PEACE REGION BISON FILE

Chris Lewis -

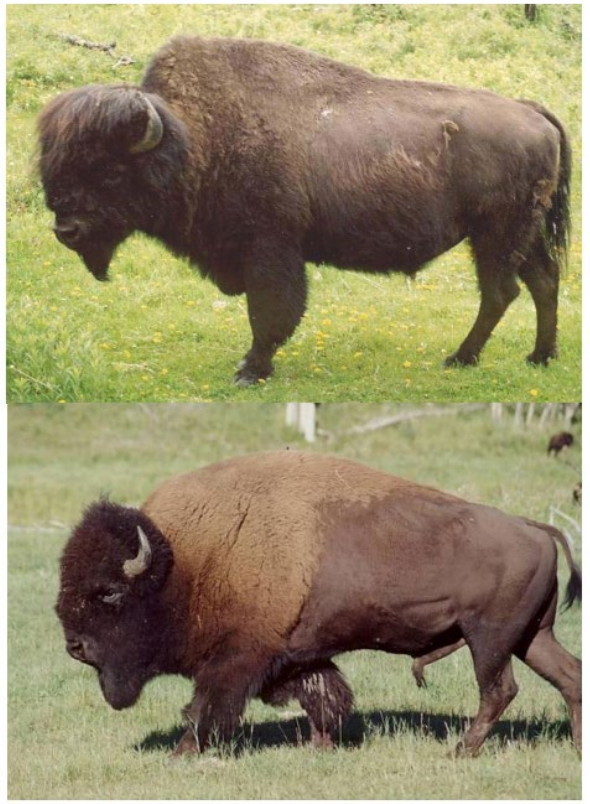
Ministry of Water, Land and Resource Stewardship

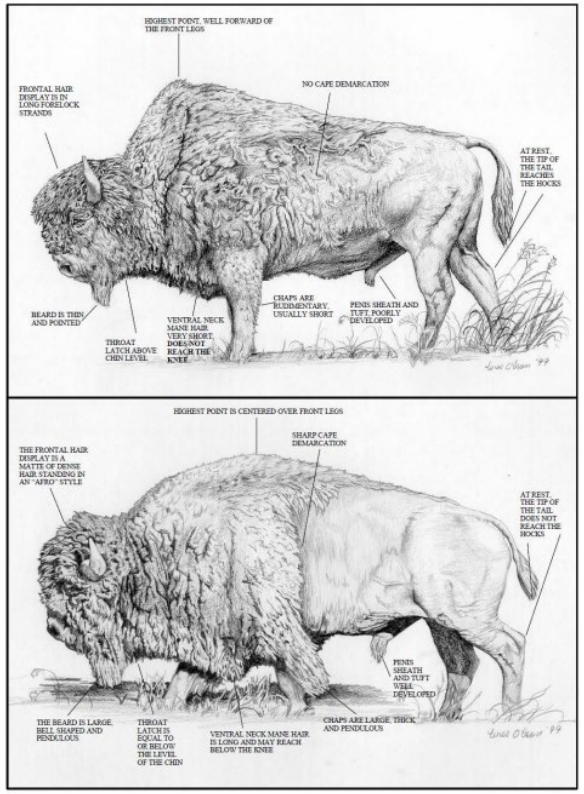
Species at Risk Biologist

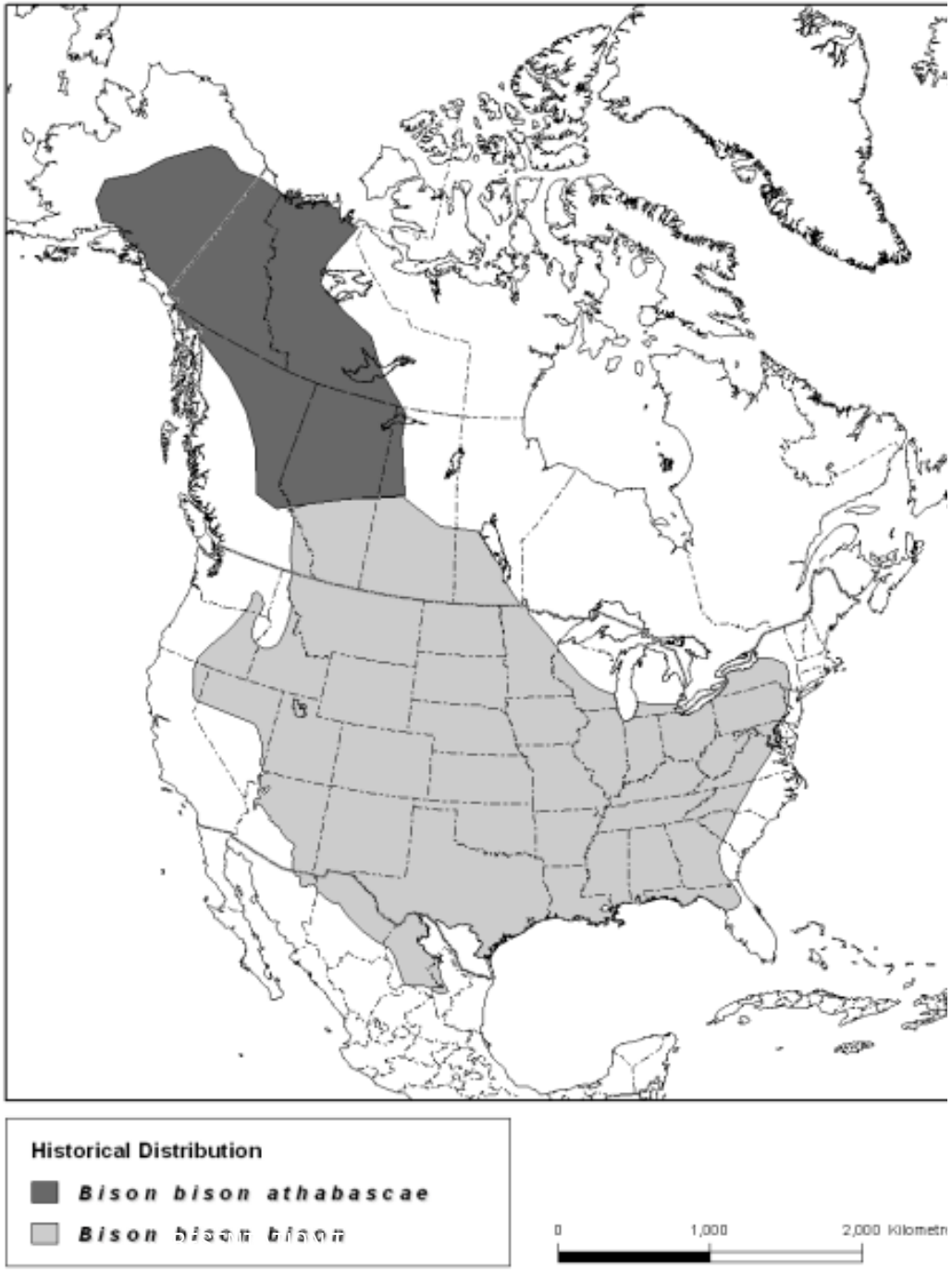
BRITISH COLUMBIA BISON SPECIES AND STATUS

