Interagency Grizzly Bear Study Team
2024 Research & Monitoring Update

USGS science for a changing world

Montana Fish, Wildlife & Parks

IDAHO FISH & GAME

WIND RIVER FISH & GAME

Photo: J. Davis

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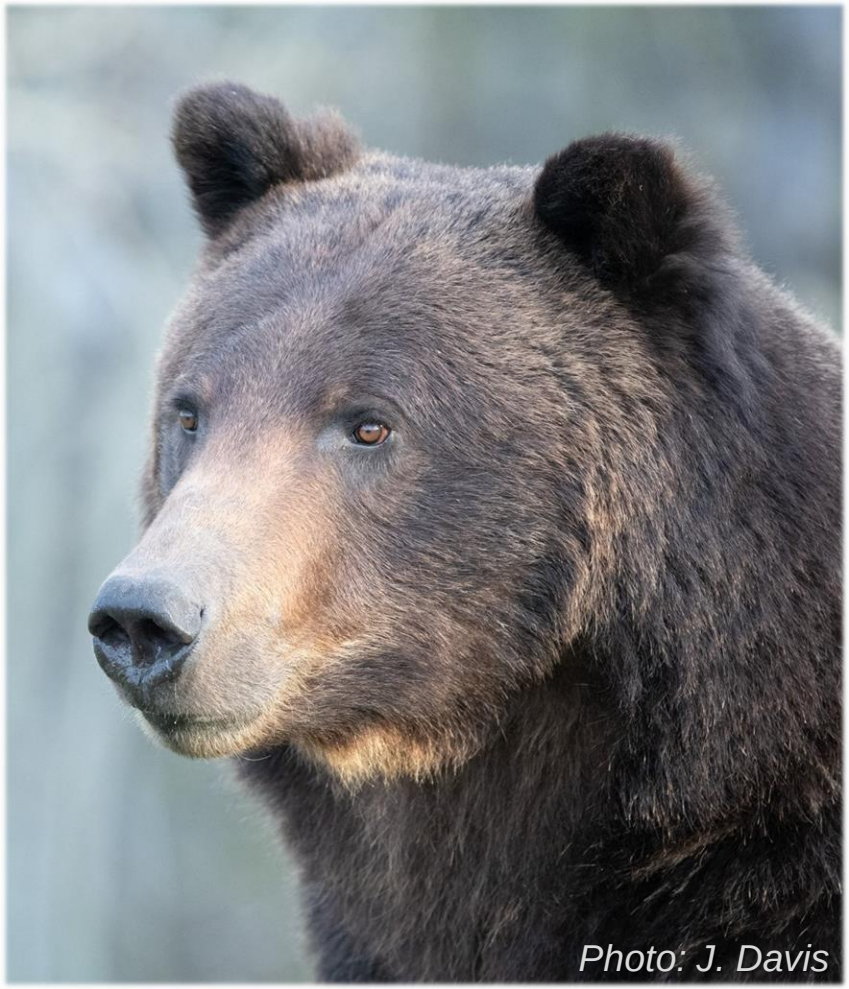
USGS science for a changing world

Interagency Grizzly Bear Study Team

- USGS role
  - Coordinating agency
  - Change in personnel capacity
- Core responsibilities
  - Monitoring and observation programs
  - Database coordination and management
  - IPM in support of the Conservation Strategy



Overview

Research and monitoring update

- Recap from fall 2024 YES meeting
- Integrated population model (IPM) estimates
- Study team update

Photo: J. Davis

Demographic Criteria

2024 Conservation Strategy

Maintain distribution of females with young so that at least 16 of 18 BMUs are occupied. ✓

