Spring Research and Monitoring Update
Northern Continental Divide Ecosystem
2022 Annual Results

Photo:
Arthur Stephens

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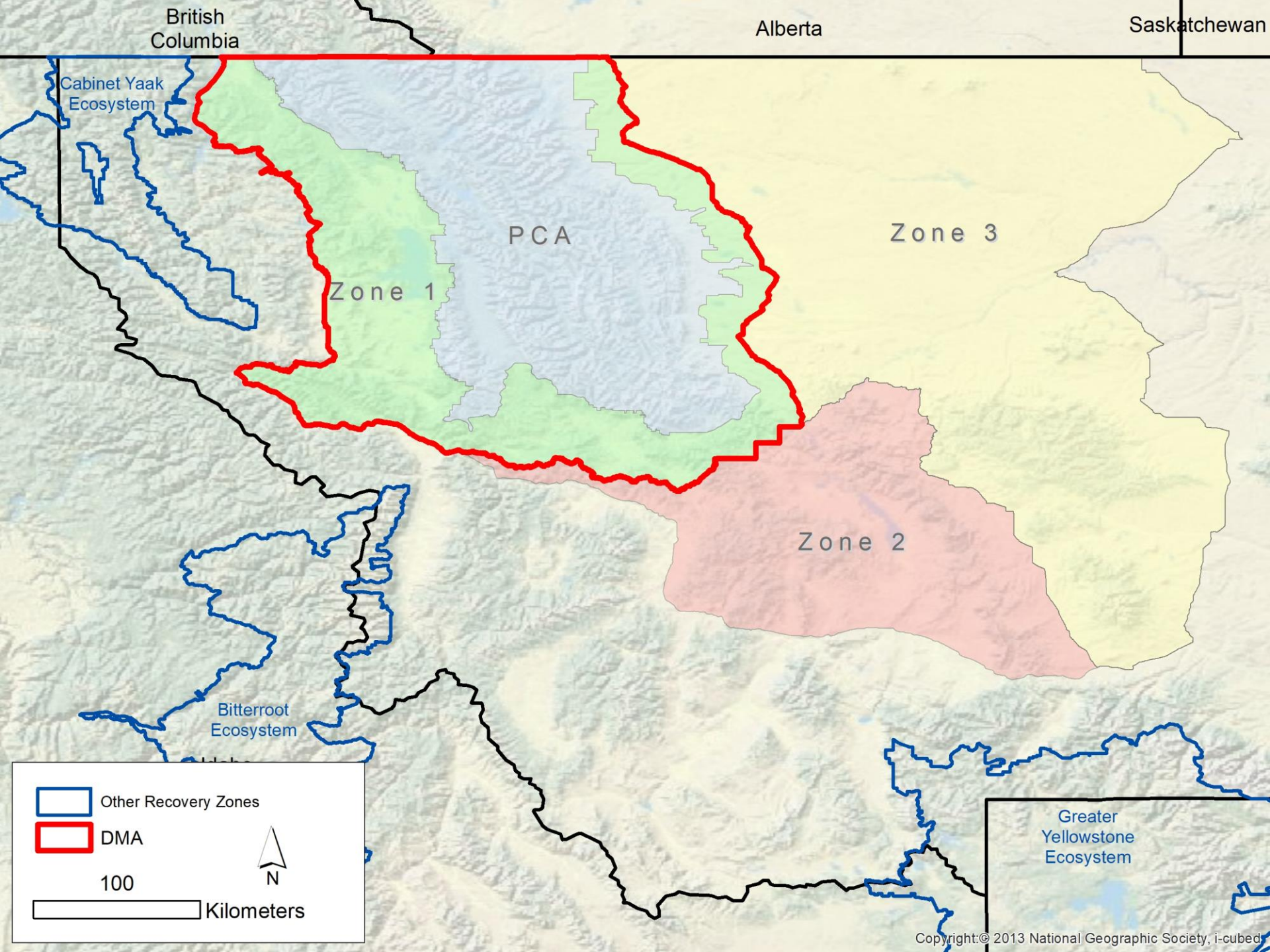
Topics

Field Data Collection

Conservation Strategy Demographic Objectives

Management Summary


British Columbia
Alberta
Saskatchewan
Cabinet Yaak Ecosystem
PCA
Zone 1
Zone 3
Zone 2
Bitterroot Ecosystem
Greater Yellowstone Ecosystem
Other Recovery Zones
DMA
N
100
Kilometers
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2023 Field Data Collection

Capture

- Trend research: 24 (17F, 7M)
- Management or other research: 53 (22F, 31M)

Radio-monitoring

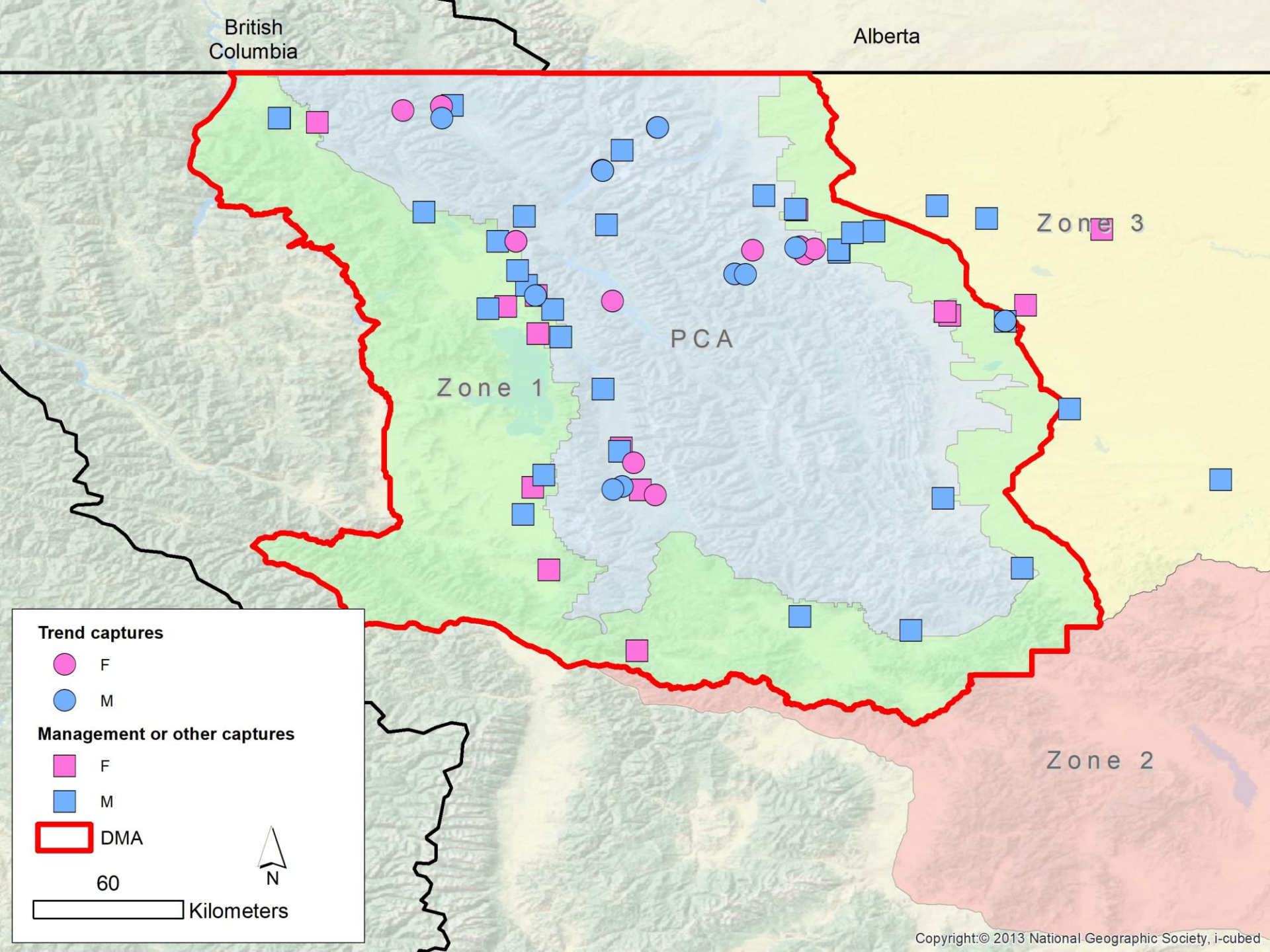
- Trend research: 34 (27F, 7M)
- Management or other: 51 (34F, 17M)

Independent survival monitoring

- Trend research: 0 radioed deaths
- Management or other: 9 radioed deaths (3F, 6M)

Reproductive monitoring with telemetry

- Reproductive status: 46 females (14 CB, 5 YR, 3 2YO, 24 None)
- Cub survival: 4 litters, 10 individuals (10 alive, 3 dead)
- Yearling survival: 2 litters, 4 individuals (2 alive, 2 dead)


British Columbia
Alberta
Zone 3
PCA
Zone 1
Zone 2
Trend captures
F
M
Management or other captures
F
M
DMA
N
60
Kilometers
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Documented Mortalities

