Staff Summary for June 19-20, 2024

21B. Department Wildlife and Fisheries Division and Ecosystem Conservation Division Report

Today's Item **Information ☒** **Action ☐**

The Department will highlight items of note since the last Commission meeting.

Summary of Previous/Future Actions (N/A)

Background

The Department's Wildlife and Fisheries Division will provide a presentation on mule deer, mountain lions, and Sierra Nevada bighorn sheep (Exhibit 1) and a verbal update on other items of interest since the last Commission meeting.

The Department recommends moving its originally scheduled presentation on the Department Private Lands Management Program to a future meeting.

A news release of potential interest is provided as Exhibit 2.

Significant Public Comments (N/A)

Recommendation (N/A)

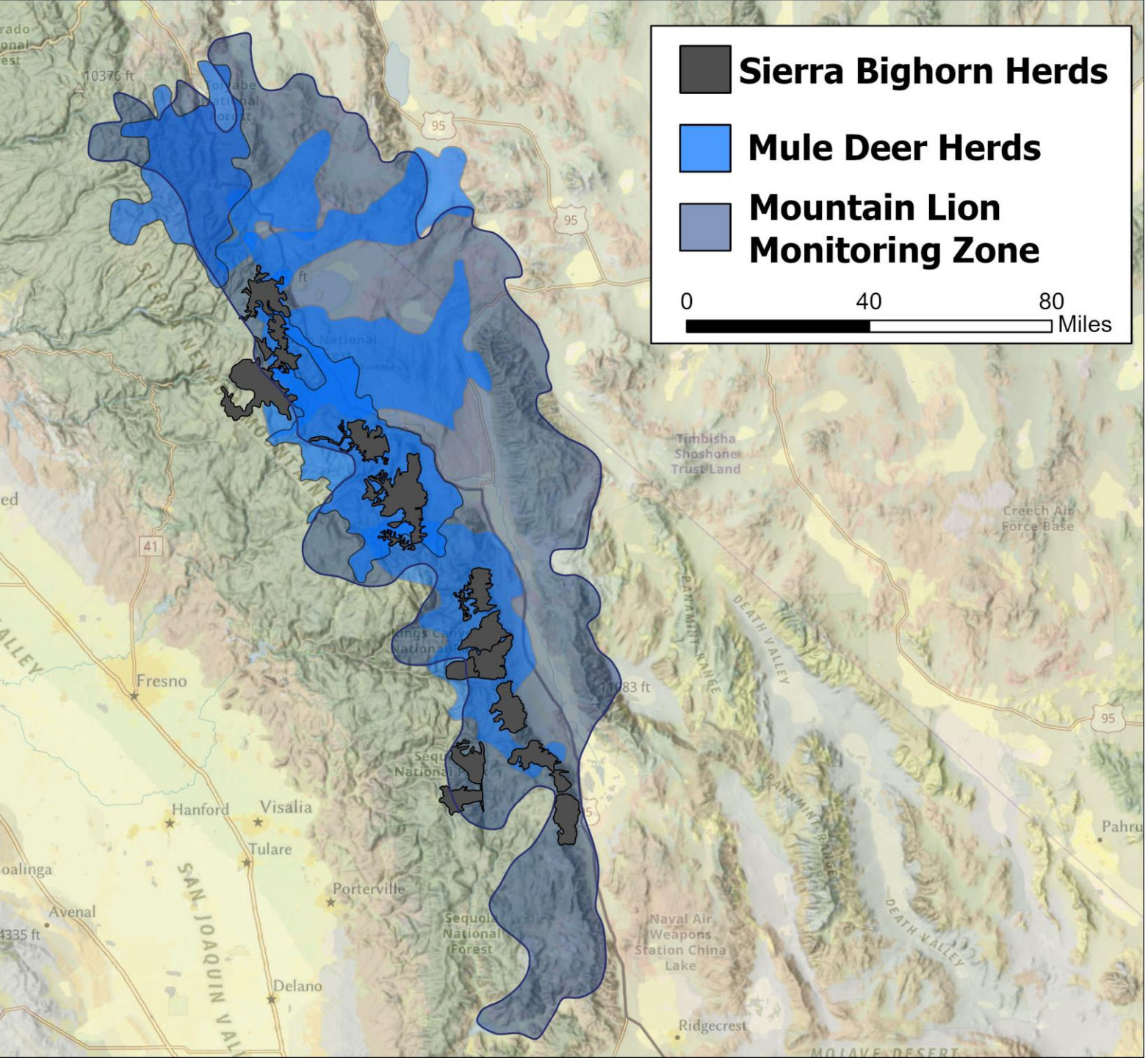
Exhibits

1. Department presentation on mule deer, mountain lions and Sierra Nevada bighorn sheep
2. Department news release: *CDFW Releases More Than 2 Million Chinook Salmon into Klamath River*, dated May 24, 2024

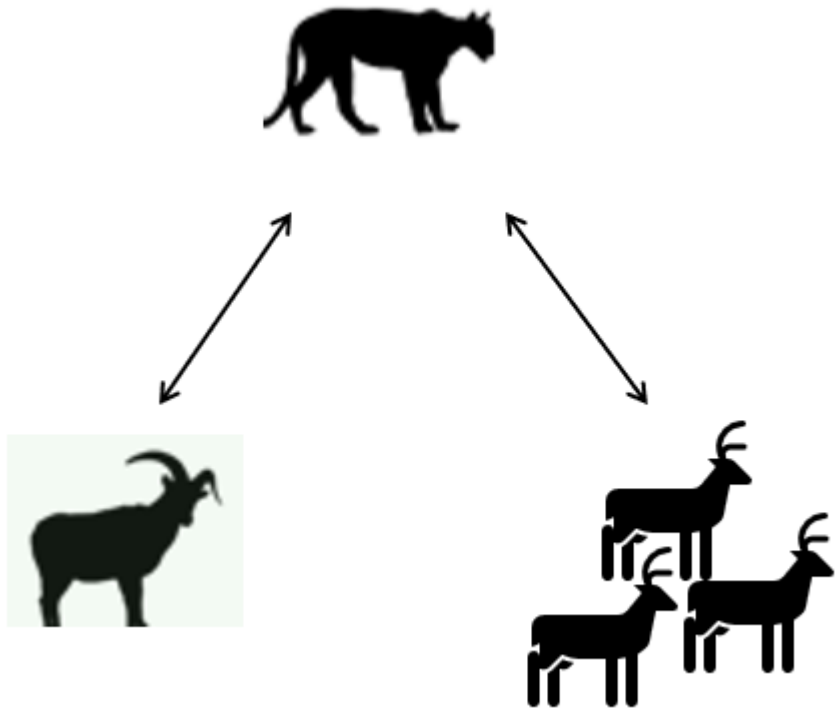
Motion (N/A)

