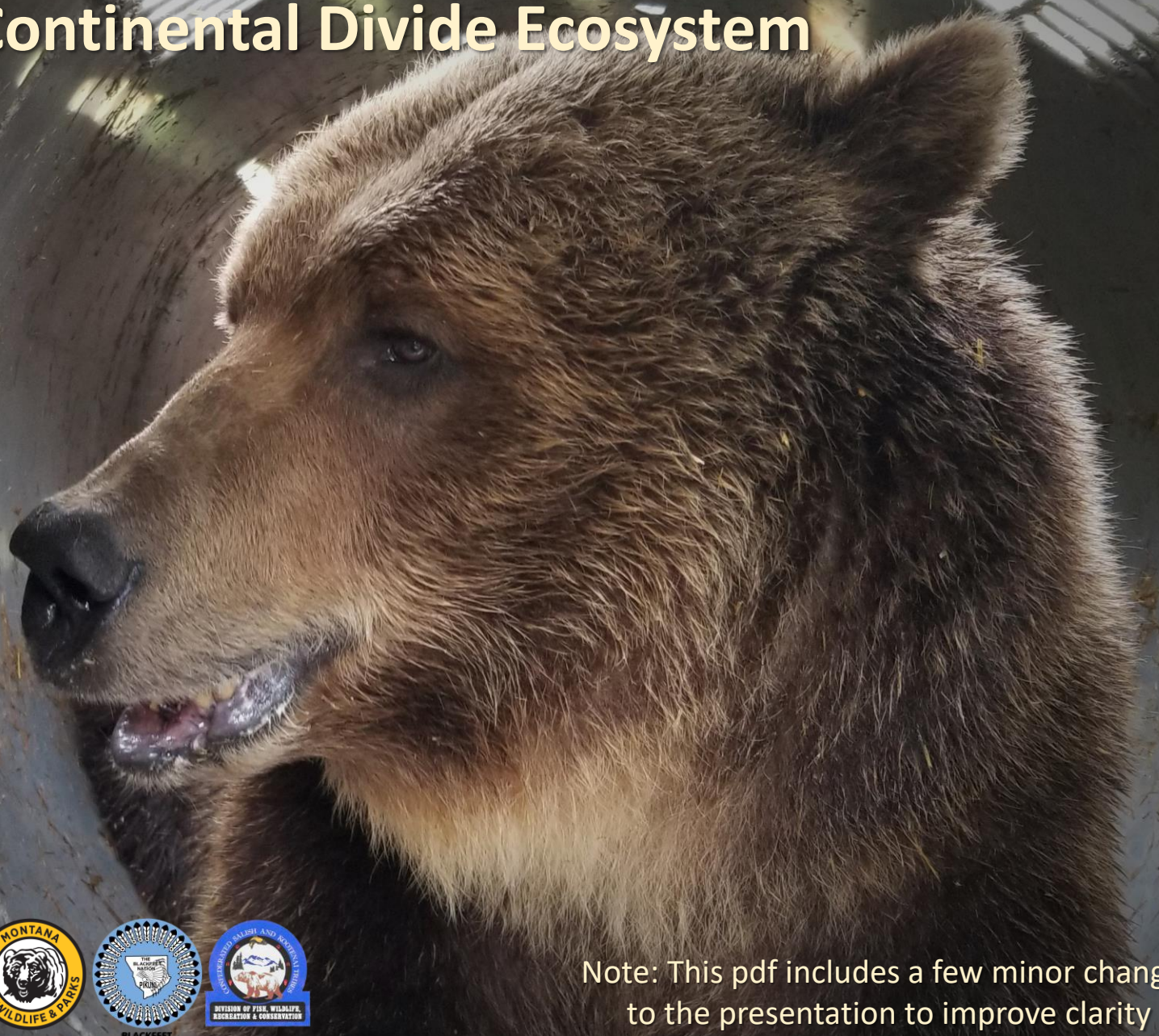


# Fall Research and Monitoring Update Northern Continental Divide Ecosystem 2020

