

Coyotes – Non-lethal Control?

Stephanie Larson, Ph.D.

UC Cooperative Extension

Livestock & Range Management Advisor

Sonoma & Marin Counties



Marin County – prominent ant sheep growing
area, rolling hills, 500-1,000 acre ranches
1980 first coyote depredation occurred
1999 – Animal advocates groups opposed to
Wildlife Services

Livestock Protection Program (LPP): Program Requirements



Four categories of eligibility

- Fencing
- Guard Animals
- Scare Devices
- Animal Husbandry

Fencing

Maximization of Existing Fencing

- Charge wire at tops, bottoms
- Mend any gaps, digs, etc.

Build New Fencing

Electric Fencing

- 7-8 wire best but high cost
- To maintain effectiveness
 - Remove excess vegetation to prevent grounding
 - Charger checked regularly, fog issues

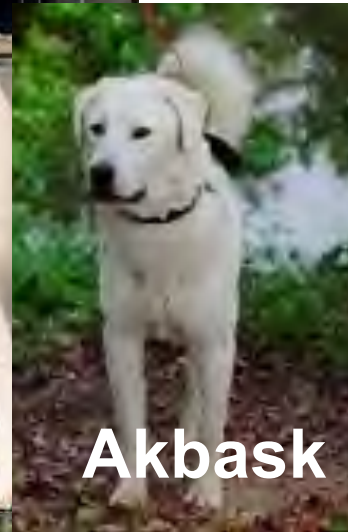


Guard Dogs

- Number to use dependent on
 - Range size
 - Topography
 - Habitat
- Producers paid \$250 / guard dog



Pyrenees



Akbask



Anatolian Shepherd



Llamas

- Defenses
 - Use stomping to scare predator
 - Screaming
- Disadvantage
 - Can be expensive
 - Need to be sheared
- Advantage
 - Eat the same diet as sheep



Donkeys

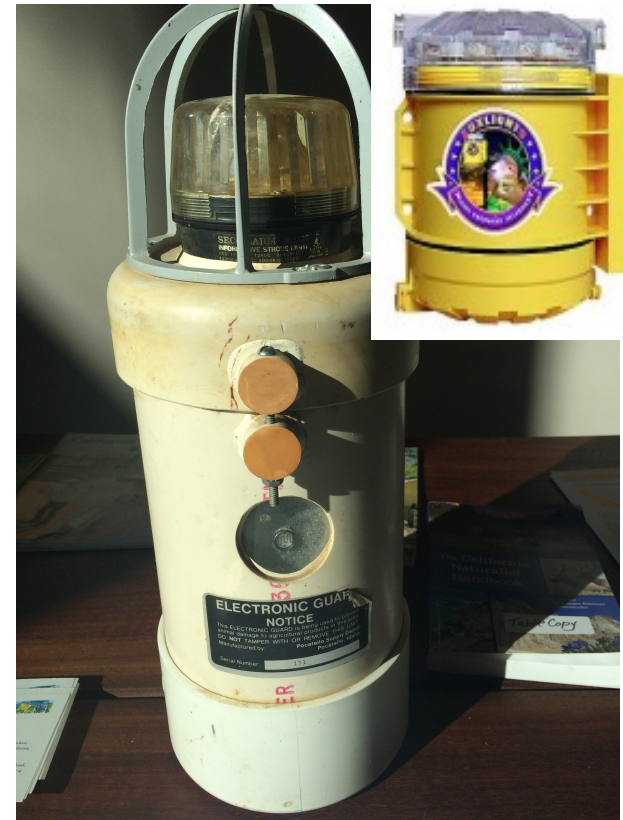
- Defenses
 - Loudly brays
 - Chase predators
 - Kicks
- Advantage
 - Graze as sheep
- Disadvantage:
 - Might kill lambs
- Recommendations
 - Use jenny or gelded jack
 - Remove donkey at lambing