- **Wood Bison** (*B. bison athabascae*)
- **SARA Status: Threatened** on Schedule 1 – on consideration for status update
- **COSEWIC Recommended Status:** Special Concern
  - Nordquist
  - Nahanni
  - Etthithun

- **Plains Bison** (*B. bison bison*)
- **SARA Status:** Not on Schedule 1 – on consideration for status update
- **COSEWIC Recomended Status:** Threatened
  - Pink Mountain







HISTORIC BISON RANGE

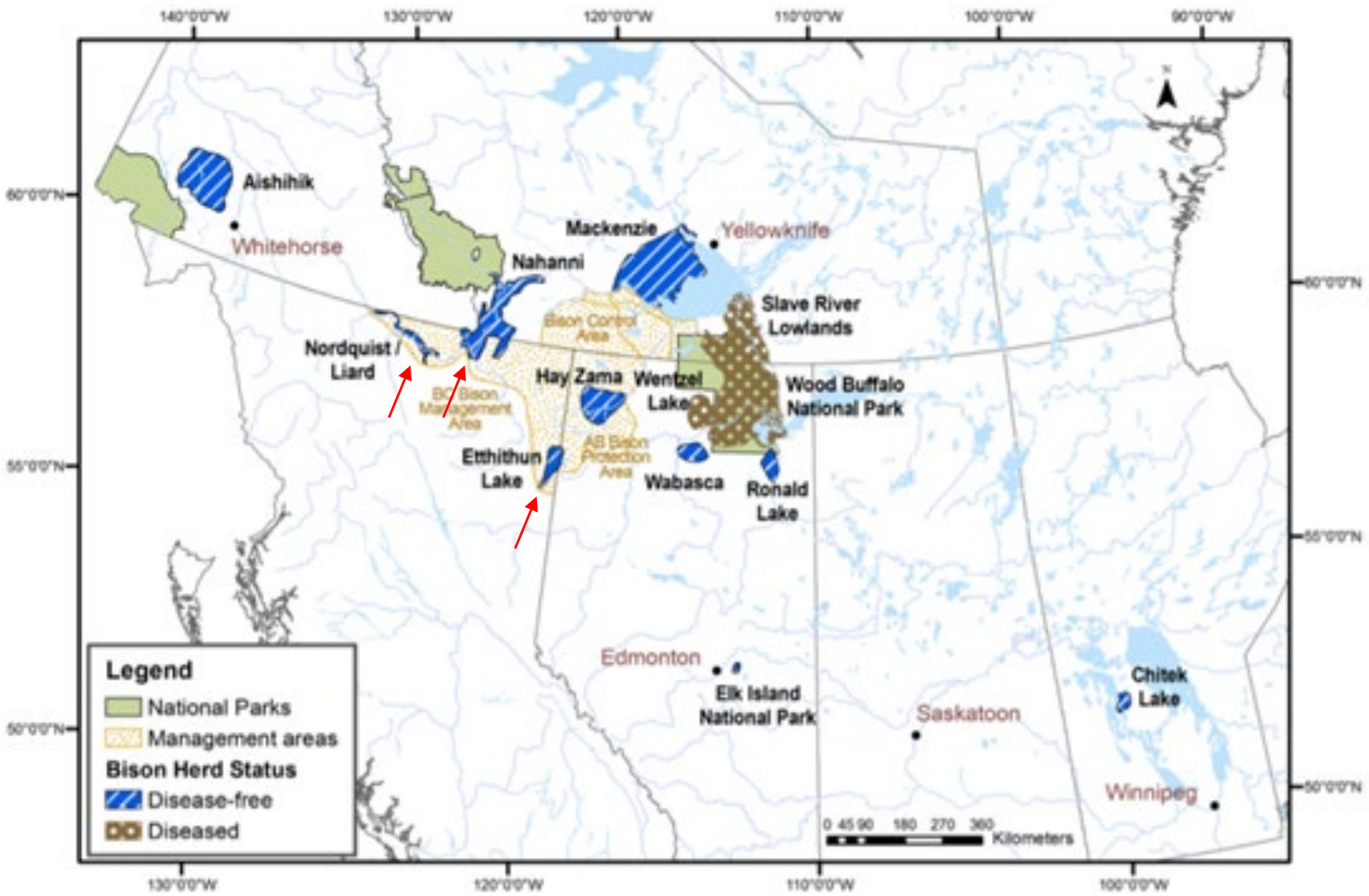
WOOD BISON HERDS TODAY (BC)