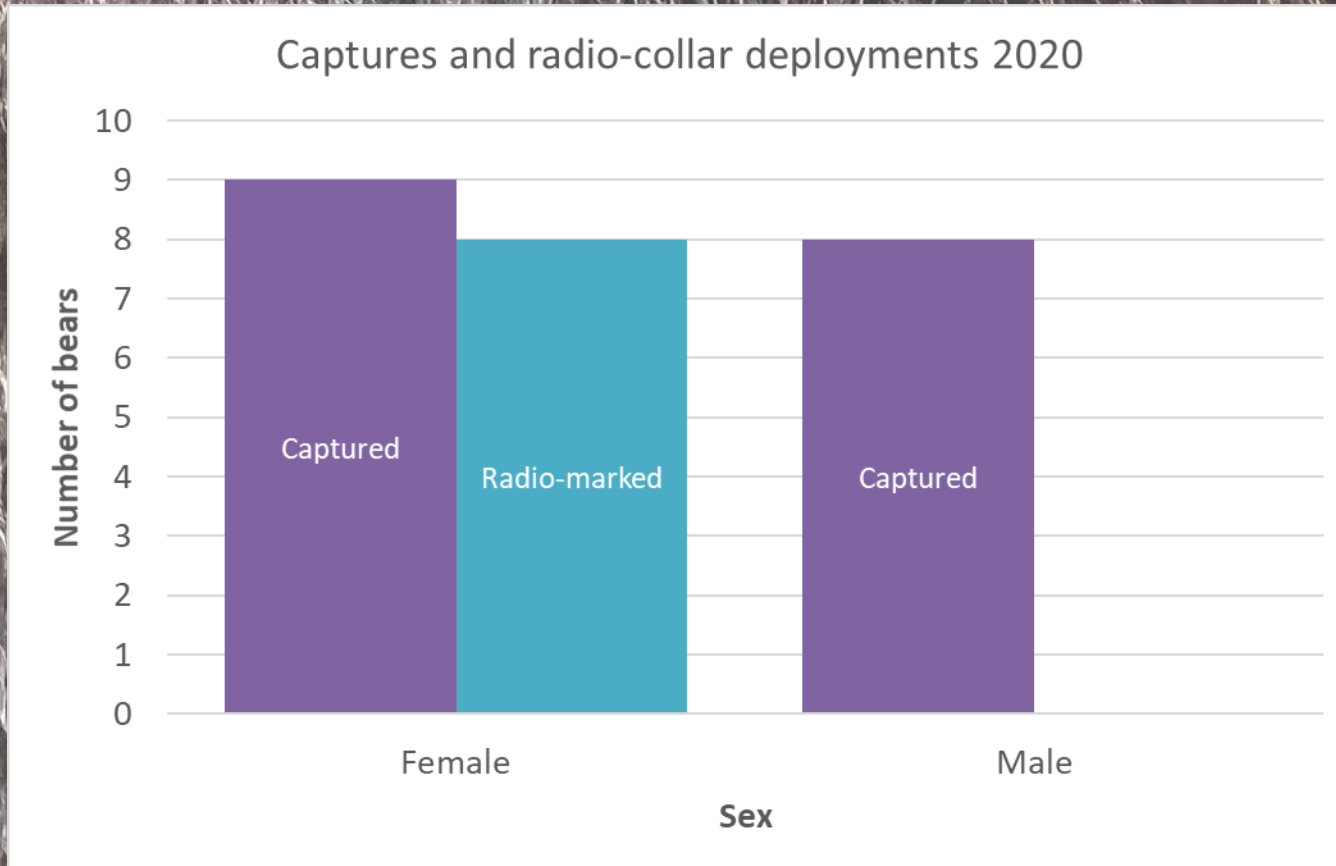


Note: This pdf includes a few minor changes to the presentation to improve clarity



