

Domestic Wildlife Interface

- Greater Yellowstone Area - Brucellosis
- Michigan – Tuberculosis
- Domestic Poultry – Avian Influenza
- Alaskan Reindeer Herds – Caribou
- Livestock – Wildlife Predators
- Delta Farms - Plains Bison
- Canadian Farms – Elk
- Domestic Sheep – Bighorn Sheep

Reported Cause for Concern

- Pneumonia outbreaks caused some large die-offs (75-90% mortality) of bighorn sheep in western Canada and the U.S. but some report losses ~ 5%
- Reduced lamb survival for years following the pneumonia outbreaks impacts herd sustainability
- Wild sheep have a low resistance to pathogens found in the respiratory tract of domestic sheep and goats

Respiratory Disease

- Pneumonia Outbreak: **Multifactorial** and involve **Multiple Pathogens**
- *Mycoplasma ovipneumoniae* (Movi)
- Pasteurella bacteria
 - *Pasteurella haemolytica*
 - *P. haemolytica*
 - *P. trehalosi*
- *Fusobacterium necrophorum*
- Other bacteria (*Truperella pyogenes*)
- Respiratory viruses

Alaska: Unique Situation

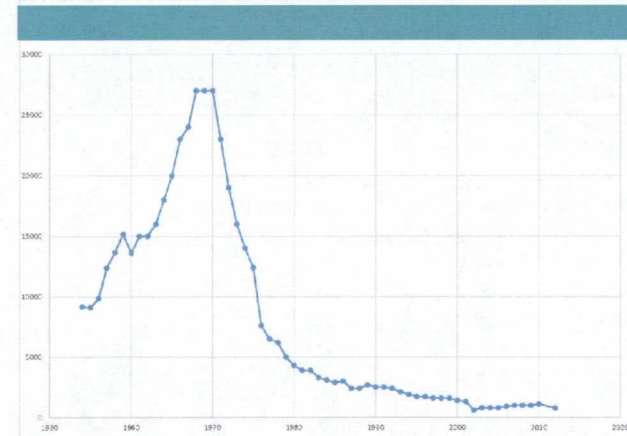
- Alaska does not seem comparable to the situations in western U.S. or Canada
- Smaller number of farms and livestock
 - 13 animals/farm (~2,000 sheep, goats)
 - Low density so ↓ probability for interaction
- Fewer importations/year (~19 imports; < 110 animals/year) 5 animals/permit*
- No free grazing, animals are contained /fenced, so some degree of separation



Must Evaluate the Whole Picture

- Wild sheep populations increasing in U.S.
 - 1960s ~ 18,000 / 2007 ~ 72,000 / 2014~ 85,000
- Value of Wild Sheep as a resource
 - Economically: Tourism, Hunting
 - Very important to Alaska
- Value of domestics
 - Economically \$ 800/yr (fiber, food)
 - Management: state and federal land: grazing

Domestic Sheep Populations in Alaska



Wild Sheep Working Group

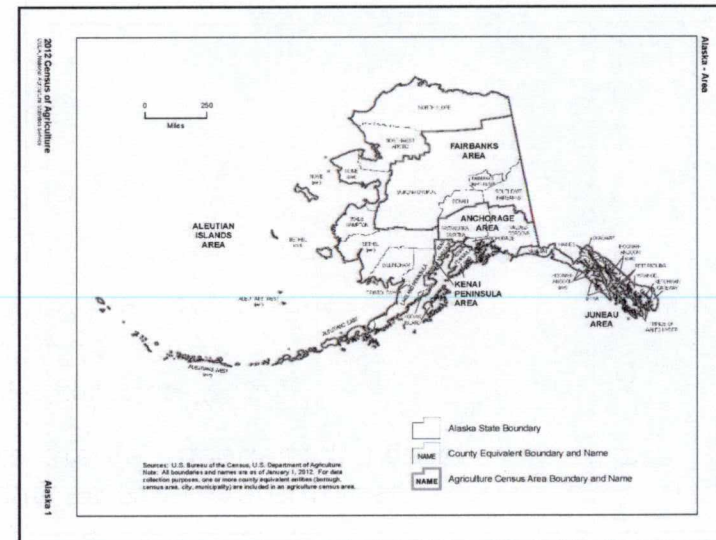
- Organized by the Alaska Farm Bureau and the Wild Sheep Foundation
- Discuss options and strategies for prevention of wildlife livestock interaction
 - Separation – no contact
 - Movi free status
- Evaluate prevalence of Movi in domestic sheep and goats – **need for data**

Study Outline

- Using USDA, NASS statistics develop a sampling plan to evaluate AK farms
- Domestic livestock sample collection:
 - Veterinarians to collect samples
 - Client/patient confidentiality – used farm code
 - Follow protocol established in previous studies
 - Nasal, conjunctival swabs and serum
 - Samples submitted:
 - Animal Disease Research, ARS, USDA
 - Washington State Animal Diagnostic Lab

