



Rough Project History

Period	Activity
2004	Scope, objectives, and study plan
Early 2005	Plan reviewed – J. Baldwin, academics, USFS staff
Spring/Sum 2005	Study plan revised
Sum 2005	Study 1 sites instrumented, methods refined
2006	Study 1 & 2
2007	Study 1 & 2
2008	Study 1 & 2
2009	Study 1 & data analysis
2010	Study 1 & data analysis

Study Questions

Study 1. Yosemite toad and habitat response to fencing meadows compared to grazing at SNFPA riparian standards and guidelines?

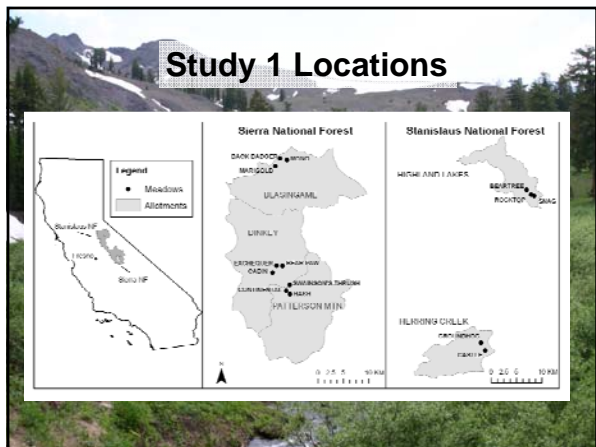
Study 2. Relationships between grazing, meadow characteristics, and toad occupancy?

Study 1: Grazing Treatments

Fence the Whole Meadow (FWM) no grazing in meadow

Fence the Breeding Area (FBA) fence the potential breeding area in meadow

Graze (GRZ) entire meadow in accordance with Riparian S&G.

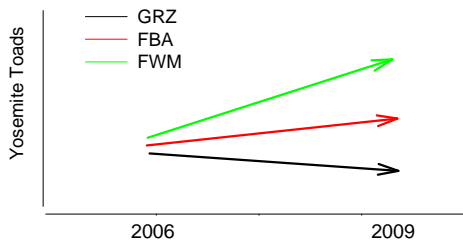


Study 1 Results

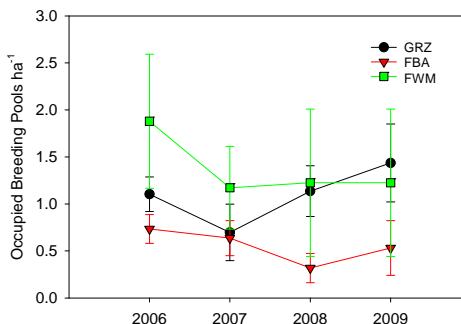
- o Grazing treatment effects on young of the year toad counts and occupancy of breeding pools
- o Grazing treatment effects on water quality and cover in toad breeding pools
- o Connections between breeding pool habitat factors and toad occupancy

Do Yosemite toad and habitat benefit from fencing meadows compared to grazing meadows?

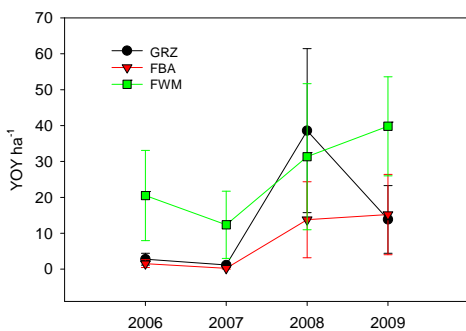
Hypothesis



Breeding pool occupancy – hypothesis is not supported (stat or graphical analysis).



Young of the year – hypothesis is not supported (stat or graphical analysis).



Study 1 Results

- o Grazing treatment effects on young of the year toad counts and occupancy of breeding pools
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Breeding Pool Habitat

- o **Water Quality** – Turbidity, EC, NO₃-N, NH₄-N, PO₄-P, TP, TN, DOC
- o **Cover** – vegetation cover, water depth
- o **Water Temperature**



Breeding Pool Habitat

Hypothesis 1: Fencing will reduce nutrients, conductivity, and turbidity.

Hypothesis 2: Fencing will increase pool depth, vegetative cover, and reduce temperature.

These hypotheses are not supported (statistically).

