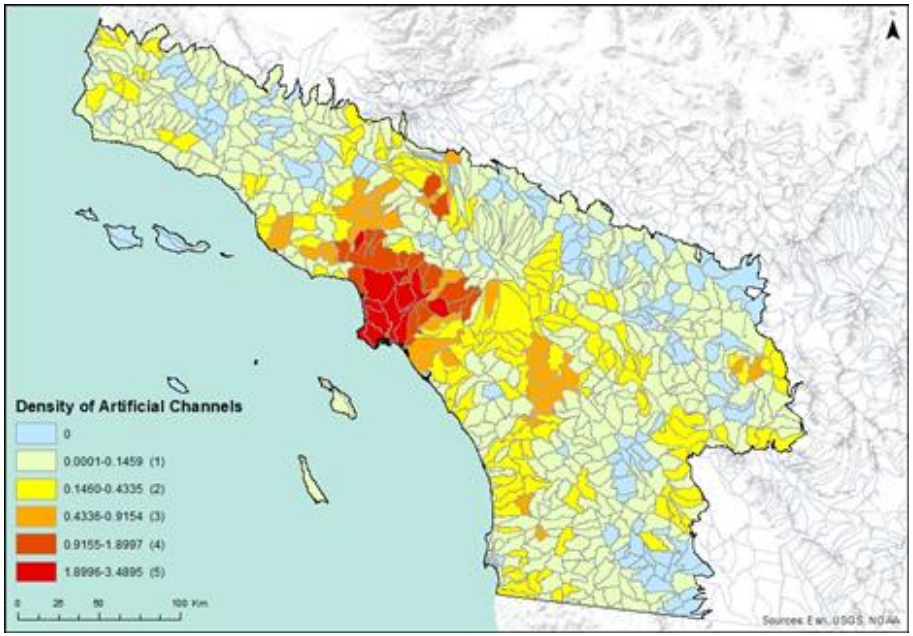

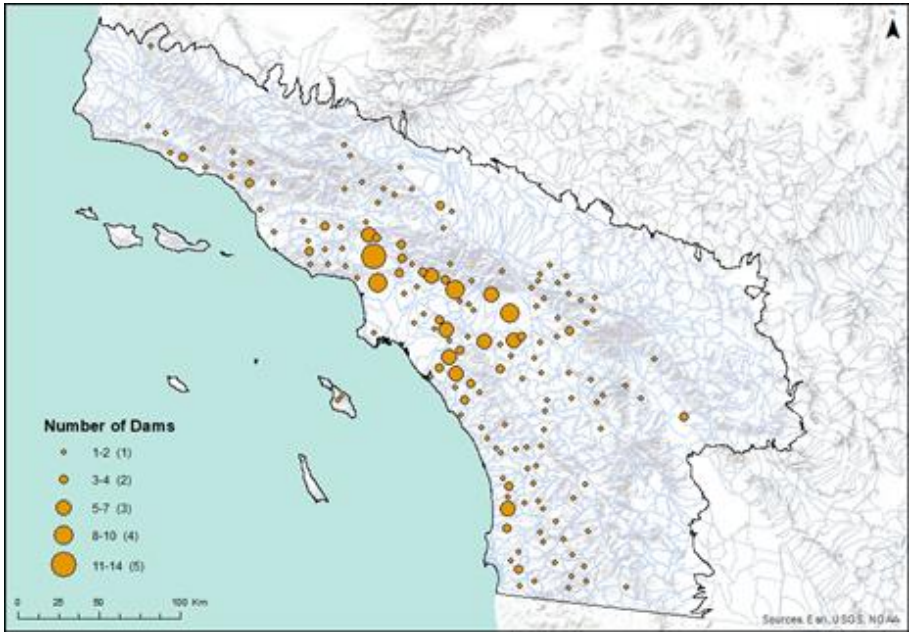

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Synthesis of 3 anthropogenic hydrologic impairments on the landscape