# Field results

## *Research Sample in DMA*

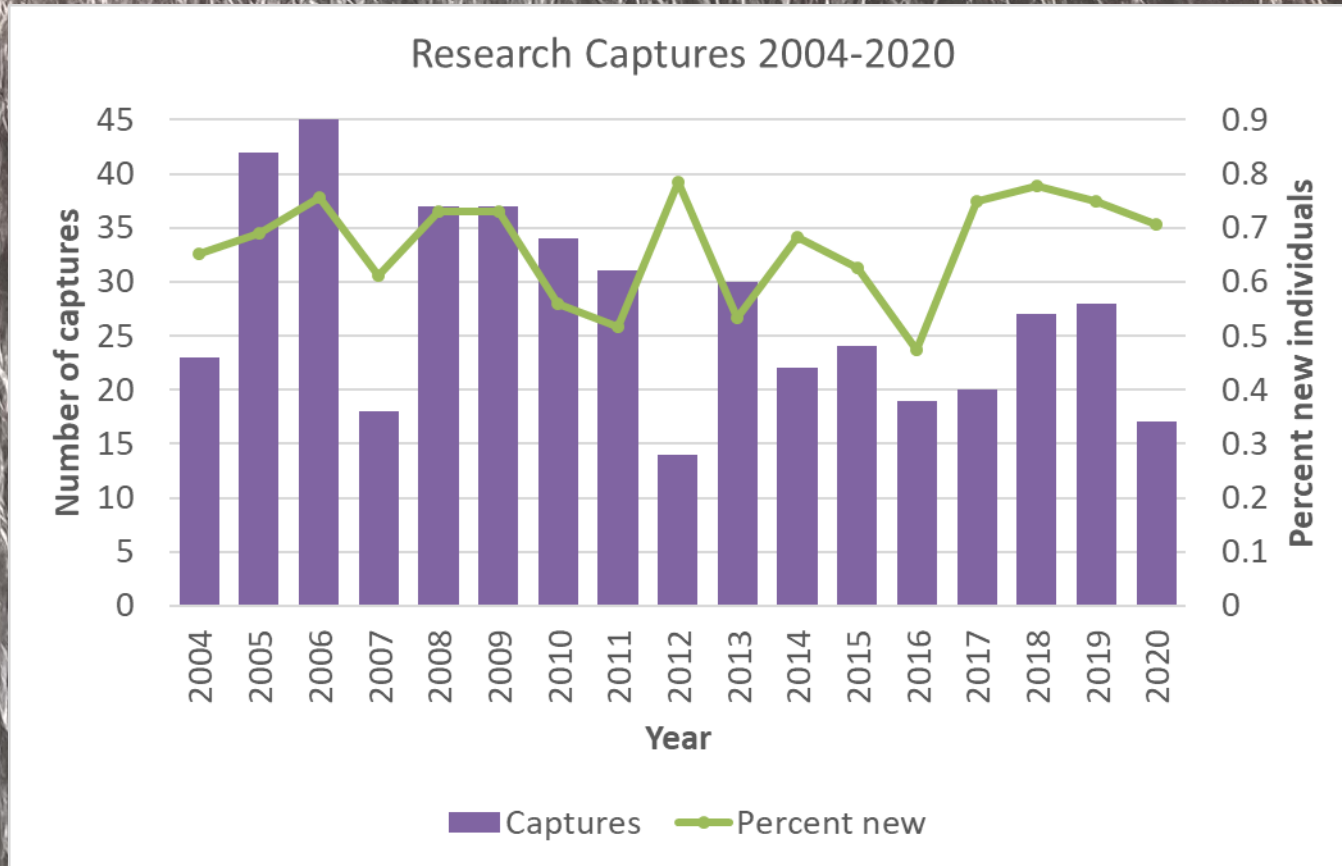


Preliminary Information-Subject to Revision.