Report all grizzly bear mortalities within the GYE. ✓

Maintain the population in the DMA within or above 800-950. → Today

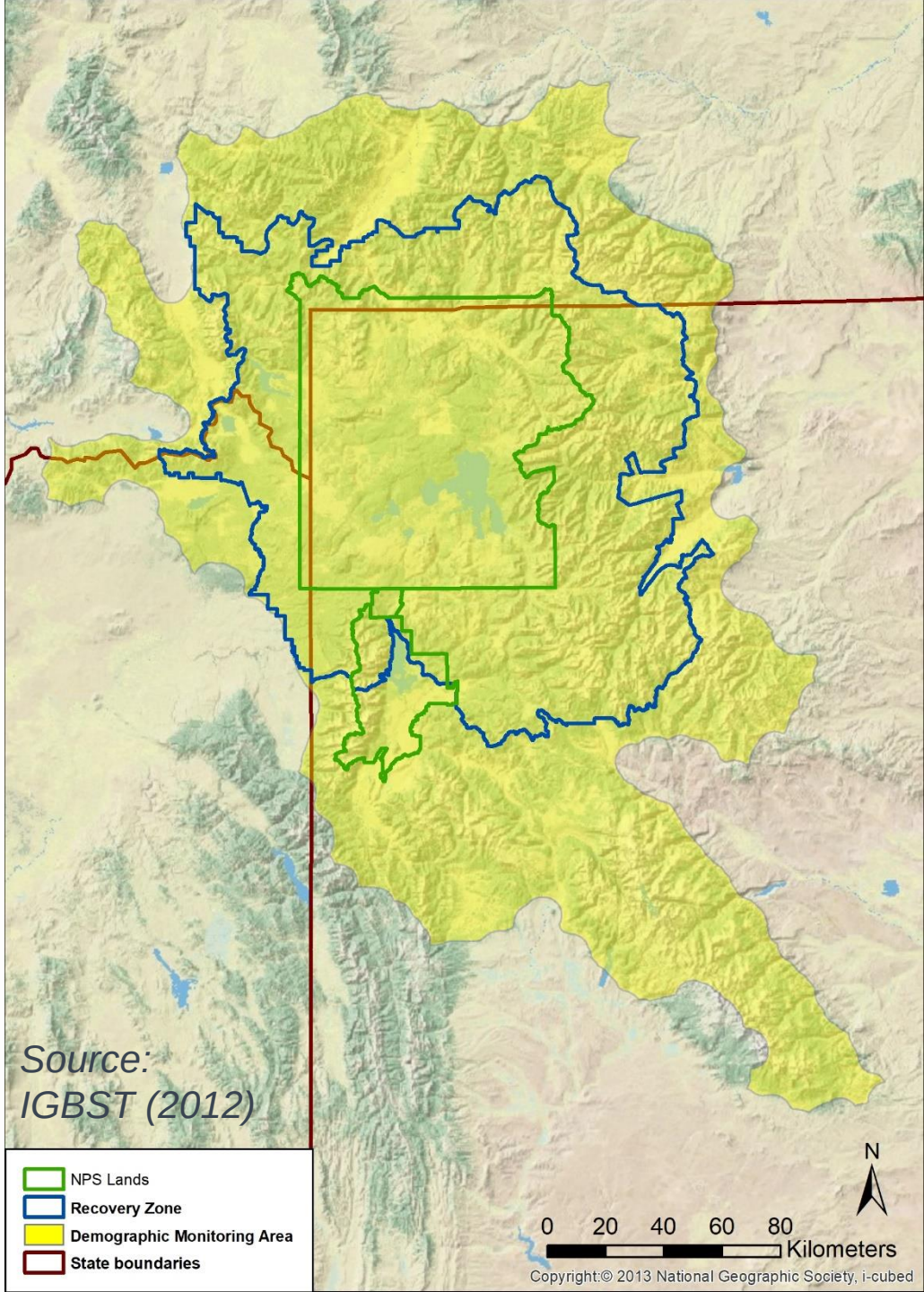
Monitor population trend. → Today

Greater Yellowstone Ecosystem

National Parks = 10,344 km^2

Primary Conservation Area/Recovery Zone = 23,828 km^2

Demographic Monitoring Area (DMA) = 49,931 km^2



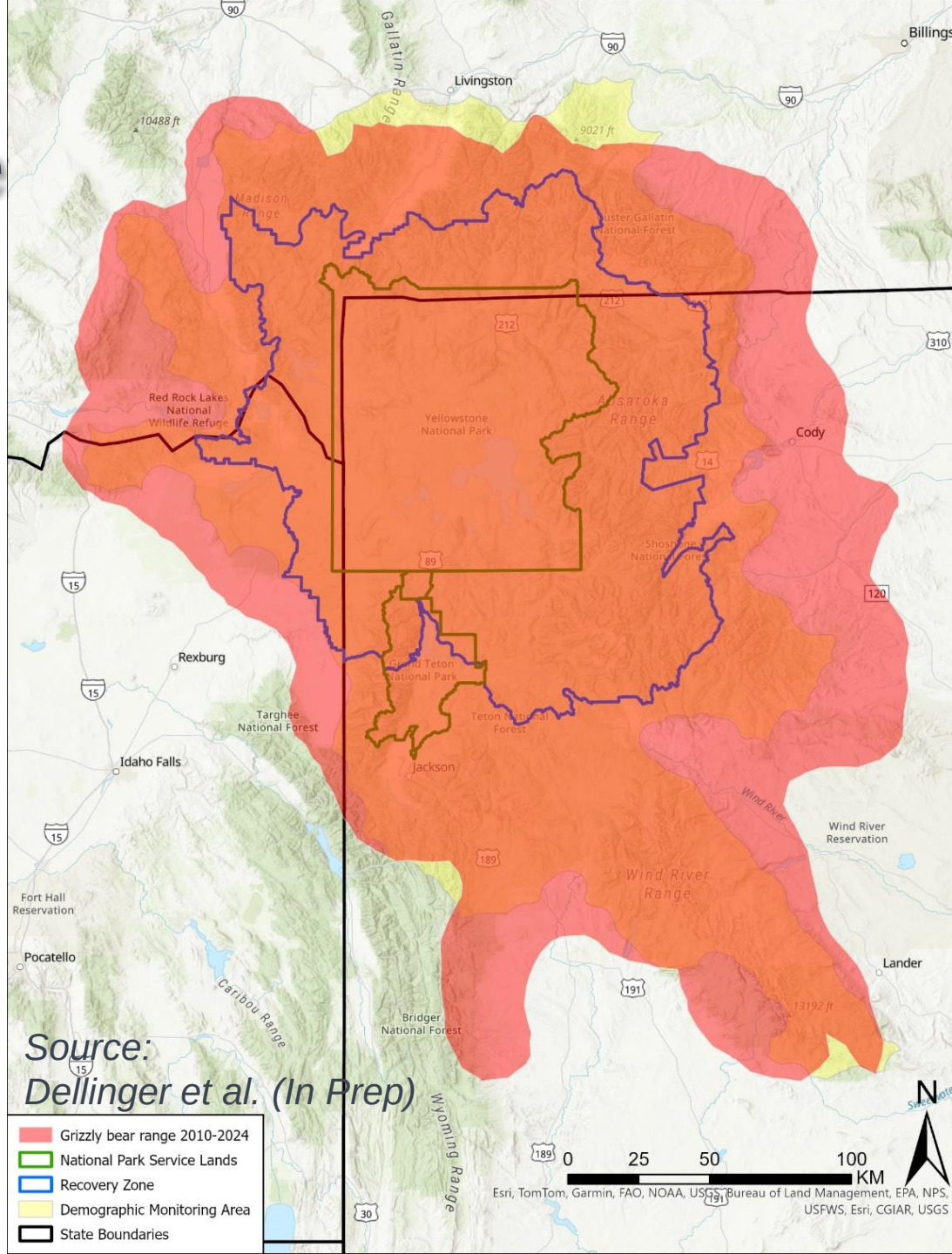
Greater Yellowstone Ecosystem

National Parks = 10,344 km^2

