

Ranching with Predators: Impacts and Tools

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Project Background

- Large carnivores and rangeland livestock production overlap.
- Predators have direct and indirect impacts on livestock:
 - Direct impacts - relatively easy to quantify.
 - Indirect impacts may be more significant (Ramler *et al.* 2014).
- Need for baseline information to assess future impacts.
- Selection of specific tools is complicated and site-specific.



Photo: J. Williams



Photo: indianaagriculturalfencing.com

Project Background

Timeline for Wolves in California

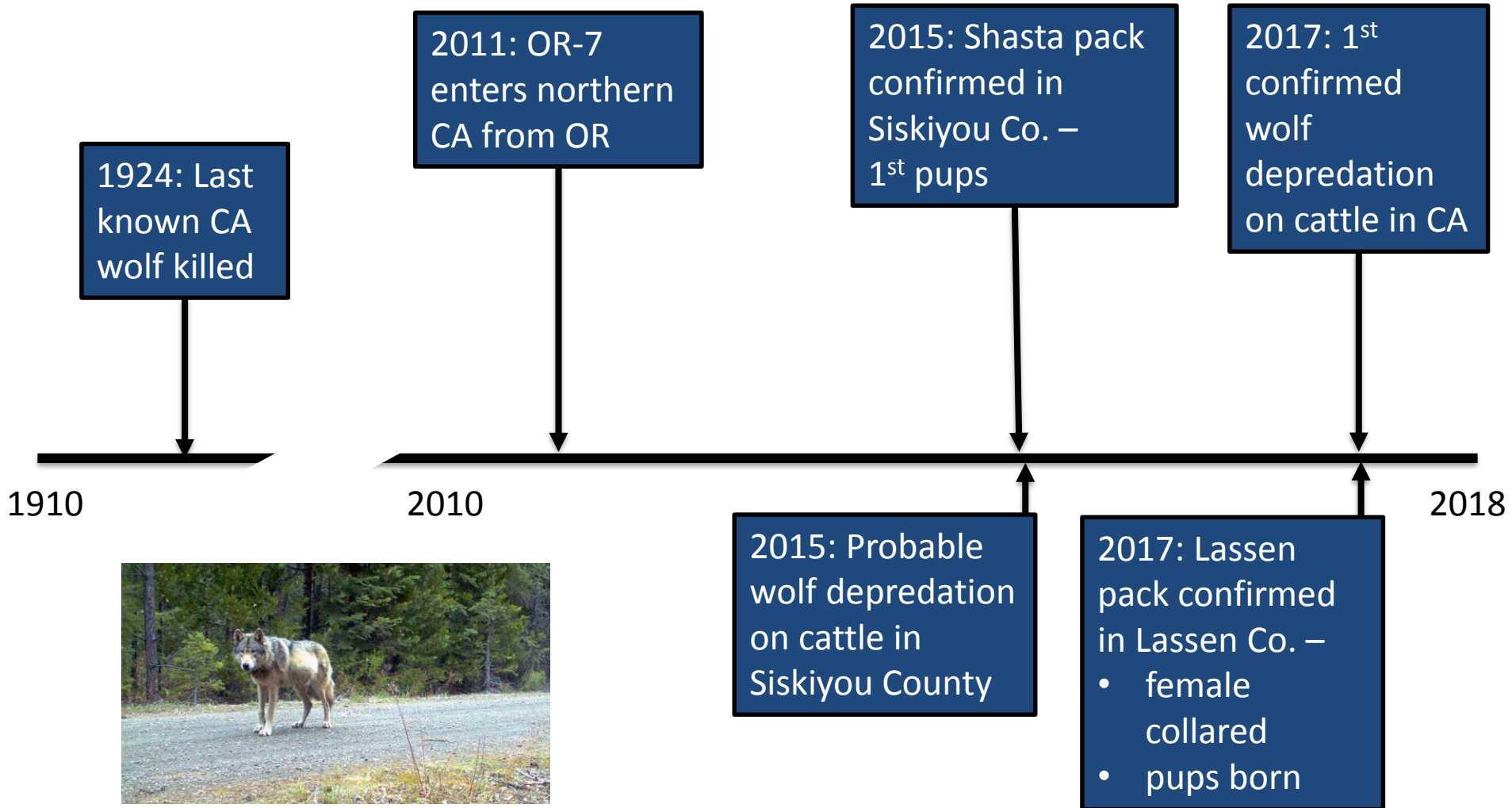
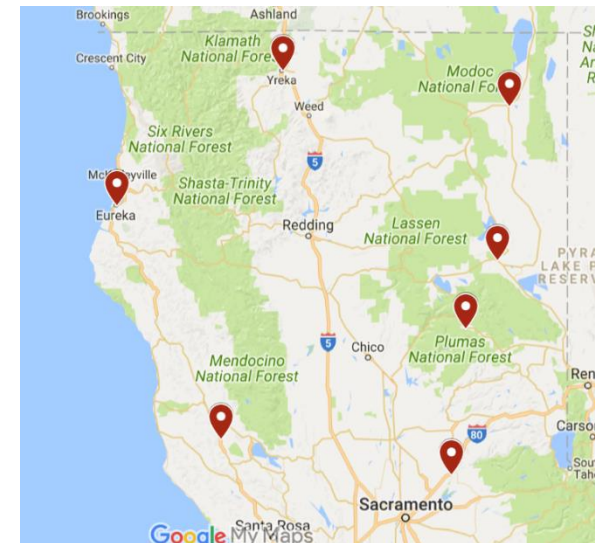


