

# 6<sup>TH</sup> ANNUAL BISON WORKER SAFETY & HERD HEALTH ROUNDTABLE

JULY 24 – 25, 2024

SLOAN, IOWA



AgHealth  
Central States  
Center for Agricultural  
Safety and Health

## ROUNDTABLE PARTICIPANTS

**Summer Afraid of Hawk**, Intertribal Buffalo Council  
**Ferin Anderson**, Shakopee Mdewakanton Sioux Community  
**Joseph Andrews**, Kalispel Tribe of Indians  
**Milton Around Him**, Oglala Sioux Parks and Recreation Authority  
**LaPointe Averi**, Winnebago Tribe of Nebraska  
**Sean Bear**, Winnebago Tribe of Nebraska  
**Lincoln Bush**, Ute Bison  
**Del Chisholm**, Taos Pueblo  
**Shaina Clifford**, Intertribal Buffalo Council  
**Brandon Cobb**, The Nature Conservancy Nebraska  
**Nathaniel Cordova**, Picuris pueblo bison  
**David Crites**, TNC Niobrara Valley Preserve  
**Samuel Crofut**, Shakopee Mdewakanton Sioux Community  
**Shaun Cross**, University of Nebraska Medical Center  
**Ehakela Cummings**, Intertribal Buffalo Council  
**Delbert Davenport**, Delbert Davenport  
**Tom Fast Wolf**, Oglala Sioux Parks and Recreation Authority  
**Joe Finzen**, Meskwaki Natural Resources  
**Trevor Fowler**, Ute Bison  
**Jeremy Garrett**, Modoc Bison Range  
**Randy Hawk**, Cheyenne Arapaho Tribe of Oklahoma  
**Arlo Iron Cloud**, Community Member  
**Kelsey Irvine**, UNMC CS-CASH  
**Wade Jackson**, Gaa-waabaabiganikaag Mashkode-bizhikiwag (WHITE EARTH NATION BISON)  
**Ben Janis**, Lower Brule  
**Luta Keagan-Two Bulls**, Intertribal Buffalo Council - Stanford Intern  
**Kerman/Leon Kills Small**, Oglala Sioux Parks and Recreation Authority  
**Jesse Lasater**, Southern Ute Tribe  
**Taylor Littlewhiteman**, Oglala Sioux Parks and Recreation Authority  
**Megan Lutt**, UNMC  
**Lisa Mni**, Community Member  
**Matt Nonnenmann**, UNMC CS-CASH  
**Jewel Parker**, Winnebago Tribe  
**Michael Pate**, Utah State University  
**Whitney Pennington**, HICAHS/Colorado State University  
**Thomas Peters**, Intertribal Buffalo Council  
**Timothy Porter**, Oneida Nation of the Six Nations of the Grand River, Bear Clan; Colorado State University – High Plains Intermountain Center for Agricultural Health and Safety  
**Jessica Post**, UNMC Animal Behavior Core  
**Augusta Rattling Hawk**, Intertribal Buffalo Council  
**Risto Rautiainen**, UNMC CS-CASH  
**Mikiya Reuther**, Intertribal Buffalo Council  
**Mystera Samuelson**, UNMC CS-CASH  
**Julian Shavanaux**, Northern Ute Tribe fish & wildlife big game manager  
**Scott Smalley**, Iowa State University  
**Mike Umbdenstock**, Meskwaki Nation Department of Natural Resources  
**Alexandrea Welch**, University of Nebraska Medical Center

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# ROUNDTABLE AGENDA



## 2024 Bison Worker Safety & Herd Health Roundtable Agenda

*WinnaVegas Casino Resort, Sloan, IA*

### Day 1: Wednesday July 24, 2024

Time	Topic/Title	Speakers
<b>8:00 AM – 8:30 AM: Breakfast (provided)</b>		
8:30 AM – 8:45 AM	Welcome & Introductions	Mystera Samuelson, UNMC CS-CASH
8:45 AM – 9:30 AM	ITBC Herd Operation Resources	Augusta Rattling Hawk, Michael Borucke, and Summer Afraid of Hawk, ITBC
9:30 AM – 10:15 AM	ITBC Public Health & Education Resources	Thomas Peters & Mikiya Reuther, ITBC
<b>10:15 AM – 10:30 AM: Break</b>		
10:30 AM – 11:15 AM	ATV Operation Safety in Agriculture	Michael Pate, Utah State University
11:15 AM – 12:00 PM	Strengthening Mind and Spirit: Promoting Resiliency through Agriculture	Tim Porter, Oneida Nation of the Six Nations of the Grand River, Bear Clan & Colorado State University
<b>12:00 PM – 1:00 PM: Lunch (provided)</b>		
1:00 PM – 1:45 PM	Living Safely with Our Little Relatives: Understanding and Managing Ticks	Shaun Cross, UNMC CS-CASH
1:45 PM – 2:30 PM	Prescribed Burning for Cultural Benefits: The Intersection of Prairies, Buffalo, and Fire	Brandon Cobb, The Nature Conservancy
<b>2:30 PM – 2:45 PM: Break</b>		
2:45 PM – 3:30 PM	Remote Necropsy & Documentation for the Rest of Us	Mystera Samuelson, UNMC CS-CASH
3:30 PM – 4:15 PM	Summary of Harvest Trainings Conducted	Lisa Mni & Arlo Iron Cloud Sr., Porcupine SD Community Members
4:15 PM – 4:30 PM	Summary and Thanks	Mystera Samuelson, UNMC CS-CASH

### Day 2: Thursday, July 25, 2024

<b>7:30 AM – 8:00 AM: Breakfast (provided)</b>		
8:00 AM	Leave for Harvest & Site Visit	Please meet at the main hotel entrance at 8:00 AM to load up and ride to the field site.
9:00 AM	Field Harvest & Site Visit	Hosted by the Winnebago Tribe of Nebraska
<b>12:00 PM – 1:00 PM: Lunch (provided)</b>		
Around 1:00 PM	Thanks and Close	Mystera Samuelson, UNMC CS-CASH



*Thank you to all who presented and participated at the 5<sup>th</sup> Annual Bison Worker Safety and Health Roundtable. During this meeting, enduring partnerships were established, and best practices that were discussed can be implemented to protect the safety and health of bison herd workers and their animals.*



## ROUNDTABLE PRESENTATIONS AND DISCUSSIONS

### **Mystera Samuelson**

EAOH, CS-CASH

[mystera.samuelson@unmc.edu](mailto:mystera.samuelson@unmc.edu)



### **Welcome and Introductions**

- Project Beginnings:
    - Dr. Kelling seeing lots of injuries
      - Began defining the causes of injuries and assessing the environment
    - Got funding to:
      - Produce training materials to target these items
      - Annual roundtable
  - Project Today:
    - Shift in focus toward tribal folks and what is needed to be safe and healthy
    - Community led training initiatives      Mentors: Arlo and Lisa
    - Facility training and information exchange within communities
  - Recent Promotions of Project:
    - Presentation to CDC (CDC NIOSH and CDC Food Security Task Force) by Mystera and Mikiya summarizing work and future directions
      - Needs and priorities presented were guided by previous roundtable feedback
    - Publication in the CDC-NIOSH Science Blog
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## Augusta “Gusti” Rattling Hawk

Intertribal Buffalo Council – PCSC Technical Service Provider

[augusta@itbcbuffalonation.org](mailto:augusta@itbcbuffalonation.org)