# Field results

## *Research Sample in DMA*

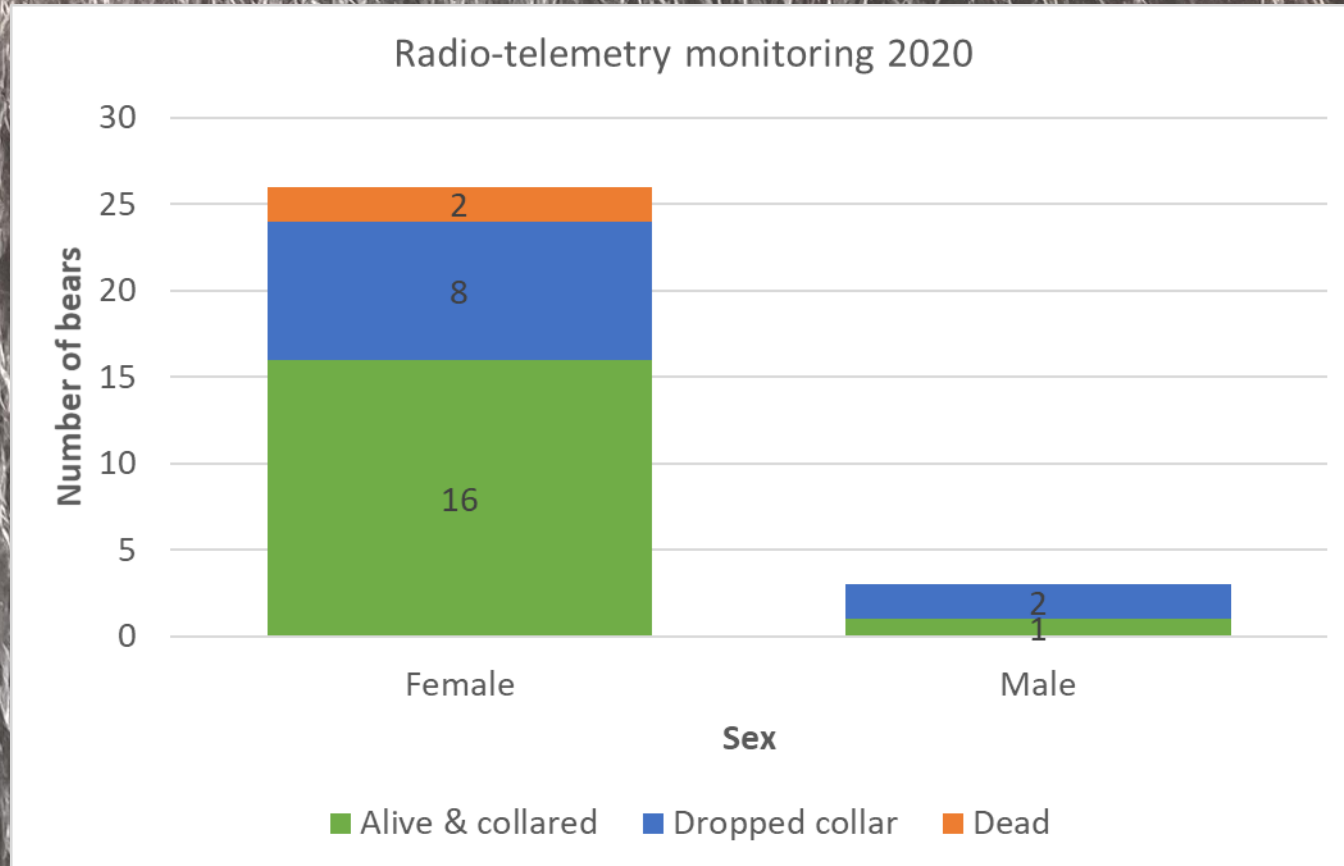


Preliminary Information-Subject to Revision.