Mule Deer, Mountain Lions, and Sierra Nevada Bighorn Sheep

Fish and Game Commission Meeting
June 19-20, 2024
Tom Stephenson, PhD, Program Leader
Sierra Nevada Bighorn Sheep Recovery Program



Eastern Sierra Food Web



Deer Herds and the Best Available Population Estimates 2019-2023

West Walker 3589

East Walker 1279

Mono Lake 1365

Casa Diablo 2463

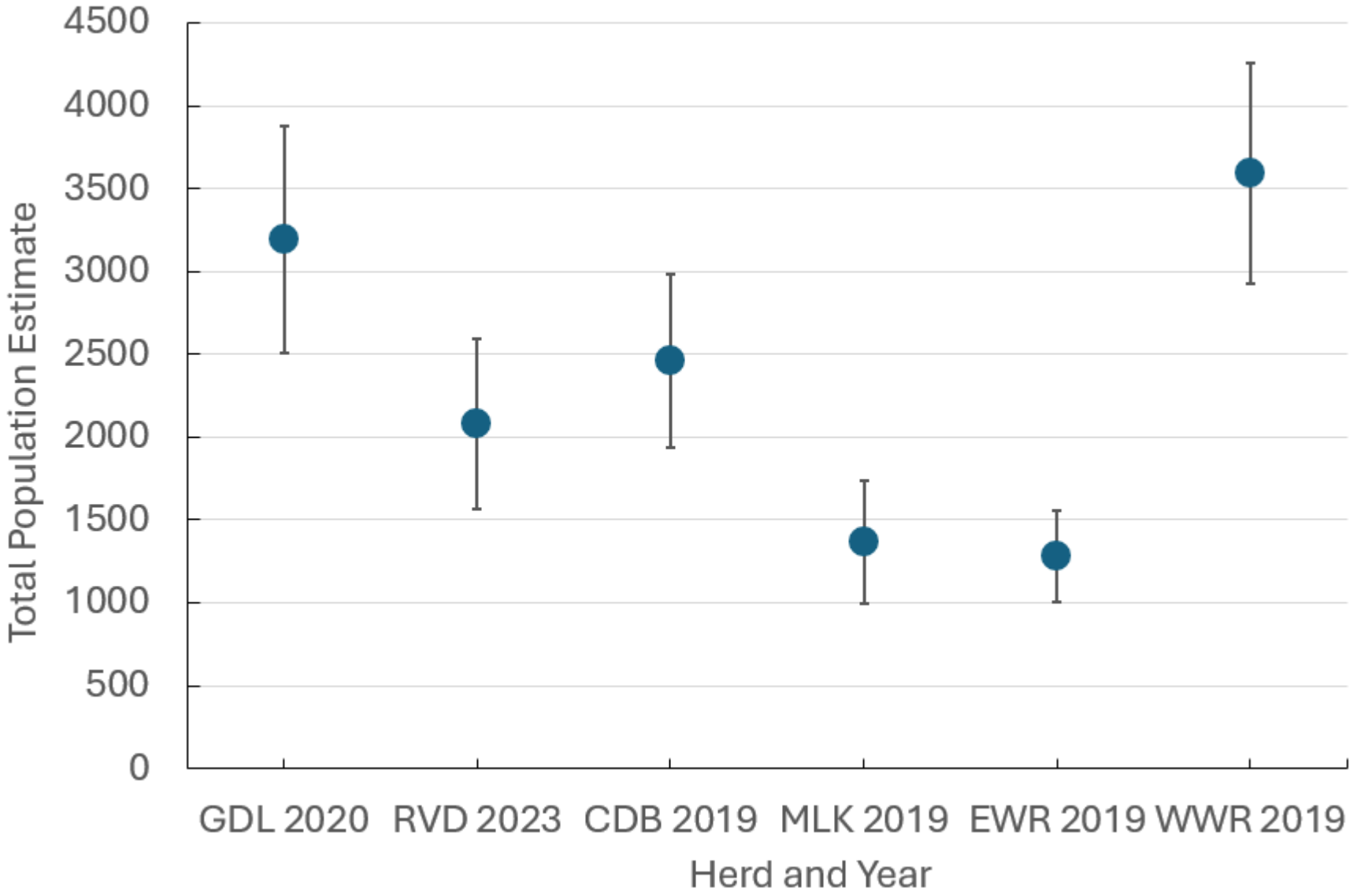
Round Valley 2079

Goodale 3194

Sacramento
Elk Grove
Stockton
Oakdale
Modesto
Tonopah
Bishop
Mammoth Lakes
Lone Pine