### ITBC Herd Operation Resources – Climate-Smart Markets for Tribal Buffalo

- Referred to as “climate smart” or CSMTB
- Background:
  - 3-year grant awarded in 2023
  - Incentive program that ITBC has more control over
- USDA Goals:
  - Prove regenerative agriculture can store carbon
    - Take soil sample and set up long term monitoring
  - Increase tribal partners and producers participating in USDA-NRCS
- ITBC Goals:
  - Support ITBC member tribes with buffalo management practice costs
  - Prove buffalo are inherently climate smart by tracking their effects on biodiversity and soil health
  - Strengthen partnerships between USDA-NRCS and tribes
  - Create useful market tools for member tribes and expansion of markets and community use
- Climate smart practices that USDA offers
  - Climate smart practices aren’t inherently climate smart
  - Some practices to choose from when applying for the grant through ITBC:
    - Brush management, prescribed burning, prescribed grazing, wildlife habitat planting, and many more
  - ITBC goes out to tribes and asks what they want to do and see how that can be implemented
    - Pre-Visit: planning, review of application, preliminary data (web soil survey and aerial imaging), field design
    - Site Visit: presentation of field design, tour of pasture and facilities, community asset mapping, data collection (COMET planner, pasture condition score, soil health assessment, brix measurement, and soil sampling for Hayne and food web)
    - Post Visit: Data entry to USDA – COMET planner and CPA-52 (emphasis on data security for the tribes)
      - Tribes have complete access to everything collected in the field by ITBC
      - ITBC is only sending what is required to USDA. Don’t need to send all the little details about projects.
- Technical Trainings for soil sampling, plant assessments, buffalo management and education, pasture condition scoring.
  - Want to give tribes the tools to continue this monitoring beyond the 3-year grant.
- Tribal Buffalo Market Initiative (TBMI)
  - Provide technical assistance for development of market opportunities (meat, hide, bone, etc.)
  - Outreach about products developed and distributed to tribes
  - Label created to use on meat packaging to market buffalo meat as climate-smart and tribally managed
  - Create online platform to link partners and stakeholders and foster development of market opportunities.
- Climate Smart Program procedure:
  - Use Optimy platform to apply
  - Preliminary practices chosen
  - Contract signed
  - CPA-52 Submitted and Approved
  - Site Visit
  - Incentive Payment
  - Practice Implementation
  - Practice Standards checked
  - Year 2 Sample collection
  - Technical Training
  - Year 3 Sample collection
- If interested contact Michael ([michael@itbcbuffalonation.org](mailto:michael@itbcbuffalonation.org)) and Gusti ([augusta@itbcbuffalonation.org](mailto:augusta@itbcbuffalonation.org))

## Questions:

**Mystera Samuelson (UNMC CS-CASH):** One thing that folks have asked us at previous roundtables but also reached out for, and I've sent them to you guys, I think, but do you do any grant writing workshops or anything for smaller micro grants or anything like that?

**Gusti Rattling Hawk (ITBC):** I don't know if that's something that's offered through ITBC but it's something that can be. Some of us just have some general grant writing experience. Our grants that you can apply for through our portals are not as extensive as like a USDA program, but at this time I don't think we really provide any kind of grant writing resources. Possibly in the future. Hopefully in the future.

**Jesse Lasater (Southern Ute Tribe):** I had a question about the categories that were available for funding, the practices. Is there an opportunity for training? Say someone wants to do a regenerative training course, would that be considered under any of those practices?

**Gusti Rattling Hawk (ITBC):** To go to a training is a little bit separate from the practice, but that is something we can help cover. With the regenerative grazing or creating, that's where the grazing plan would come in. So that's kind of where that's at, but the training itself would be separate. With the trainings provided by this grant from us, ITBC, that is something we can cover, and that's something that we will most likely cover.

**Arlo Iron Cloud (Community Member):** With the Tribal Buffalo Market Initiative, are you just basically trying to create a template for tribes to enter the food market in their communities with this?

**Gusti Rattling Hawk (ITBC):** The Tribal Buffalo Market Initiative itself, we're looking at maybe something that's online so that other people who are interested in buying buffalo products could. A big focus is that we want buffalo meat within our communities, so yes, this kind of would be a little bit of a template for a tribe to follow along. There are already some tribes like Cheyenne River and some tribes down in Oklahoma who already have their own processing facilities. So that's something we are trying too. This is kind of a complicated thing, to go between states, between regions, between tribes, some tribes might have different agreements. I'm not as well versed in it, unfortunately, as I need to be, but this is more of the online platform. If you are participating in climate smart, you don't have to participate in this. So, if you're only interested in keeping buffalo within your community for ceremonial purposes or funerals or those types of things that is totally fine. You don't have to participate in the Tribal Buffalo Market Initiative. It's kind of providing that but it will provide that outlet, it will actually provide that market. So, say Oglala wanted to, they have extra buffalo, they're sending it to this market and then it can go wherever it is ordered. I know that this is more focusing on, I'm kind of dubbing it, outside of the community, outside of the tribe, to where if another organization wants to order buffalo meat for an event, they can, or say someone in Texas wants to order something, they can. We're still trying to revitalize those communal, that's what some of our focus is on, but this Tribal Buffalo Market is providing that outer market, so this buffalo can go outside of the community. Does that answer your question?

**Arlo Iron Cloud (Community Member):** Yeah, I just admire this, because whenever I think about buffalo meat being dispersed around, anywhere we want it to go. I think this is just one of those things we really need to work on. It would be for tribes, a method of feeding ourselves, essentially. I really admire this, and I really think it's great work and I'd be curious to know what you're going to do, especially with like USDA, sometimes do we even need to go that route? Things that you're working on. Other tribes might have a better idea on how we do it, so I'd be very curious as to what happens with this.

**Gusti Rattling Hawk (ITBC):** I wish I could speak on this a little bit more, but right now at ITBC we are just trying to put our best foot forward on this project. We're talking about and saying does it have to be USDA certified? Do we need to send people to trainings to be within processing plants? We might go into an agreement with some ITBC member tribes that we already have with a processing facility already where they could maybe be doing some of this work, so we keep it within the tribes. Like you said, it regenerates economy, it regenerates our communities, other than just money. So, this is something that hopefully this would aide in, in the future.

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## Summer Afraid of Hawk

Intertribal Buffalo Council – Herd Development Grant Specialist

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### ITBC Herd Operation Resources –Herd Development Grant & Emergency Funding

- ITBC Herd Development Grant
  - Funding comes from the BIA
  - Designed to assist member tribes with one-year projects that accomplish one or more of the following goals:
    - Establish a new tribally managed buffalo herd
    - Enhance the long-term sustainability of the Tribal Buffalo Program
    - Enhance the infrastructure and/or rangeland of the Tribal Buffalo Program
    - Enhance the spiritual and cultural beliefs and practices of the tribe
  - Available to active member tribes
  - Proposal requirements: tribal council resolution and complete proposal
    - Documents submitted to online membership portal
    - Often get questions like, “Is there a cap to apply for funding?”
      - Typically tell people no.
      - When full proposal is submitted, it gives ITBC an idea of the actual need of member tribes.
        - Can then go back to BIA and say this is the actual need of our member tribes
      - Can expect \$0-100,000 in funding.
    - Link to apply for funding: <https://grants.itbcbuffalonation.org/en/>
    - Email: [grants@itbcbuffalonation.org](mailto:grants@itbcbuffalonation.org)
- ITBC Emergency Funding
  - Case by case basis to assist with emergency funding for herd stabilization
    - Emergency is not defined
  - If you think your herd has an emergency, then submit a letter to ITBC requesting assistance

This QR code links to a google folder with FY2023 Herd Development Grant announcement and guidelines to proposal requirements.



### Questions:

**Arlo Iron Cloud (Community Member):** Who is the weighing body whenever they make decisions on who receives funding?

**Summer Afraid of Hawk (ITBC):** For herd development grant it's our board of directors that review all the proposals and we use a formula that kind of allocates funding to tribes in the most equitable way that we can. Usually for emergency funding I've seen our executive director kind of just make that decision just because it's on emergency basis.