# Field results

## *Research Sample in DMA*

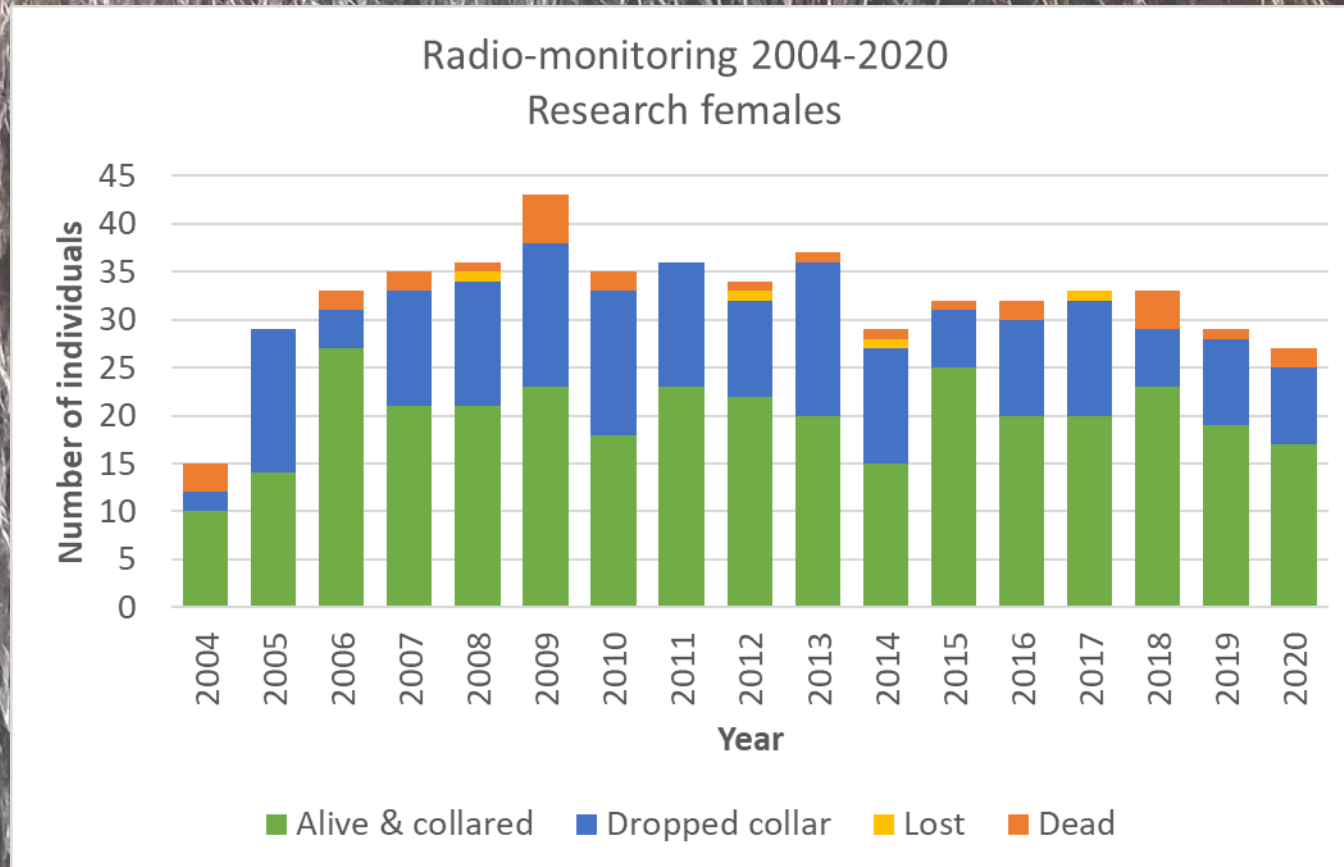


Preliminary Information-Subject to Revision.



# Field results

## *Research Sample in DMA*

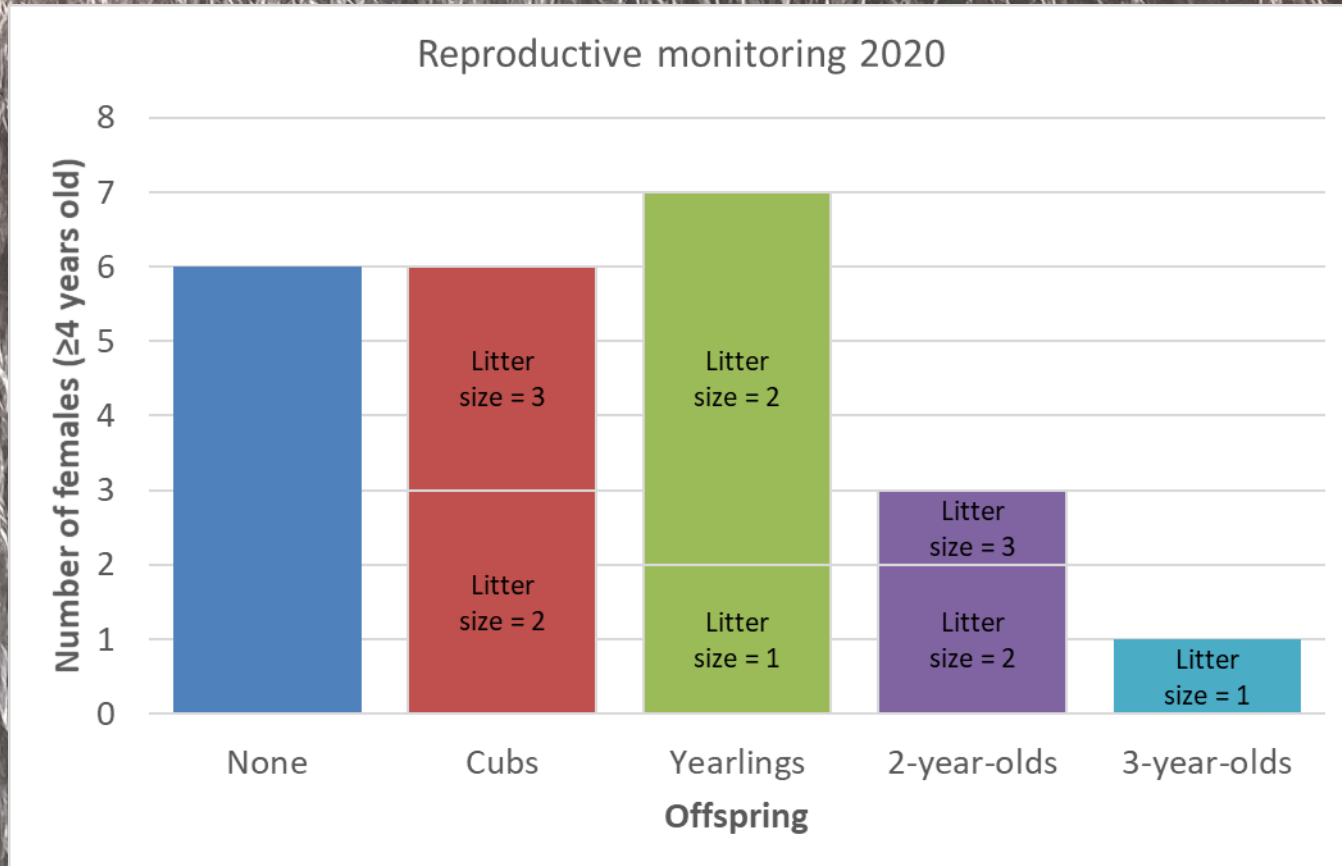


Preliminary Information-Subject to Revision.