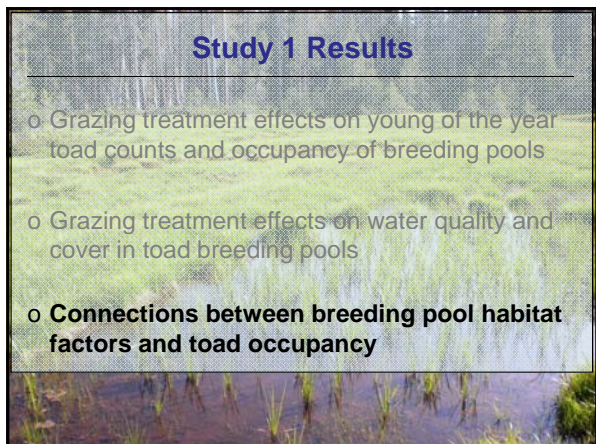
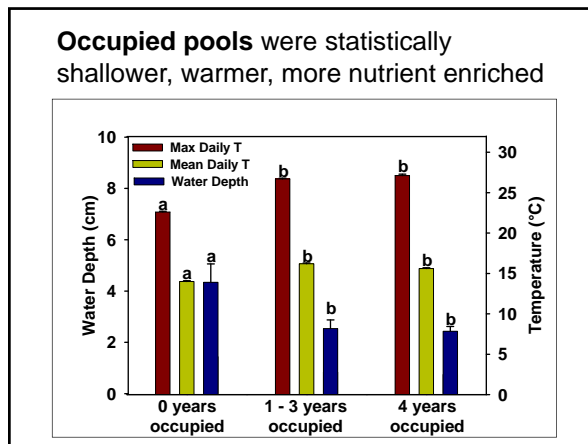
All WQ constituents are very low.

Temperatures are low.

Narrow range for all constituents.

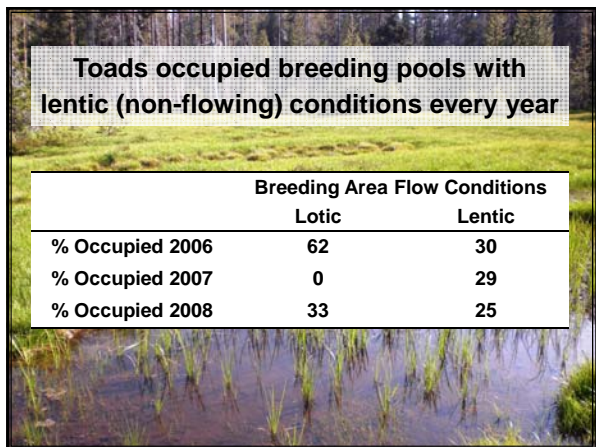
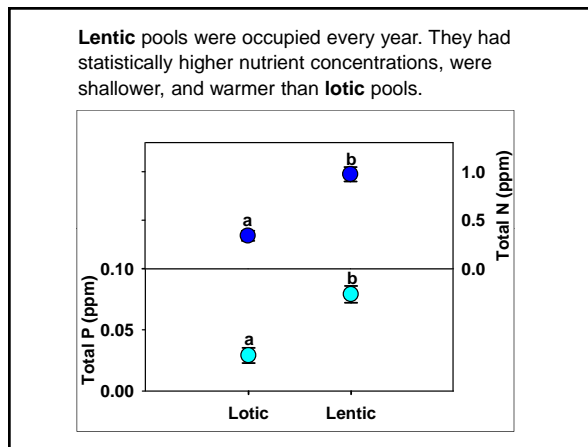
Study 1 Results

- o Grazing treatment effects on young of the year toad counts and occupancy of breeding pools
- o Grazing treatment effects on water quality and cover in toad breeding pools
- o **Connections between breeding pool habitat factors and toad occupancy**

Toads occupied breeding pools with lentic (non-flowing) conditions every year


	Breeding Area Flow Conditions	
	Lotic	Lentic
% Occupied 2006	62	30
% Occupied 2007	0	29
% Occupied 2008	33	25

Fence Breeding Area


- o Use outside fenced areas over standard
- o Risk with no apparent benefit for toad

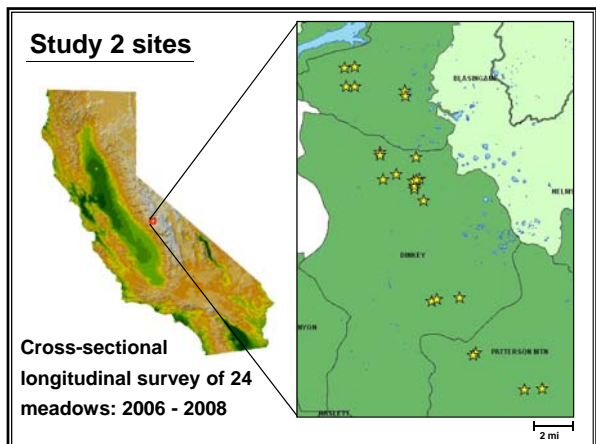
Year	Annual herbaceous utilization (%)	
	GRZ	FBA Outside Fence
2006	20	36
2007	42	51
2008	33	52