0 30 60 Miles

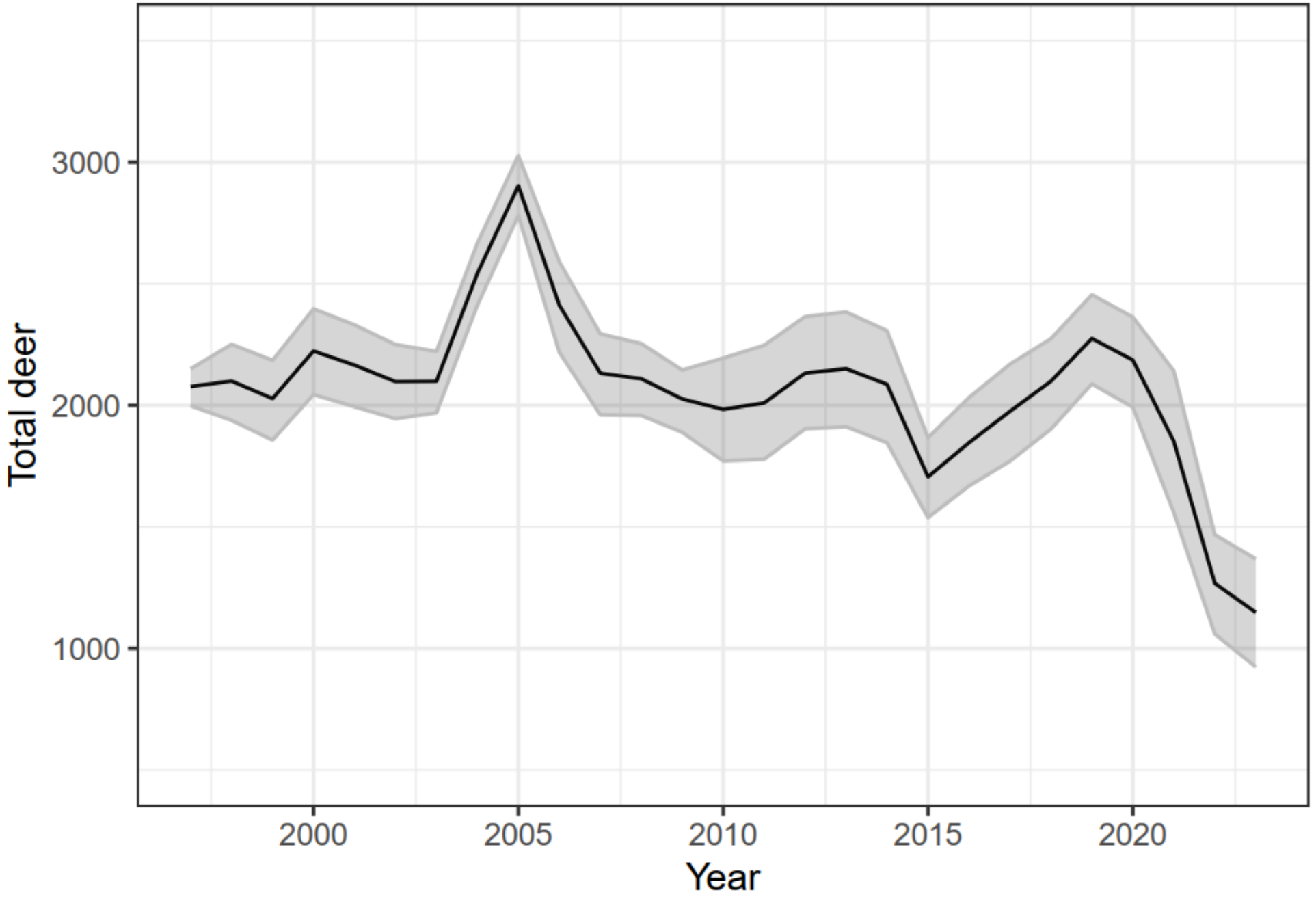
Deer Population Estimates



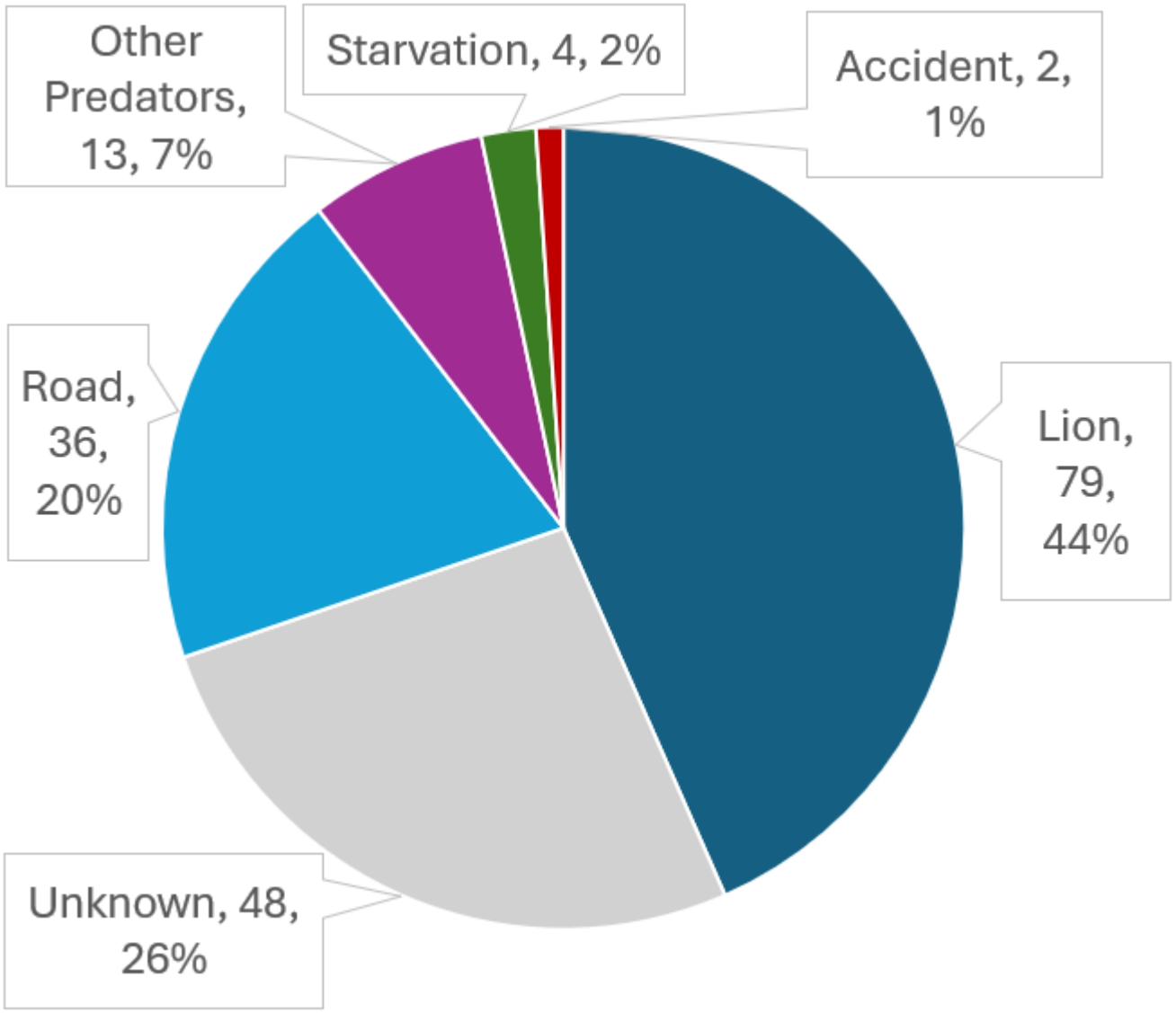
Most recent Mark-Resight population estimate where CV < 0.20 for each herd