## Mikiya Reuther

Intertribal Buffalo Council – Wildlife Biologist

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## Thomas Peters

Intertribal Buffalo Council – Technical Services Assistant

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### ITBC Public Health and Education Resources

- Zoonotic Disease Initiative (ZDI) Targeted Sampling Trainings
  - Grant awarded in 2022 to fund these trainings
  - Objectives of the Grant:
    - Normalize extraction of targeted samples during field harvests and surveillance for emerging zoonotic diseases in buffalo
    - Trainings in sampling techniques and provide targeted sample kit
    - Funding for laboratory fees for samples
      - Send invoices to ITBC who will cover laboratory fees
  - Aim of the Trainings:
    - Collaboratively learn more about buffalo health
    - Give tools to address sudden mortalities/sickness and to watch for emerging diseases
    - Teach you how to monitor and surveillance for emerging illnesses
  - 2024 trainings are currently being planned, hoping to host in September 2024
- National Animal Disease Preparedness and Response Program (NADPR) Grant
  - Funding: USDA APHIS grant
  - Objectives:
    - Improve biosecurity of buffalo herds in response to *Mycoplasma bovis* outbreaks and identify potential stressors causing active infection
    - Conduct site visits and have discussions around biosecurity
    - Conduct outreach on research and create a biosecurity protocol that can be recommended to tribes
  - Survey coming soon asking about general herd health questions
  - Looking for 5-10 tribes interested in participating
    - Participation means allowing ITBC to conduct serial testing on herd and periodic completion of a field notes form to document stressors
- ITBC Apprenticeship Program
  - Hope for this program is to train the next generation of bison workers
  - Paid apprenticeship program that aims to recruit tribal members interested in becoming herd managers
    - Required to do 80 hours/month for 12 months and will be paid \$20/hour by ITBC
  - Training includes management of natural resources, herd health/veterinary training, fencing, business management, traditional culture education, etc.
  - Applications typically open in Fall
  - For more information email: [grants@itbcbuffalonation.org](mailto:grants@itbcbuffalonation.org)

### Questions:

Speaker(s) unknown. Questions are not audible on recordings.

**Thomas Peters (ITBC):** The applications will open this September and then we'll make the selections in October

**Thomas Peters (ITBC):** There is some online aspect to it. The 80 hours a month will be on the ground with the herds.

**Summer Afraid of Hawk (ITBC):** It sounds like whoever we select, whatever member tribe they're from, we're going to try to get them in with their buffalo program too, so they get that training there and then offer trainings elsewhere too, like Thomas said.

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## Thomas Peters

Intertribal Buffalo Council – Technical Services Assistant

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### ITBC Public Health and Education Resources – Harvest Trailer

- Got trailer made in 2023
- Top boom which will lift the animal up after it has been killed
- Winch that will allow for dragging the animal closer if it is in a ravine or somewhere else inaccessible by the trailer
  - Have not needed to use yet, so if thinking about getting your own, this may not be necessary
- Main compartment in back is refrigerated
  - Refrigeration unit up front
  - Can't fit a whole half in the back, will need to quarter the animals
- Can do a lot of different things depending on what you want to get out of it
- Two small doors on the side at the front of the trailer
  - Used to store supplies such as knives, tables, pressure washer, etc.
- Propane tank on front to power everything
  - Generator charges batteries
  - Water heater
- Trailer can be pulled by a pickup truck



### Questions:

**Summer Afraid of Hawk (ITBC):** What's the weight capacity? How many buffalo can it hold?

**Thomas Peters (ITBC):** I've been told that we can hold four quartered animals in here at a time. We haven't done that many in one harvest yet. The most we've done was three, and they weren't all in here at the same time. But it handled that just fine.

**Summer Afraid of Hawk (ITBC):** Are there any modifications you wouldn't recommend? Or modifications that you would that, came with the harvest trailer? For future, if tribes wanted to create a harvest trailer, what would you recommend?

**Thomas Peters (ITBC):** A couple things I wish I had in here and that I'm planning on trying to do to it is, all this stuff back here, when we're driving down the road, it likes to move around. It would be nice if we had a storage chest to keep all the hooks and all those things in and then some kind of deal on the floor to strap the cradle down so that wouldn't move around. One other modification would be a bale bed on the truck you are pulling it with just so you can take the trailer out there, drop it, and use the truck to go get the animal if its somewhere hard to retrieve it from instead of relying on other kinds of equipment.

**Arlo Iron Cloud (Community Member):** Thomas, what does it cost for this unit?

**Thomas Peters (ITBC):** I think to have it built was around 70,000 and then by now we've probably put another 12,000 of outfitting into it.

**Arlo Iron Cloud (Community Member):** Have any other tribes looked into this?

**Thomas Peters (ITBC):** Yeah, we've had some tribes that are interested, and ITBC is still planning on having more of these built where you don't have to pay for it, but you can request it, and it will be a lot closer to you, so I don't have to drive it from Rapid City. I don't mind doing, but it definitely adds up.

Speaker Unknown: How long does it take you to do a buffalo?

**Thomas Peters (ITBC):** I think the fastest one last year when we were on our A game, we had it quartered and on the road in 45 minutes. We haven't been doing quite as many this year, so I don't know I'll have it that fast tomorrow, but with your help I'm sure we can get it even faster.

**Arlo Iron Cloud (Community Member):** You get it stuck yet?

**Thomas Peters (ITBC):** No, I'm just too good of a driver for that.





## Michael Pate

Utah State University

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### ATV Operation Safety in Agriculture

- Found in 2019 Roundtable that most people know about ATV safety
  - You have the knowledge and resources to implement safety in your community
- Roundtable discussion using techniques from the book *The Discussion Book: 50 Great Ways to Get People Talking* by: Stephen D. Brookfield and Stephen Preskill to get people thinking and talking about ATV safety.
  - Breakout into groups of 3-4: half people you know, half people you don't
  - Circle of Voices – Start with individual responses, then share responses within group, a speaker for the group shares responses of group with everyone
- In the context of bison handling activities, what are the most significant safety issues with using ATVs?
  - Startling buffalo, getting chased, running over a calf, chasing after ATV and IOE had a little side discussion about rolling them during roundup because of the terrain. You have to get into some places where the terrain is pretty rough and so rolling an ATV.
  - Go slow and don't crowd the buffalo
  - Speed was kind of the first thing, harsh terrain, crashing, getting injured out in the field and then potentially getting trampled by a buffalo. If you're going to get charged by a buffalo not being able to flee in a quick and safe manner. Then we talked about what methods of transportation these men have used whether its horse, side-by-side, or ATV.
  - Steep and uneven terrain, brain aneurysms, spontaneous combustion (chances are never zero), rollovers
  - Navigating the terrain – there's a lot of risks that might not be seen, unbalanced loads – transporting materials and not loading the ATV correctly could lead to risks, potentially getting too close to the bison and inciting a response from them could lead to risk, and speed – going too fast, kind of in line with terrain
  - Speed, rollovers, big rocks and every year there's always new rocks even though they clear them out, so always having to be cautious, size – even though it's smaller and can be more efficient sometimes it could be a safety issue, and the openness of the ATV when dealing with the buffalo if you crowd them or get charged they could probably easily flip one
- Some factors like speed, navigating terrain, loading equipment, spontaneous combustion – possibly dealing with fuel can be summarized to something that we can control, impact, or address: The Operator
  - Operation seems to be something we can target
  - We can do things involving safety leadership
    - Resources available through outreach groups such as CS-CASH and NIOSH
  - Two types of leadership highlighted: Transactional and Translational
    - Definitions of these two types as well as a case study with discussion questions were on a paper handed out to participants and is attached at the end of this section.
    - Questions were answered using the Circle of Voices method in the groups formed earlier in the session.