THREE HERDS:

NORDQUIST

NAHANNI

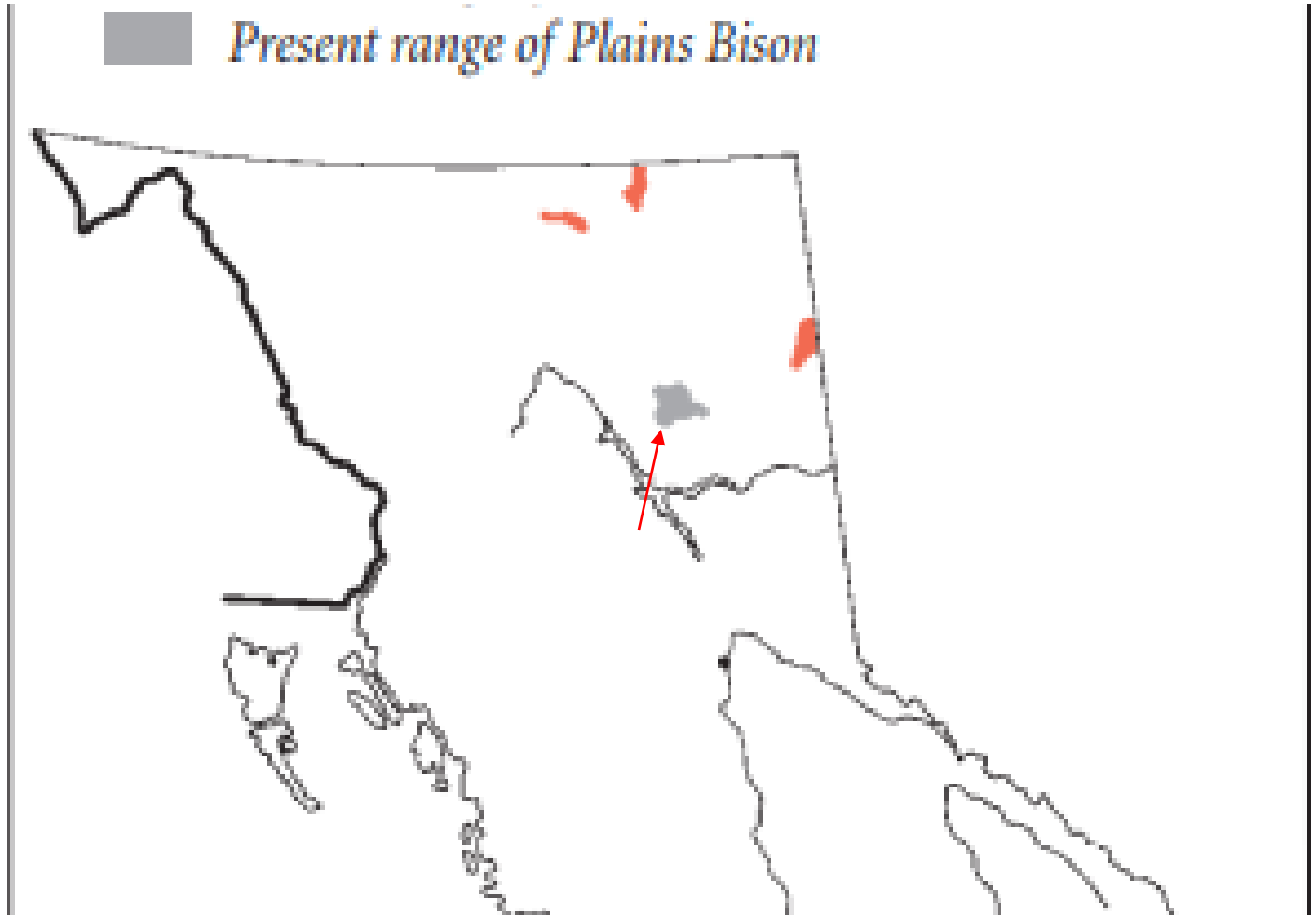
ETTHITHUN



PLAINS BISON HERD TODAY

(BC)