# Field results

## *Research Sample in DMA*

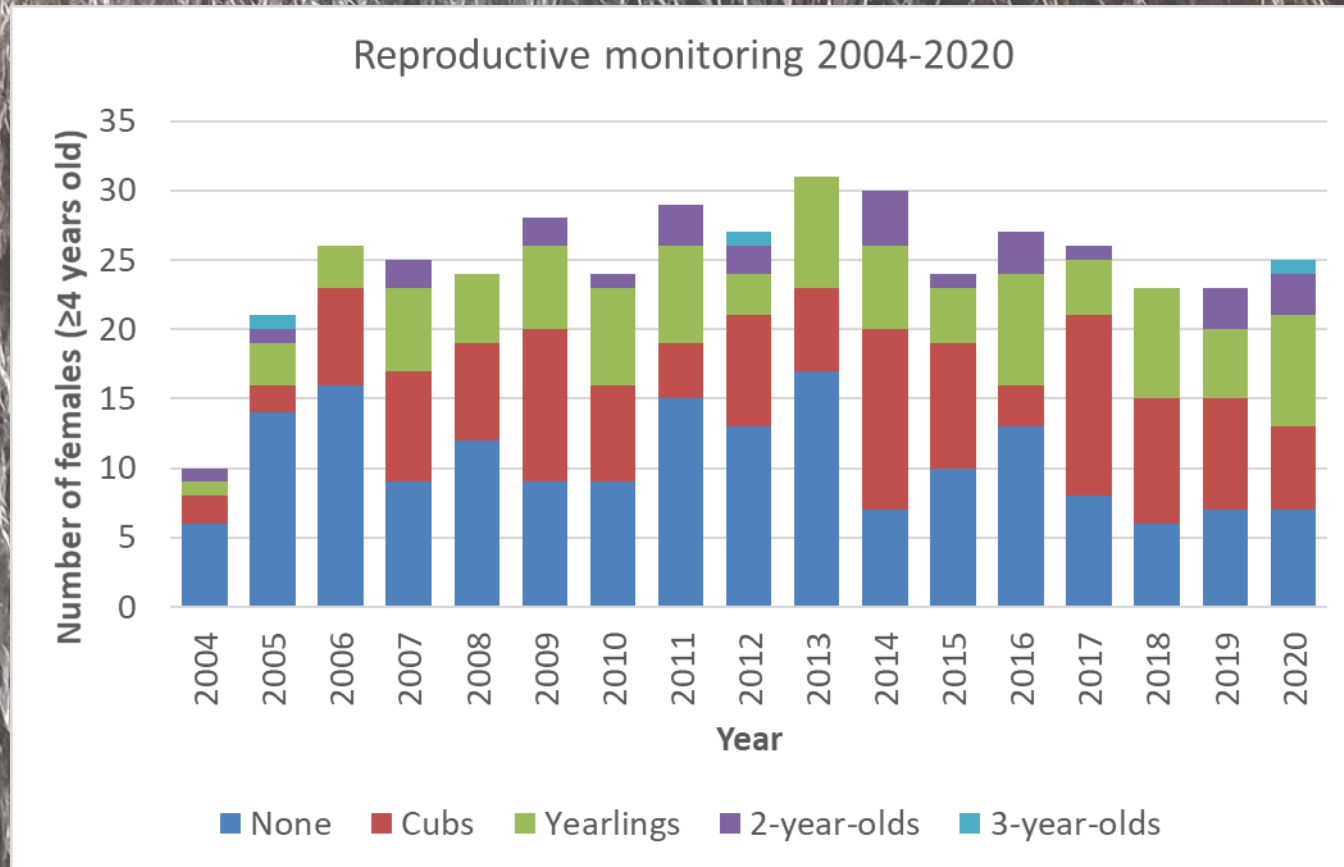


Preliminary Information-Subject to Revision.



# Field results

## *Research Sample in DMA*



Preliminary Information-Subject to Revision.