- With the differences between transactional and translational leadership in mind, which style do you feel will have more impact on your operation?
  - My Tribe's herd, it's not run as a business, it's a community endeavor, so it has to be translational, no way around that. We want to keep people motivated, feel like they're welcome, and that they're appreciated. If we didn't have that then we wouldn't have a program.
  - Ideally, we'd like to have translational leadership, impact on culture is more sustainable and we can establish shared values and motivate people that way, but also talked about there being some hybrid toward transactional. When you're working on setting people into a shared vision sometimes you need to set shared goals to get there in the interim.
  - We were going for translational leadership. You work better if you're going in with good vibes and everybody wants to work together, whereas if you're just barking orders nobody's wanting to work with you. Plus, if you get out there and work with your workers they're going to be like, "Hey, this guy's pretty cool. I want to work with him more." It's just easier.
  - Everyone said translational, it fit each of our goals more, community oriented, but everyone had different reasonings. A point that was made was that we want people to develop on a personal level. Transactional arises competition-based production which isn't always healthy, especially for afloat operations. The fairness comes into question, you'd have to distribute that equally to your employees because sometimes you're not huge operations, you're smaller operations and you want each of your employees to feel valued.
  - We went with translational, for the long-term of the program, everybody's on the same page from start to finish. That would cut down on maintenance costs, and everything like that, wear and tear.
  - We went translational, just working as a team, a collective. Feeding off each other. Like if you see somebody working hard, then hopefully others will follow, but sometimes you have coworkers that transactional will work better.
  - We went with translational. It's better to have a good relationship with the whole crew, everybody gets along, everybody knows each other, it just becomes the way. Have small meetings here and there to just remind everybody of that.
- A lot of times certain people are at different places in their motivations and sometimes external motivations work better and sometimes it helps if they understand you care about them and are invested in who they are as an individual.
  - Highlighting youth – they don't know what they don't know
    - They all have a need to be safe and cared about
    - They don't want to die or be injured
  - Most people have a need to be safe
- Some simple tools that can be used to teach safety
  - Models:
    - A tilt table to show the degree at which an ATV will tilt
    - Install hardware, like a roll bar, to show that these things can roll, and we need protection in case they do
  - PPE – first control to limit interaction with anything that can cause harm
  - Training
  - Get the conversation started
    - Thoughts, ideas that can be turned into action



## Extension

**UtahStateUniversity®**



Michael L. Pate, PhD and Scott Smalley, PhD

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**Transactional Leadership:** This form of leadership is what most people think of for a corporate-type structure. Transactional leadership relies on exchanging rewards for work or loyalty to the company. The motivation for staff to complete a task or change behavior is based on rewards or penalties.

**Translational Leadership:** This form of leadership leans more toward a partnership. The leader engages with followers, motivating them to move past individual interests and pushes toward a collective purpose. Transformational leadership engenders trust, admiration, loyalty, and respect

### Case Study:

As the herd manager, you notice some high-speed operation of ATVs among younger workers. You decide to pull your staffing supervisor aside and discuss workers' attitudes toward ATV safety. Your staff supervisor states that some of the more experienced workers aren't demonstrating safe operational speeds during tasks assignments. You ask how the situation might be remedied. The staff supervisor replies that experienced workers need to be better examples. Together you have a meeting with all experienced handlers to reiterate the importance of ATV safety and explain that inexperienced workers are following their leads about not always practicing safe ATV use. Your experienced workers agree to be more aware of their attitudes toward ATV safety and be good examples by slowing operational speeds. After the meeting, you discuss monitoring who is wearing or not wearing PPE and plan to follow up in one month.

### Reflection Questions:

- With the differences between transactional and transformational leadership in mind, which style do you feel will have more impact on *your operation*?

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- Why?

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- How might you implement this leadership style more fully in your operation?

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This training was supported by the USDA NIFA Youth Farm Safety and Certification Program award number 2021-41521-35102. Its content is solely the responsibility of the authors and does not necessarily represent the official views of Utah State University or USDA NIFA.



## Tim Porter

High Plains Intermountain Center for Agricultural Health and Safety (HICAHS) – Colorado State University

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### Strengthening Mind & Spirit: Promoting Resiliency in Agriculture

- What is mental health?
  - The way we understand mental health informs the way we try to create interventions and therapies
  - What words do you associate with “good mental health”?
    - Community, empowerment, resilient
  - Mental health is a state of mind characterized by emotional wellbeing, good behavioral adjustment, relative freedom from anxiety and disabling symptoms, and a capacity to establish constructive relationships and cope with the ordinary demands and stresses of life (APA Dictionary of Psychology)
    - Emphasis on state of mind
    - Lack of emphasis on community
- Resiliency
  - Resilience is the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands (APA Dictionary of Psychology)
    - Emphasis on adapting and flexibility
    - The Native story is about experiences of resiliency – adaptation and flexibility
  - Need more focus on strengths and resilience
- Some Indigenous Paradigms
  - Balance of reason and passion
    - Ganigonhi:oh – Teachings of the Good Mind
      - Good mind in the individual that balance but also relating to everything else in a good way in our environment
  - Balance and beauty
    - Hózhó – states of harmony
    - Seeing harmony in one’s life and nature
  - Innate self-actualization
    - Niita’pitapi – One who has arrived
    - Nurture identity
- Working Native definition of mental health:
  - Mental health is a state of holistic wellbeing characterized by emotional, physical, and spiritual harmony, strong sense of interconnectedness with one’s environment and community, and the ability to find balance and harmony in varied contexts.
- Ways of knowing human behavior – How do we understand the human experience?
  - Linear worldview – kind of like looking at the world through a keyhole, you see a little bit then make inferences about the rest of the community.
    - Worked in European history when there was more homogeneity.
    - Missing the context

- Relational Worldview
  - The human experience is dynamic, everything is changing and cyclical, and relational
    - Needs balance and harmony, be more fluid
  - Harmony and state of balance between mind, body, spirit, and context
    - Context: history, economy, community, culture
    - Mind: knowledge, self-esteem, memory, emotions
    - Body: sleep, health, genetics, athleticism
    - Spirit: connectedness, expression (including cultural expression), reciprocity
  - Relation to agriculture:
    - Context – food sovereignty
    - Mind – food systems
    - Body – traditional diet
    - Spirit – food connection
- Producer Resiliency
  - Highlight study: “Death by a Thousand Cuts”: Agriculture Producer Resiliency in the Western United States (Freeman et al., 2023)
  - Sources of resiliency for the producer:
    - Agricultural life – co-working with family, multigenerational, work/home separation and balance, work schedule control
    - External stressors – ag policies, financial/economic, food systems, physical environments
    - Traits & Adaptations – creative problem solving, injury and health adaptations, optimism, persistence/work ethic, sentiment for farm/ranch life
    - Supports & Resources – ag-specific resources, family, medical and mental health, neighbors/community/faith groups
  - It’s not any one thing, it’s a changing, evolving, dynamic process
  - Develop resources available to you and community support
- Place-based lifeways
  - Are there endemic agricultural practices?
  - Are there ideas, concepts in how we relate to land that are endemic to specific geographic locations?
  - Believe yes
  - Establish land-based connection
    - Plants, food, our environment is more than just that, it’s also the stories and teachings.



## Shaun Cross

UNMC – EAOH, CS-CASH

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### Living Safely with Our Little Relatives: Understanding and Managing Ticks