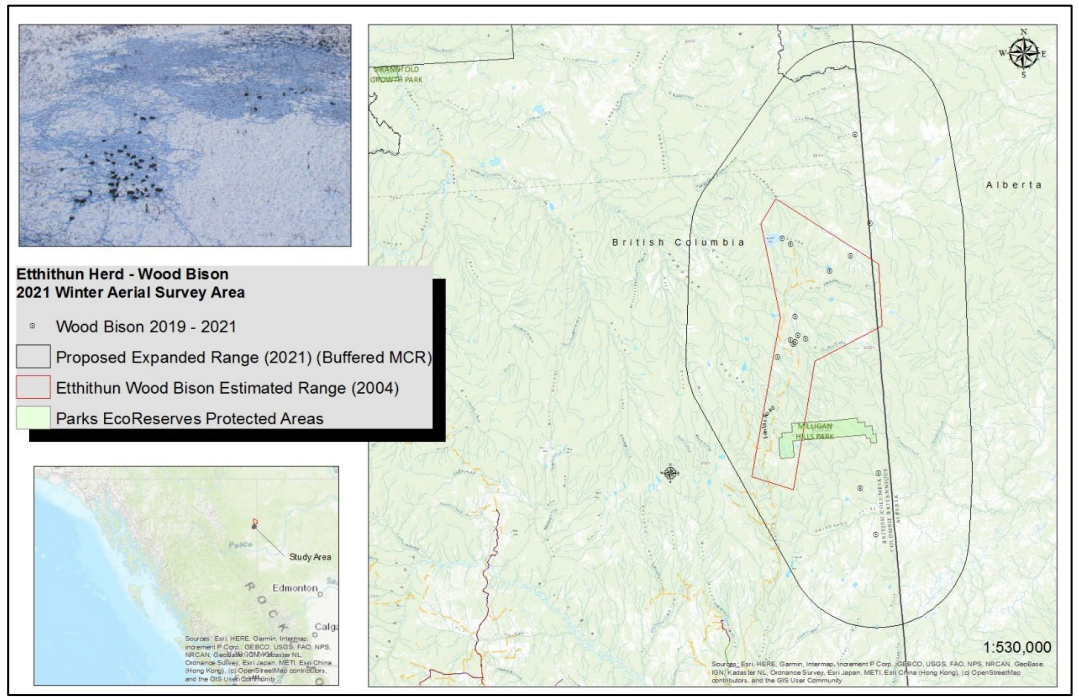
Pink Mountain (Halfway Sikanni River Areas)

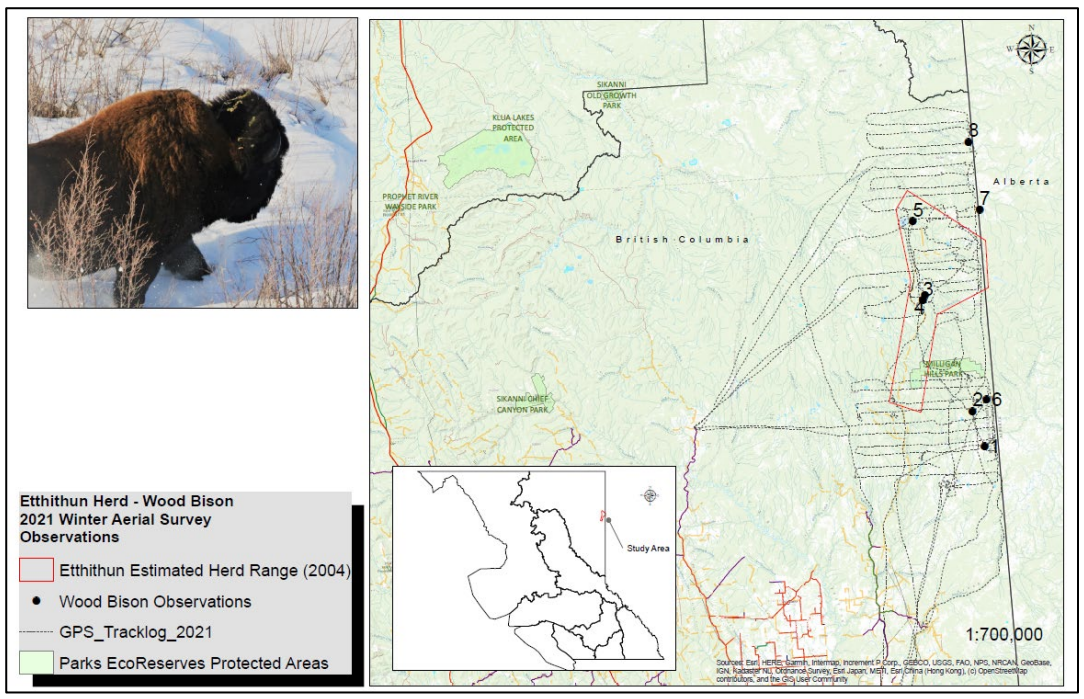


SUMMARY OF WOOD BISON WORK COMPLETED (2019-2023)

- Wood Bison Population Surveys
  - Etthithun (2020-2021) – Min Pop
  - Nordquist (2021-2023) – Mark-resight
  - Nahanni (NWT 2021 – Liard River (Led by NWT Gov))
- Wood Bison Capture and GPS Collaring
  - 2008 – 2012 (Nordquist)
  - 2021 – 2023 (Nordquist, Etthithun, *Nahanni)
  - 2024 – Nordquist (with Yukon – 16 active collars)