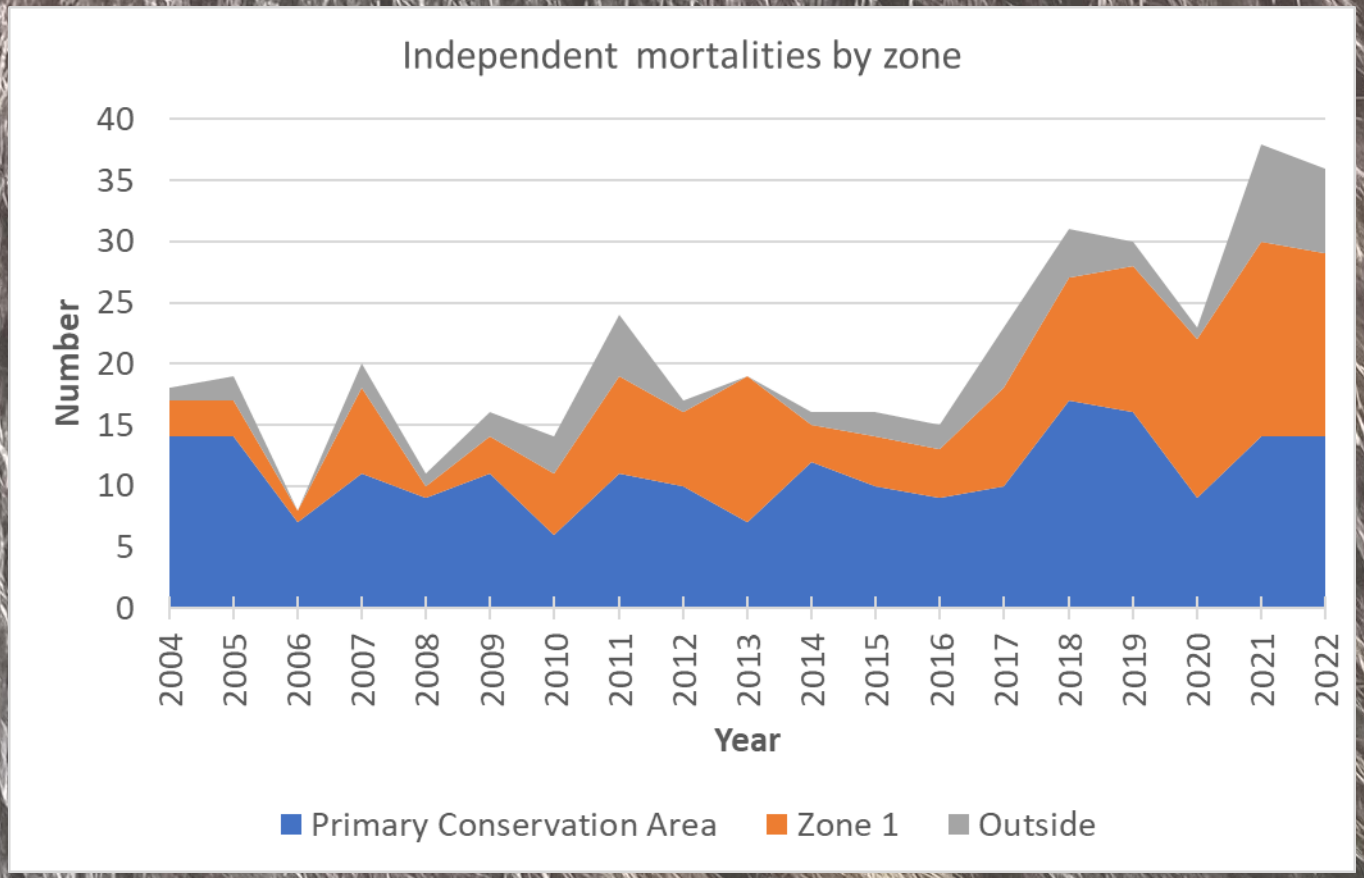
All zones, all age classes

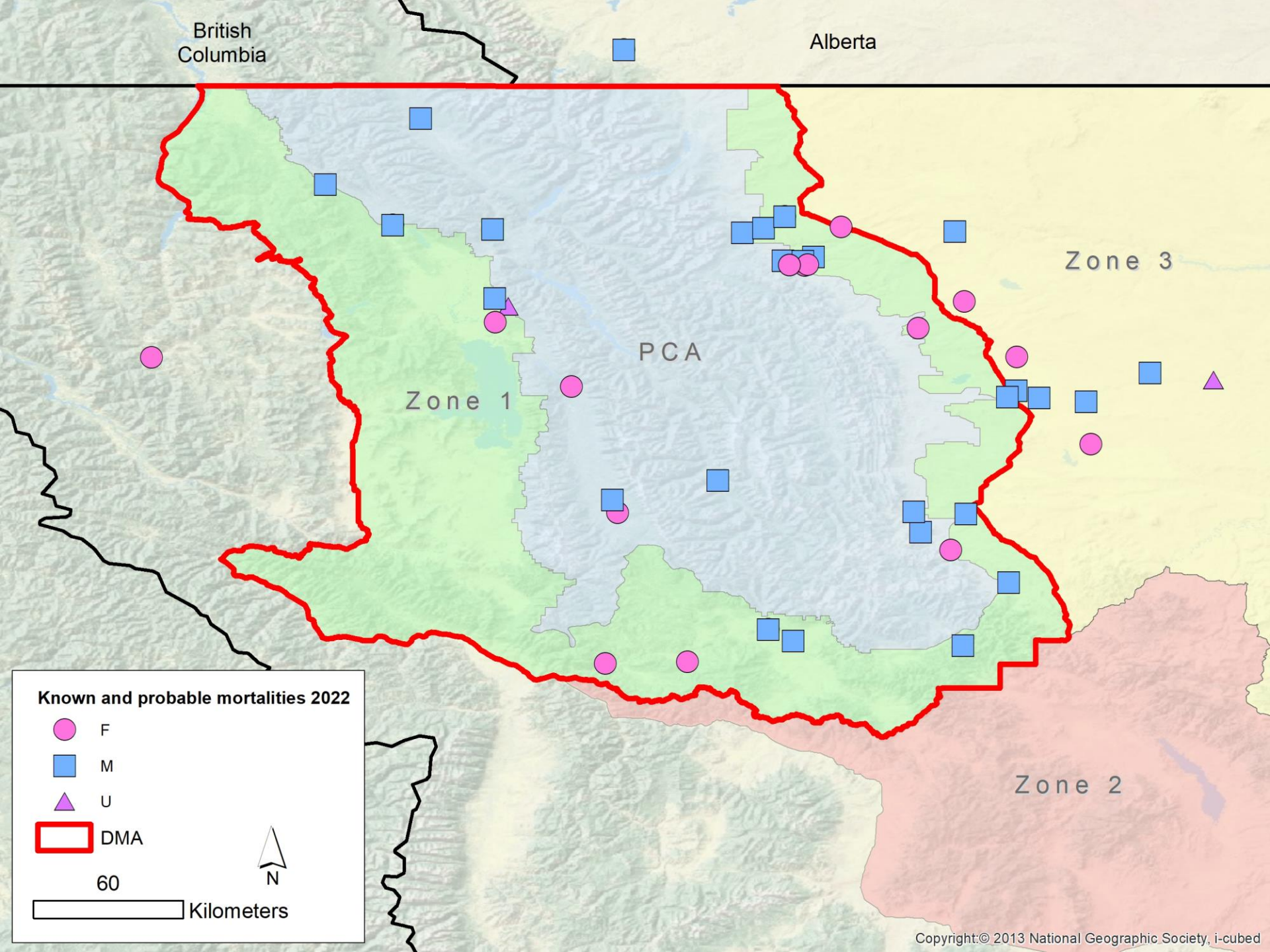
Documented mortalities 2022

	Ageclass	Female	Male	Unknown sex	Total
Inside DMA	Dependent	3	7		10
	Independent	12	16	1	29
	Total	15	23	1	39
Outside DMA	Dependent	1	1	1	3
	Independent	4	5		9
	Total	5	6	1	12

Conservation Strategy Zone

Independent bears only




British Columbia
Alberta
Zone 3
PCA
Zone 1
Zone 2
Known and probable mortalities 2022
F
M
U
DMA
N
60
Kilometers
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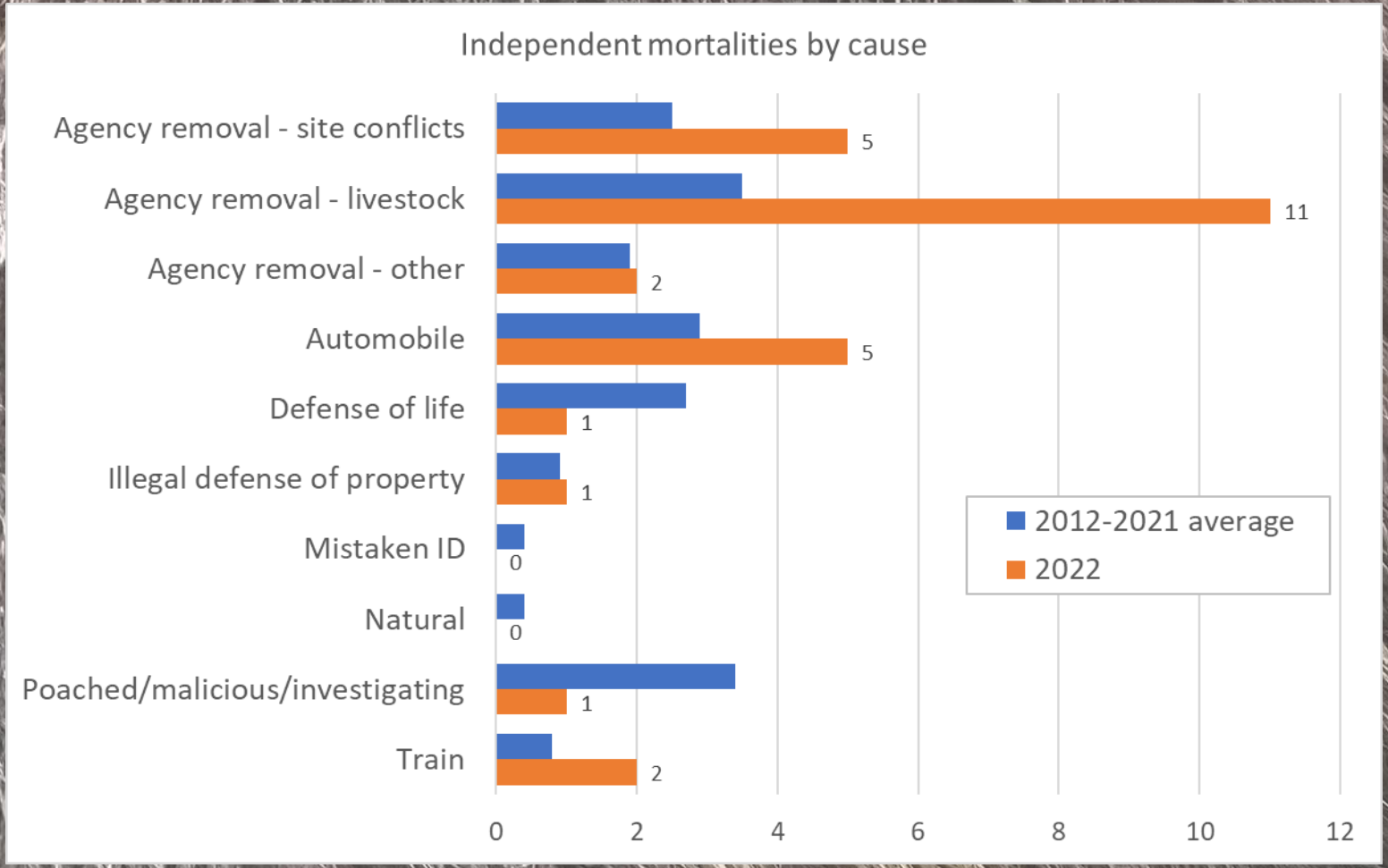
Cause of Death