Scare Tactics

Temporary Relief

- Requires variation of
 - Position
 - Appearance
 - Duration
 - Frequency
- Methods
 - Lights
 - Bells
 - Radios
 - Dark to Dusk
 - Bedding Grounds



Livestock Husbandry Practices

- Pasture selection-place sheep closer to your home
 - Lambing time
- Keep sheep in a corral at night
- Fall lambing, away from pupping season
- Higher maintenance
- Reduced gains



Program Validation

Sheep Producers:

Once confirmed on 2/4 criteria

> 500 sheep, \$2,000, \$3,000

< 500 sheep, \$500, \$1,000

Indemnification program:

2001 Payments made based on number of losses; market value

2003 5% of losses, paid

~ 2009, indemnification program terminated, funds reallocated to practices



Marin County Livestock Protection Program

15 Years in Review

Methods & Materials

**Survey developed based on
Fox, 2008, MS thesis**

Additional Questions:

- Economics
- Satisfaction of program
- Number of lambs & coyotes killed
- Additional species – cattle & poultry

**Queries sent to Marin County
Ag Commissioner**

- Producer participation
- Funds Paid
- Validation program



Overview of the Marin County Livestock Protection Program – 15 years later

2001 – Program Begins, Wildlife
Services Assistance ends

2005 – Larson, S. The Marin County
Predator Management Program: Will it
save the Sheep Industry?

Proc. 22nd Vertebr. Pest Conf. (2006)

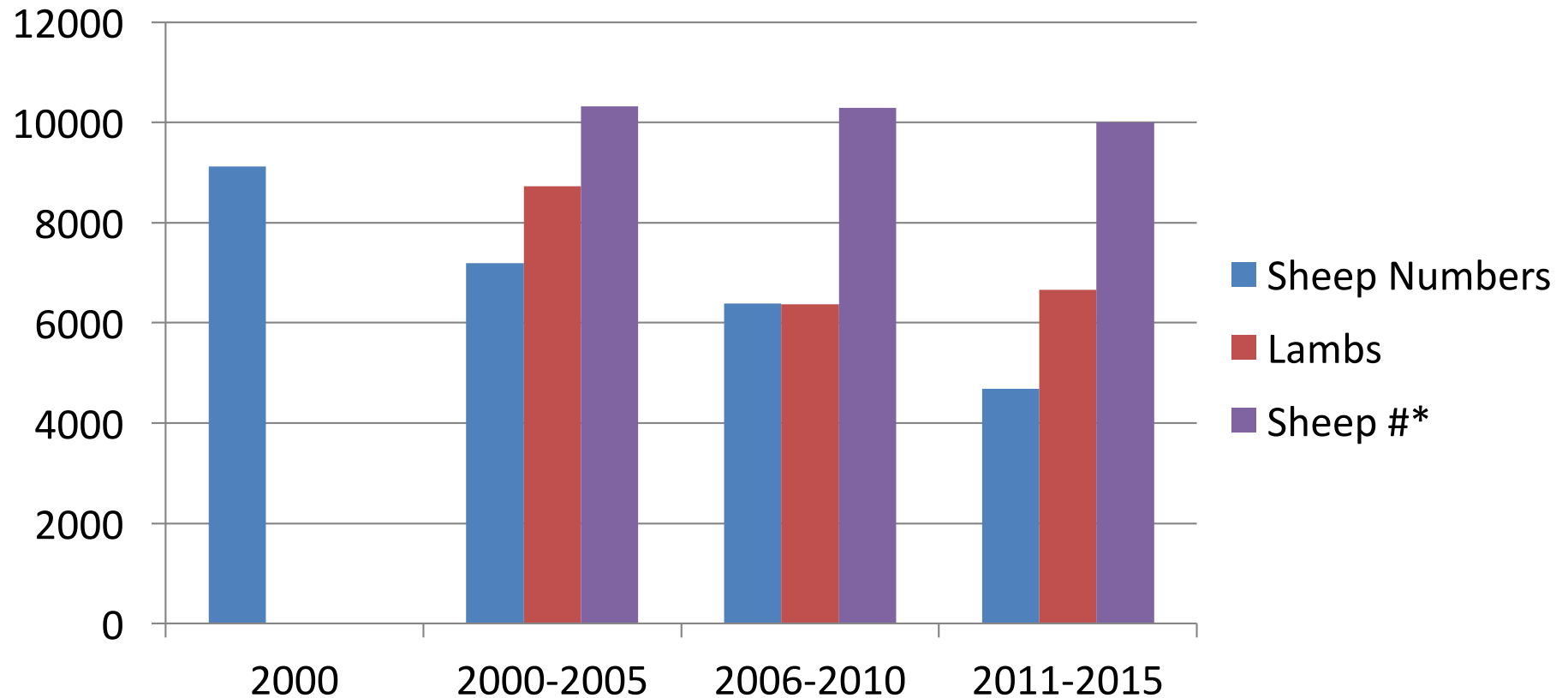
2008 – Fox, C. Analysis of the Marin
County Strategic Plan For Protection of
Livestock & Wildlife: An Alternative to
Traditional Predator Control. MS
Thesis, Prescott College.