Study Protocol

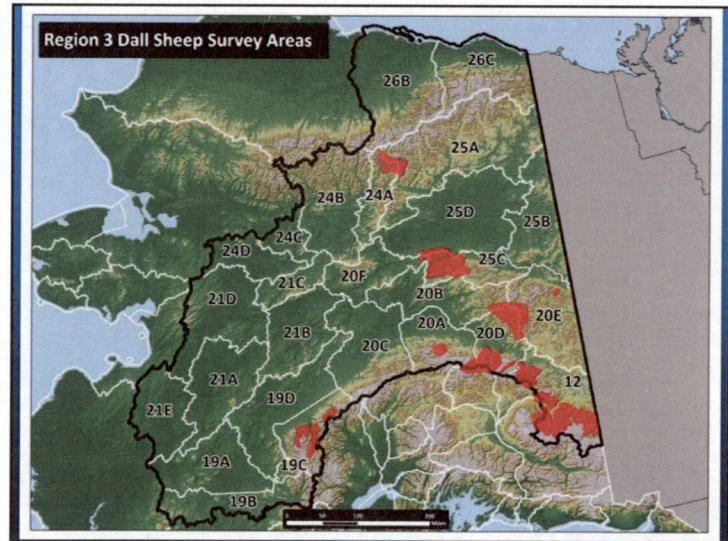
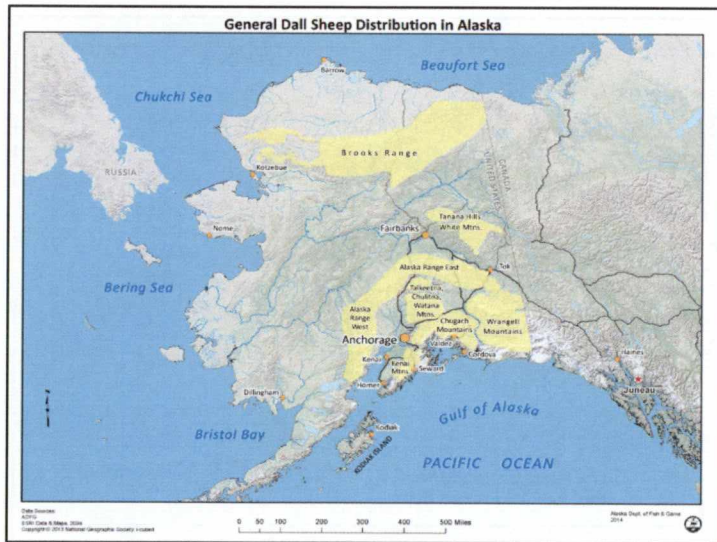
- Voluntary participation
 - Sample plan to evaluate current farms
- A Survey will be completed by farmer
 - Focus on management husbandry practices
- All animals tested on the farm, repeated sampling at ~ 4 and 8 weeks
 - Duplicate samples collected (~ 20%)
- Data returned to the Veterinarian/client and summary data to State Veterinarian



USDA NASS 2012 Farm Census

	Aleutian-Kodiak Islands	Southcentral Anchorage-MatSu-Valdez-Cordova	Kenai Peninsula	Interior/Fairbanks Delta - Yukon to Canada	Southeast	Total farms
# Farms						
Sheep	2	25	7	14	2	50
Goat	1	27	10	15	3	56
Total	3	52	17	29	5	106
# Animals						Total animals
Sheep	42	326	147	216	42	773
Goat	6	343	52	177	18	595
Total	48	669	199	393	60	1,368

- ### Concurrently a Second Study
- ADF&G will provide samples from
 - Wild Sheep, Goats, Muskox
 - Wild ungulates (moose, deer, caribou)
 - This study will also include captive wildlife
 - Zoos, exhibitions, tourist attractions
 - Unique opportunity to evaluate domestic livestock and multiple wildlife species in the same environment



- ### Test Procedures
- **Nasal Swabs:** tested for Movi genetic material using PCR
 - Complex test procedure that may vary between labs
 - What does a (+)detection mean?
 - Presence of bacteria not necessarily infection
 - **Serum:** tested for antibodies to Movi
 - Currently no test is validated for goats
 - What does a (+) result mean?
 - Exposure not infection

- ### Preliminary Results for this Study
- 27 farms and 376 total animals
 - 6 of 27 were sheep farms
 - 2 of 27 had both sheep and goats
 - 19 of 27 were goat farms
 - 7 of 27 farms (26%) Movi was detected
 - More commonly found on sheep farms - consistent with some other studies
 - 20 of 27 (74%) had no Movi detected

- ### Preliminary Summary Data
- For this study, the premises that tested (+) for Movi:
 - No animals were clinically ill
 - Rarely did one animal test (+) at all 3 collection times
 - In most cases the # of animals testing (+) varied at each collection time
 - There is a lot we do not know about this bacteria

Preliminary Summary Data

	#	0		MC-I		Movi		Indet	
1	366	303	83%	49	13%	14	4%	0	0%
2	330	256	78%	47	14%	18	5%	7	2%
3	265	200	75%	54	20%	7	3%	2	1%
Avg:			79%			16%		4%	

Next Steps

- Dependent on the study results
 - Await results of wildlife study
 - Continue to collect samples from livestock
 - Use data for science based decision
- Evaluate options for mitigation action
 - No action
 - "Disease free status"
 - Separation What are the costs?
- Continued collaboration and dialogue

Summarize

- All participants recognize the value of wild life resources to Alaska
- Producers participated unsure what the results (prevalence of the pathogen)
- Producers, veterinarians not totally compensated for their time and efforts
- The State has contributed considerable efforts (time, funding, resources)
- UDSA ARS also contributed greatly
- Use an Ecosystem approach, consider all impacts and consequences