# Mortality

## *Ecosystem-wide*

### Documented mortalities 2020

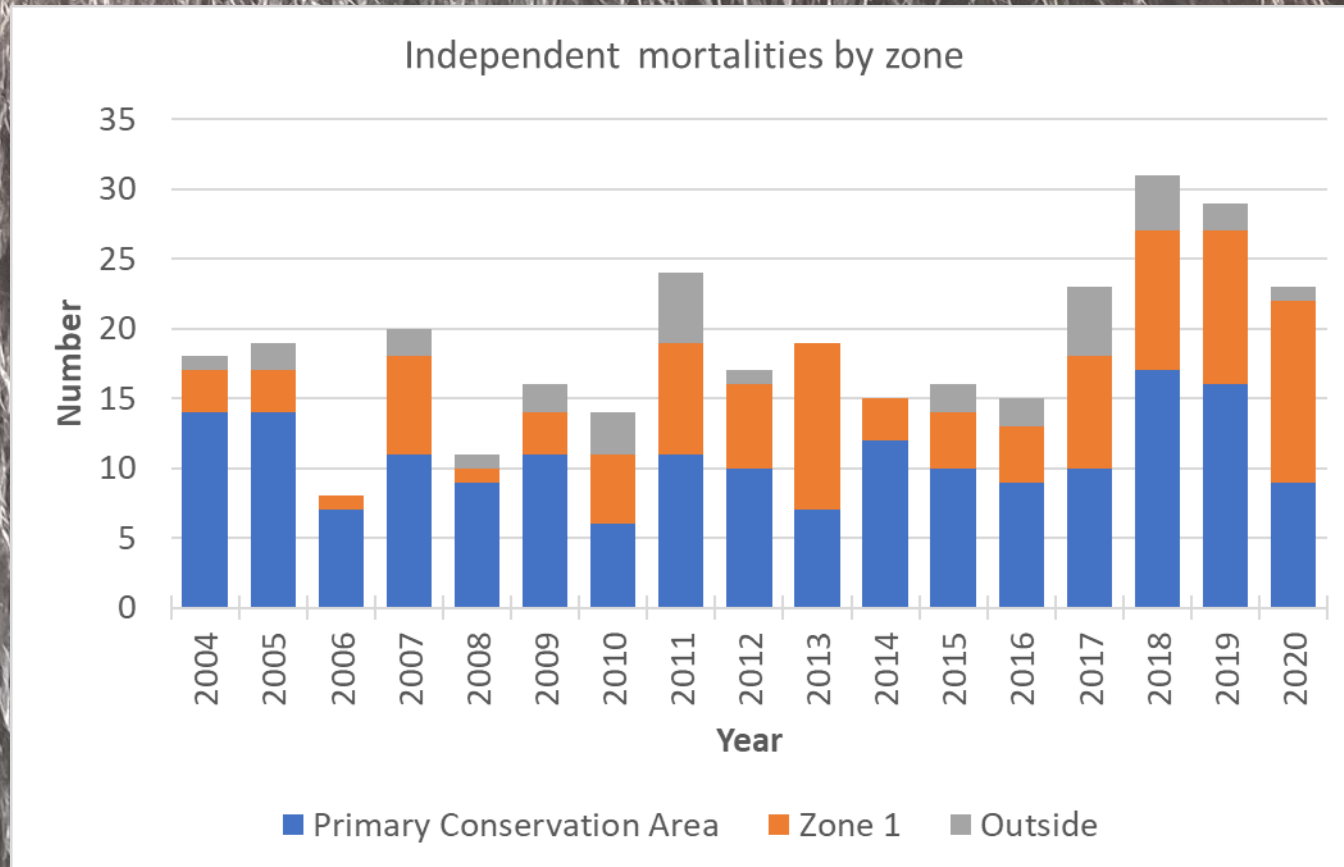
		Unknown			
	Ageclass	Female	Male	sex	Total
Inside DMA	Dependent	5	2	5	12
	Independent	11	10	0	21
	Total	16	12	5	33
Outside DMA	Dependent	0	0	0	0
	Independent	0	2	0	2
	Total	0	2	0	2

Preliminary Information-Subject to Revision.



# Mortality

*Ecosystem-wide, independent age*



Preliminary Information-Subject to Revision.