AERIAL SURVEY – ETTHITHUN 2020 AND 2021

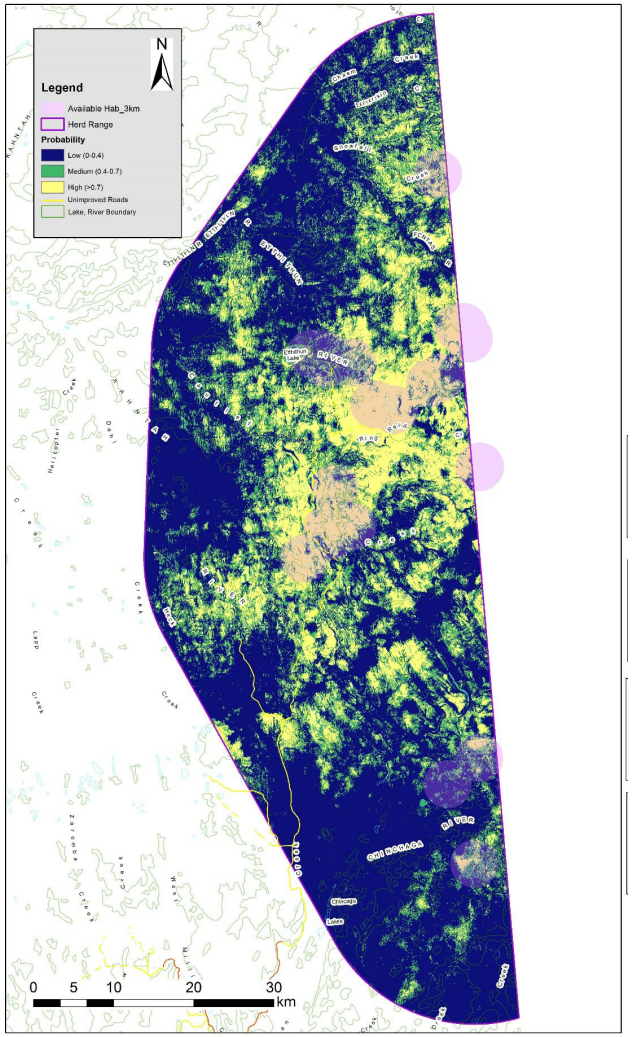




RESULTS - ETTHITHUN

Minimum Population Estimate (BC)

Group ID	Group Total	Calves	Adult Bulls	Adult Cows	Unclassified
1	20	7	0	13	0
2	11	3	0	8	0
3	79	15	9	51	13
4	9	1	0	8	0
5	59	7	2	37	13
6	3	0	3	0	0
7	1	0	1	0	0
8	11	1	0	1	0
Totals	193	34	15	118	26

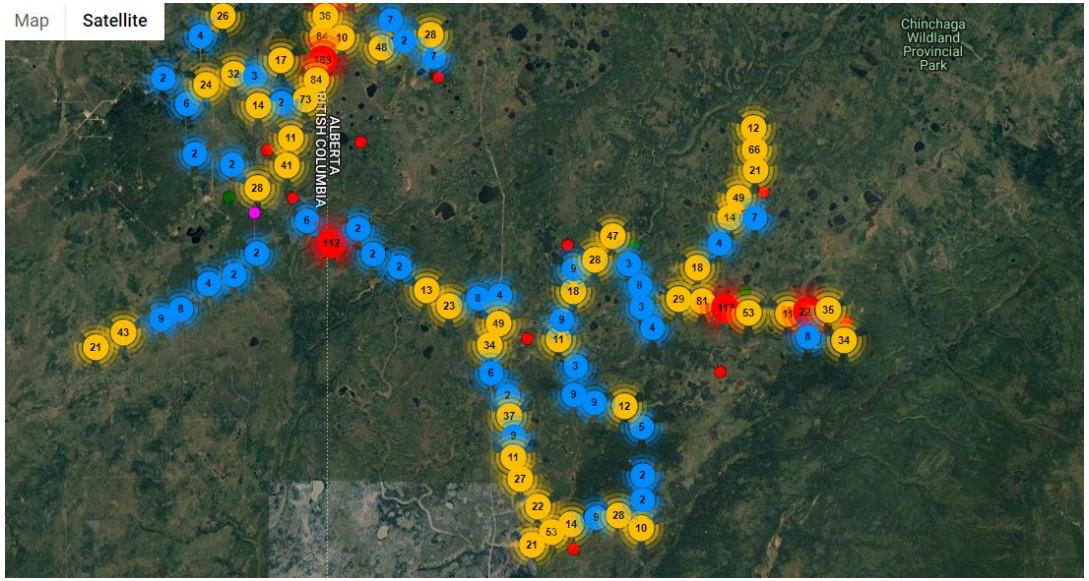


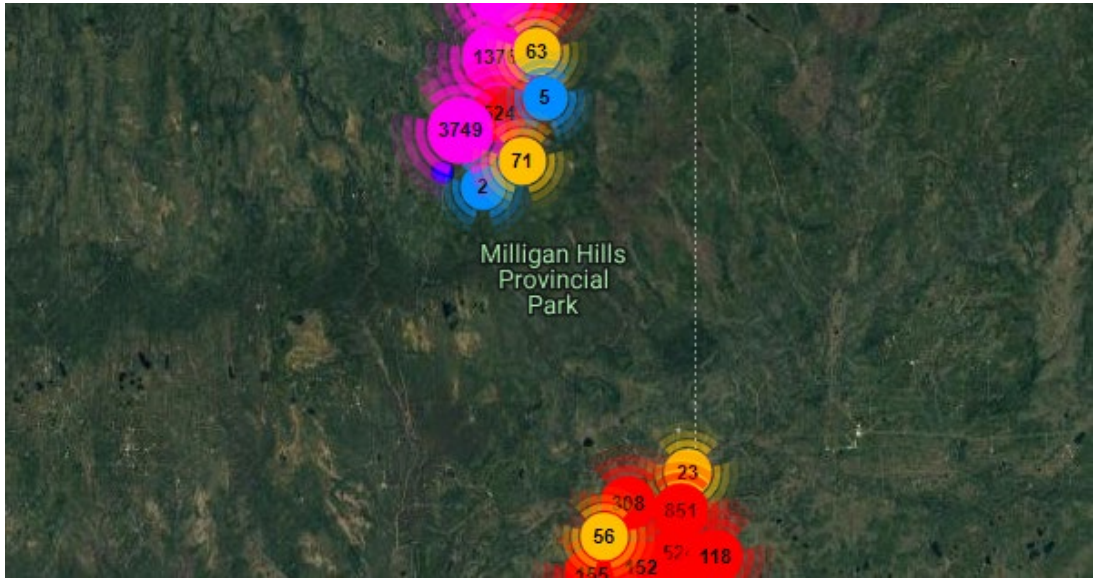
*Survey done in collaboration with AB Gov