2015 – Survey of Livestock (sheep and
beef) & Poultry Producers in Marin
County, CA.

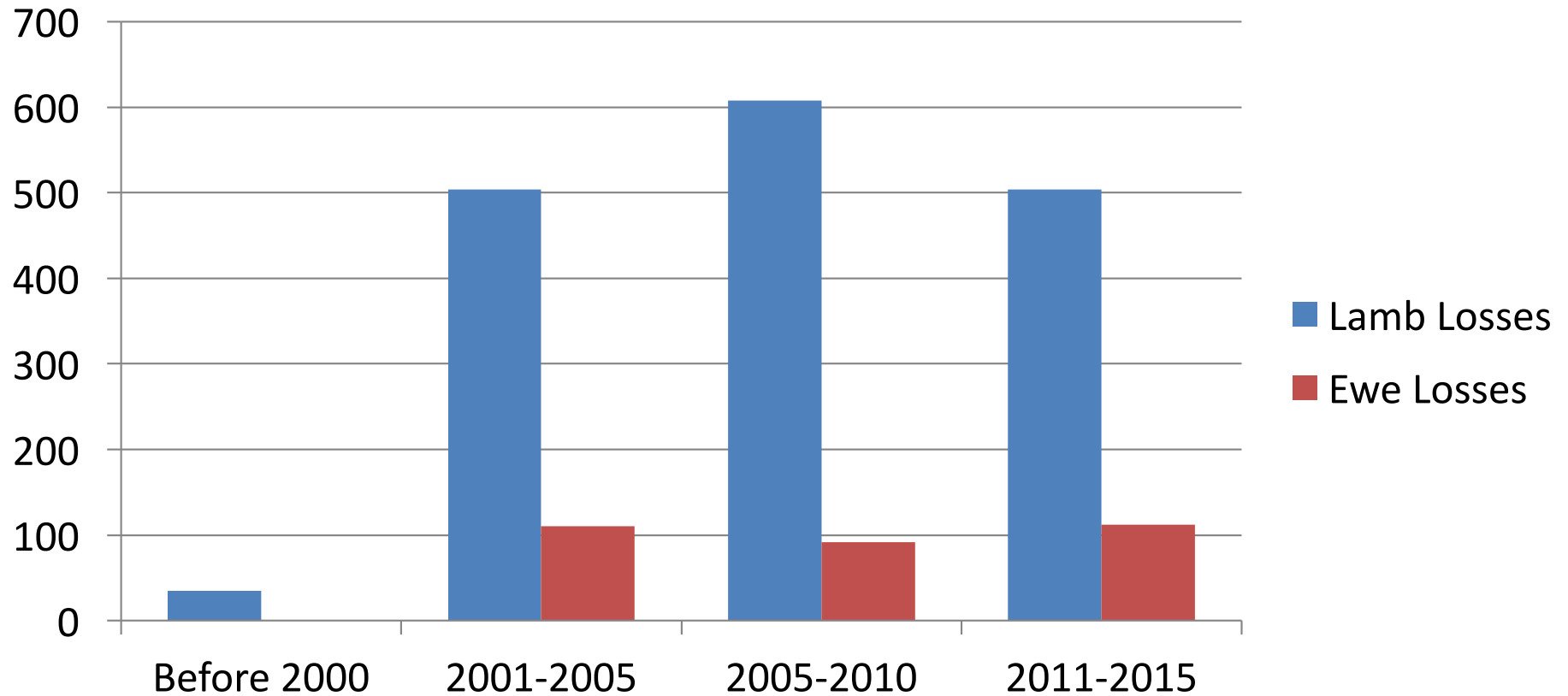