- Ticks
  - Arachnids (8 legs), flat, hooked legs, lives outside, attach to animals and humans to feed on blood, can remain attached for days
  - Found on scalp, in armpits, knee pit, and groin areas
    - Don't usually feel them bite
  - Vector for diseases
  - Many sizes, colors, and shapes of ticks
    - Ticks go through 3 life stage: larvae, nymph, and adult
  - Four you might come across that might transmit disease:
    - Lone Star tick (*Amblyomma americanum*)
    - American Dog tick (*Dermacentor variabilis*)
      - Prairie type habitats
    - Blacklegged (Deer) tick (*Ixodes scapularis*)
      - Shaded, woody habitats
    - Gulf Coast tick (*Amblyomma maculatum*)
  - Found in a variety of habitats
    - Different types are found in different environments
    - Ticks are active all year as long as it's warm enough for them to be out and about
    - Sensitive to cues of movement and carbon dioxide
    - Ticks cling to host and crawl upwards – they cannot fly or jump from trees
- Preventative measures currently used
  - Spray, tuck pants into socks/boots, tuck in shirts
  - Tick checks
  - All these methods can be synergistic, when combined, giving you more protection
  - First layer of protection: Clothes
    - Wear light colored clothing
    - Long pants or sleeves
    - Tuck pants into boots or socks and tuck your shirt in
    - No open toed shoes or sandals
  - Second layer of protection: Tick Repellents
    - Treat clothes with permethrin – DO NOT use permethrin directly on skin
    - Repellents with 20-30% DEET
    - Picaridin, IR3535, Oil of lemon eucalyptus, para-methane-diol
    - Link to find repellents: [www.epa.gov/insect-repellents/find-repellent-right-you](https://www.epa.gov/insect-repellents/find-repellent-right-you)
  - Third layer of protection: Thorough full body check
    - Thorough check will take about 10 minutes
    - Having a partner can be helpful, but will get very personal
    - Check all crevasses (between toes, behind knees, groin, belly button, armpits, inside and behind ears, in and around hair, etc.)
    - Shaun's tick suit provided a good visual of places to check with orange highlights of relevant areas (see images at end of this section).
  - Additional protections:
    - Shower/bathe – within 2 hours, any ticks that haven't attached can be washed off
    - Put clothes in dryer for 20-30 minutes to kill any ticks on clothing



- What to do if you've been bit
  - Take a pair of fine tipped tweezers, grasp close to skin as possible and pull straight out
    - Pull steady and slow, don't yank or twist as you could break off part of the tick and leave the rest in you
  - Disinfect tick bite site
  - Store tick in freezer or rubbing alcohol or take a picture
  - Record the date
  - Contact health care providers with questions, concerns, or if symptoms occur
- Setup a tick checking station
  - Signs to remind you to do a check
  - Tick identification cards and instructions for removal
  - Tweezers for tick removal
  - Alcohol for cleaning hands and bite site
- Tick-borne Diseases – becoming increasingly more common
  - Southern Tick-Associated Rash Illness (STARI)
    - Causes rashy circle
    - Most associated with southern states
  - Rocky Mountain Spotted Fever (RMSF)
    - Can be deadly
    - Rash effect, becomes significantly darker and more purple spreading through body
  - Tularemia
    - Creates ulcer like effect often at bite site
  - Alpha-gal Syndrome (red meat allergy)
    - Specifically associated with lone star ticks
    - Structure of tick saliva looks very similar to structure of red meat which causes an allergic reaction when eating red meat
      - Hives, itching, swelling, abdominal pain, diarrhea, nausea, vomiting, anaphylactic shock
  - Lyme Disease
    - Bull's eye rash (does not always happen and doesn't always look like a bull's eye)
      - Skin tone can make rashes difficult to see
    - Transmitted by deer ticks only
  - Not all tick-borne diseases create these signs nor cause them every time
  - Tickborne diseases in buffalo
    - Anaplasmosis
      - Buffalo >3 years old are more susceptible
      - Causes anemia due to reduction of blood cells
    - Do buffalo get other tick-borne diseases?
      - We really don't know!
      - New ticks moving to new areas – how will this impact the buffalo?
- More Information:
  - CDC vector-borne diseases
    - Link: <https://www.cdc.gov/vector-borne-diseases/what-cdc-is-doing/centers-of-excellence-in-vector-borne-diseases.html>
  - University Studies and organizations
    - Cooperative Extension: Tick Lab (University of Maine)
      - Cooperative Extensions are funded by the USDA
    - TickTagGo project through University of Nebraska Lincoln
  - Look at extension – is it .com or .gov or .edu?

- CS-CASH pilot project: Surveillance of ticks and their pathogens that we find amongst the workers and their buffalo
  - Reason: types of ticks herd workers and buffalo are exposed to is poorly understood
  - How you can help:
    - Collection of ticks from workers after they have been in the field
    - Collection of ticks from buffalo where feasible or collecting ticks from the pastures
    - Collection of buffalo samples (e.g. blood)
  - Packets offered for tick collection to be sent into Shaun for this project
    - Packet includes:
      - Bags to put tick in
      - Form to be filled out with information such as when, where, what were you doing, etc.
      - Prepaid envelope to put everything in and send to Shaun
    - Shaun will test the ticks sent in and provide the following information back to the sender:
      - Tick ID
      - Test tick for pathogen and let you know if it tests positive for a tickborne disease
        - Empowers you especially if you know the tick bit you so you know what you might have been exposed to
  - Impact
    - We will notify submitters of any detected tick-borne pathogen
    - We will identify the risks to both workers and buffalo to create intervention plans to reduce negative impacts of ticks
    - This data can support acquisition of funding for maintaining a surveillance program
  - Submitting photos of ticks across Nebraska using iNaturalist (submit to [iNaturalist.org/projects/tick-tag-go](https://www.inaturalist.org/projects/tick-tag-go))
    - This project is Nebraska only, but other states might have similar ones.
- Let us know what we can do!
  - Provide feedback
  - What information do you need from us?

### Questions:

**Mike** (full name and affiliation unknown as question was asked off camera and microphone, Shaun said first name and repeated question): Does garlic make a difference?

**Shaun Cross (UNMC, CS-CASH)**: I don't know, to be honest. I have not heard that. I do know that there are sometimes that garlic is a strong repellent for certain things. For ticks, I would have to go back and look for that.

**Shaun Cross (UNMC, CS-CASH) – Follow-up after the roundtable**: There does appear to be some evidence that garlic can be an effective repellent for ticks. Using the extract of garlic was effective in repelling ticks. Ingestion of garlic does also appear to have some potential effects for repelling ticks, but it was only slightly better than doing nothing and required a fairly high amount of daily ingestion. Other approved repellents are more effective than garlic alone, but this could be a potentially additive effect and work synergistically with other repellents. Ingestion of garlic supplementation by cattle also reduced the number of flies on the cattle in one study and in another study, it reduced the number of overall ticks on the cattle.

**Jesse Lasater (Southern Ute Tribe)**: I kind of had three questions, so hopefully it won't take too much time. You mentioned that it's not falling from trees, it's mostly climbing up, is that the same with animals like dogs and bison as well as, are they going to find it from the ground and probably climb up on the animals?

**Shaun Cross (UNMC, CS-CASH)**: Yes, the ticks are going to be low, so they are always going to start on the legs and kind of move upwards. Where to check for dogs, and it's going to be similar for buffalo, it's going to be areas where there's not a ton of fur. Where it's going to be easier to access. So, you're going to find them around their eyes, in their nostrils, their ears, groin areas as well, under the legs where it's kind of an equivalent of like an armpit of buffalo and dogs, so that's where they are going to kind of move up to that area too.

**Jesse Lasater (Southern Ute Tribe)**: Second question, how long, like for a human if you're bit, if you have a tick bite, how long should you expect symptoms to show up after a bite, if you have symptoms?

**Shaun Cross (UNMC, CS-CASH):** So how long after you're bit is kind of a difficult question, because it kind of varies for each individual. Like you saw with the Alpha Gal Syndrome it could take up to months, but for some of the other ones it could take just a few days to a couple weeks. But just knowing that you were bit and having that documentation. Which is what makes tick-borne diseases so difficult is not having a great calendar. One thing that's also really helpful, that I didn't touch on here, that's important to think about, is how long the tick has been on you can also help dictate the likelihood that it transmitted something to you. Some it's immediate, as soon as it bites you and starts feeding on you, it can be immediate. Others it takes 2-3 days of feeding on you. So, in some cases there might be a low likelihood because when I pulled the tick off, I could see that there wasn't much blood in the tick. Being aware of that as another thing to factor in on top of the timeframe, but I'd say a few days to a few weeks to start seeing those initial signs and symptoms, but anytime you see them just always have in the back of your mind of keeping track of when that was.