Total herd population estimate is approx. 400

ETTHITHUN – WOOD BISON GPS COLLAR DATA

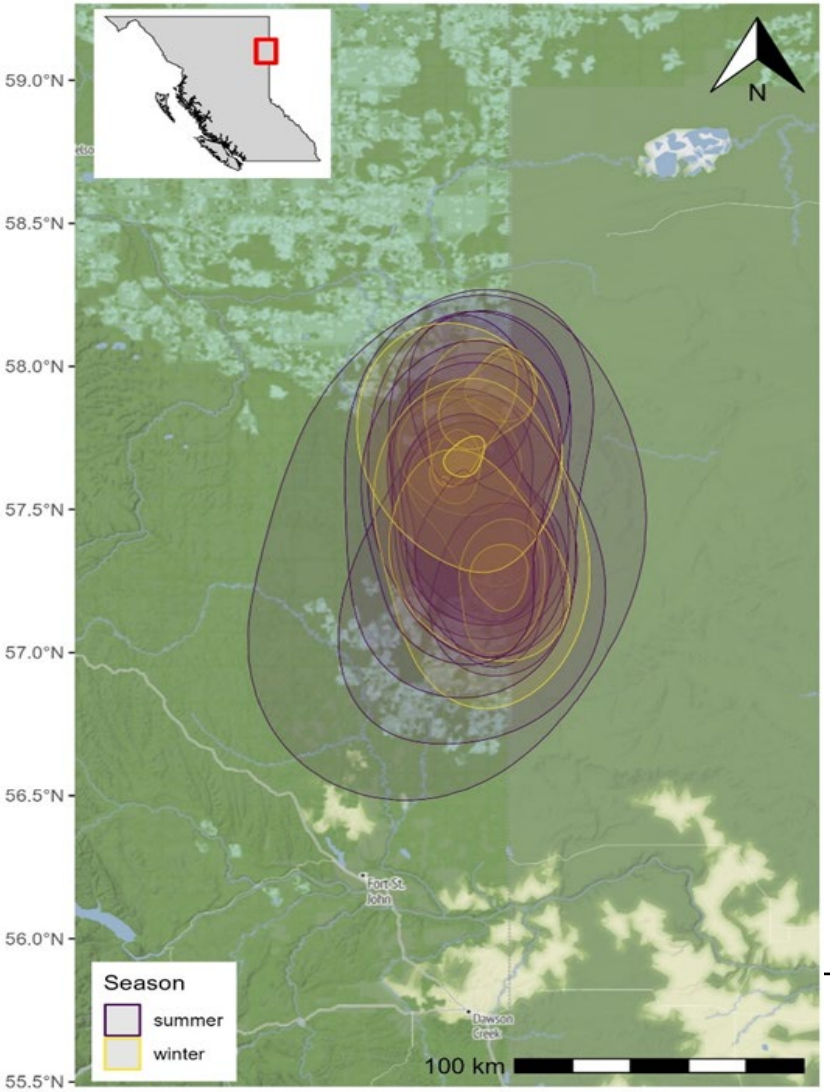
- Caribou/Moose habitat overlap
- Industry Impacts
- Habitat Restoration Potential





UNBC DATA ANALYSIS – LBIS $20K – 2023/24

- Seasonal home ranges
- Habitat availability and usage (Resource Selection Function – RSF modelling)
- Habitat Rehabilitation Potential Caribou vs Bison overlap?
- Conservation Priorities (seasonal sensitive habitats – calving areas, wintering areas, etc.)
- Fontas Road Mortality Mitigation Tools (Prescribed Fire, Plowing, Etc.)




BISON FECAL SAMPLING

Micro-biome and Diet Analysis – an Agriculture Canada led project

NORDQUIST – WOOD BISON

Road Mortality Concerns

- 13 Dead Bison in 2020
- 10 Dead Bison in 2021
- 16 Dead Bison in 2022
- 23 Dead Bison in 2023
- Conducted mark-resight population estimates since 2021 (collared animals are marked)
- Current Population Estimate = approx. 125 (2024)

NORDQUIST - ROAD MORTALITY WORKING GROUP

Who?

- Kaska FN, Fort Nelson FN, Prophet River FN, others.
- Yukon Government
- Federal Government
- Local Interest Groups

What? Why?

- Revitalize previous working group (2007 – 2012)
- Use what has already been established (what has worked and what hasn't)
- Identify Mortality Hotspots
- Investigate Mitigations and Solutions (i.e. signage, site alterations, plowing (winter), etc.