Total Number of Livestock Raised*

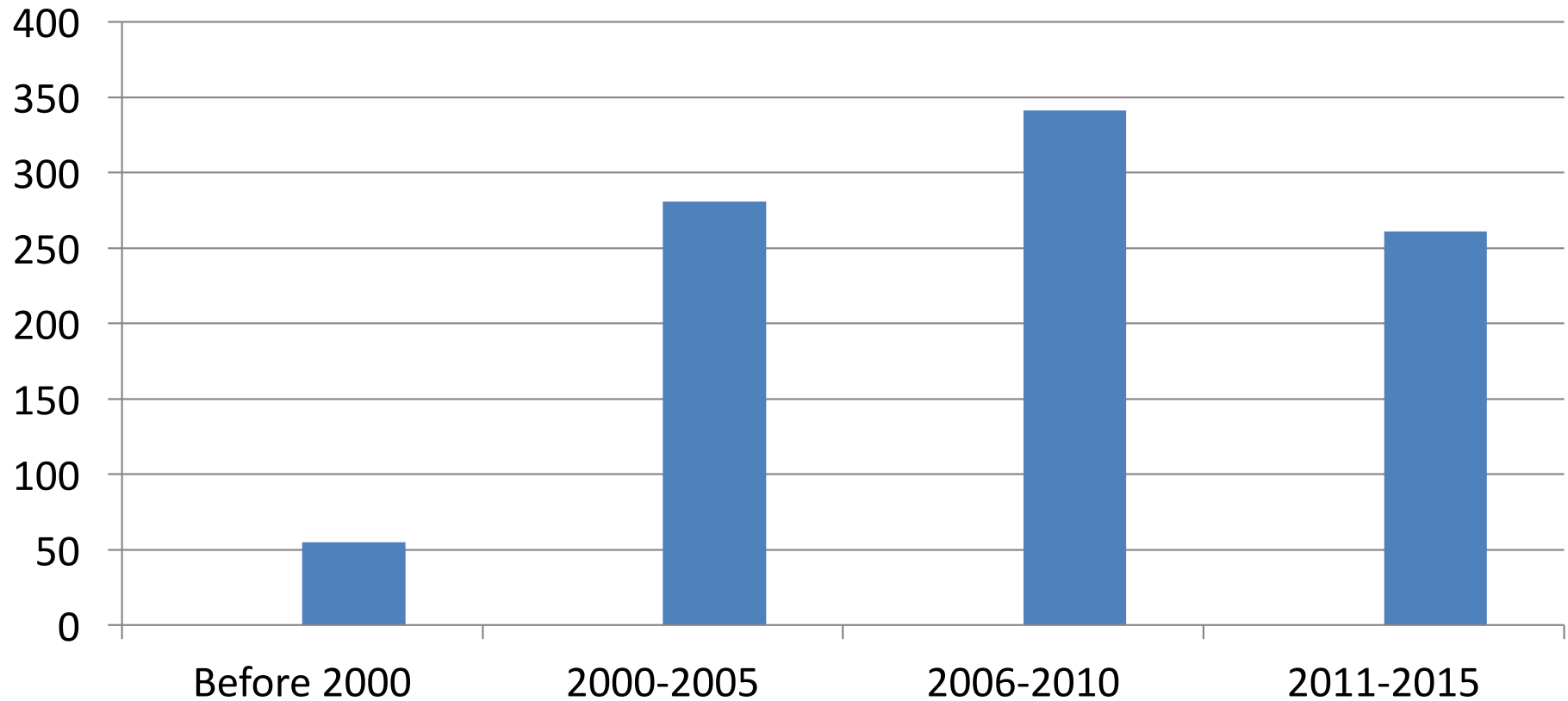