Error bars are 95% confidence intervals

Round Valley Deer Herd Integrated Population Model



Deer Cause-Specific Mortality

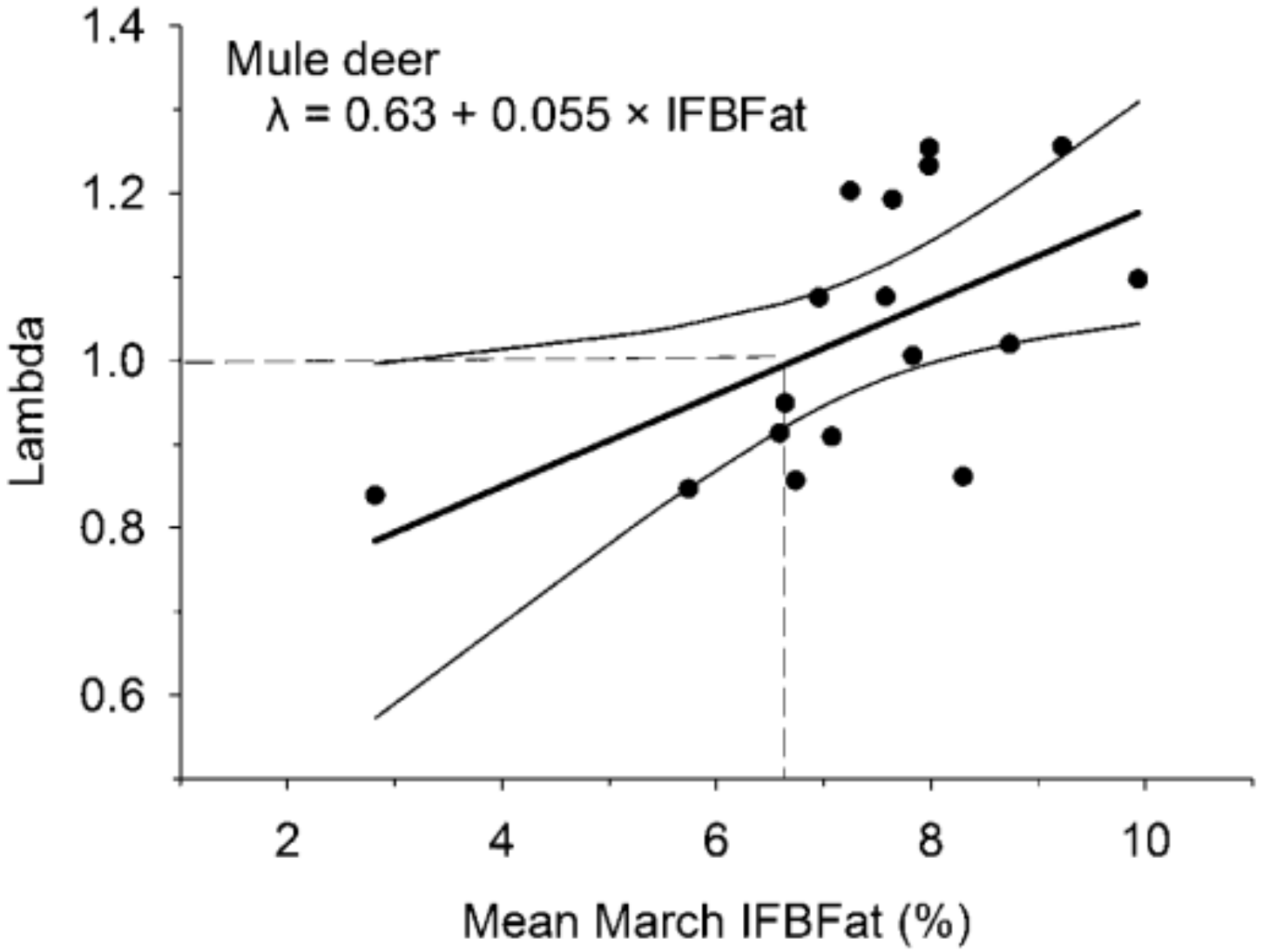


Collared female mortalities investigated within 5 days of death, from 2014-2023 (N=182).

Animals were collared with GPS collars beginning in 2016.

- Other predators = bobcats, coyotes, and bears
- Accident includes physical injury and poaching

Mule deer body fat (IFBFat) predicts population growth rate (lambda)



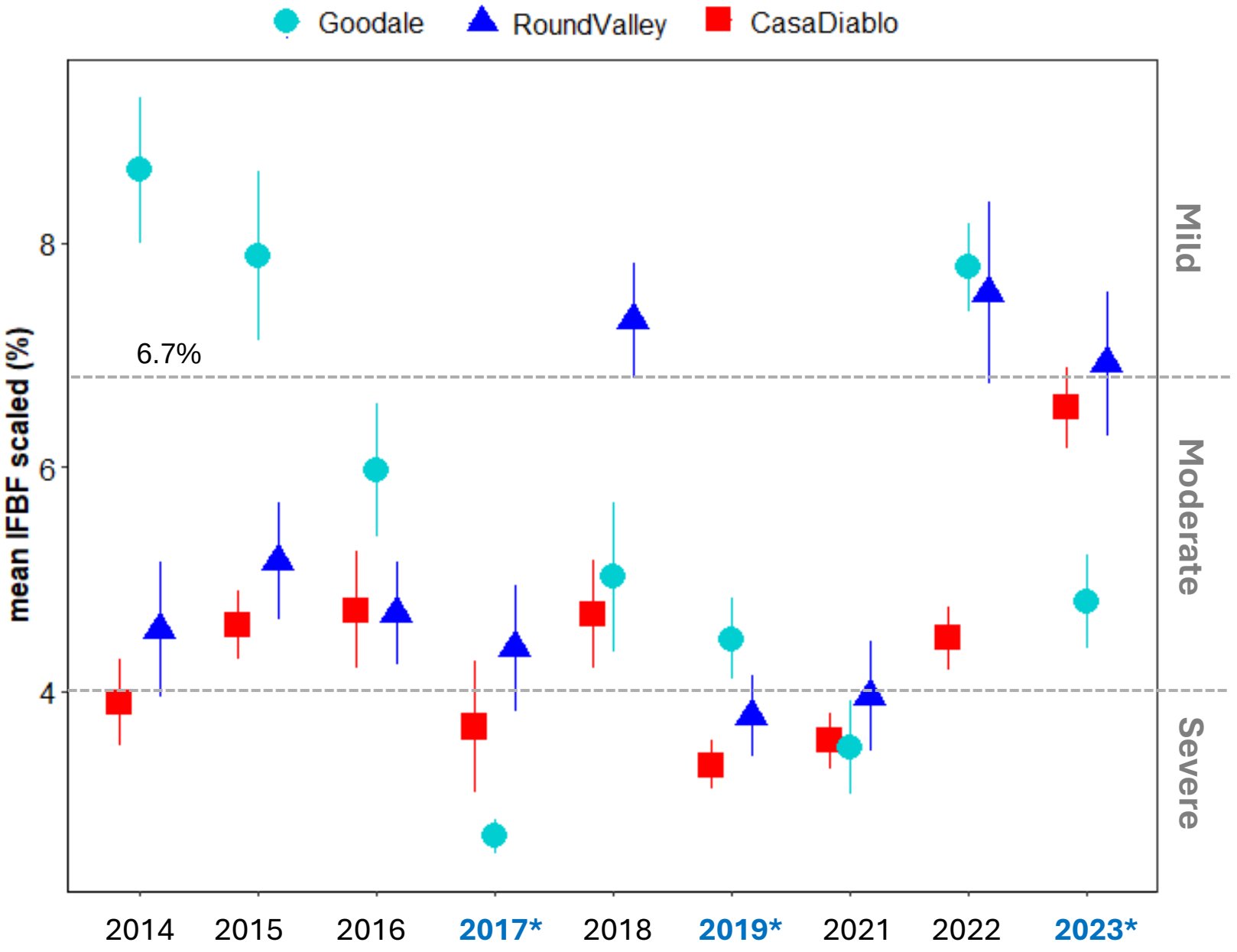
Monteith et al. 2014

Deer Body Condition

Average (± SE) ingesta-free body fat for females captured in 3 herds

March/April, 2014-2023 (excluding 2020)