Independent bears inside DMA

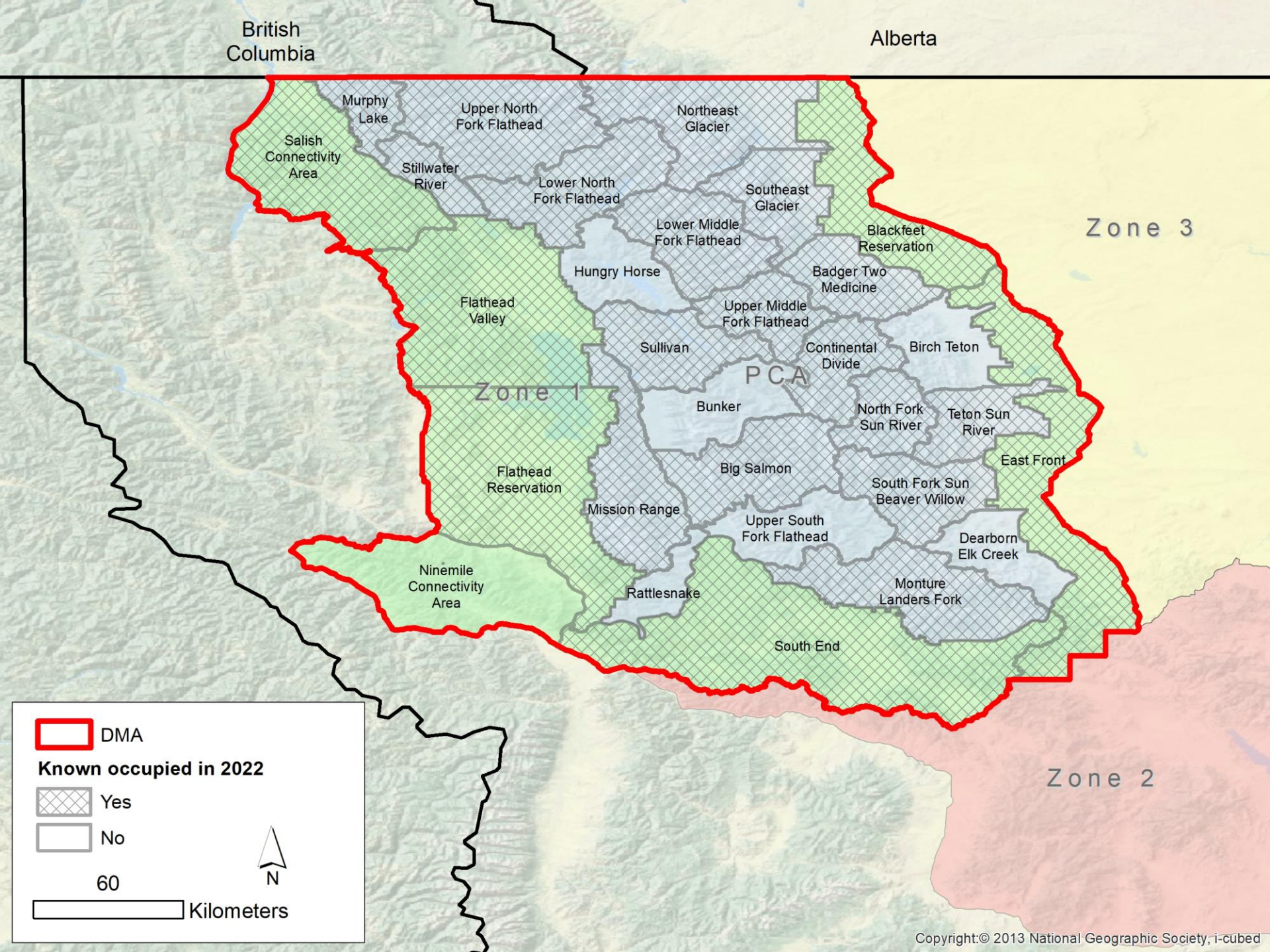


Conservation Strategy Demographic Objectives

Occupancy thresholds - Maintain the documented presence of females with dependent offspring, at least every 6 years, in at least:

≥21 of 23 Bear Management Units of the PCA/Recovery Zone

≥6 of 7 Occupancy Units of Zone 1



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Occupancy thresholds

Bear Management Unit (PCA)	2017	2018	2019	2020	2021	2022	6-year
Murphy Lake	×			×		×	×
Upper North Fork Flathead	×		×	×	×	×	×
Northeast Glacier	×	×	×	×	×	×	×
Stillwater River		×	×	×	×	×	×
Lower North Fork Flathead	×	×	×	×	×	×	×
Hungry Horse	×	×	×	×	×		×
Lower Middle Fork Flathead	×	×	×	×	×	×	×
Southeast Glacier	×	×	×	×	×	×	×
Sullivan	×	×	×	×	×	×	×
Upper Middle Fork Flathead	×	×				×	×
Badger Two Medicine	×	×	×	×		×	×
Mission Range	×	×	×	×	×	×	×
Bunker	×	×	×	×	×		×
Continental Divide				×		×	×
Birch Teton	×	×	×	×			×
Big Salmon		×	×	×	×	×	×
North Fork Sun River	×	×	×	×		×	×
Teton Sun River	×		×	×	×	×	×
Rattlesnake					×		×
Upper South Fork Flathead	×				×		×
South Fork Sun Beaver Willow	×	×	×	×	×	×	×
Monture Landers Fork	×		×	×	×	×	×
Dearborn Elk Creek	×		×	×	×	×	×

Occupancy thresholds

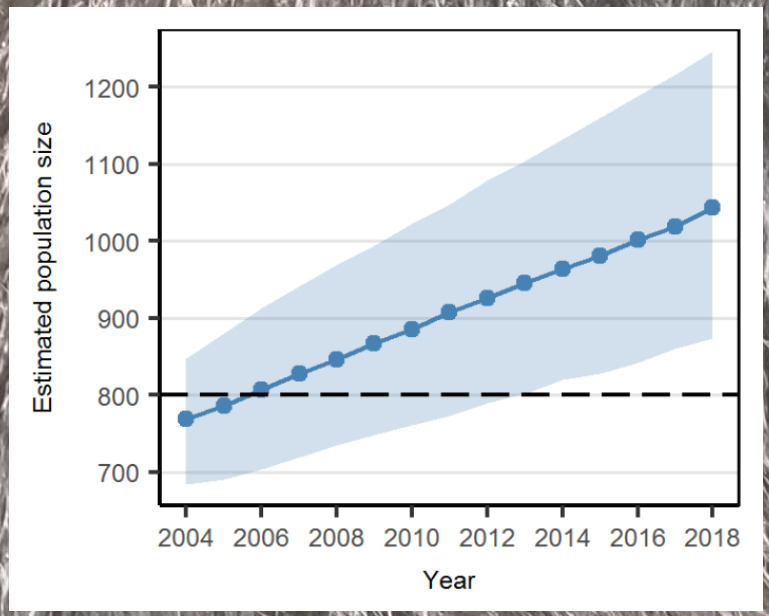
Occupancy Unit (Zone 1)	2017	2018	2019	2020	2021	2022	6-year
Salish Connectivity Area	×	×	×	×	×	×	×
Flathead Valley	×	×	×	×	×	×	×
Flathead Reservation	×	×	×	×	×	×	×
Ninemile Connectivity Area		×	×	×			×
South End	×	×	×	×	×	×	×
East Front	×	×	×	×	×	×	×
Blackfeet Reservation	×	×	×	×	×	×	×

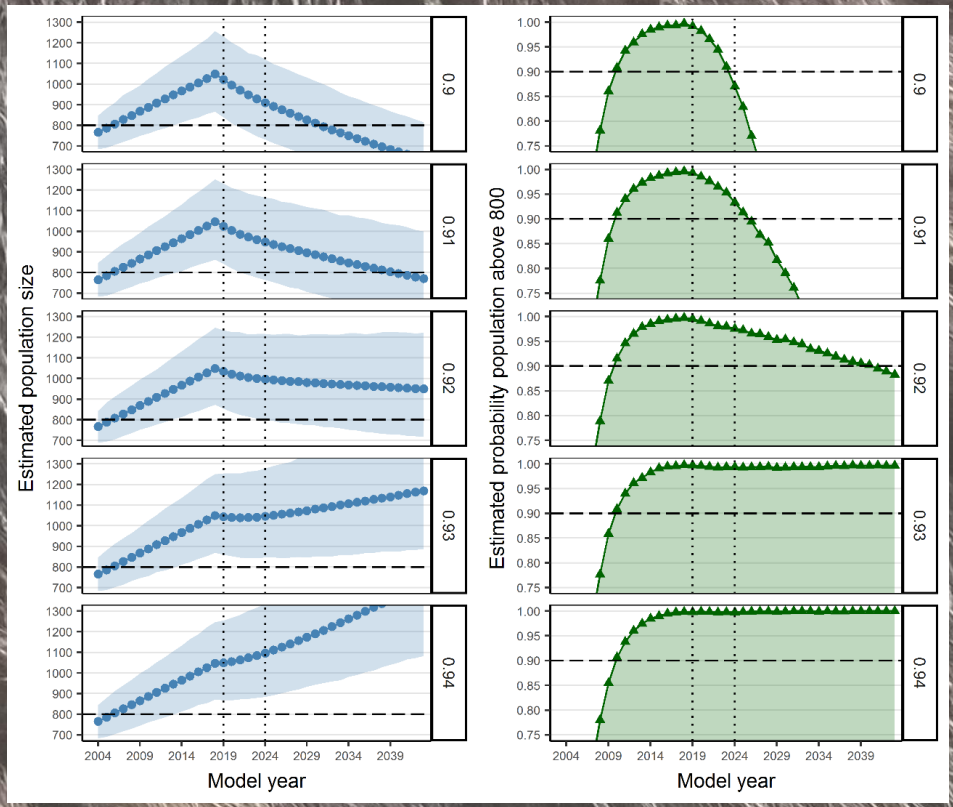
Conservation Strategy Demographic Objectives

Independent female survival threshold - Using a six-year running average, maintain estimated annual survival of independent females of:

≥ 0.92 = the 2022 threshold rate consistent with a projected 90% probability that the population within the DMA will remain above 800 bears

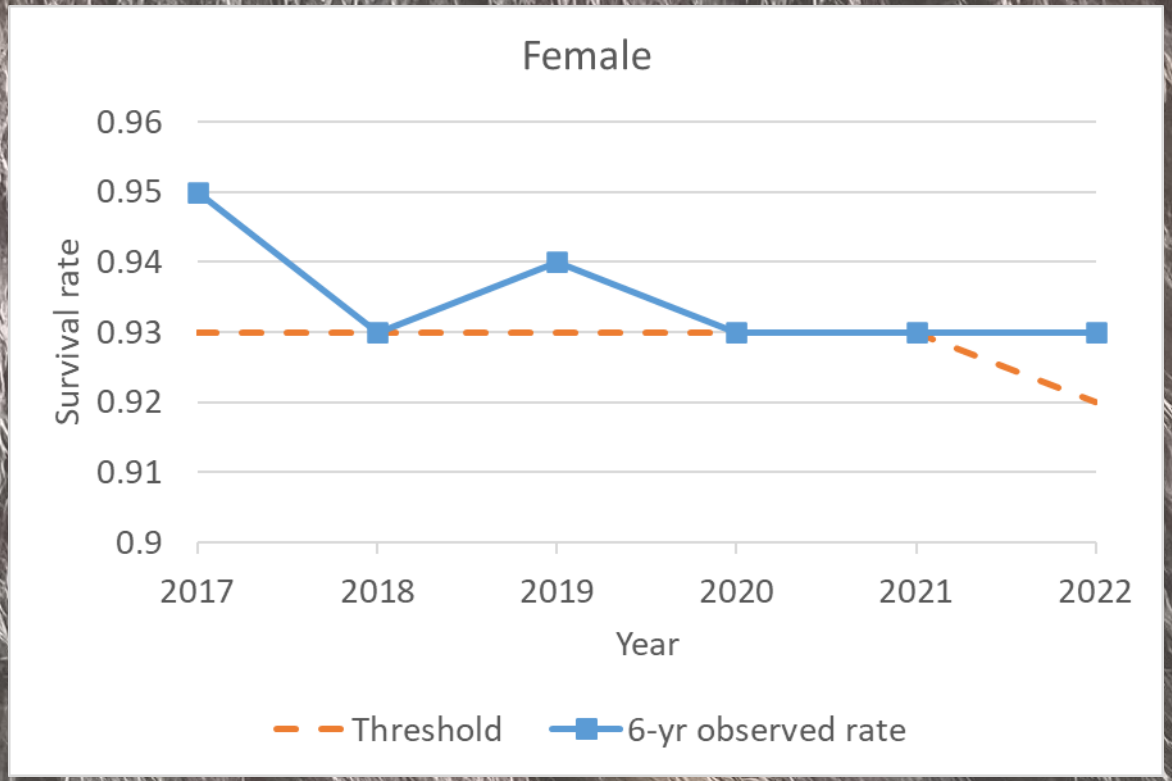
Conservation Strategy Demographic Objectives