Primary Conservation Area/Recovery Zone = 23,828 km^2

Demographic Monitoring Area (DMA) = 49,931 km^2

Estimated grizzly bear range (2010-2024) = 67,569 km^2



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Data Collections

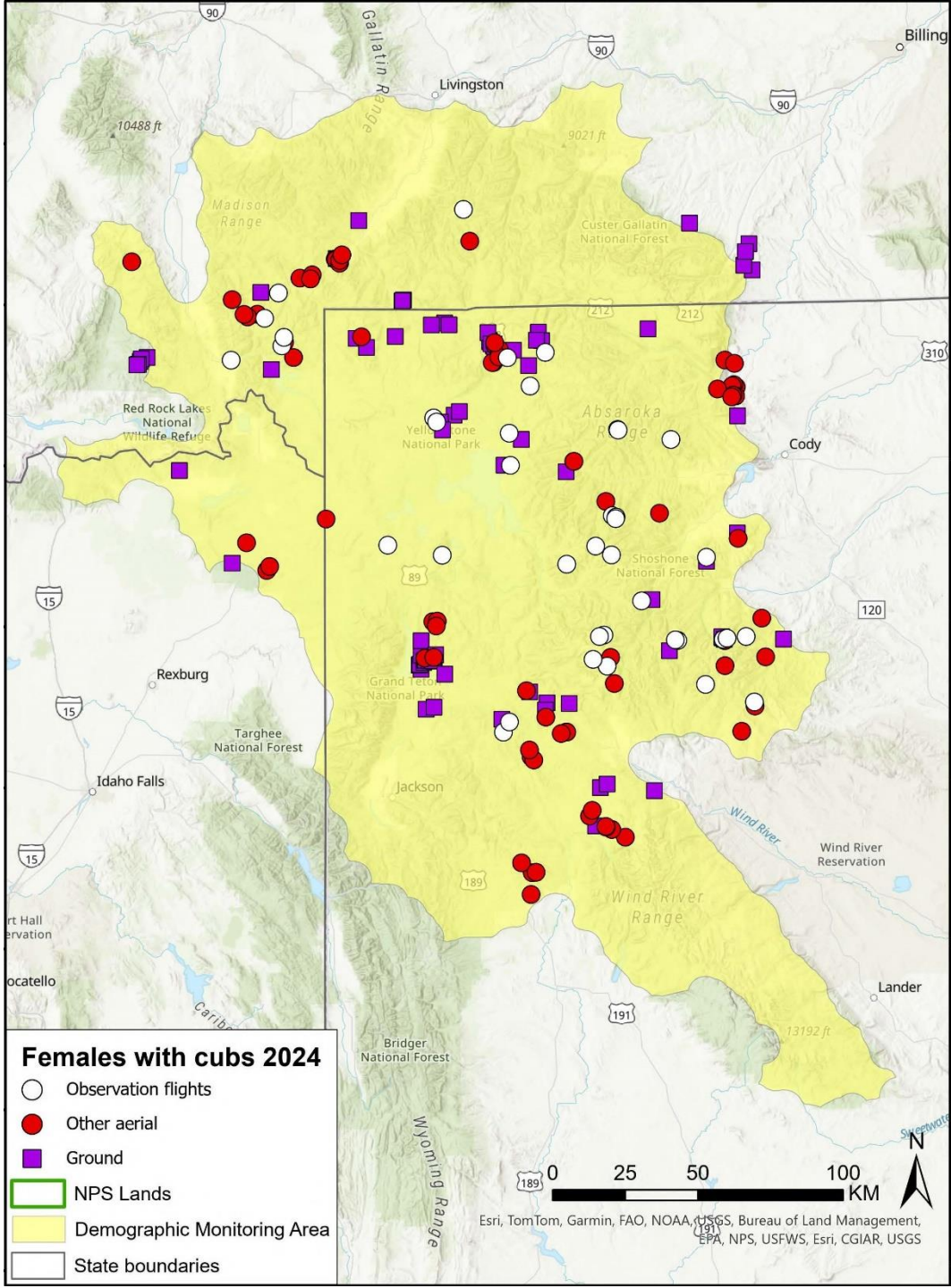
Females with cubs, telemetry and observations, mortalities

Photo: J. Davis

Females with cubs 2024

206 observations

- 42 observation flights (21%)
- 77 other aerial (37%)
- 87 ground (42%)