Mild, Moderate, and Severe = nutritional limitation based on body fat %

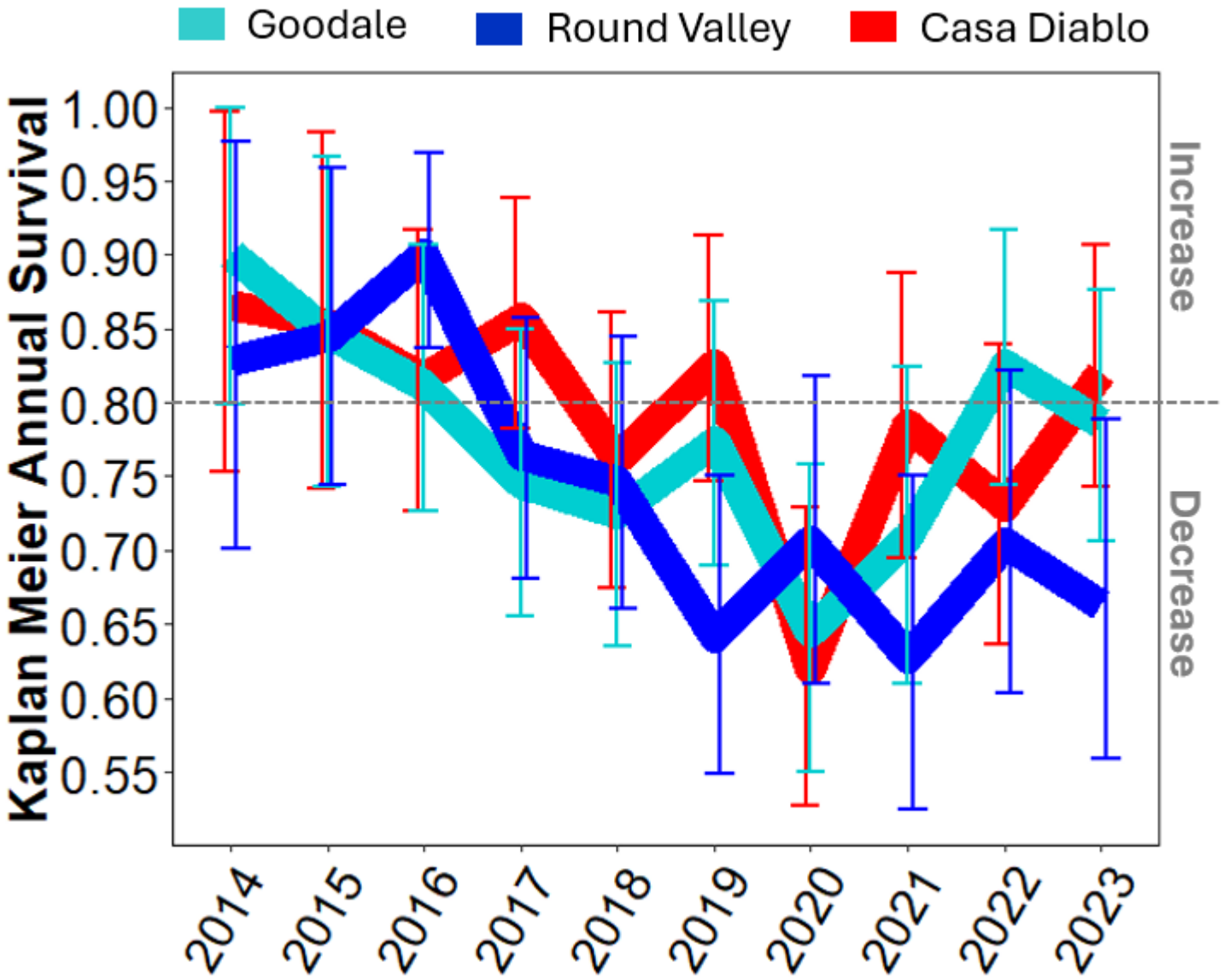


* Winters with heavy snowpack, >150% of average

Deer Survival

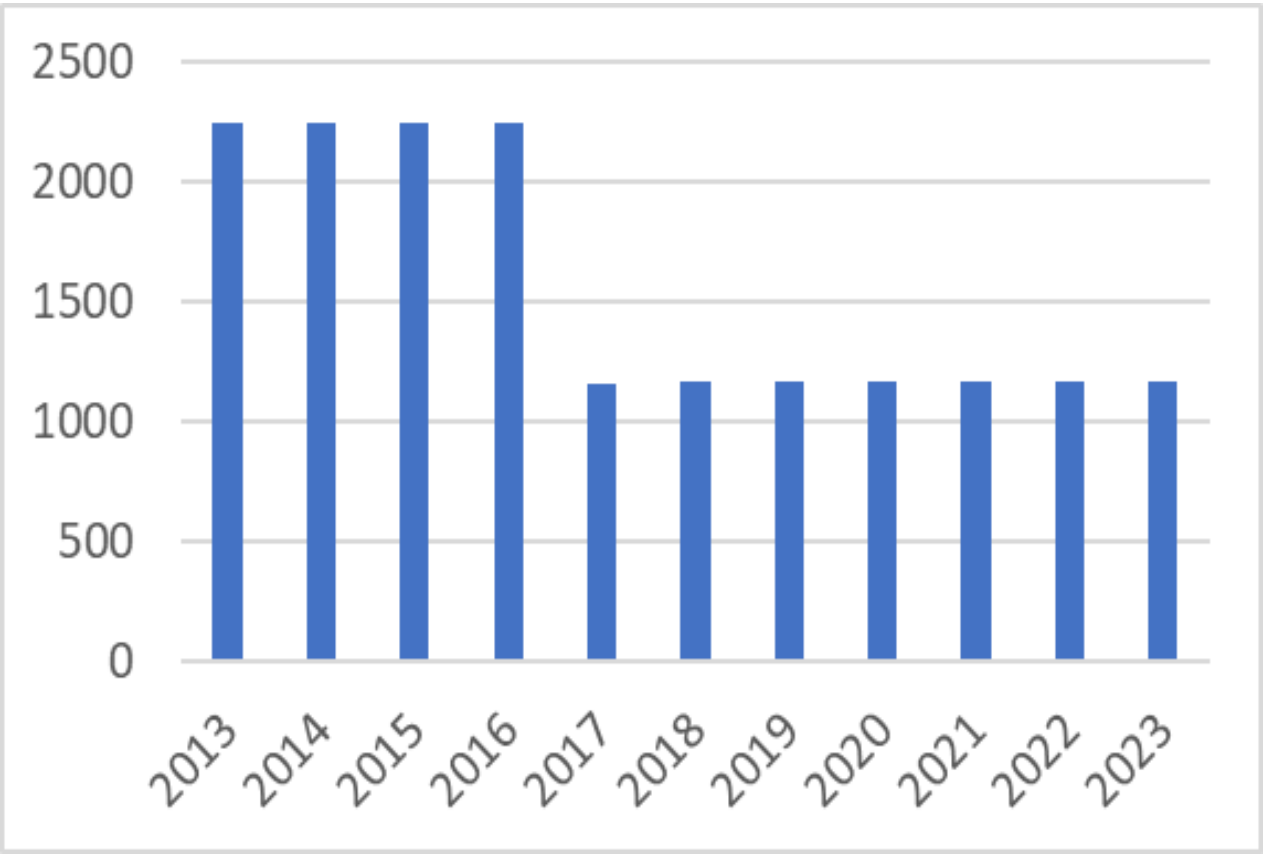
Annual survival for collared females, 2014-2023, (± SE)