2022 population estimate within DMA = 1163 grizzly bears

Independent female survival threshold



Conservation Strategy Demographic Objectives

Independent mortality thresholds Using a 6-year running average, limit annual estimated number of total reported and unreported mortalities (TRU mortalities) to:

Females

≤25 = the 2022 threshold number consistent with a projected 90% probability that the population within the DMA will remain above 800 bears

Males

≤30 = the 2022 threshold number consistent with a projected 90% probability that the population within the DMA will remain above 800 bears

Independent mortality thresholds

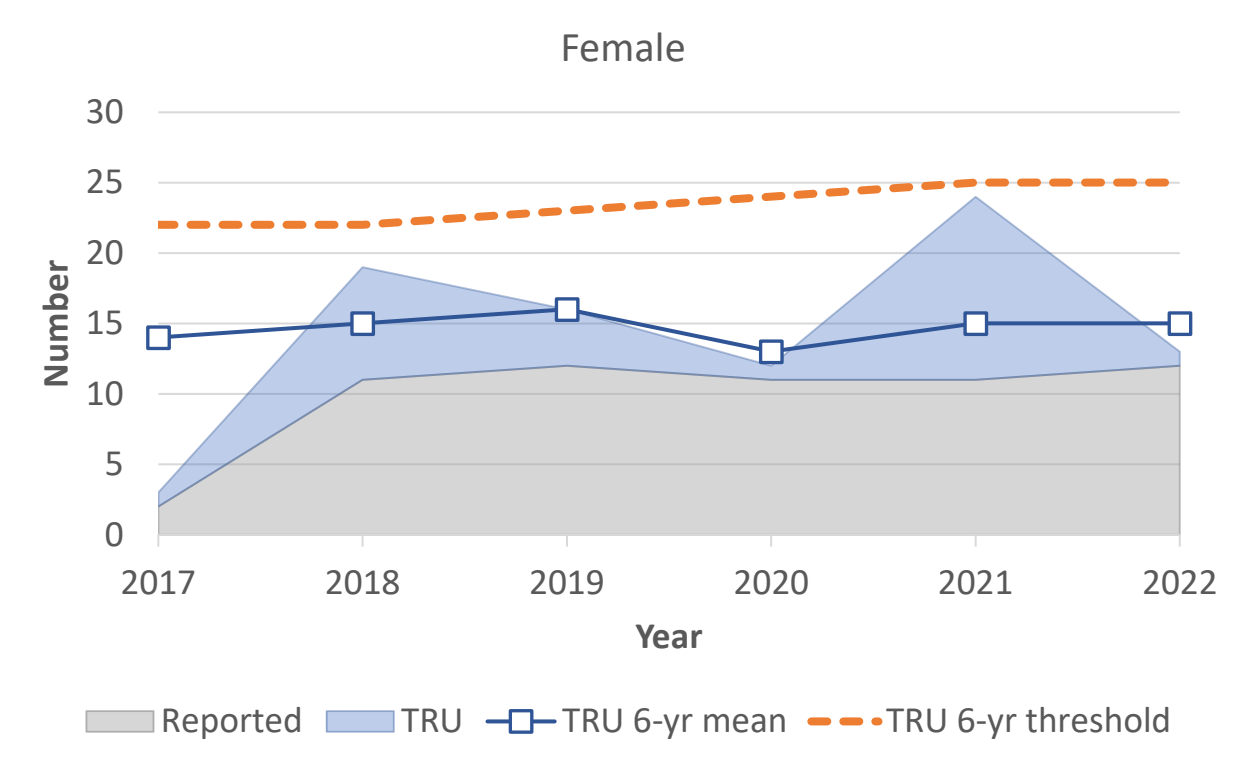
Documented mortalities 2022

	Ageclass	Female	Male	Unknown sex	Total
Inside DMA	Independent	12	16	1	29

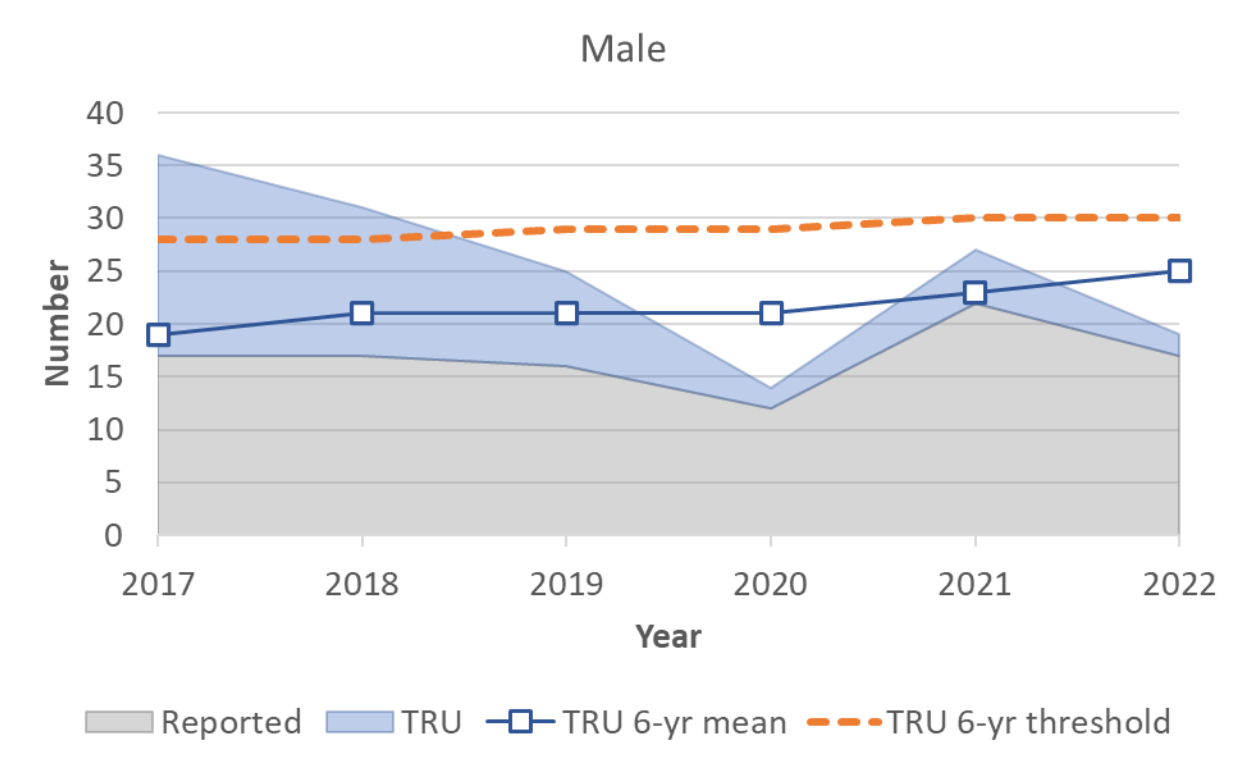
Estimated total reported & unreported (TRU) mortality 2022

Sex	Agency removal (A)	Telemetry (B)	Reported (high)	Reported (low)	Estimated reported and unreported (C)	Estimated total mortality (A+B+C)
Female	8	1	3	0	4	13
Male	10	2	5	0	7	19

Independent mortality thresholds



Independent mortality thresholds



Preliminary Information-Subject to Revision.

Monitor genetic and demographic connectivity

Estimate spatial distribution of the population biennially

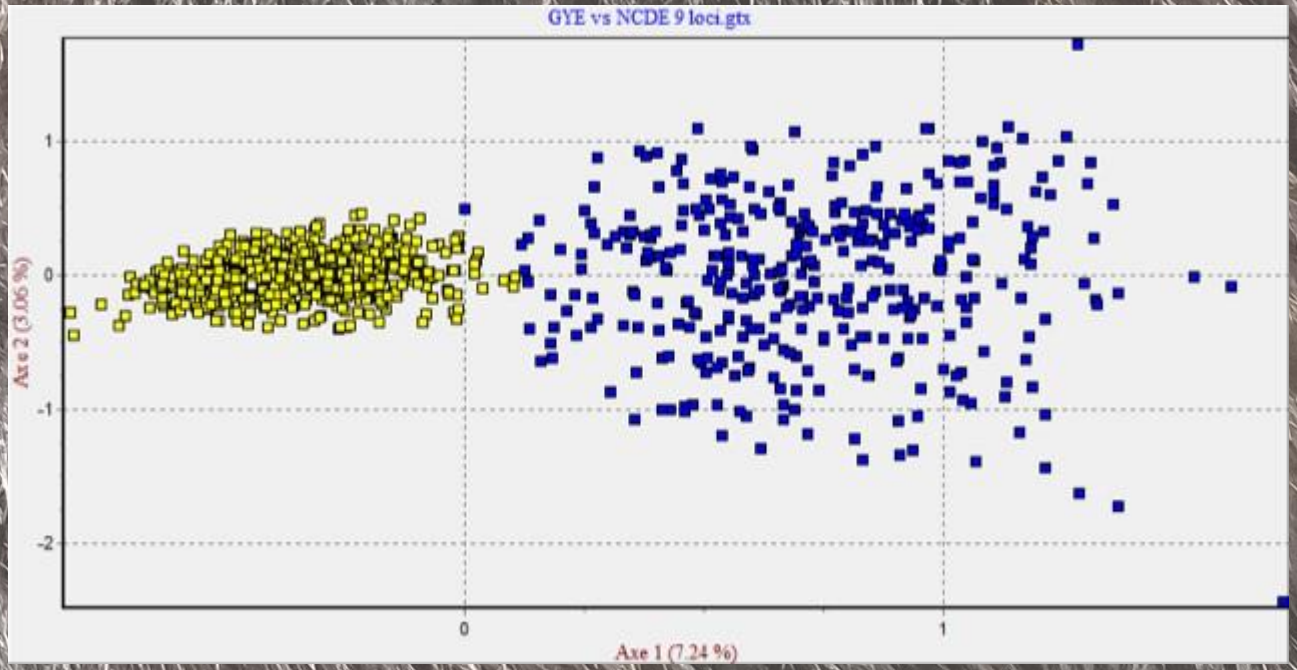
Identify population of origin for individuals sampled inside and outside of the DMA