Females with cubs 2024

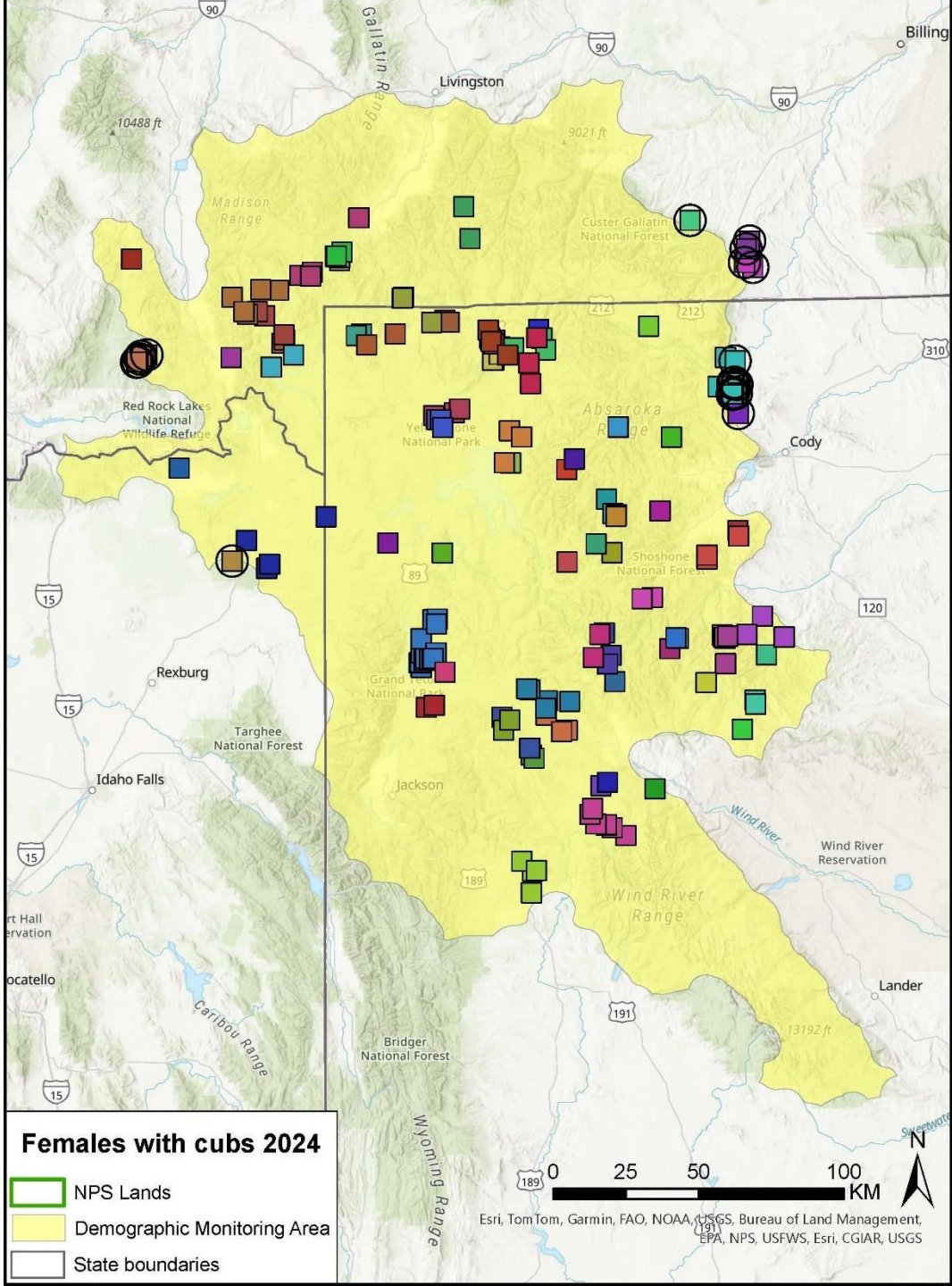
206 observations

- 42 observation flights (21%)
- 77 other aerial (37%)
- 87 ground (42%)

79 unique females with cubs

Mean litter size = 1.9

- 22 single (28%)
- 44 twins (56%)
- 12 triplets (15%)
- 1 quintuplet (1%)*



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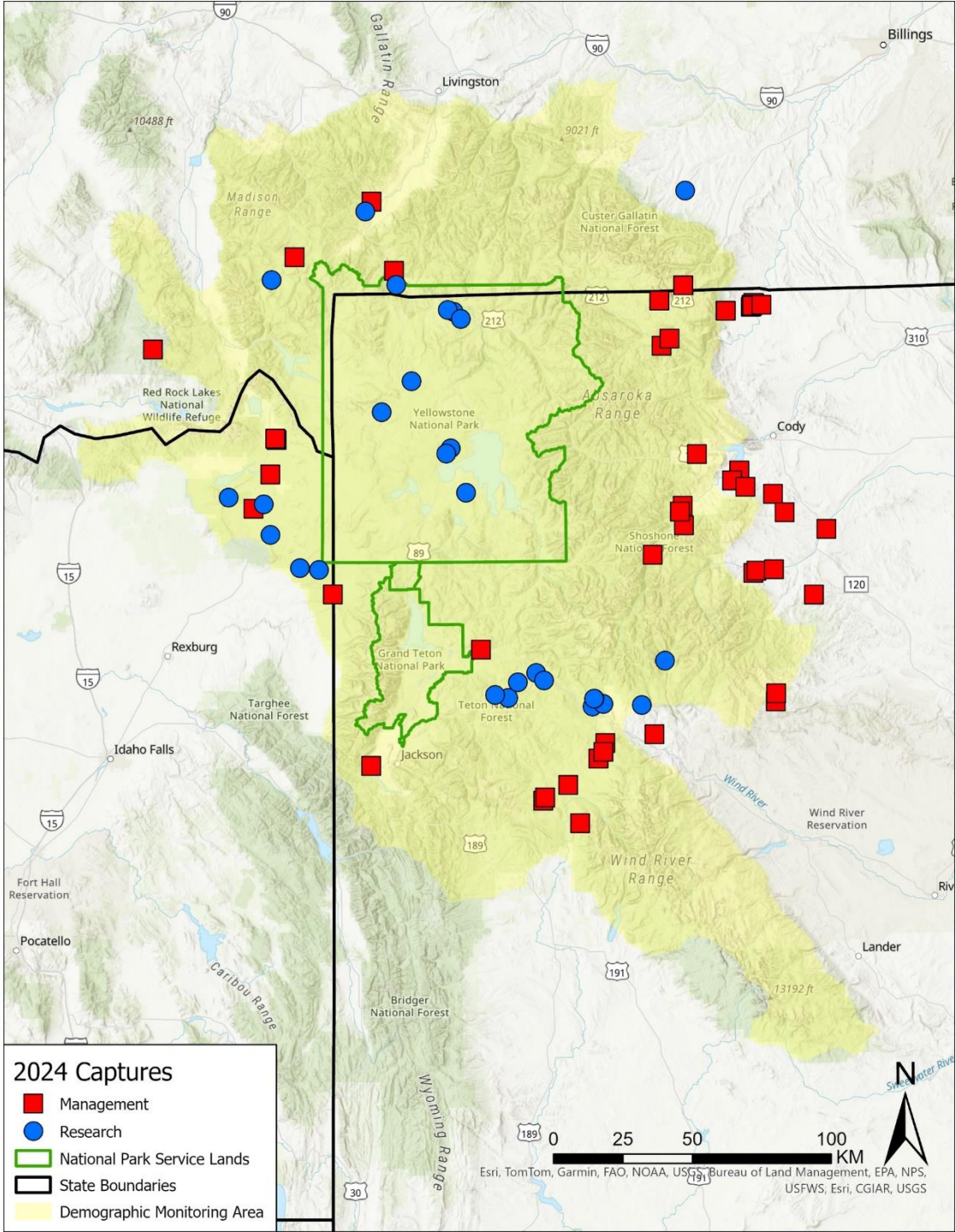
Number of females with cubs 2024

Parameter	Estimate
Unique females with cubs	79
Unique females with cubs (DMA only)	72
Unique females with cubs (DMA only + excluding telemetry sightings)	66
Chao2 estimate (DMA only + excluding telemetry sightings)	84

Grizzly bear captures 2024

- **Total captures = 104**
  - Research = 50
  - Management = 54
- **Individual bears = 96**
  - Females = 29
  - Males = 66
  - Unknown = 1
- **New bears = 70 (73%)**