<2000, Crop Report*; >2000 LPP



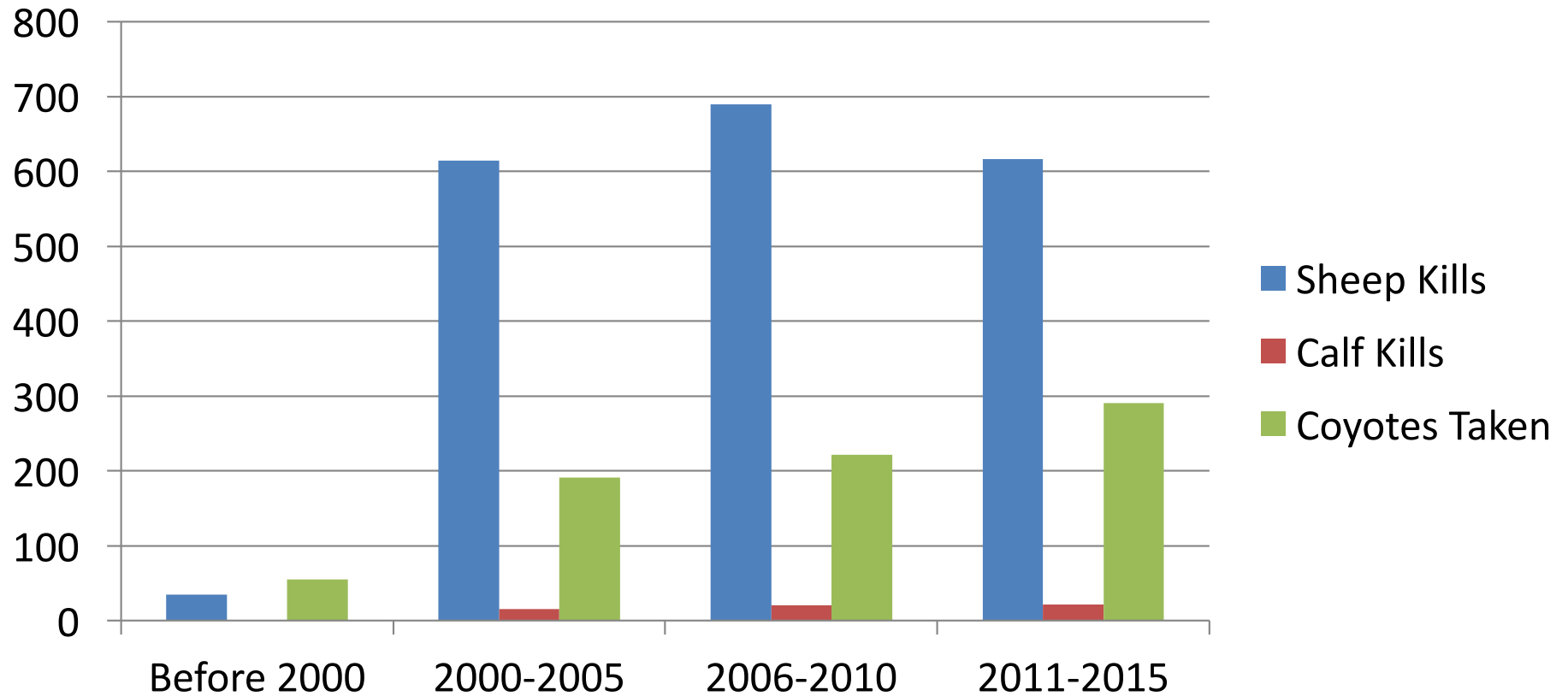
Losses Due to Predation; after Wildlife Services