Monitor genetic and demographic connectivity

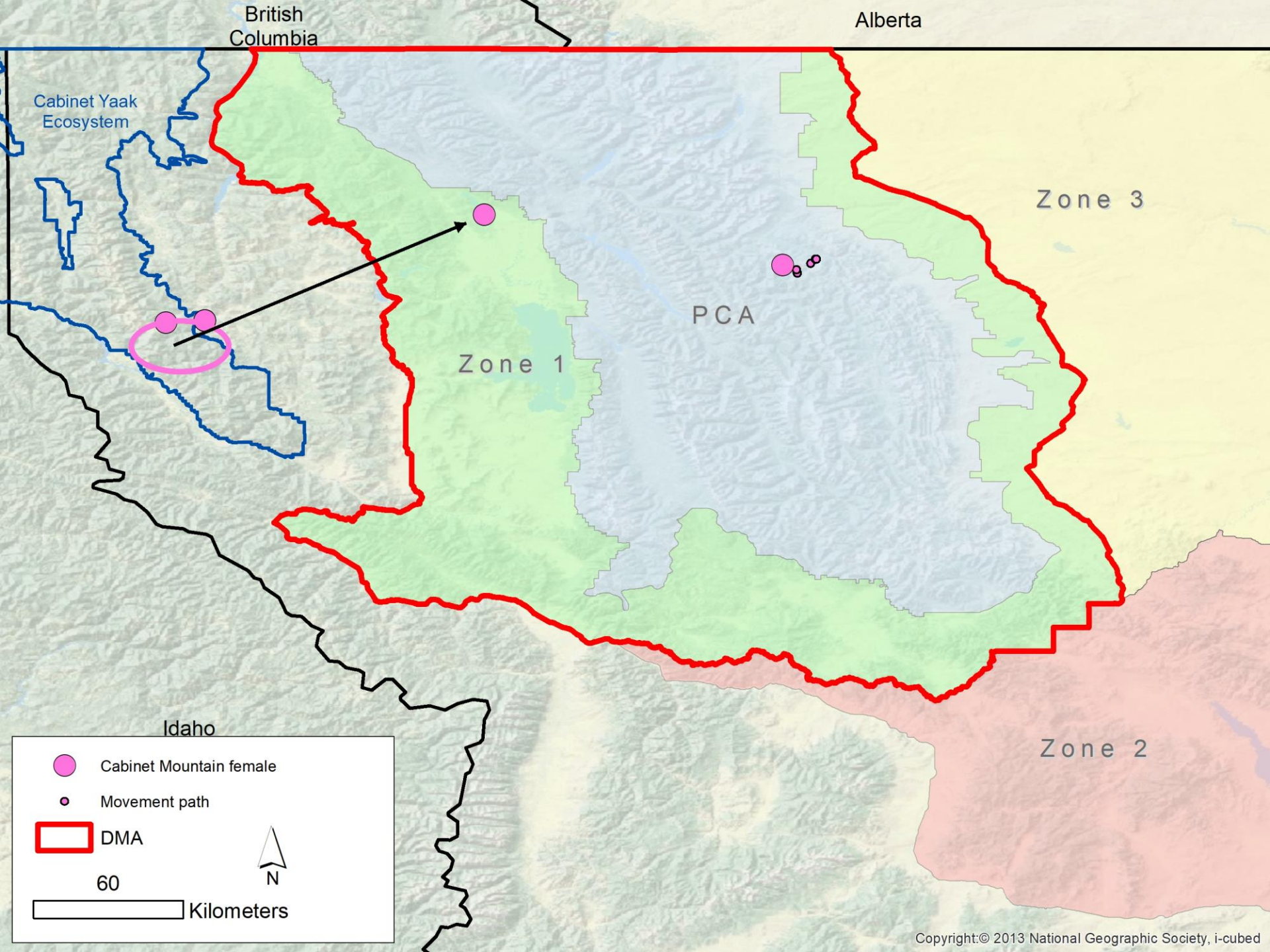
Estimate spatial distribution of the population biennially

- Not completed yet
- Revised methodology to make all ecosystems consistent
  - ✓ 3-km grid versus 7-km grid
  - ✓ 15 year window versus 10-year window

Movements between ecosystems



- No evidence of movements of individuals between the NCDE and GYE from DNA data through 2021
- No documented interbreeding with CYE bears


British Columbia
Alberta
Cabinet Yaak Ecosystem
Zone 3
PCA
Zone 1
Zone 2
Idaho
Cabinet Mountain female
Movement path
DMA
N
60
Kilometers
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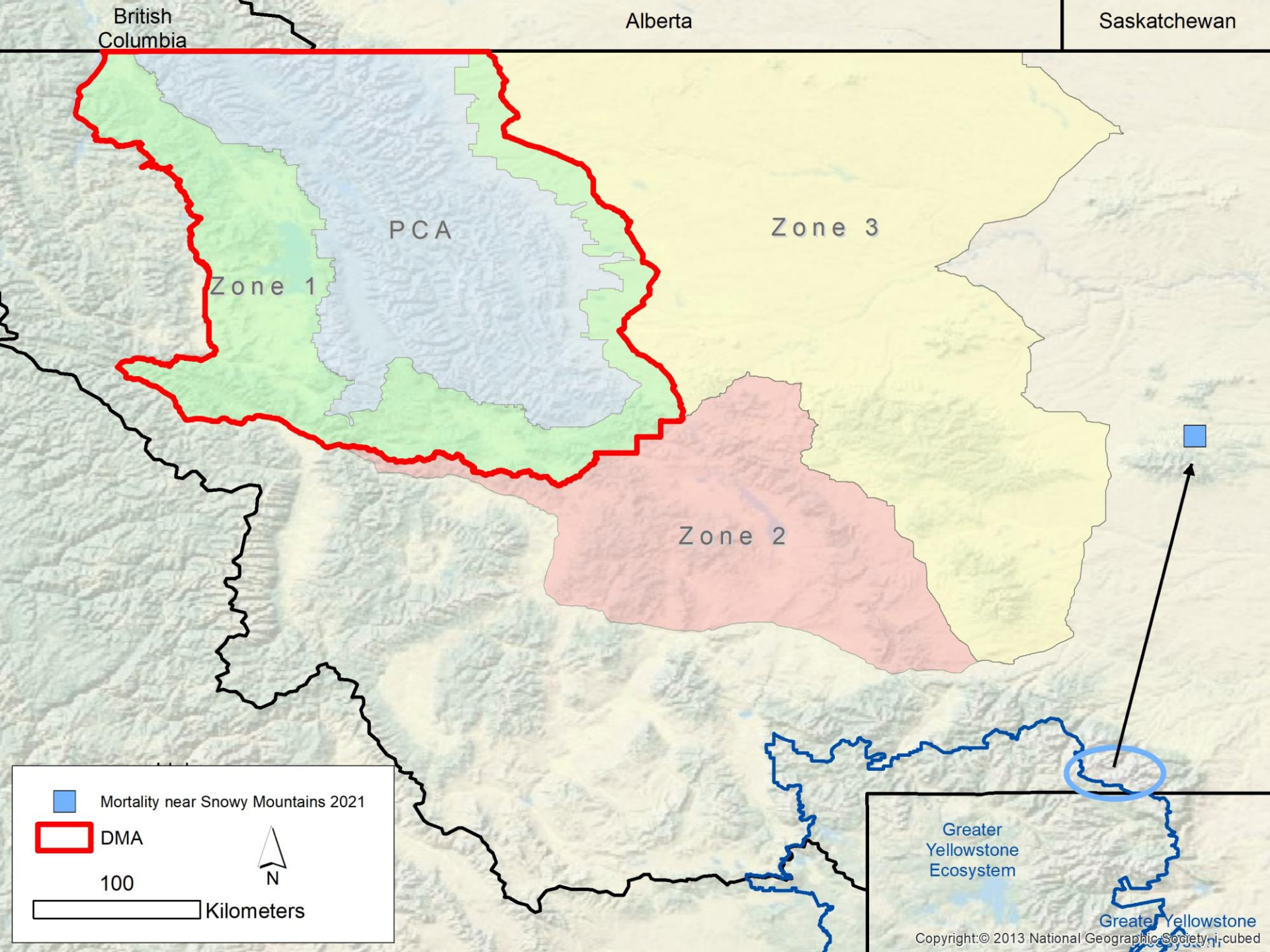
British Columbia
Alberta
Saskatchewan
PCA
Zone 1
Zone 2
Zone 3
Mortality near Snowy Mountains 2021
DMA
N
100
Kilometers
Greater Yellowstone Ecosystem
Greater Yellowstone
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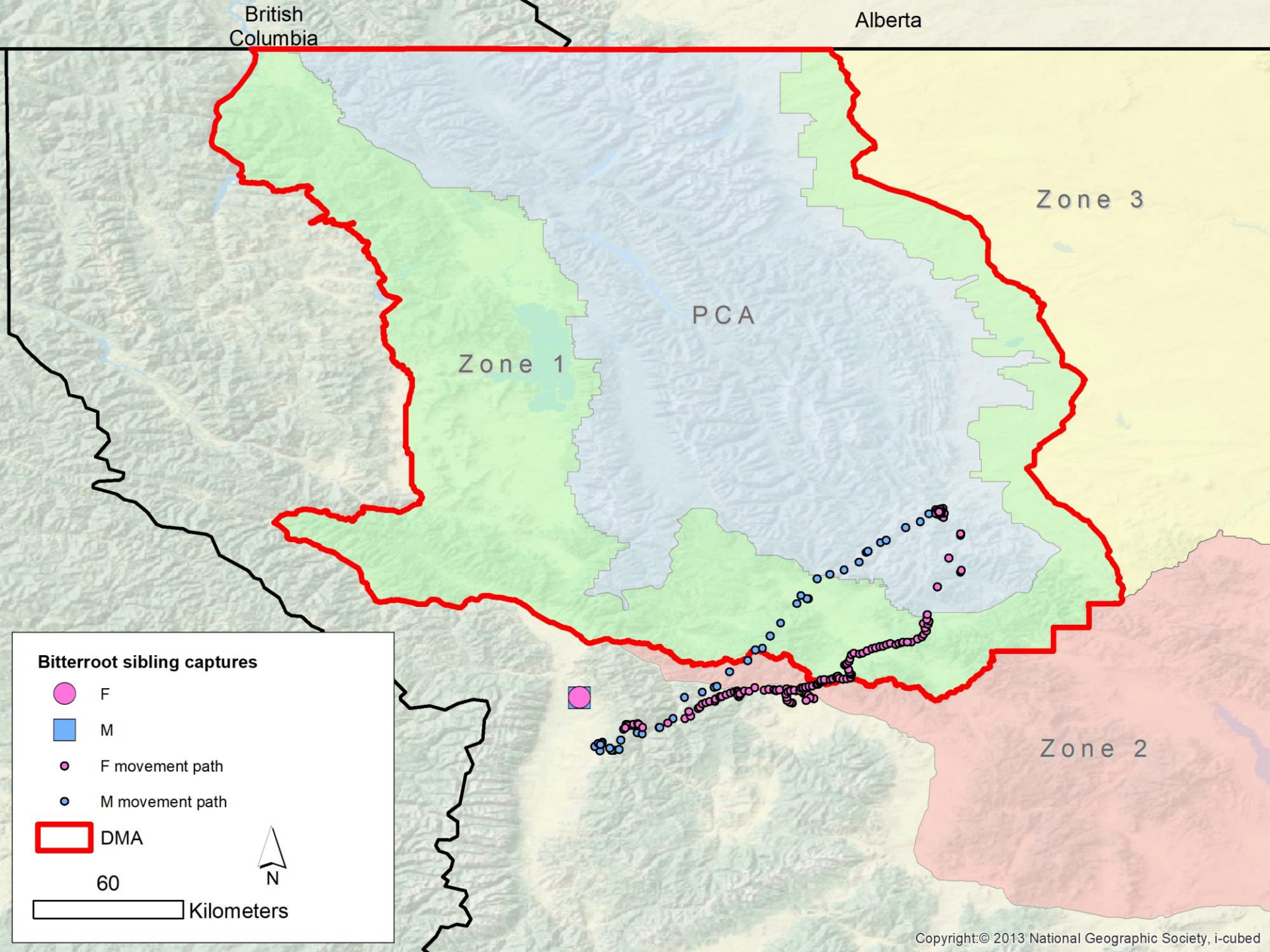
British Columbia
Alberta
Zone 3
PCA
Zone 1
Zone 2
Bitterroot sibling captures
F
M
F movement path
M movement path
DMA
N
60
Kilometers
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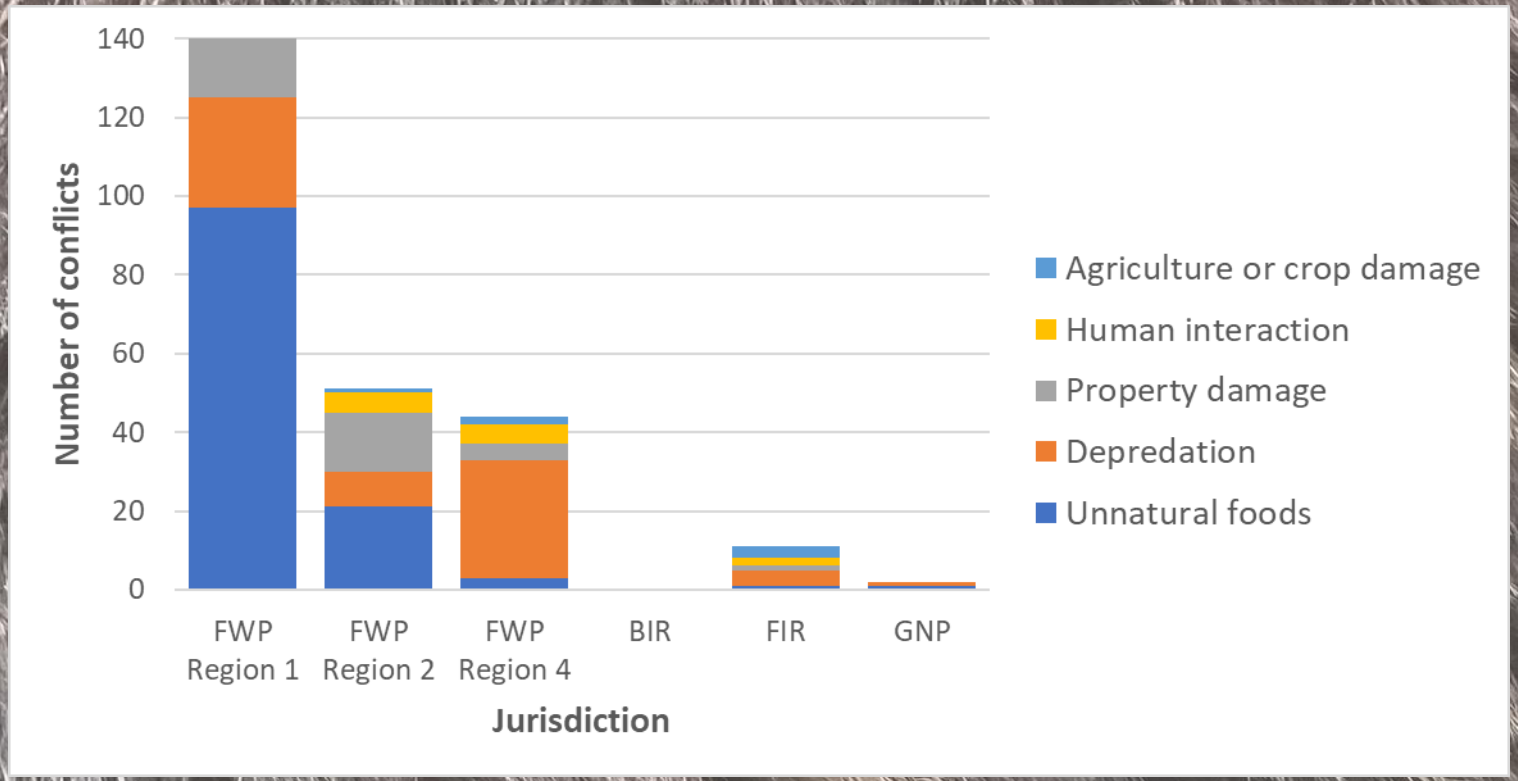
Management Summary