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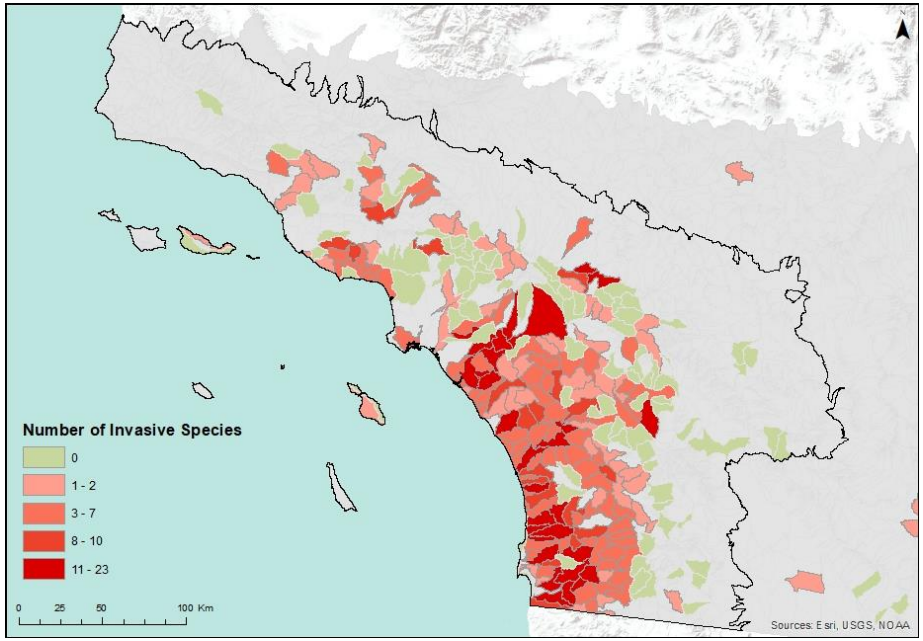