Survival below 0.8 typically results in a declining population

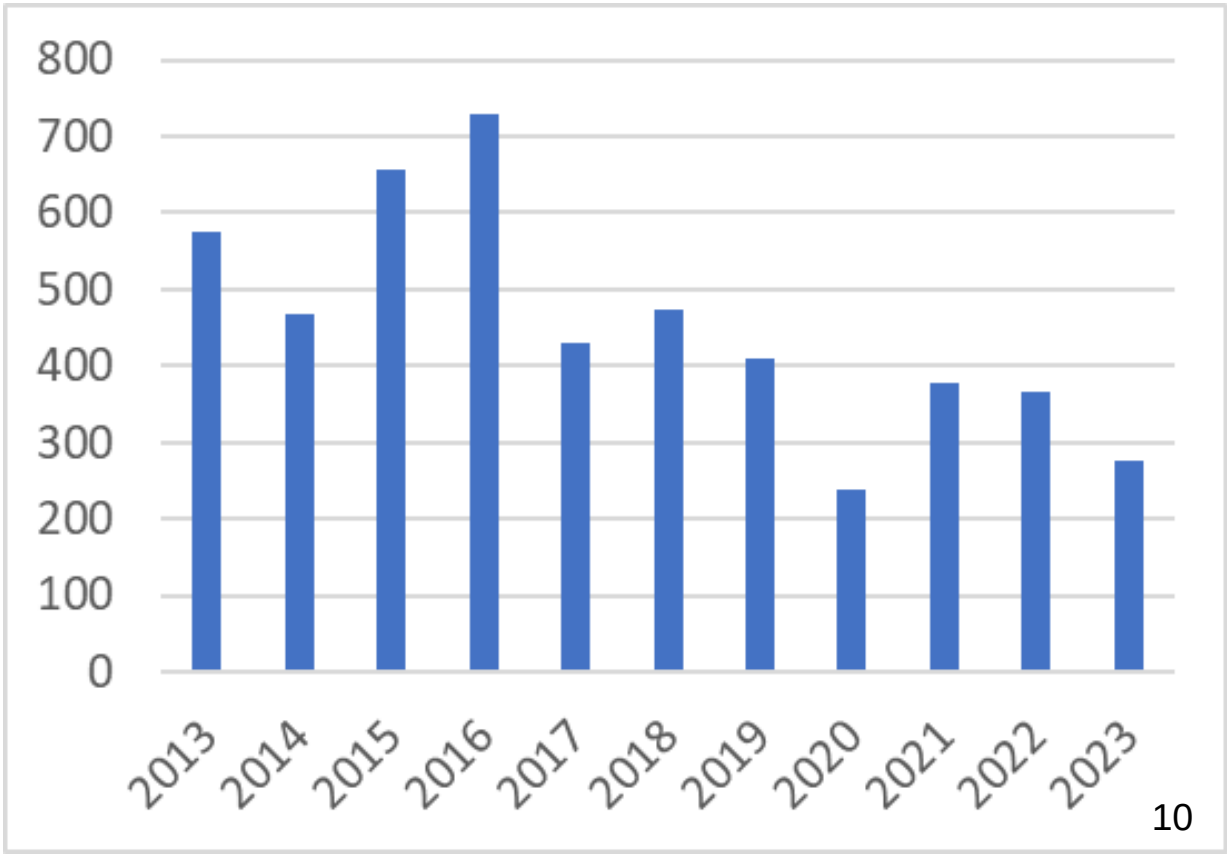


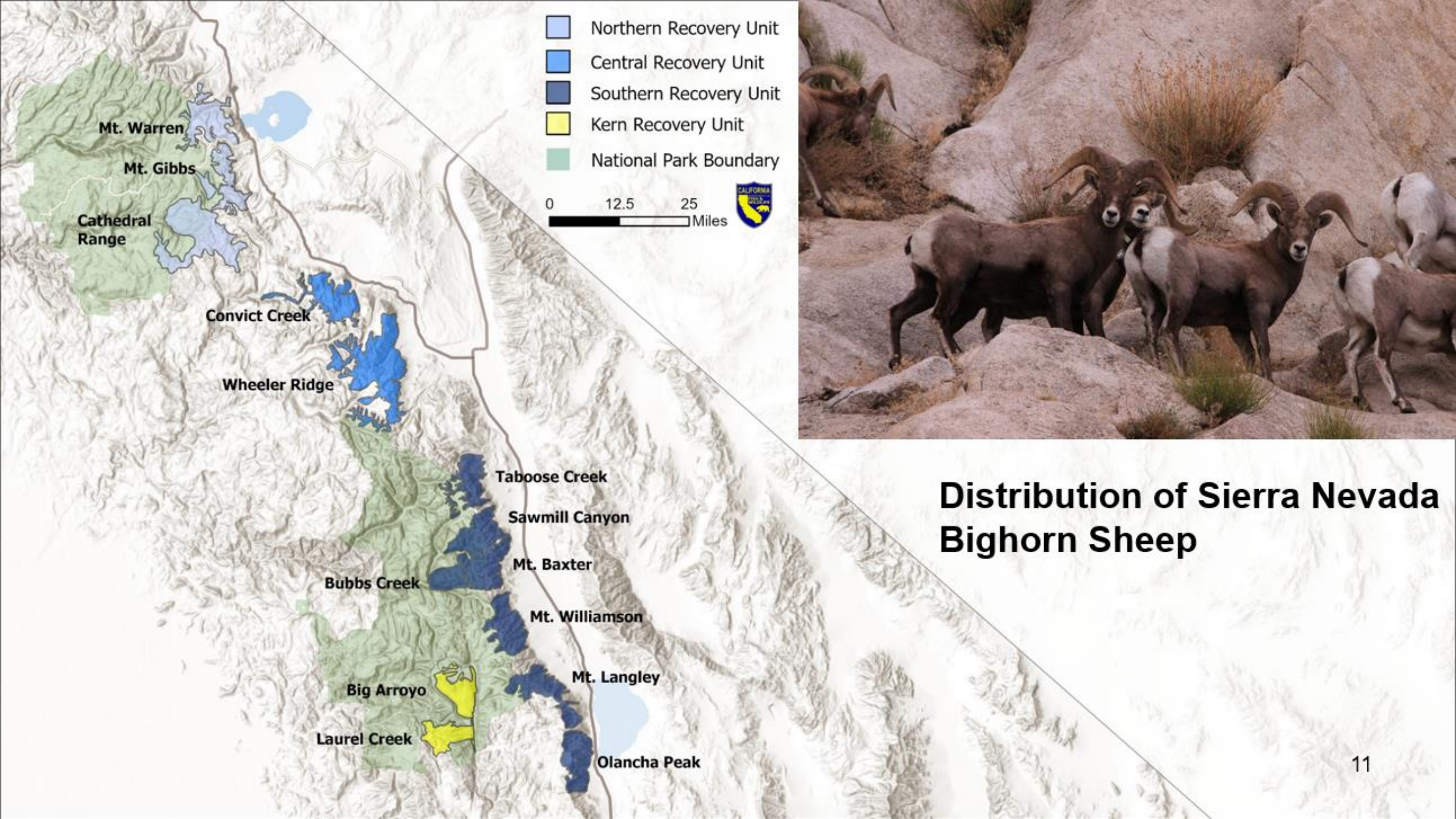
Deer Hunt Zones X9A, X9B, X12
general season, archery, late, and junior hunts