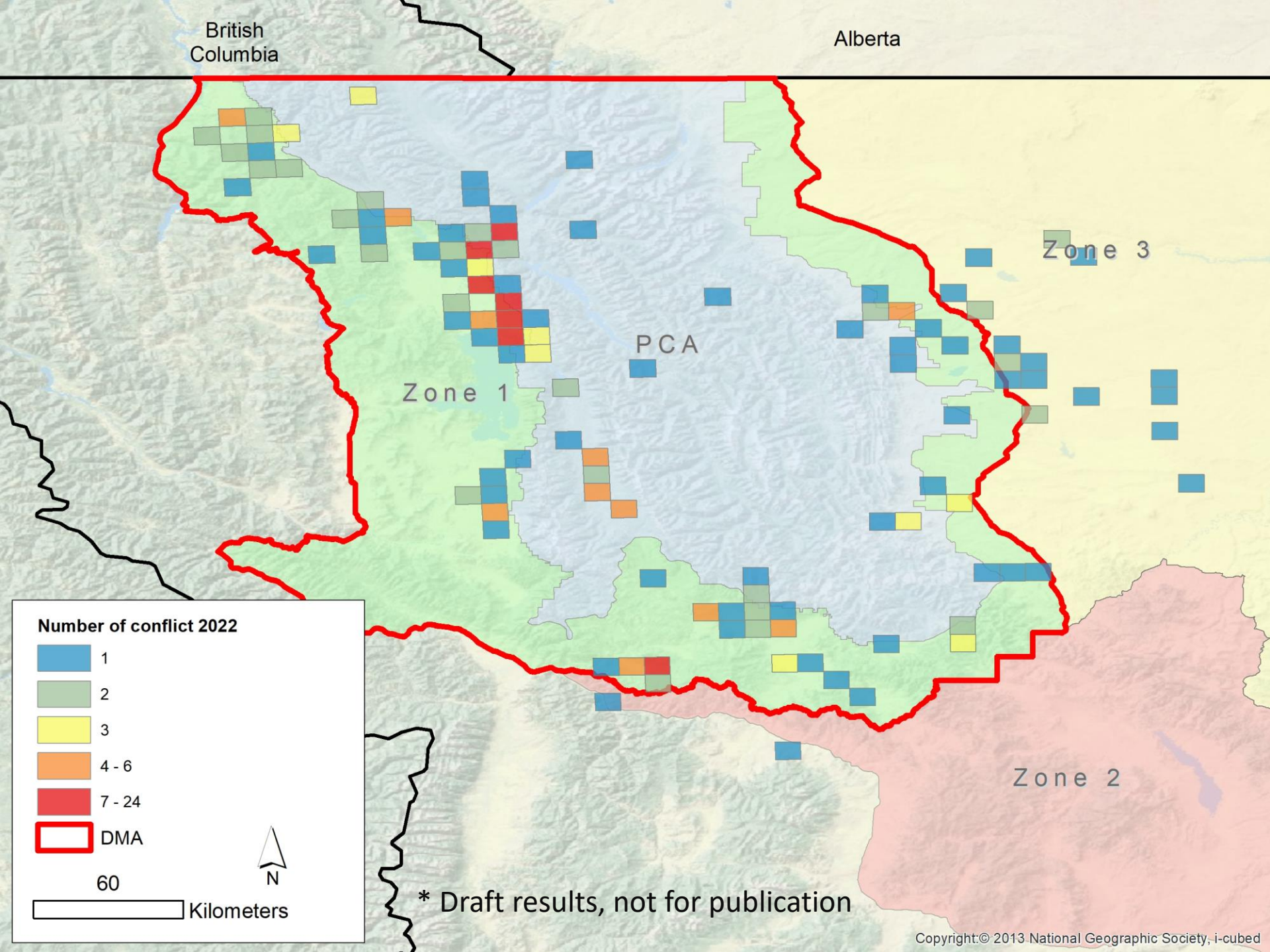
Interagency management database, started in 2020

- Record human-grizzly bear conflicts
- Record preventative actions
- Records observations, including females with offspring and outliers
- Record opportunistic DNA samples obtained