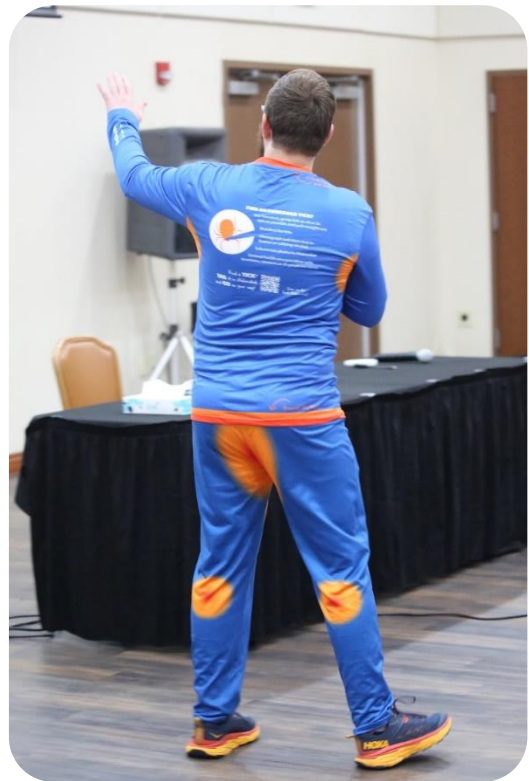
**Jesse Lasater (Southern Ute Tribe):** Last question, the name tick, where does it come from? I didn't notice it in the scientific names of the specific ticks.

**Shaun Cross (UNMC, CS-CASH):** I don't know. That's a good question. I should figure that one out. As a person that studies ticks, I probably should figure out what the linguistic origin of ticks was.

**Shaun Cross (UNMC, CS-CASH) – Follow-up after the roundtable:** It appears to be of unknown origin. According to the Etymology Dictionary "external parasitic blood-sucking arachnid mite, Middle English tike, from Old English ticia, from West Germanic \*tik- (source also of Middle Dutch teke, Dutch teek, Old High German zecho, German Zecke "tick"), a word of unknown origin, perhaps from PIE \*deigh- "insect." French tique (mid-15c.), Italian zecca are Germanic loan-words" (<https://www.etymonline.com/word/tick>)

**Jessica Post (UNMC):** Just for people who may not have thought about this, or for people who aren't here today but are going to end up watching the zoom once we do the videos, those envelop packets that you mentioned, is there a way people can get more of them, or that they can get them if they aren't here to get them in person?

**Shaun Cross (UNMC, CS-CASH):** So, for the envelopes, again these are the envelopes that have those baggies and forms to fill out, please feel free to grab them. I think we might have enough for each group to possibly have up two. If you need more of them, let's say you are a super helper and that's fantastic and I am very grateful for that help, please just let me know, and I can make more of these packets and send them to you. I don't have to have you pay for this. We have funding to do this, to cover that. For those online that are interested in getting this, just contact me and I will send you some of these envelopes.





## Brandon Cobb

*The Nature Conservancy*

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### Prescribed Burning for Cultural Benefits: The Intersection of Prairies, Buffalo, and Fire

- In the plains, Bison, Indigenous Communities, grazing, and fire have been together since time immemorial.
- History to acknowledge
  - Dominant fire system in the US designed for fire prevention, not supporting Indigenous cultures
  - Indigenous fire practices became criminalized and punished
    - Arson is different from Indigenous fire stewardship!
- Need to work on getting back Indigenous relationships to fire and the fire spirit
- NWCG National wildfire coordinating group
  - Group of federal agencies that oversees fire operations in the US
  - Trainings and standards to meet if you want to be a federally qualified firefighter
  - BIA follows NWCG standards
- Indigenous Peoples Burning Network
  - Started with the help of the Nature Conservancy
    - Partners saying, “We want ways to connect with each other. We want ways to learn from each other. Nature Conservancy, can you facilitate a space for us to do that?”
  - Large group with different levels/smaller groups depending on where your program is
  - Offer prescribed fire trainings – experience fire firsthand
  - Cooperative burning – TNC can come to you and assist with burning on your lands
  - Convening and Learning exchanges – annual conference, learning exchanges outside of fire including plan and grant writing related to fire related work
  - Strategic planning – try to create a conservation plan that incorporates language, culture, and things important to your community
  - Cross-cultural facilitation – help bridge gaps with forest service, fish and wildlife, non-profits, etc.
  - Some key characteristics
    - TNC is a non-indigenous non-profit trying to help facilitate these conversations and want to be careful how we do that
      - Want to ensure the work we are doing meets cultural standards at every step
    - Network activities guided by tribal law and cultural practitioners
    - Integrates cultural knowledge into its activities in each landscape
    - Revitalize tribal communities to meet their traditional obligations
    - Empower others, such as state and federal agencies and non-governmental organizations, to become congruent with cultural fire-related practices and to operate through tribal perspectives
    - Assist cultural practitioners to fill gaps in cultural knowledge and practice through shared learning with indigenous communities nationally and internationally
- Dominant fire system mobile and transferable
  - Shared training and universal standards to enable people from many places to mobilize and temporarily work together
  - Standardized set of PPE to keep everyone safe wherever they are burning
- You can be working with fire in a federally mandated system and still have an eye towards culture
  - Example in video from the Nature Conservancy available on YouTube: “From the Fire: A Legacy of Longleaf”

- Example: Cultural Fire Management Council
  - Employs 7-10 local people
  - 15-20 cultural burns
  - Maintains influential relationship with CAL FIRE (dominant state level fire agency in California)
    - Knowledge of people in the community are starting to be respected at the level they should be respected
    - Made agreement that if you are a cultural fire practitioner that your tribe has identified as such, you are automatically qualified as a burn boss in the state of California
  - Mentor fire practitioners from other tribes
  - Contribute to outreach with media and other organization
  - Co-developed a culturally centered fire management plan for the Yurok Reservation and Yurok Ancestral Territory

### Questions:

**Del Chisholm (Taos Pueblo)** (Question not audible on recording to verify exact wording): When is the best time to put fire on your pastures?

**Brandon Cobb (The Nature Conservancy)**: It's going to depend, and that's not a great answer, I know. Here in Nebraska and in a lot of places we see fire primarily being used in the spring. Now, with the way the climate is changing, we are getting fewer and fewer opportunities to burn during that window in spring. We are having hotter seasons, more droughts, and that means that our window of opportunity to burn when we have the right conditions, again to account for things like safety, and also prescribed fire is not this idea that we're just going to rip fire through it, so trying to make sure we don't have super high winds, things like that. That window is getting shorter. You can burn in the summer. You can burn in the fall, for sure. I think where we see the most ecological impact is in the springtime.

**Wade Jackson (Gaa-waabaabiganikaag Mashkode-bizhikiwag (White Earth Nation Bison))** (Question not audible on recording to verify exact wording): Using prescribed burning for bison pastures or any pastures. What about the amount of CO2 going into the atmosphere?

**Brandon Cobb (The Nature Conservancy)**: Yes, and the really interesting thing that we see in burned units is that, that fresh new growth, that's what the animals go straight for after a burn. So, if we have a burned unit and an unburned unit, and we let the animals have agency to choose where they want to be, they almost always choose the burned pasture. The carbon one is an interesting one. I like to frame it as, if we're really going to talk about carbon, there are a lot of other carbon emitting activities that I can think of that are far more detrimental to our environment than burning. Especially when we see those aftereffects of fire, and prescribed fire. Wildfire is another question, but for prescribed fire we see these deep ecological and cultural impacts that I think far outweigh any of the amount of carbon that's being emitted.

**Wade Jackson (Gaa-waabaabiganikaag Mashkode-bizhikiwag (White Earth Nation Bison))** (Question not audible on recording to verify exact wording): Any environmentalist in our community shouldn't be concerned about the CO2 from our prescribed burns?