Study 2

Relationships between grazing, meadow characteristics, and toad occupancy

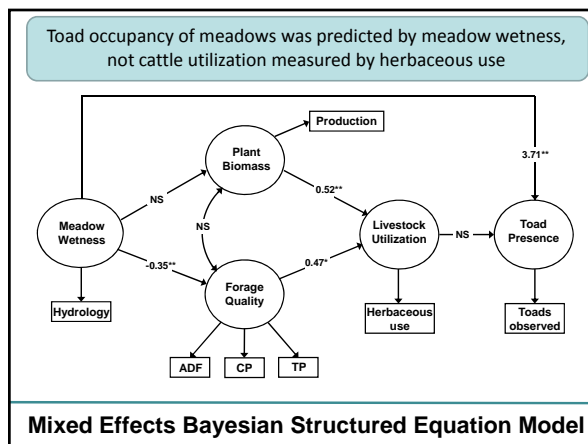
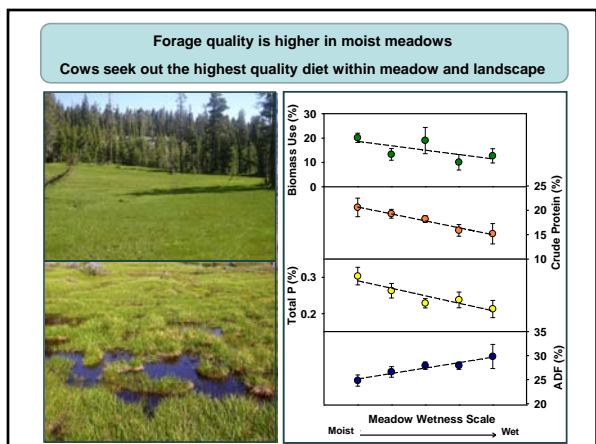
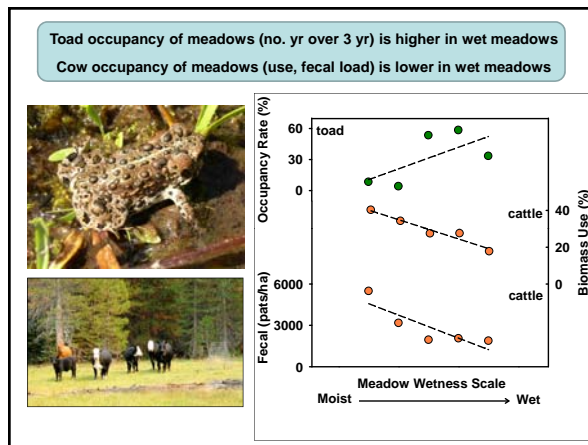
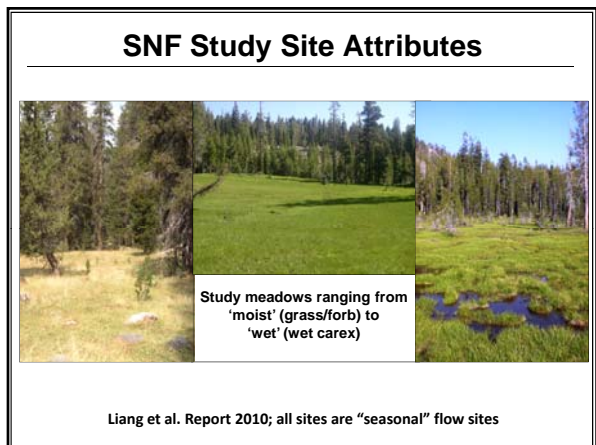


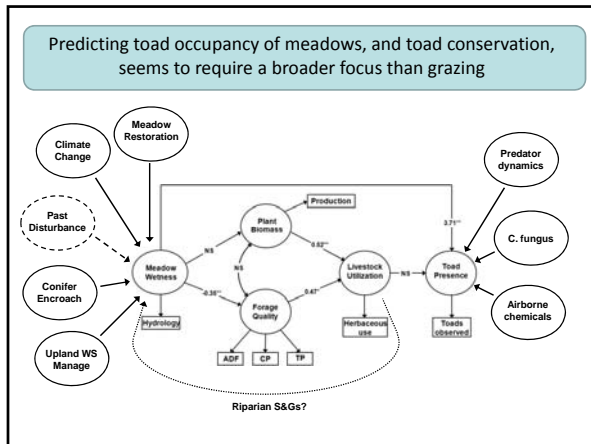


SNF Study Site Attributes

Meadow Attributes				
	Elevation (ft)	Area (ac)	Annual Biomass (lbs/ac)	Percent Use
Minimum	6950	0.74	555	5
Mean	7780	4.2	1160	31
Maximum	8760	19.5	2130	59

Management Unit Attributes			
Allotment	Area (ac)	Permitted AU	On/Off Dates
Blasingame	53830	235	6/16 - 9/20
Dinkey	65880	220	6/16 - 9/20
Patterson Mtn	53920	200	6/16 - 9/20





- Cattle use and Yosemite toad occupancy are inversely related to meadow hydrology
- Toads prefer habitat associated with wetter meadows
- Cattle select nutritious diet associated with drier meadows
- Cattle and toads appear to have inherently different habitat selection criteria