Grizzly bears radio monitored 2024

Total monitored = 90

Adult females = 35

Current = 48

Females = 30

Males = 18

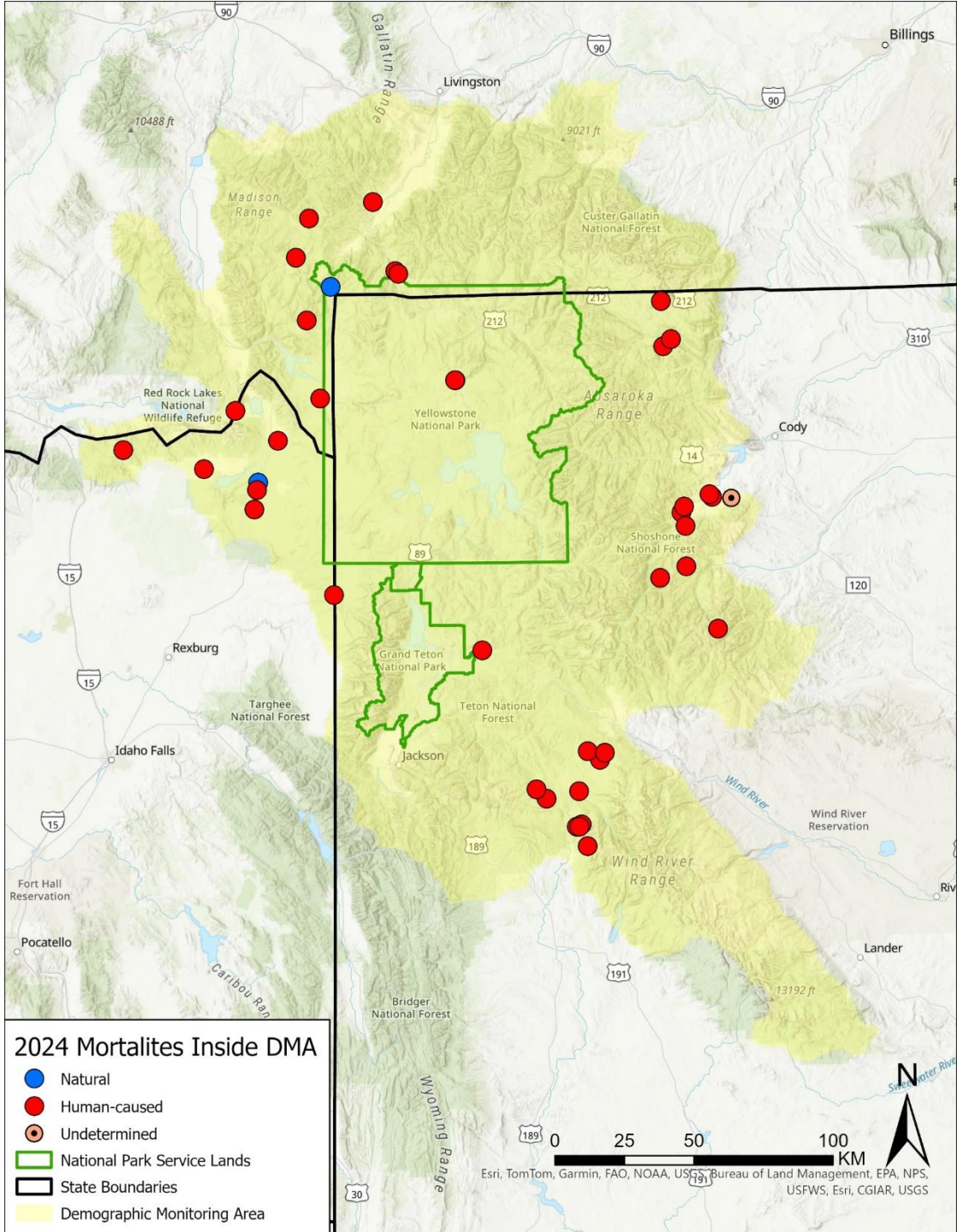
Bears missing = 0

(6 with probable battery failure)