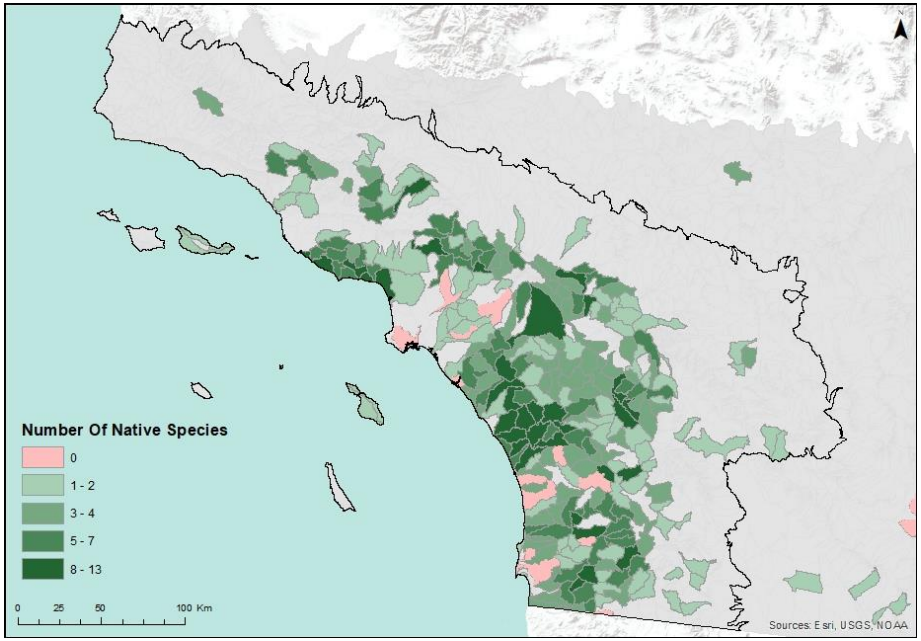

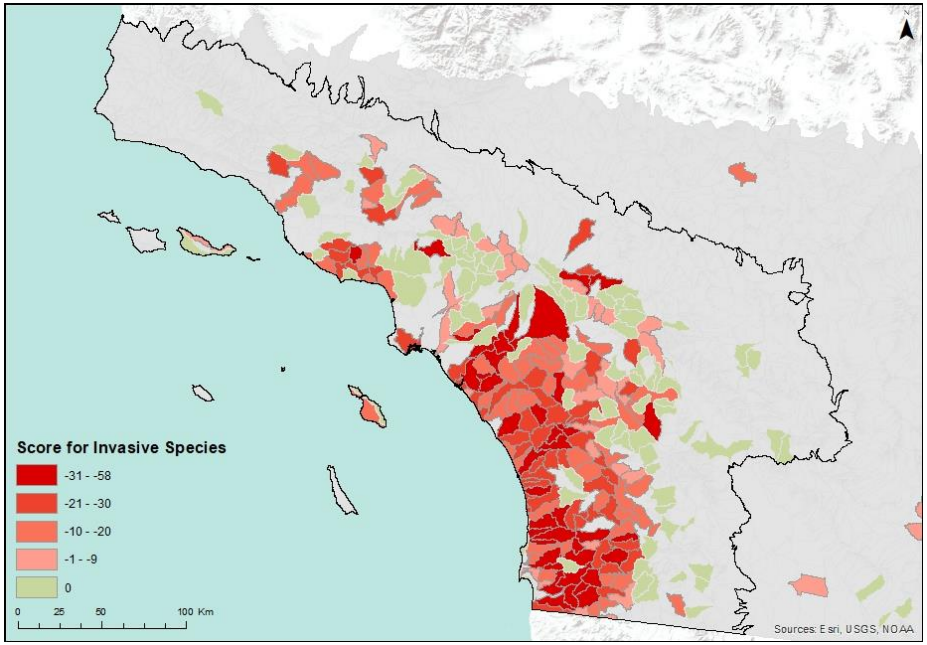

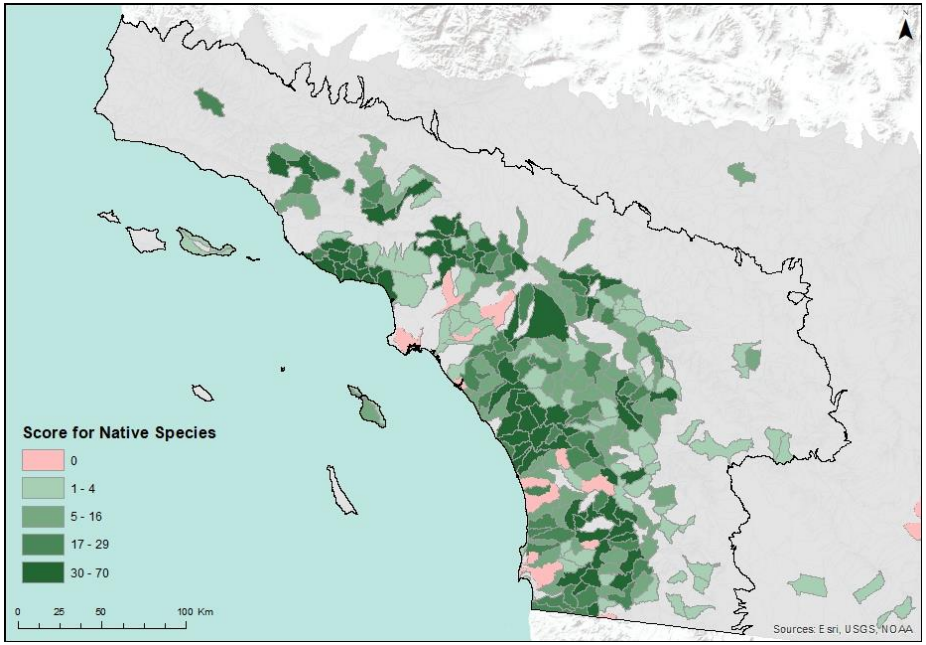

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Invasive and Native species counts and "multiplier" scores per HUC 12