Human-Grizzly Bear Conflicts



* Draft results, not for publication


British Columbia
Alberta
Zone 1
PCA
Zone 3
Zone 2
Number of conflict 2022
1
2
3
4 - 6
7 - 24
DMA
N
60
Kilometers
* Draft results, not for publication
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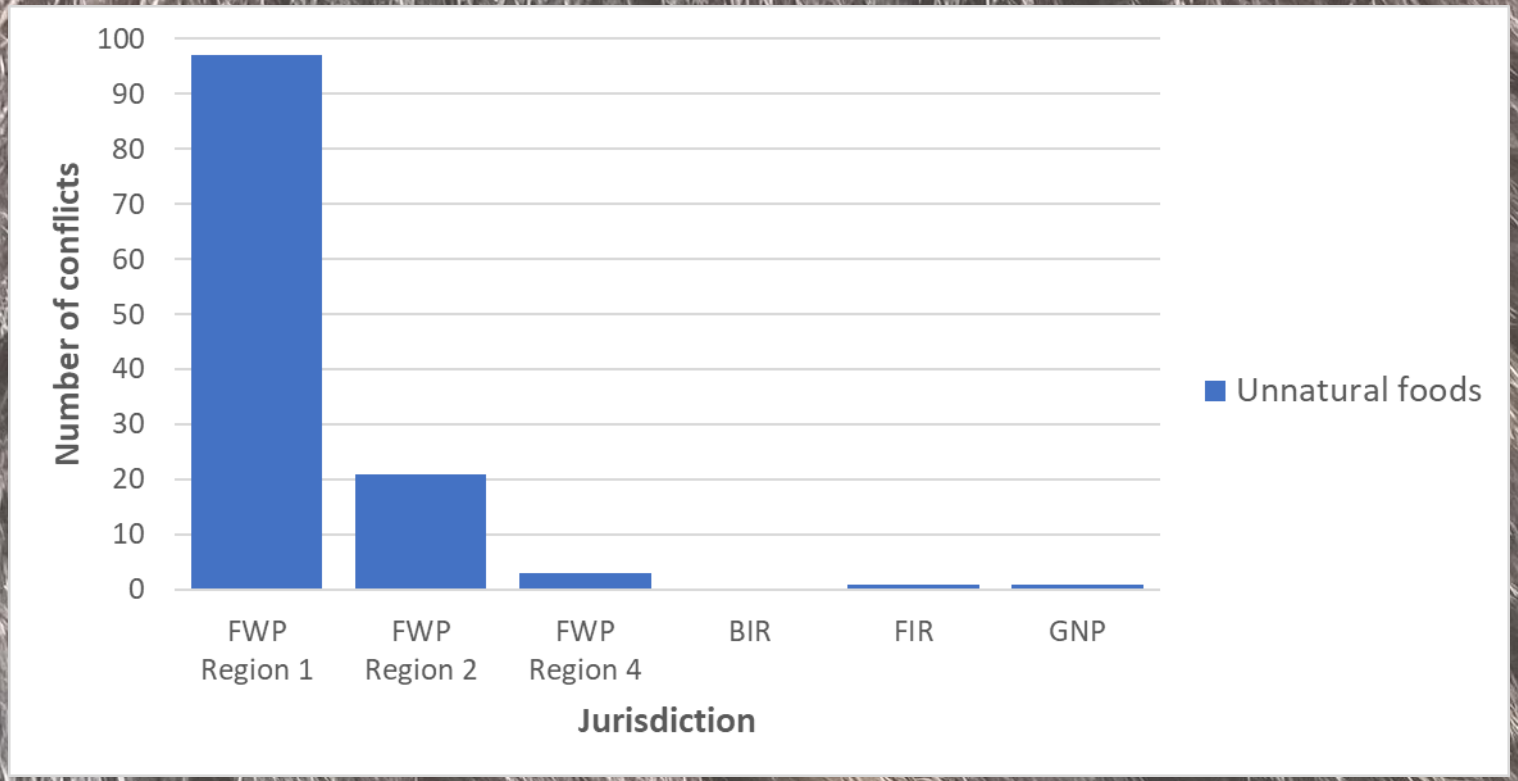
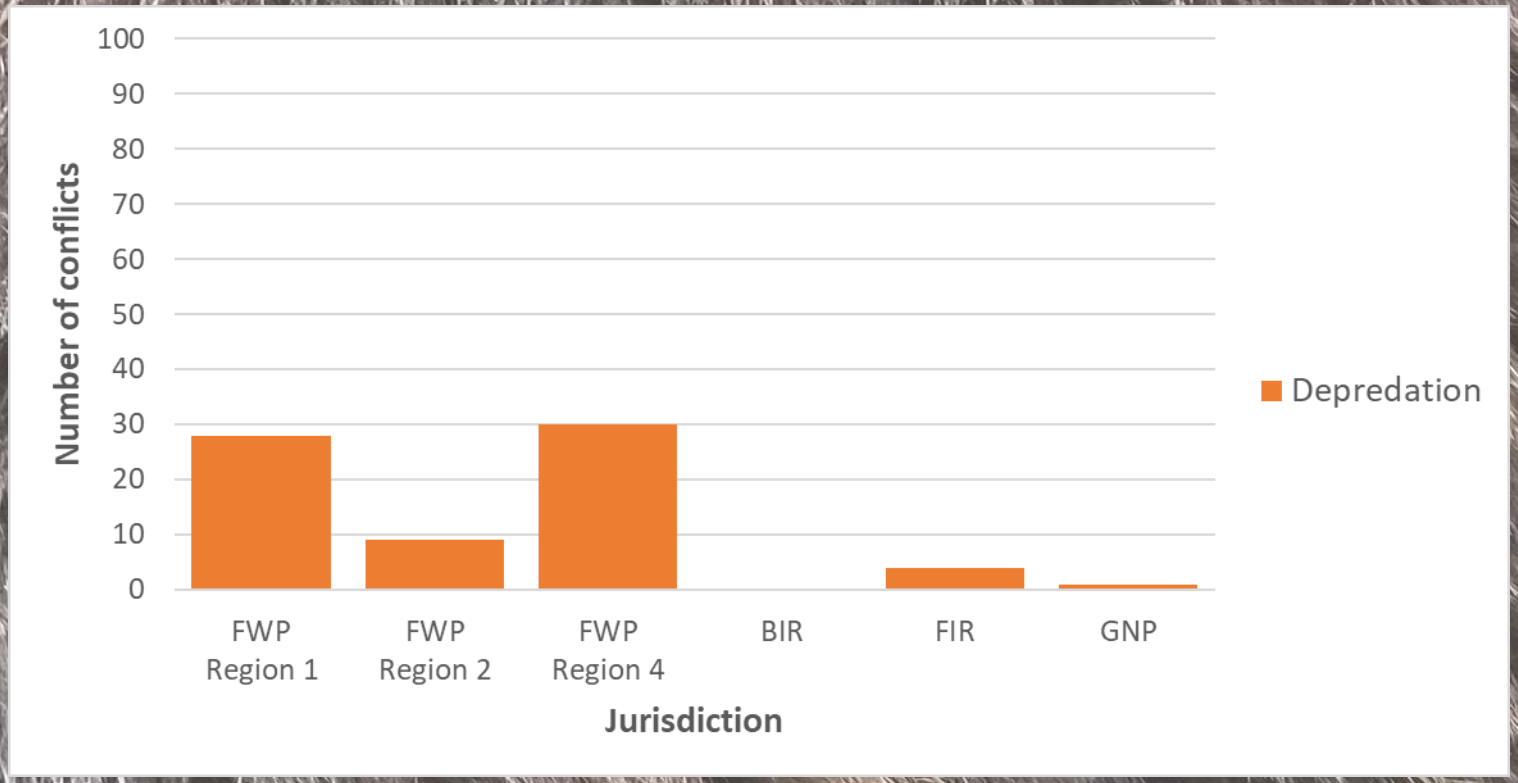
Human-Grizzly Bear Conflicts



Garbage (55%), Pet or animal feed (35%)

* Draft results, not for publication

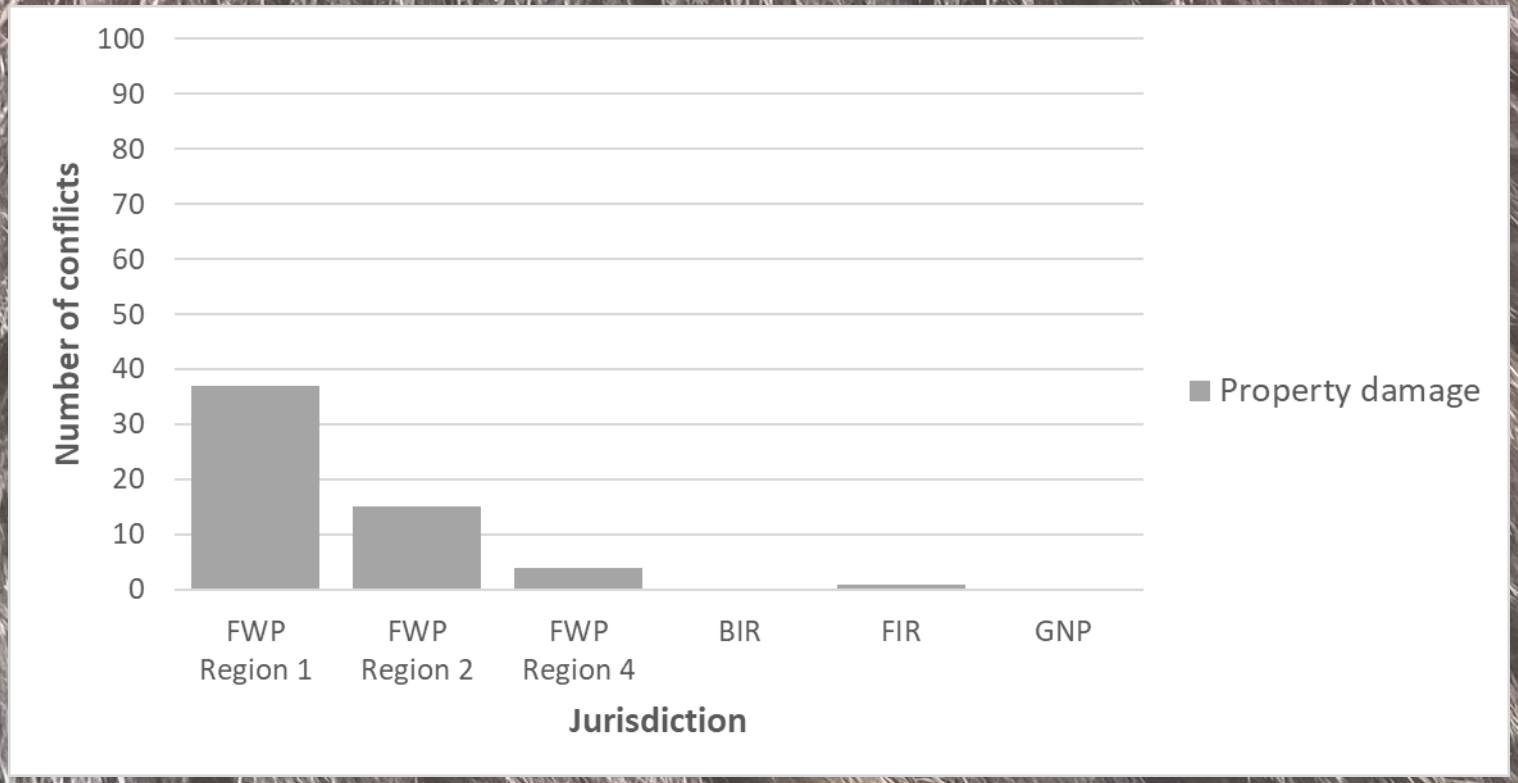
Human-Grizzly Bear Conflicts



Chickens (49%), Cattle (31%), Sheep (11%)