Photo: M. Gould/USGS

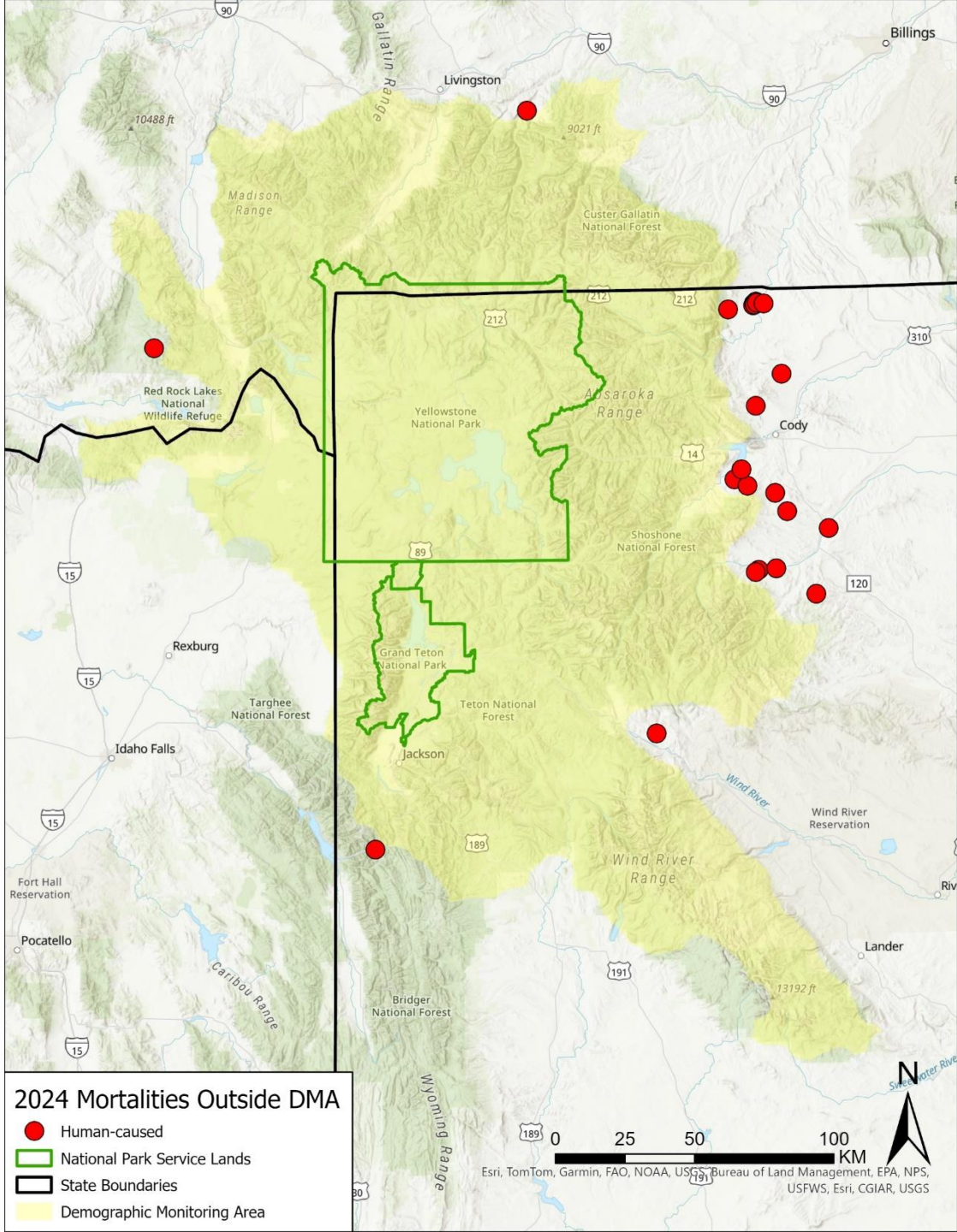
Known and probable mortalities 2024

- **44 in DMA**
  - 42 human-caused
  - 1 natural
  - 1 undetermined cause



Known and probable mortalities 2024

- **44 in DMA**
  - 42 human-caused
  - 1 natural
  - 1 undetermined cause
- **28 Outside DMA**
  - All human-caused



Known and probable mortalities by sex and age class 2024 (DMA)

Area	Sex	Age class		Total
		Dependent (<2 years old)	Independent (≥2 years old)	
Inside DMA	Female	2	11	13
	Male	2	26	28
	Unknown	3	0	3
	Total	7	37	44

IPM update & timeline

IPM implen

Females with cubs (Chao2)

- Septem

YES

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A unified approach to long-term population monitoring of grizzly bears in the Greater Yellowstone Ecosystem

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ABSTRACT

Long-term wildlife research and monitoring programs strive to maintain consistent data collections and analytical methods. Incorporating new techniques is important but can render data sets incongruent and limit their potential to discern trends in demographic parameters. Integrated population models (IPMs) can address these limitations by combining data sources that may span different periods into a unified statistical framework while providing a holistic view of population dynamics. We developed an IPM in a Bayesian framework for grizzly bears (*Ursus arctos*) in the Greater Yellowstone Ecosystem. We coupled demographic data with multiple, independent population count data to link annual changes in abundance with vital rates over 4 decades (1983–2023). Abundance increased threefold from an estimated 270 individuals in 1984 to 1030 individuals in 2023. Parameter estimates indicated survival of bears ≥2 years of age was high, contributing to robust population growth during the 1980s ($\lambda = 1.023$ [50 % interquartile range = 0.993–1.082]) and 1990s ($\lambda = 1.064$ [1.023–1.103]). A slowing of population growth started

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Population size 2024 (IPM, DMA)