Coyotes Taken Without Wildlife Services



Predation Losses / Coyotes Taken



Program Review

Review of current program

Three different accounting systems:

- Marin County Ag Commissioner's Crop Report
- Fox, 2008, MS Thesis
- Larson, 2015, Survey

	<1999	2005	2010	2015
Coyotes Taken	52 (WS) (From Producers - unknown)	191 From Producers	221 From Producers	291 From Producers
Total Sheep Numbers	7,500	10,320		10,111
		6,393		4,839
Total sheep losses	506	141		1,366
		639		
Non Target Taken	5	?		?
Sheep producers in Program	21	15		5
# of sheep in program	4,693	4,500		3,782
# of poultry in the program	NA	NA		10,800 chickens

15 Years into the Program

- Fewer sheep producers
- More poultry & beef/dairy producers
- Producers dissatisfied with the program
- Costs don't cover expenses of non lethal tools
- Producers want Wildlife Specialists back

- More coyotes taken
- Non targets taken is unknown

Producer's Comments

- Producers in bushy areas or those that couldn't meet the program requirements; went out first
- More pressure on remaining producers
- Fencing is the best tool
- Wouldn't be in business without guard dogs
- Payment for losses – program needs more money
- Program doesn't come close to cover the costs of non lethal control
- All producers have predator calls and rifles
- Want WS back; or at least during four months around lambing



Marin County Ag Commissioner's Comments

- “Privatizing predator control would eliminate the ability to ...maintain public records of control activities...(and) would make reporting of livestock and wildlife losses and damage, speculative at best” (Carlsen 2000)
- “privatizing predator control could increase use of lethal devices...(which) could result in indiscriminate taking of non-target animals...” or in “...the likelihood that unskilled citizens will resort to home remedies that could adversely affect the animals, environment, and non-target species.” (Carlsen 1999, 2000)
- Sheep industry is the strongest it has been in years; well over 10,000 sheep in Marin County, (Carlsen 2015)

Coyote Advocate's Comments

- Marin County may work for Marin County; this model may not be directly applicable or feasible in all other communities
- With fewer than 20 sheep ranchers participating; the county can provide both a cost share and compensation program
- Replicating this exact program in other jurisdictions may not be financially feasible; i.e. county with hundreds of livestock producers

Payments for Production

Bulte and Rondeau (2005) found that compensation programs increase the return to agriculture and can therefore be viewed as a subsidy toward crop and livestock production.

Producers need to be recognized for the services they provide beyond food production.

Payment for food production, fire fuel, biodiversity, special status species, etc.

Lethal vs Non-lethal Control

McManus et al., (2015) suggest that non-lethal methods of human-wildlife conflict mitigation can reduce depredation and can be economically advantageous compared to lethal methods of predator control.

Future Research Questions

- Is there available data on affects of husbandry practices, predator deterrents, geography, livestock species, guarding animals (breeds), etc.?
- Variability in data collection, monitoring and reporting – how to accurately assess differences in the number of predators and numbers killed?
- What's the tolerance for predators and other wildlife amongst ranchers and the general public?
- How to manage private and public lands and live with predation?
- Support payment programs that compensation for losses?

Final Thoughts

Educational institution, UCCE advisor

- Involved with the program from inception
- Support any program that allows producers to remain viable in their agricultural enterprises
- As researcher, review program from 2006, 2015
 - Strongly suggested not to conduct review

Producers will continue using the program:

- Increase money; compensation of losses and non-lethal practices
- Increased communication with Ag Commissioner's office, policy makers, etc.
- Increased communication with the general public on services provided beyond food production.

Producers do not want the Marin County program used as a “poster child” for other counties/states as a method for “non-lethal” predation control



QUESTIONS

Stephanie Larson
slarson@ucanr.edu