Tag Quota

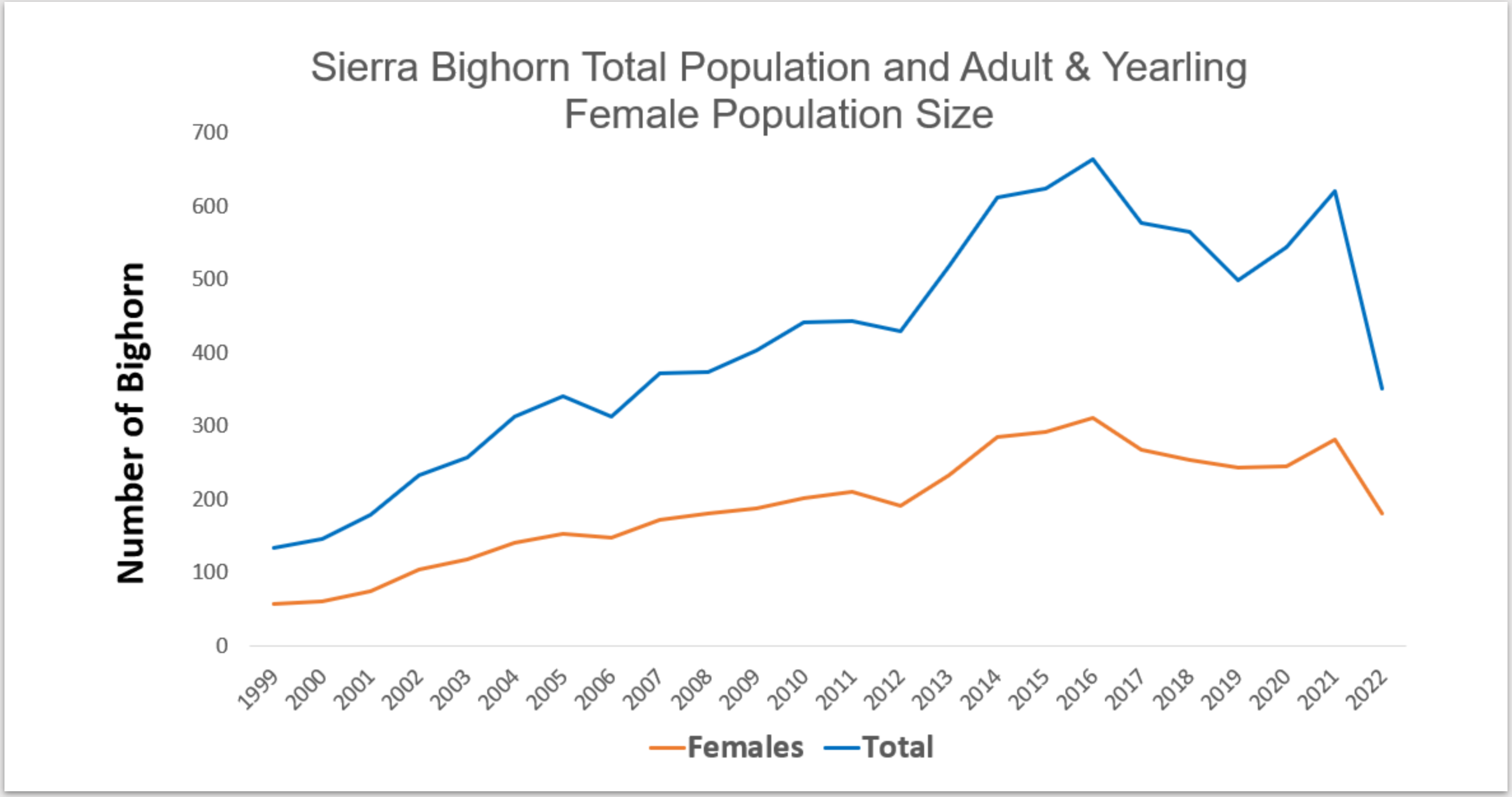


Buck Harvest