* Draft results, not for publication

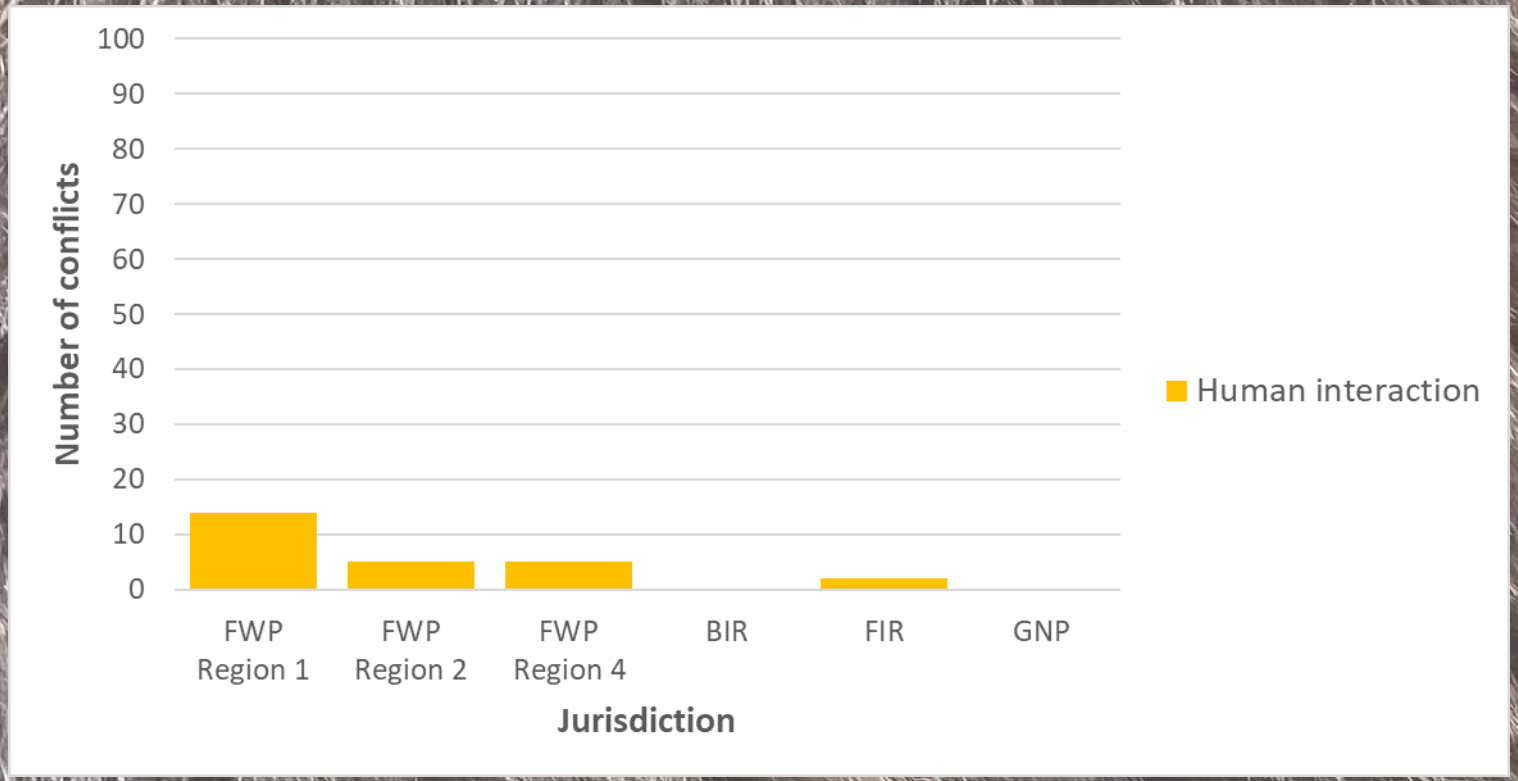
Human-Grizzly Bear Conflicts



Buildings (73%), Enclosure (18%)

* Draft results, not for publication

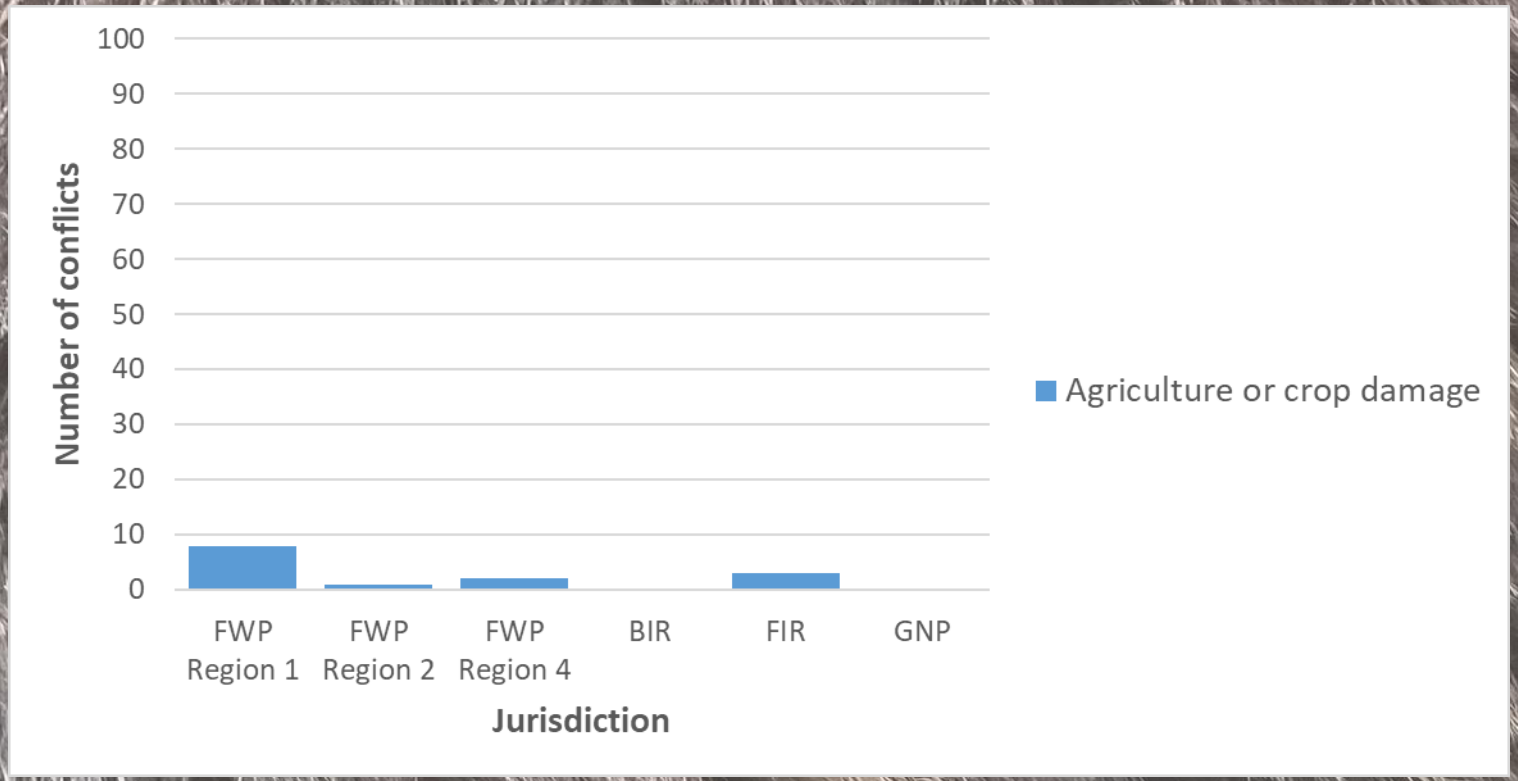
Human-Grizzly Bear Conflicts



Aggressive encounter (42%), Habituation (38%), DOL shooting (12%)

* Draft results, not for publication

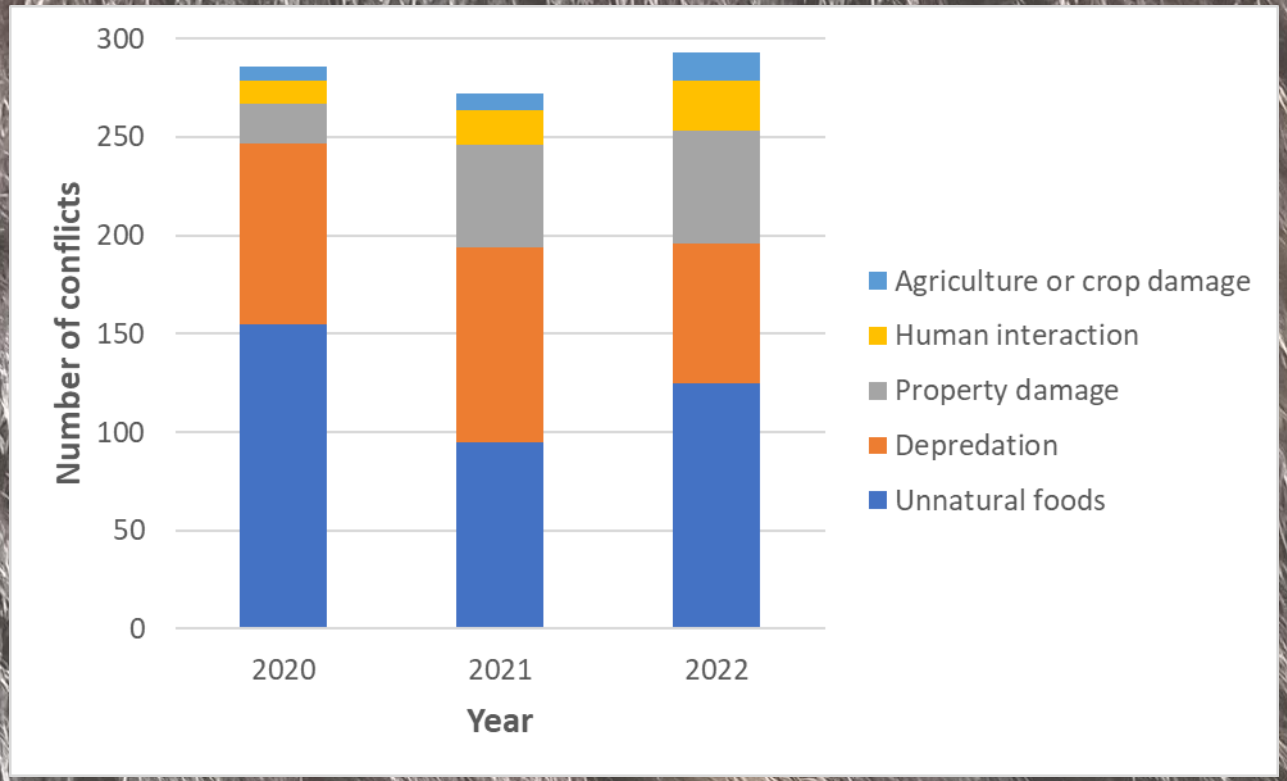
Human-Grizzly Bear Conflicts



Orchard/fruit (42%), Stored grain (29%), Beehives (21%)

* Draft results, not for publication

Human-Grizzly Bear Conflicts 2020-2022



* Draft results, not for publication

Acknowledgements

Kyle Yorke
Paden Alexander
Kim Annis
Courtney Lockerby
Mackenzie Taylor
Jack Austin
Steve Cross
Susan Clothier
Erik Graham
Daniel McHugh
Bruce Montgomery
Nathan Reiner
Kari Kingery
Nate Muhn

Kari Kingery
Lee Anderson
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Ben Jimenez
Rory Trimbo
Amber Kornak
Morgan Vance
Wildlife Services
Rob Cherot
Joe Rahn
Ken Justus
Jim Pierce
Red Eagle Aviation
Two Bear Air
and many others…