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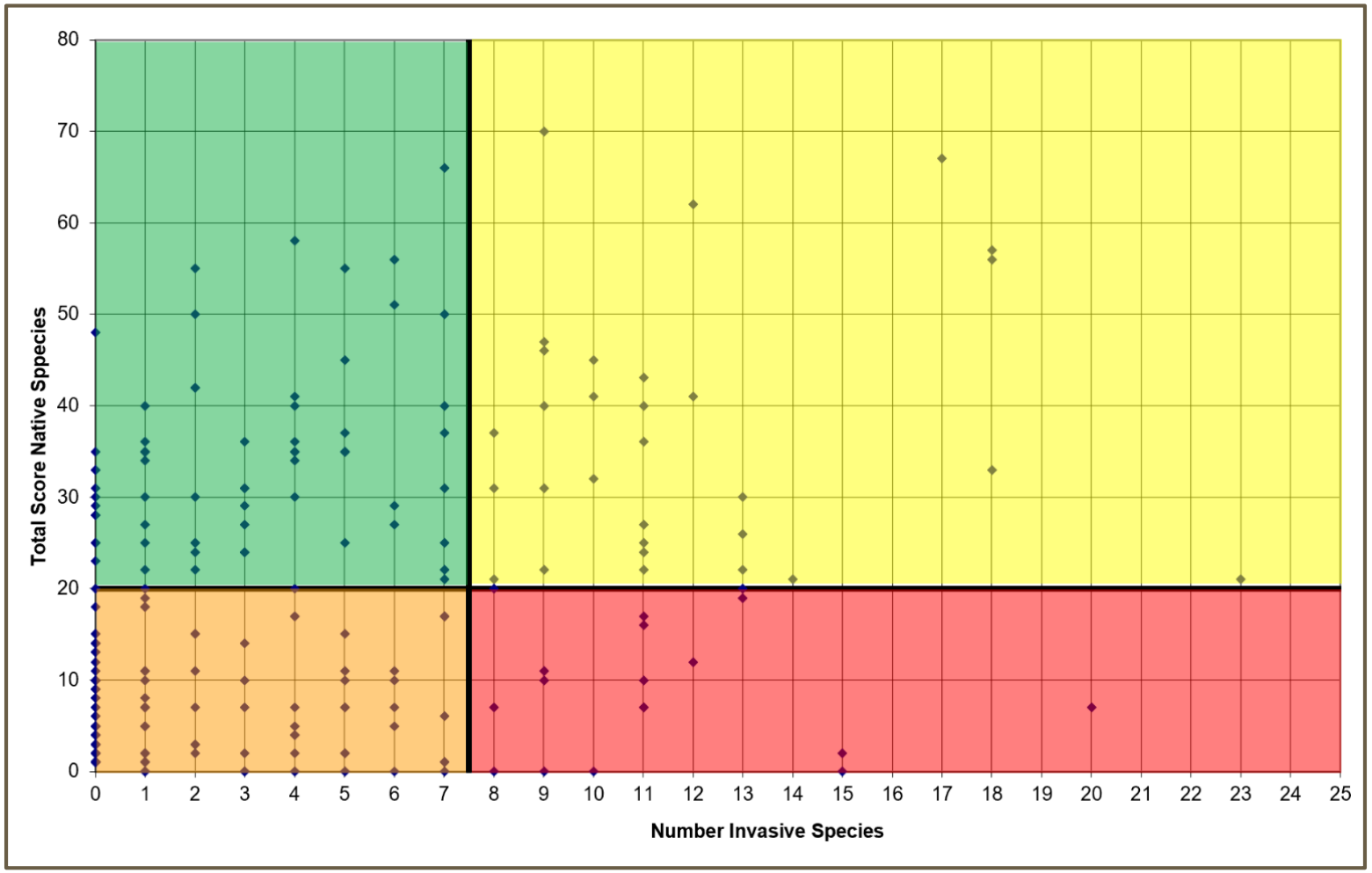
Where to apply what management….

Green - Maintain as is…

Yellow - good natives, but impaired

Orange - low impairment but low natives

Red - Abandon!!!