Population segment	Median estimate
Independent females (≥2 yrs)	364
Independent males (≥2 yrs)	380
Yearlings	98
Cubs born	205
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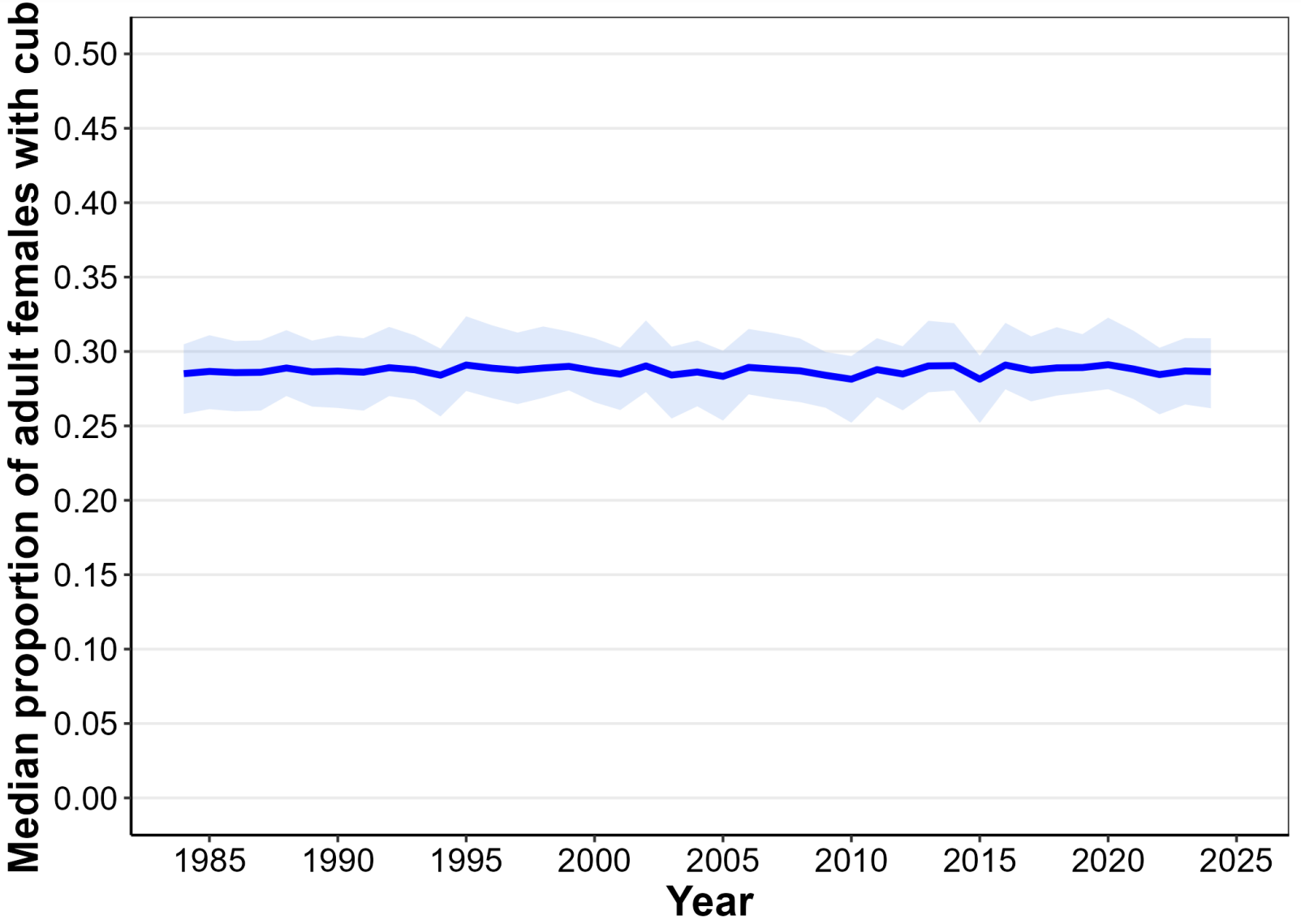
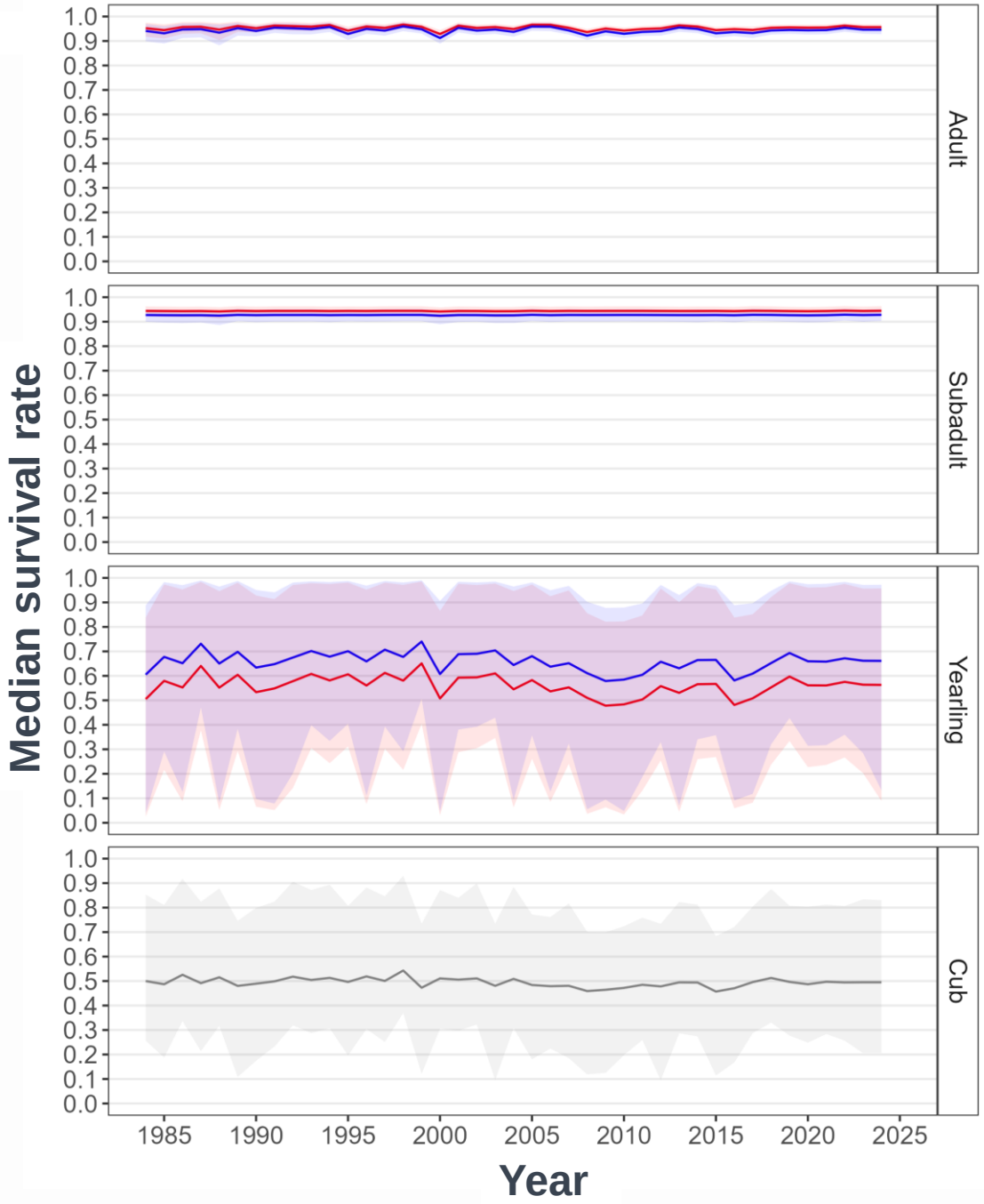
Total estimate 2024*	1,050 (95% CI = 894–1,239)

*Sum of segment medians slightly different from median of total estimate

Proportion of adult females with cubs



Survival



Age class

Adult (≥3 yrs old)

Subadult (2 yrs old)

Yearling (1 yr old)

Cub (<1 yr old)