**Brandon Cobb (The Nature Conservancy)**: No, you'll always have community members that might have a bit of a fear of fire. Again, it's been engrained into our communities that fire's a bad thing. You shouldn't want fire, or if you see smoke in the sky, that's a bad sign. So, a lot of the projects I've ended up working on are, "let's just do a 10 acre burn." And it's going to be small, maybe it's not this huge ecological impact, but we're going to bring as many folks from the community as we can. Just to show them what fire looks like in a controlled, prescribed state. Generally, what we see after that is the community going, "Oh, this isn't as scary as I thought it was, this is actually kind of fun." Some of them even go, "It's a little boring. Fire just kind of trickling along the line there. It's not doing much." They shouldn't be afraid of fire. There shouldn't be this discussion of carbon. It does emit carbon, but there are about a million other things that I could name off that are worse.

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## **Mystera Samuelson**

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### **Remote Necropsy & Sampling**

- As a non-vet there is a lot you can do to help the vets you do work with
- Tips for field assessment & sampling for when you're out of options & on your own from a non-vet
- When you find something suspicious, could be a bunch of dead gophers to unusual mortality of buffalo
  - Obvious answer is call in a vet or pathologist to assess – but that's expensive and not always at your disposal
  - When that's not an option:
    - Safely assess the scene
    - Assess the risk to you and your team
    - Gather the most relevant information possible to report your findings
      - Gather samples (including pictures), if safe to do so
    - Present findings to the specialists so you can receive the most appropriate guidance on how to proceed
- What is suspicious?
  - Anything potentially pathogenic that could impact your, your community, and/or herd through interaction with the landscape, vector species, consumption, or other means
- What information do I actually need to document?
  - Information that is useful and can be gathered both accurately and safely
    - Correct species identification (and confirmation of this) – Photos are helpful
    - Confirm sex and age class – photos of teeth are useful for later confirmation, especially if you can get them without touching if you don't have gloves
      - Diseases will present differently in males vs. females and many will impact the oldest animals and/or youngest animals
    - Information about the environment, conspecifics (other individuals of the same species you are looking at), and other species
  - What is useful to disease specialists
    - Lesions
      - Look at the margins – are they the same color throughout or are the margins a different color
      - Note how they are dispersed across the body – what area(s) of the body are they found and are they bilateral
      - Photos with a size reference are essential
    - Nodules (things you would feel on a fresh dead carcass)
      - Where are they located on the body
      - How are they dispersed
      - Consistency (hard or spongy, etc.)
      - Are they mobile?
- Live Individuals
  - Unusual behaviors: lack of coordination, head “lobbing” or “bobbing”, coughing/wheezing, unusual vocalizations
    - Can take a video to try to get the sound
    - When thinking about the time of day the animal is seen or their fear of humans, consider if the animal could have become habituated to humans making this seem unusual when it is not.
  - Body condition: feces stuck to them, face (snot, gooey eyes, blood), patchy/irregular coat, weight loss, increased parasite load
- Possible sampling opportunities – NOTE: You will not need to touch the animal for most of these
  - Video of motor deficits or other unusual behaviors
  - Photos confirming body condition, age class, species, etc.
  - Collection of scat – **if** you are able to do so safely **and** with the appropriate PPE
  - Detailed description of species, age class, body condition, environment, behavior
  - Date, time of day, seasonality, known history (if any)

- “Unusual” Deaths
  - Record: number, types of mortality & dispersal, presence or lack of predation/scavenging
  - Photographs from a distance:
    - Dried blood from mouth/nose that appears to have been forcefully exhaled in death
    - Blood that does not appear to be coagulated in accordance with decomposition
    - Skin lesions which appear to be unrelated to sun exposure or scavenging and/or predation
    - Distended abdomen and pattern of distended abdomen
- What to do when something suspicious is just too suspicious
  - Accept defeat. Today is just going to suck. If you have PPE in the truck/office, accept that you need to make the trip before approaching, contact a vet if you have a good relationship with one
  - Use your phone.
    - Put a pin in google maps
  - From a distance, make notes of the appropriate information needed to convey the issue to authorities
  - If you can do so safely, take some targeted photographs to convey your point
  - Make the trip to retrieve or consult with your disease specialist of choice, and/or gather your PPE so you can get the needed samples/info safely
- Take pictures while sampling or right before sampling gives context for the pathologist. Full organ system pictures when they are intact are good too.
- Know your phone’s capabilities for easy documenting
  - Measurement app
  - Free ID tools for parasites and insects such as iNaturalist/Seek & Project tools
  - Enable location sharing for photographs to document GPS coordinates of the site
  - Zoom feature is your friend!
    - You don’t have to get close to the animal to get a lot of these photos
- Photographs – if they can be taken safely:
  - Each side of the body
  - Face: eyes, nose, mouth
  - Close up of teeth (if possible and age class is unknown)
  - Anus/genitals
  - Udders
  - Umbilical region
  - Close up of lesions relative to whole body angle (size reference preferable)
  - Close up of blood and/or other fluids
- Do not collect blood or other samples if you do not have your PPE. Use the zoom on your camera to take close up pictures.
- Noticing anomalies during harvest/necropsy
  - Consider photographing the body before cutting
  - Close up images of organ systems in place as well as individually
    - Slice if notice anything suspicious (photograph the slices)
      - Considerations: thickness and labelling
    - Parasite collection for ID
      - Photos of eggs, fecal samples, place in a bag and refrigerate/freeze
  - Know what healthy tissues look and feel like – feel for nodules and examine for lesions throughout the process



- Resources and Training
  - Establish a relationship with your local vet and wildlife team so they know you and believe your descriptions
  - Community resources and expertise
  - ITBC & National Bison Association Training Resources
    - Necropsy & Disease Field Guides
  - Kansas State University Veterinary Diagnostic Lab Bison Necropsy Kits
  - Items to have on hand if you don't have an official kit on hand:
    - Whirl-pack baggies
    - Quart & gallon baggies
    - Glad press & seal wrap (this is sterile as long as the box stays sealed)
    - Breakable/Disposable ice packs
    - Cooler
    - Hand Sanitizer
    - Sharpies for labelling!
  - PPE
    - Latex gloves
    - Change of clothes
    - Mask
    - Eye protection
  - Procedurally:
    - Shower and change
    - Disinfect boots/shoes
    - Disinfect phone
    - Restock kit!



## Arlo Iron Cloud Sr.

Porcupine SD Community Member

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### Summary of Harvest Trainings Conducted

- Arlo shares about the work they do
  - How did they get started?
    - Used to work for a radio station, sharing information
      - Half journalist, half radio disk jockey
    - At some point Lisa wanted to get into food – she wanted to learn bison butchering
      - Asked anyone and everyone who would be willing to share
      - Around 2016, got guidance from her cousin
    - Growing up, every weekend relatives would butcher a sheep
      - Noticed that they didn't get that bloody
      - It was very artistic
  - What they are doing is a form of art – “the more we become efficient at something, the more it becomes an art”
    - Finetuning not the ability to butcher, but the ability to provide food for themselves
    - Learned about plants and buffalo
      - Food the people are eating today is the same food their ancestors ate
      - With that food in the belly, people are thinking like their ancestors
    - Journey about food was guided by the buffalo
    - Wasn't just about butchering, also about food and where the food comes from
  - Indigenous peoples have the ability to heal themselves, through their food, through taking care of themselves
    - Go through mindset reviving who they are as a people
    - Connections to food, indigenous peoples are a people that belong to the land
      - A lot of knowledge about the land
  - When we stop looking to ourselves to take care of ourselves, we are putting our lives in somebody else's hands
  - In the Lakota language, the words break down things, they are descriptions of things
  - There are some truths of who we are as a people in our food
  - Amazing journey learning about food
    - Learning about his food he learns who he is as a person
  - Food connects people to each other, the land, and their ancestors
    - The more people think about connection the more they behave like their ancestors
    - Through food, through the buffalo, tribes can make a connection to who they are and were
    - Food has been the best method for Arlo to revive the Lakota language
  - The buffalo are one of the greatest teachers to keep this land flowing
    - It was the way indigenous peoples understood how things worked in this world
  - Working together!
-



## FIELD HARVEST AND SITE VISIT

Hosted by: Winnebago Tribe of Nebraska

The Winnebago Tribe of Nebraska graciously welcomed our team and meeting participants to witness and learn from the ceremonial harvest of a member of their herd. Pete Snowball spoke about the importance of praying for clarity when working with the bison and needing to be calm and have calm emotions through the entire process, giving examples from his own experience. He then led a prayer for the bison herd and the people.