# Mortality limits

*Applied to independent aged bears inside DMA*

## Documented mortalities 2020

		Unknown			Total
	Ageclass	Female	Male	sex	
Inside DMA	Independent	11	10	0	21



## Estimated total reported & unreported (TRU) mortality 2020

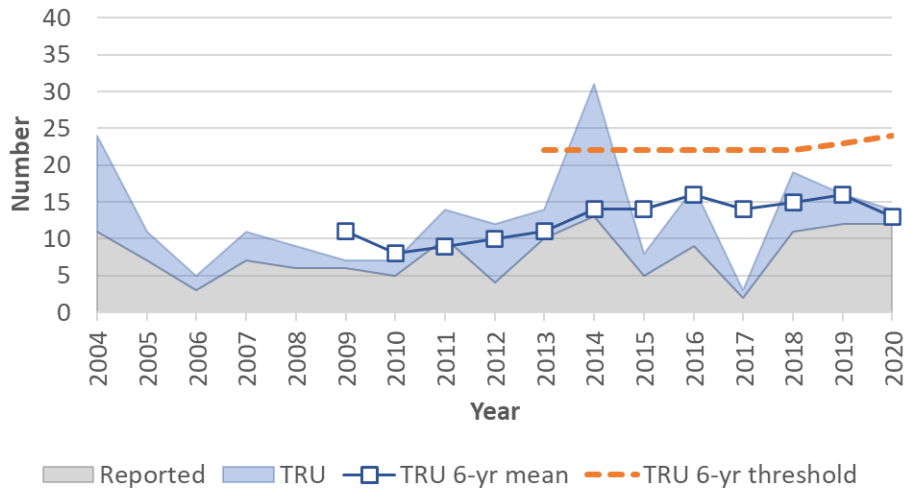
Sex	Agency removal		Telemetry		Reported		Estimated reported and unreported (C)	Estimated total mortality (A+B+C)
	(A)	(B)	(high)	(low)	(high)	(low)	(C)	(A+B+C)
Female	5	3	3	0	3	0	6	14
Male	5	0	4	1	4	1	9	14



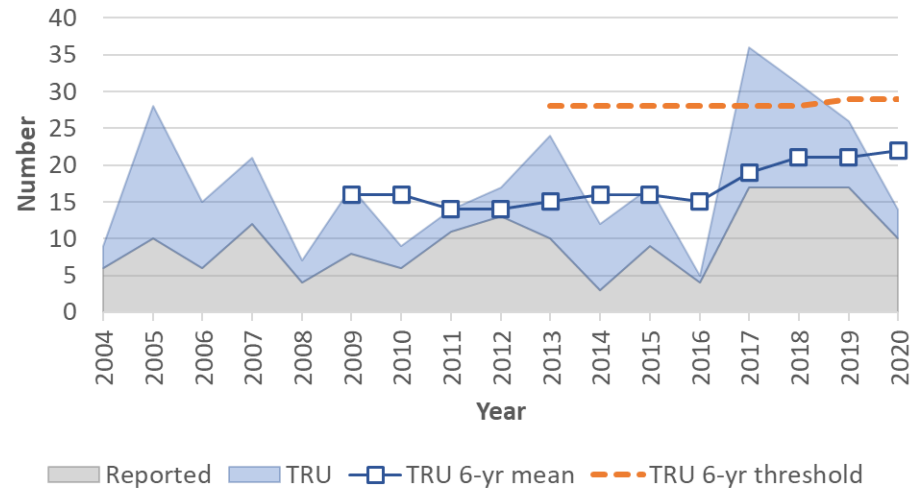
# Mortality limits

*Applied to independent aged bears inside DMA*

Female



Male





# Mortality

## *Augmentation bears*

### Augmentation male 927

- Moved to CY in July 2018 and counted as a mortality in NCDE
- Wide ranging movements in 2019
- Dennd in CY during winters of 2018-19 and 2019-20
- Returned to NCDE in June 2020 and dropped collar
- Will likely remove from 2018 mortalities

### Augmentation male 892

- Moved to CY in July 2019 and counted as a mortality in NCDE
- Dennd in CY during winter 2019-2020
- Returned to NCDE in 2020 and died in spring (under investigation)
- Not included in 2020 mortalities reported here



## Research Projects

- Integrated Population Model (IPM) project progressing (UM, NCDE, IGBST, USFWS)
- Parturition timing study nearing completion (NCDE, CY, IGBST, Alaska National Parks)
- Denning Chronology study progressing (NCDE, CY, IGBST)
- Population Expansion and Connectivity project will start in Dec 2020 (NCDE, UM)
- Montana human attitudes survey (FWP, UM)
  - Statewide results completed
  - Analyses of geographic and other drivers of attitudes still underway