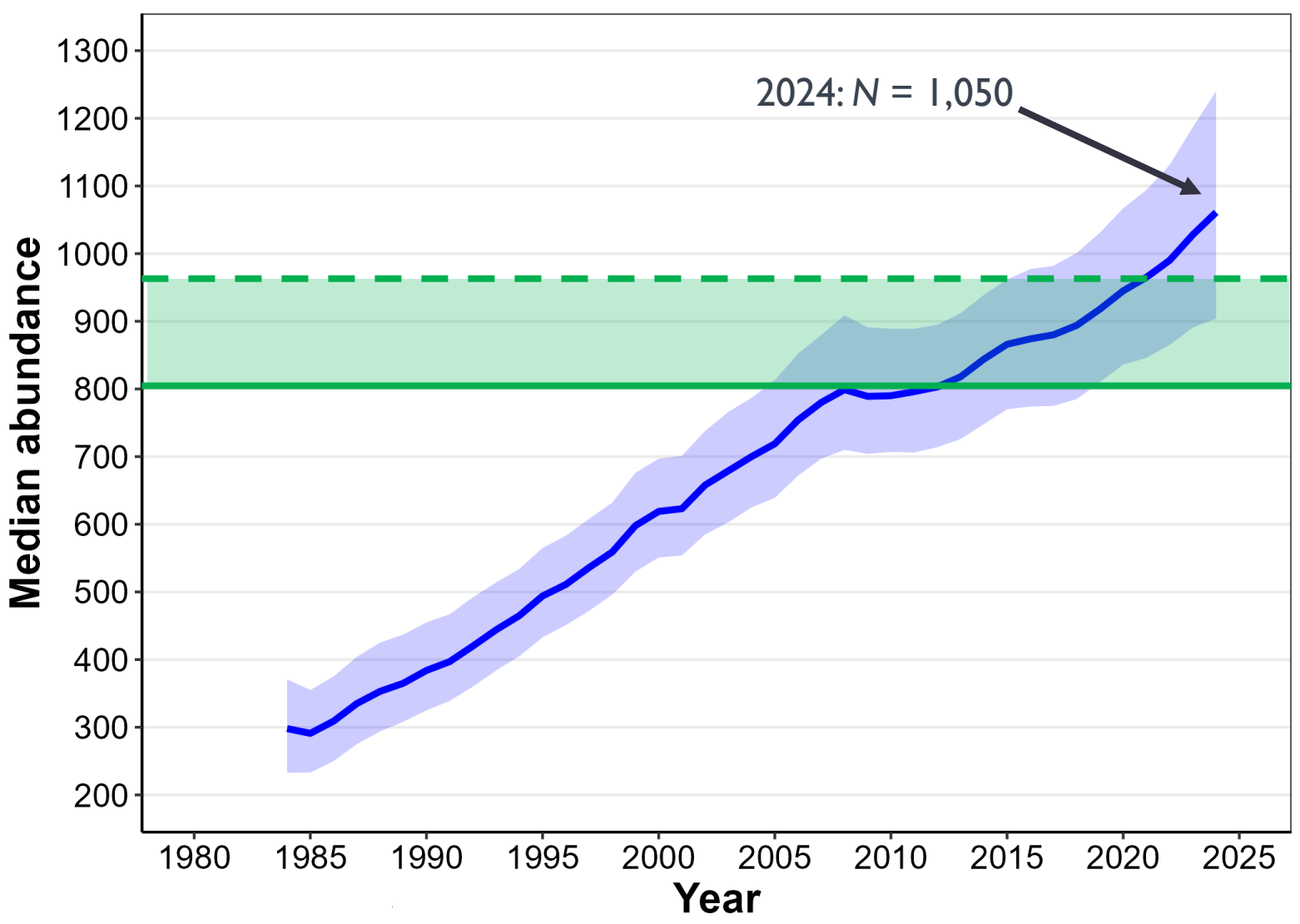
Sex

Females

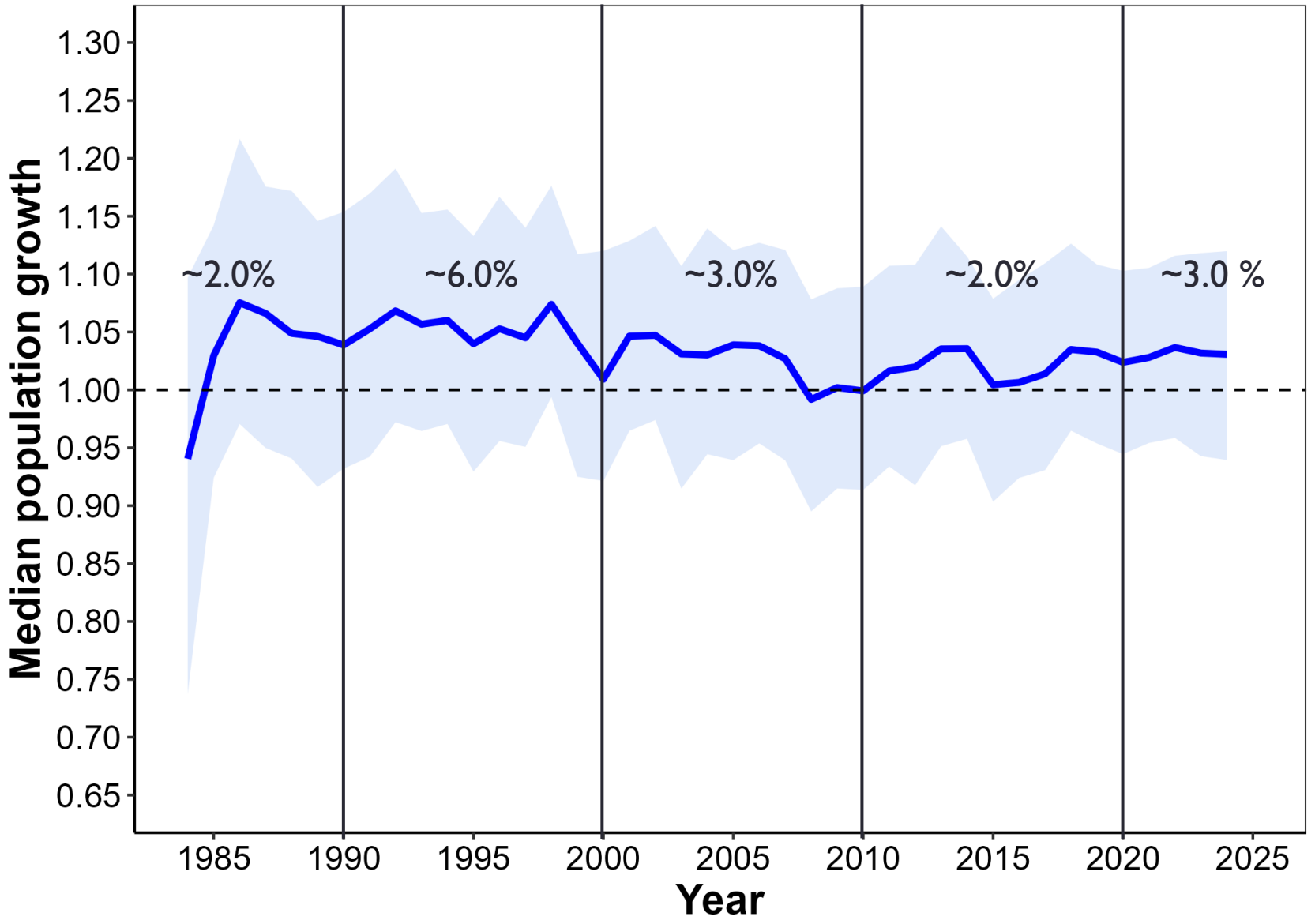
Males

Females & males

Total population size (IPM, DMA)



Population growth (IPM, DMA)



Study Team website: search “IGBST”

Annual/Technical reports: IGBConline.org

Remote camera video: C. Whitman/USGS

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