Photo: USFWS

Rancher Surveys

- Long-term citizen science study – 15 years
- Data collection objectives:
 - Document baseline conditions
 - Compare trends over time
 - Quantify costs/benefits of tools
- 7 producer workshops, spring 2017
 - Surveys initiated
 - >150 ranchers attended
- Year 2 data collection this spring



Survey Themes

- Ranch demographics and operation characteristics
- Livestock unit production data
- Land ownership and habitat types
- Predator impacts (direct and indirect)
- Livestock predator protection tools
 - Capital/operating costs
 - Effectiveness
 - Neighboring land uses/tools



2016 Survey

Rancher Demographics

	Cattle Producers (n =78)	Sheep/Goat Producers (n = 14)
Gender	Male: 79% Female: 21%	Male: 62% Female: 38%
Average Age	56 years	56 years
Experience (since 18)	30 years	28 years
Type of Operation	39 cow-calf 39 cow-calf/stocker	6 breeding only 8 breeding/feeders



2016 Survey

Operation Demographics

	Beef Cattle (78 units)		Sheep/Goats (14 units)	
	Median	Range	Median	Range
Mature Females	143	10 – 10,000	116	10 – 4,000
Replacement Females	31	2 – 220	27.5	1 – 500
Males	8	1 – 60	5	1 – 200
Feeders	90	0 – 3,600	20	0 – 4,000
Total Livestock	272	16 – 10,250	168.5	15 – 8,700



2016 Death Losses

	Cattle		Sheep & Goats	
	#/100 hd	% of total losses	#/100 hd	% of total losses
Wolves (confirmed)				
Wolves (suspected)				
Disease/Natural Causes				
Coyotes				
Mountain Lions				
Domestic Dogs				
Humans				
Other				

2016 Death Losses

	Cattle		Sheep & Goats	
	#/100 hd	% of total losses	#/100 hd	% of total losses
Wolves (confirmed)	0	0	0	0
Wolves (suspected)	0.03	1.7	0.24	4.1
Disease/Natural Causes	1.25	65	2.8	48
Coyotes	0.31	16	0.9	15
Mountain Lions	0.11	5.5	0.35	6.0
Domestic Dogs	0.18	9.1	0.05	0.9
Humans	0.005	0.3	1.2	21
Other	0.06	2.4	0.25	5
<i>Total</i>	<i>1.9</i>	<i>100%</i>	<i>5.8</i>	<i>100%</i>

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USDA APHIS – California Death Losses by Cause