NAHANNI – WOOD BISON

- Bison Ranch (Domestic Plains bison)
  - Ministry of Transportation
  - Town of Fort Nelson
  - Ministry of Agriculture
  - CFIA (disease testing at abattoir)
  - Provincial Vet (initiate a disease monitoring program)

SUMMARY OF PLAINS BISON – PINK MOUNTAIN WORK COMPLETED (2019-2023)

- Recon Flight - 2021
  - Winter Fecal sample collection (Diet)
  - Incidental observations (back country)
  - Wolf kill site discovered = food web implications
- Range Ecology (Nick Hamilton – Range Ecologist)
  - Enclosure Vegetation Plot Network (30 years of data)
  - Fecal/Vegetation sample analysis (Protein, minerals, etc.)

AERIAL SURVEY - MIN POP 2024

PRFN LED/COLLABORATION

PEACE REGION TECHNICAL REPORT

2024 Pink Mountain Plains Bison Aerial Survey Results – Minimum Count

Author: Christopher J. Lewis

SPECIES AT RISK

Table 1. Pink Mountain plains bison group sizes and composition observations during 2024 aerial surveys.

Group ID	Group Total	Calves	Yearling	Adult Bulls	Adult Cows	Unclassified
1	14	0	1	5	4	4
2	21	4	2	4	8	3
3	2	0	0	2	0	0
4	7	2	0	2	3	0
5	10	0	0	1	4	5
6	2	0	0	2	0	0
7	3	0	0	1	2	0
8	11	1	0	3	7	0
9	13	0	0	4	5	4
10	16	4	1	4	3	4
11	20	4	3	5	8	0
12	3	0	0	3	0	0
13	2	0	0	2	0	0
14	1	0	0	1	0	0
15	1	0	0	1	0	0
834	11	0	0	3	3	2
835	1	0	0	1	0	0
837	6	0	0	3	3	0
totals	144	15	7	47	50	22

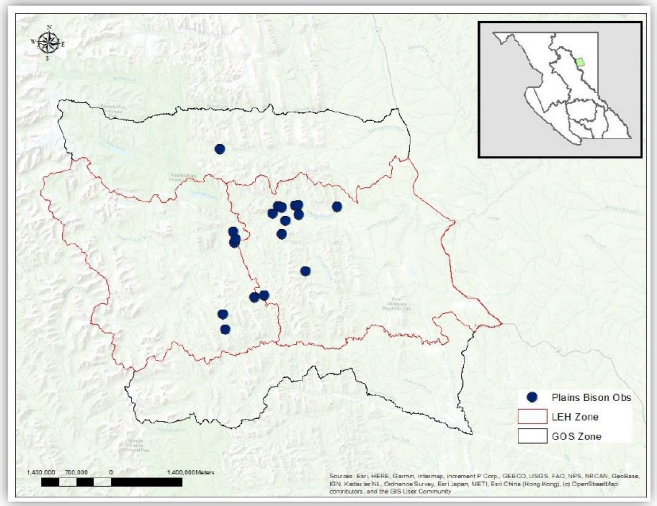


Figure 3. Plains Bison observation locations during the March 1st to 3rd, 2024 aerial survey.

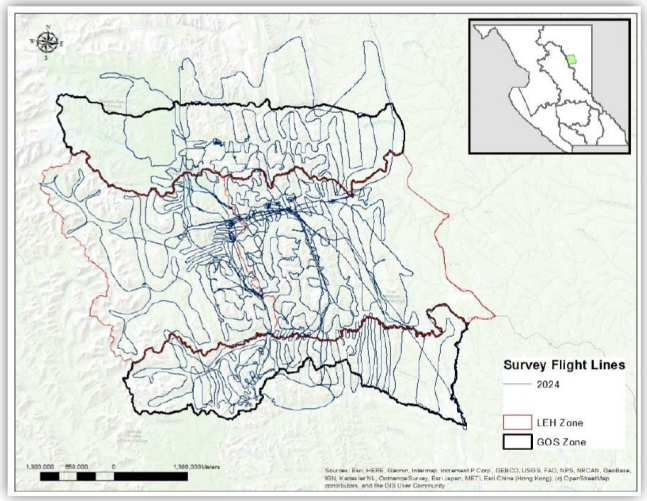


Figure 2. Survey tracks from the March 1st to 3rd 2024 Pink Mountain plains bison aerial inventory.

RESEARCH AND DOCUMENTS

PEACE REGION TECHNICAL REPORT

Wood Bison - Etthithun Herd 2021 Minimum Population Survey and Resource Selection Function (RSF) Modelling

Christopher J. Lewis[1] and Sanatan Das Gupta[2]

[1]Species at Risk Biologist, Fish and Wildlife Branch, Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 9000 17 St, Dawson Creek, BC V1G 4A4

[2]Habitat Specialist, and Wildlife Branch, Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 10003 110 Ave #100, Fort St John, BC V1J 6M7

FISH & WILDLIFE SECTION

PEACE REGION TECHNICAL REPORT

2024 Pink Mountain Plains Bison Aerial Survey Results – Minimum Count

Author: Christopher J. Lewis

SPECIES AT RISK

European Journal of Wildlife Research (2023) 69:50
https://doi.org/10.1007/s10344-023-01676-0

SHORT COMMUNICATION

Wolf (*Canis lupus*) predation and scavenging of reintroduced bison (*Bison bison*): a hallmark of ecological restoration to boreal food webs

Thomas S. Jung[1,2] · Nicholas C. Larter[3] · Christopher J. Lewis[4] · Caeley Thacker[5] · Shawn D. Taylor[6]