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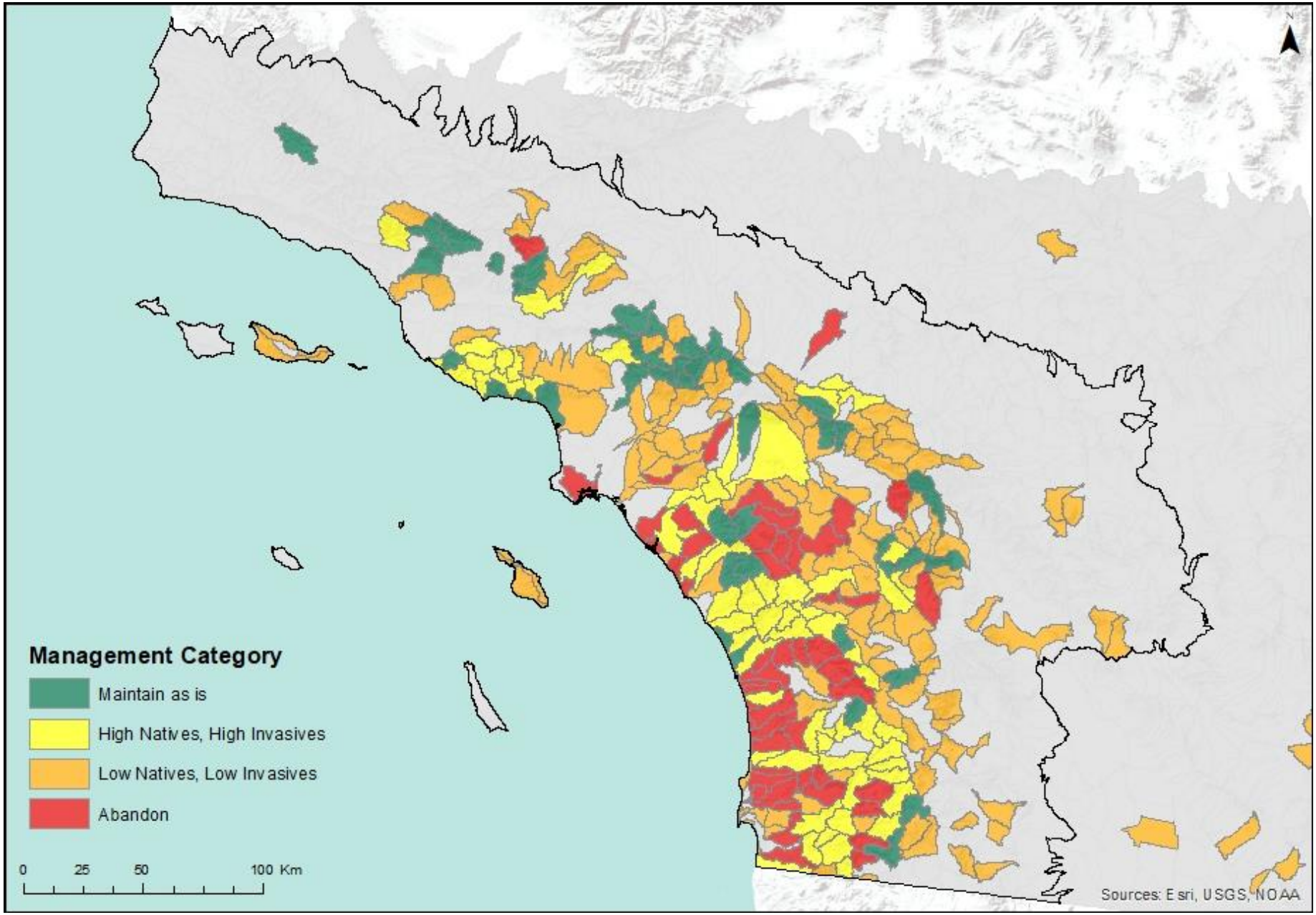

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Where to apply what management....

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