	Beef Cattle (2015)		Sheep (2014)	
	#	%	#	%
Predation death losses	9,291	4	5,448	29
Other death losses	230,719	96	13,552	71

Macon et al. In Press. UC ANR 8000 Publication Series

Livestock Protection Tools – 2016 Survey Data

	Cattle (78 units)					
	Perceived Effectiveness					Producers using tool (%)
	1	2	3	4	5	
Carcass Removal						
Lethal Control						
Other Guard Animals						
Range Rider						
Night Penning						
Alarm Devices						
Livestock Guardian Dogs						
Electric Fencing						
Move Livestock						
Fladry / Turbo Fladry						
Other Changes						

Livestock Protection Tools – 2016 Survey Data

	Cattle (78 units)					
	Perceived Effectiveness					Producers using tool (%)
	1	2	3	4	5	
Carcass Removal	4.3					3.6
Lethal Control	3.6					14
Other Guard Animals	3.0					4.8
Range Rider	2.6					6.0
Night Penning	2.0					2.4
Alarm Devices	2.0					1.2
Livestock Guardian Dogs	2.0					2.4
Electric Fencing	1.8					4.8
Move Livestock	1.5					2.4
Fladry / Turbo Fladry	NA					0
Other Changes	NA					0

Livestock Protection Tools – 2016 Survey Data

	Sheep & Goats (14 units)					Producers using tool (%)
	Perceived Effectiveness					
	1	2	3	4	5	
Night Penning	4.5					43
Livestock Guardian Dogs	4.3					71
Electric Fencing	4.0					36
Fladry / Turbo Fladry	4.0					7.1
Herder	3.5					14
Carcass Removal	2.5					29
Alarm Devices	2.2					36
Other Guard Animals	2.0					29
Move Livestock	1.0					7.1

Perceptions/Neighbor Impacts

- 75% of producers feel that lethal control on neighboring land decreases predator pressure on their operations.

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Perceptions/Neighbor Impacts

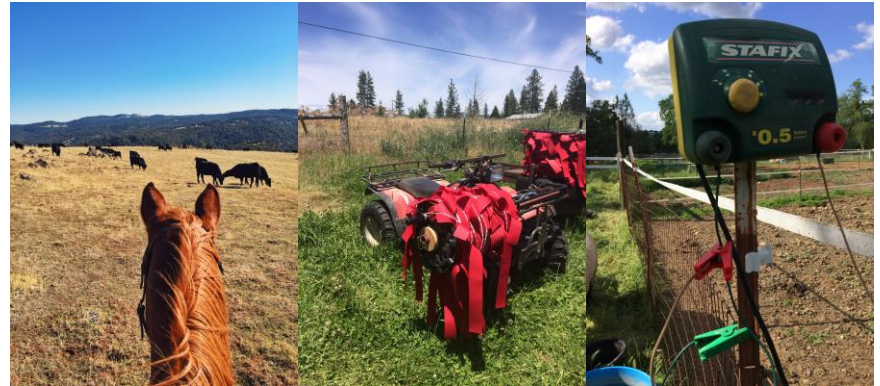
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Perceptions/Neighbor Impacts

- 75% producers feel that lethal control on neighboring land reduces predator pressure on their operations.
- Most were ambivalent as to whether nonlethal control on neighboring land had any impact on predator pressure on their operations.
- 18% of cattle producers formally cooperate with neighbors on predation reduction strategies.
- 35% of sheep/goat producers **formally cooperate** with neighbors on predation reduction strategies.

Indirect Impacts – Baseline Conditions

- Production Data
 - Body Condition Scores
 - Conception Rates
 - Weaning Weights
 - Sale Weights
- Nonlethal Tools Data
 - Capital and operating costs
- Labor Data
 - Person-days/year protecting livestock from specific predators
 - Transportation costs incurred moving livestock away from known predator areas



Next Steps

- Continue data analysis
 - Production data will be useful beyond predator research!
 - Correlations between size, location, number of tools used, etc. and observed impacts.
 - Evaluate relationship with types of neighboring land uses.
 - Cost-benefit analysis of specific tools.
- Collect 14 more years of data!



Questions?

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