ITBC's mobile harvest trailer was employed to facilitate the harvest and store the meat. Mystera and Mikiya led sample collection of important tissues and swabs for testing. Shaun helped investigate the head for ticks and collected what was found for the project mentioned during his talk. Arlo demonstrated some techniques based on the interest of those participating. After the harvest, many of the participants went to the Pow Wow being hosted by the Winnebago Tribe that same day.



# Necropsy Sample List

Location	
Animal ID	
Date	

External Examination	
External Photographs:	Body from all sides, teeth, eyes, genitals, and utter.
Body Condition:	
Level of Decomposition:	

External Sample Collection		
Sample	Storage	# Collected/Notes
Parasites	Ethanol Solution Room Temp	
Lesion Impressions	Room Temp Slide Container	
Nasal Swab	Sterile Saline Room Temp	

Internal Examination				
Sample	Look For:	Suggested Samples & Storage	Samples Collected #/Desc.	Notes
Heart	Signs of hemorrhage and discoloration - especially any streaking. If fluid and/or closts are present in the paracardial sac, photograph.	Photographs, tissues from all four chambers stored in formalin.		
Lung	Discoloration, lesions, puss, nodules, lungworm, check to see if the tissue has a light/spongelike texture. Sample areas with lumps, and/or note the location/frequency of occurrence.	Swabs stored in sterile saline, Photographs, tissue in whirlpack, a second small tissue sample should be placed in formalin.		
Trachea	Look for nodules and puss. Photograph if present.	Photographs of sectioned trachea		
Stomach	<b>Rumen:</b> Photograph in situ, collect if poisoning is a concern.	Rumen contents should be stored in a container and frozen.		
	<b>Abomasum:</b> Photograph contents in situ, look for parasites here.	Parasite samples can be stored in 70% ethanol.		
Intestines	Discoloration, lesions, excessive blood or straw colored liquid present.	Photographs in situ, samples of abnormal fluid can be stored in a sterile waterproof container.		
	Fecal Sample: Take directly from rectum	Should be placed in a whirlpack/ziplock.. Can also be used to do a fecal float to look for parasite eggs.		
	Thickness: If the bowel feels thick and/or appears to have excess folds present, sample both bowel and the nearest lymph nodes	Lymph nodes and bowel section can be placed in a whirlpack/ziplock		
Liver	Feel for raised areas, lesions, or abscesses. Should be uniform in color.	Photographs before and after sectioning. Sample healthy tissue and anomolous tissue and place in a whirlpack/ziploc.		
Spleen	Look for swelling and texture. If anthrax is suspected, ensure to take photos and samples of sections.	Photographs before and after sectioning. Sample healthy tissue and anomolous tissue and place in a whirlpack/ziploc. A small sample should be placed in formalin.		
Kidneys	Lesions, differences between the two kidneys should be noted.	Photographs of the outside and inside of the organ tissue can be placed in a whirlpack/ziploc.		
Bladder	Photograph in situ, attempt to collect urine if abnormal in color and texture	Photographs in situ, urine samples can be placed in a leakproof sterile container.		
Joint Fluid	Photograph in situ, attempt to collect joint fluid if abnormal in color and texture.	Joint fluid will be stored in a leakproof container.		
Lymph Nodes	Discoloration and firm/gritty texture. Take photos in situ, and samples when possible - NOTE THE LOCATION OF THE NODE.	Lymph nodes should be stored in a whirlpack/ziploc.		



## Photograph Sample List

Take all applicable listed photos if **SAFE** to do so.

Location:

Animal ID:

Sex:

Age:

### Overall Body Condition

- |   |   |
|---|---|
| <input type="checkbox"/> Left Lateral Side        | <input type="checkbox"/> Close up of Head (Eyes, Ears, Nose, Mouth) |
| <input type="checkbox"/> Right Lateral Side       | <input type="checkbox"/> Close up of Genital Region                 |
| <input type="checkbox"/> Dorsal Side (Back)       | <input type="checkbox"/> Unusual Fur Loss or Skin Lesions           |
| <input type="checkbox"/> Ventral Side (Underside) | <input type="checkbox"/> Unusually High Parasite Loads              |

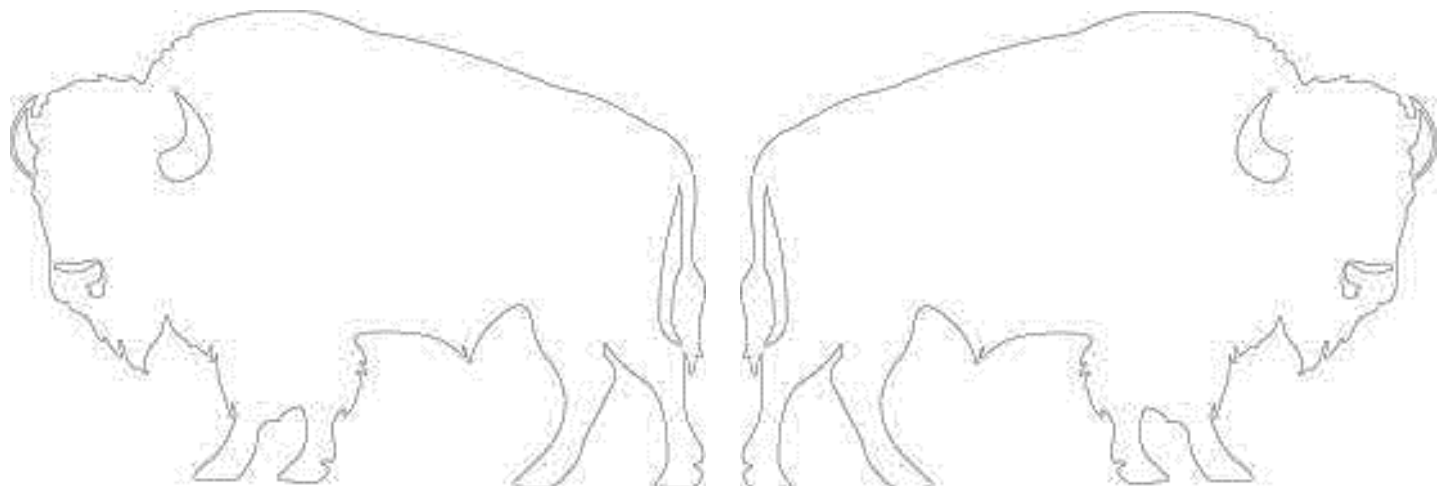
### Organ Systems

- |   |   |
|---|---|
| <input type="checkbox"/> Body Cavity in situ    | <input type="checkbox"/> Kidneys (Left and Right)   |
| <input type="checkbox"/> Heart                  | <input type="checkbox"/> Bladder                    |
| <input type="checkbox"/> Lungs (Left and Right) | <input type="checkbox"/> Spleen                     |
| <input type="checkbox"/> Liver                  | <input type="checkbox"/> Colon                      |
| <input type="checkbox"/> Stomach                | <input type="checkbox"/> Gonads (testes or ovaries) |
| <input type="checkbox"/> Intestine              | <input type="checkbox"/> Prostate/Penis             |
| <input type="checkbox"/> Pancreas               | <input type="checkbox"/> Uterus                     |

### Additional (Photograph if seen anywhere in or on carcass)

- ☐ Parasites
- ☐ Nodules, Lumps, Bumps
- ☐ Lesions
- ☐ Abnormal Looking or Discolored Tissue (unrelated to decomposition)
- ☐ Location of Tissue Samples, Swabs, or Slide Impressions

Use below images to indicate the location unusual or abnormal observations on external examination (ex. blood pooling, clotting, bloat pattern, injuries, etc.)



Left Side

Right Side