Received: 9 February 2022 / Revised: 6 March 2023 / Accepted: 29 March 2023

Abstract
While it is well documented that wolves (*Canis lupus*) hunt and scavenge bison (*Bison bison*) from some long-established populations, such ecological interactions are not well known for most small, reintroduced populations in the boreal forest. Indeed, predation or scavenging of reintroduced bison in the boreal forest is rarely reported. Yet, documenting instances of bison killed or consumed is imperative to understanding the integration of reintroduced populations into local food webs and ecosystems. Such observations also indicate that reintroduced bison may be under selective pressure from their key predator. We compiled 20 verifiable observations of wolves hunting or scavenging bison from three reintroduced populations in northwestern Canada. We report the first confirmed observations of wolves feeding on bison from the 'Nahanni' and 'Pink Mountain' populations. We also report new records of wolves hunting or scavenging bison from the 'Aishihik' population. Where sex was known, most (14 of 17) bison consumed were females and 17 of 20 were adults (either sex). Contrary to other studies, we found that 7 of 20 bison consumed by wolves were aged individuals. It took 19–50 years since bison were reintroduction before verifiable observations of wolf–bison interactions emerged for these populations, indicating that

Received: 16 December 2022 | Revised: 20 February 2023 | Accepted: 23 February 2023
DOI: 10.1111/eth.13369

BEHAVIOURAL NOTE

ethology WILEY

Licking their wounds: Social response to trauma by free-ranging bison (*Bison bison*)

Thomas S. Jung[1,2] | Caeley Thacker[3] | Christopher J. Lewis[4]

[1]Department of Environment, Government of Yukon, Whitehorse, Yukon, Canada
[2]Department of Renewable Resources, University of Alberta, Edmonton, Alberta, Canada
[3]Ministry of Forests, Government of British Columbia, Duncan, British Columbia, Canada
[4]Ministry of Land, Water and Resource Stewardship, Government of British Columbia, Dawson Creek, British Columbia, Canada

Correspondence
Thomas S. Jung, Department of Environment, Government of Yukon, Whitehorse, Yukon, Canada.

Abstract
The epidermis of wild mammals is occasionally lacerated or punctured and wound care behaviours evolved to keep animals healthy in nature. Communal wound licking may promote healing of affected sites, relieve stress after a traumatic experience, and reinforce social bonds among individuals. Yet, there are few reported cases of communal wound licking in free-ranging mammals. We report observations of communal wound licking in a social ungulate—free-ranging bison (*Bison bison*). Two adult female bison presented with minor open puncture wounds after we chemically immobilized each of them with a dart fired from a rifle. The day after being darted, we observed three different adult bison lick the wounds of the two wounded bison. Both bison were <3 m of each other during this time and all of the observed wound licking occurred in <10 min. Our observation provides an additional example of communal

"WHAT'S NEXT" THOUGHTS OR IDEAS ...



BISON - UNGULATE INTERACTIONS

Bison in alpine meadows? When? Where? How long?

Bison – Moose habitat interactions?

(GPS collaring 24/25)

Previous Work:

Co-occurrence of reintroduced and resident ungulates on a shared winter range in northwestern Canada

Thomas S. Jung[a], Troy M. Hegel[a], Shannon A. Stotyn[b] and Sophie M. Czetwertynski[c]

[a]Yukon Department of Environment, P.O. Box 2703, Whitehorse, YT Y1A 2C6, Canada; [b]Environment Canada, 91780 Alaska Highway, Whitehorse, YT Y1A 5X7, Canada; [c]Department of Renewable Resources, University of Alberta, 751 General Services Building, Edmonton, AB T6G 2H1, Canada

BC Environment

MANAGEMENT PLAN
FOR WOOD BISON
IN BRITISH COLUMBIA

by
William L. Harper
John P. Elliott
Ian Hatter
and
Helen Schwantje

UPDATE!!!

BRITISH COLUMBIA

Ministry of Environment, Lands and Parks
Wildlife Branch
Victoria BC

Wildlife Bulletin No. B-102

March 2000

WOOD BISON MANAGEMENT PLAN

Co-management!

March 2000

"WHAT'S NEXT" PROJECTS

Wood Bison (Nordquist, Etthithun, Nahanni)

- GPS collar data analysis
  - Etthithun – Caribou/Moose and Industry overlap – (UNBC)
  - Nordquist – Mortality Hotspots and Mitigation Tools
- Supplemental GPS Collaring - NWT/Yukon/BC Collaborations
  - April 2024 (Nordquist – BC)
  - Sept/Oct/Nov 2024 (Nahanni – NWT/BC (?))
- **Data Sharing/Provincial Data Base**
- Agriculture Canada – Micro-Biome Study (continue)
- Parks Canada – Greg Wilson (continue)
  - Fecal DNA Extraction – Mark Ball - University of Alberta
  - "BIG" – Bison Integrated Genomics Project
- Chemical Immobilization Paper (Under Review)
- **Establish Disease Monitoring Program** (with Provincial Vet)
- T8WG – Herd Management Plan Updates

Plains Bison (Pink Mountain)

- T8WG - Repeat Pink Mountain Population survey of 2014 and 2024 but with marked animals (determine correction factor, accurate population number, recruitment)
- T8WG - Pink Mountain GPS Collaring – Caribou/Sheep/Moose interactions
- PRFN – Trail Camera Demo project
- Continue support of Vegetation/Grazing/Diet Study - (Nick Hamilton – Range Ecologist)
- T8WG – Herd Management Planning

ANY QUESTIONS?