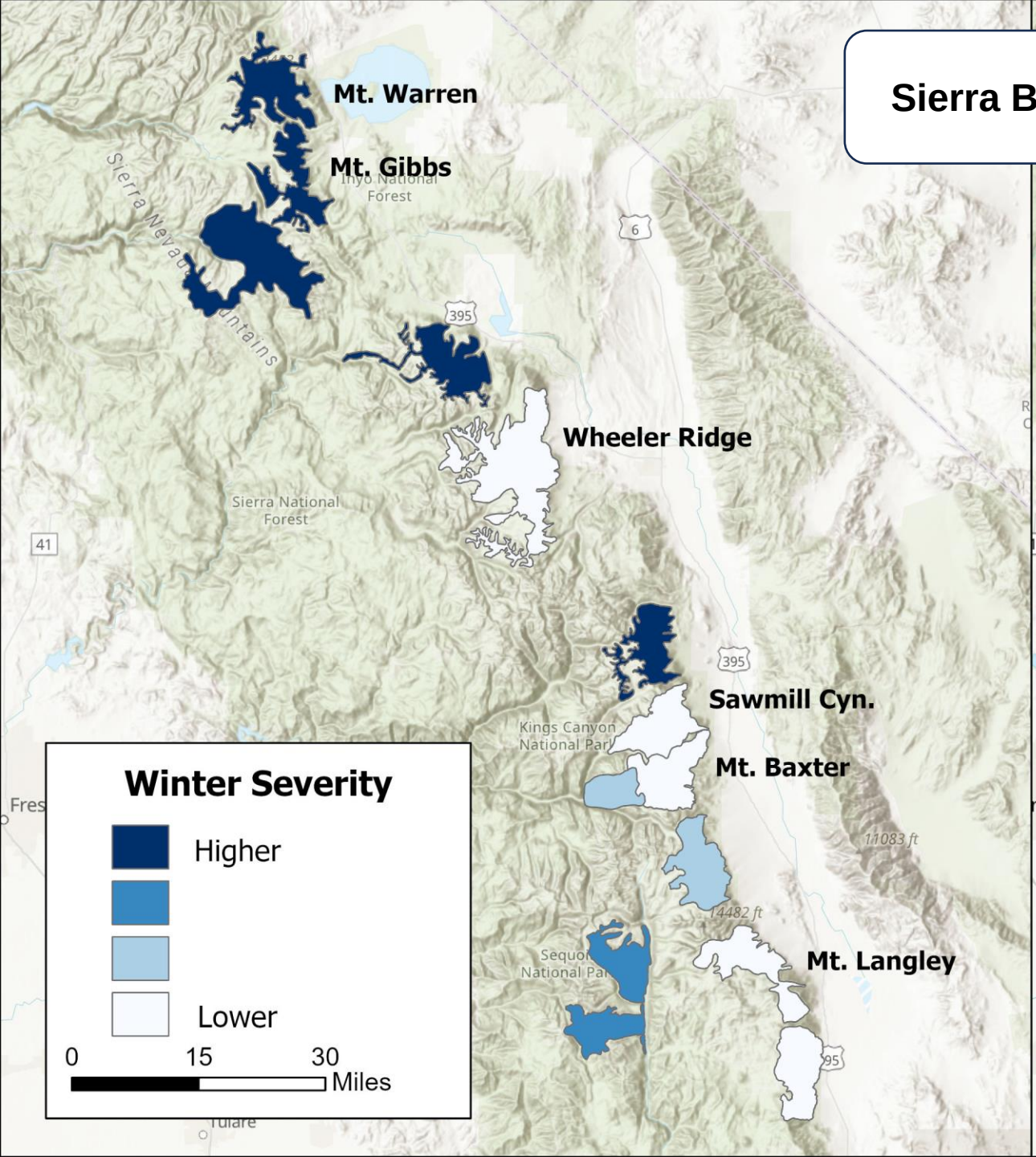


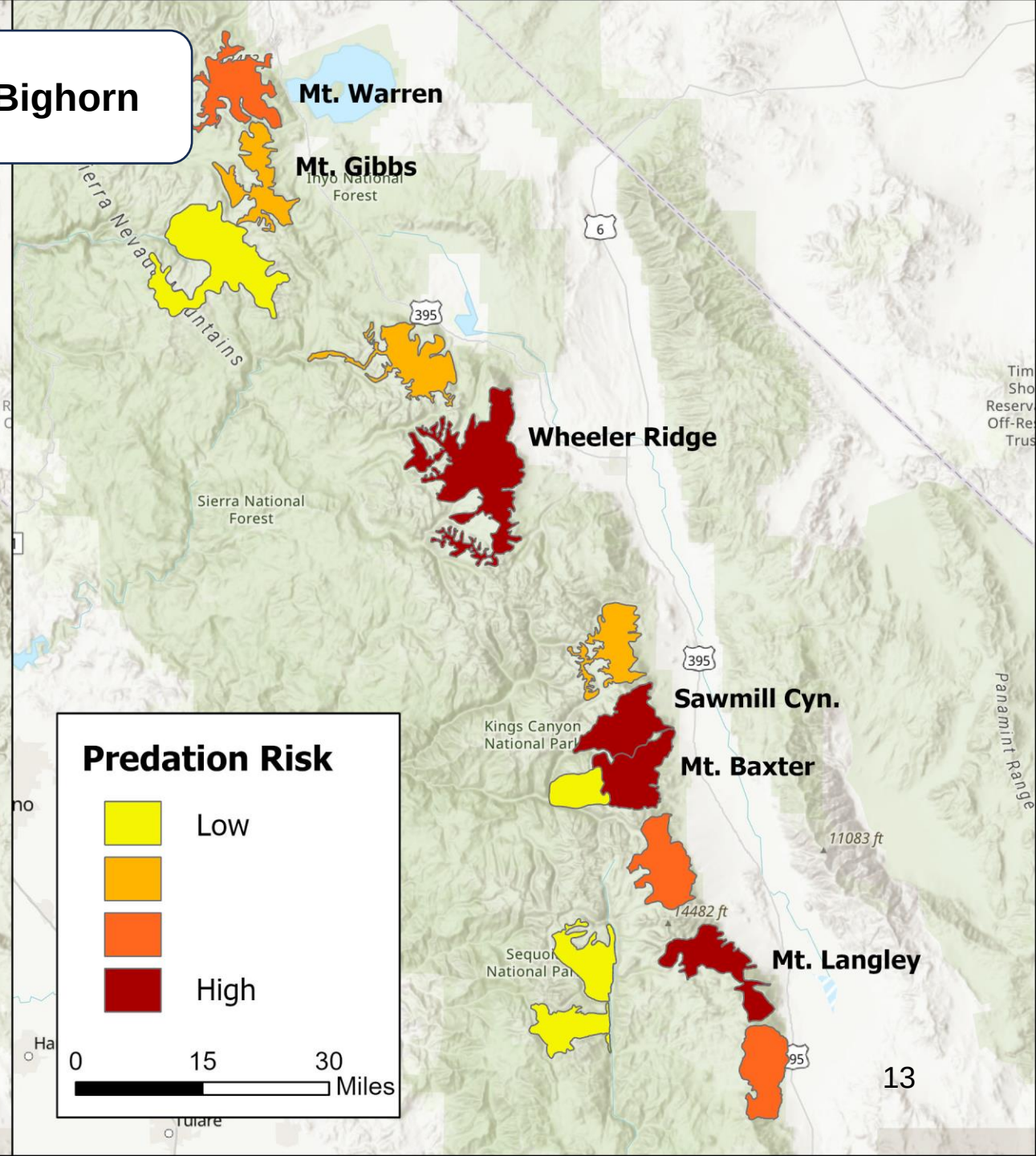


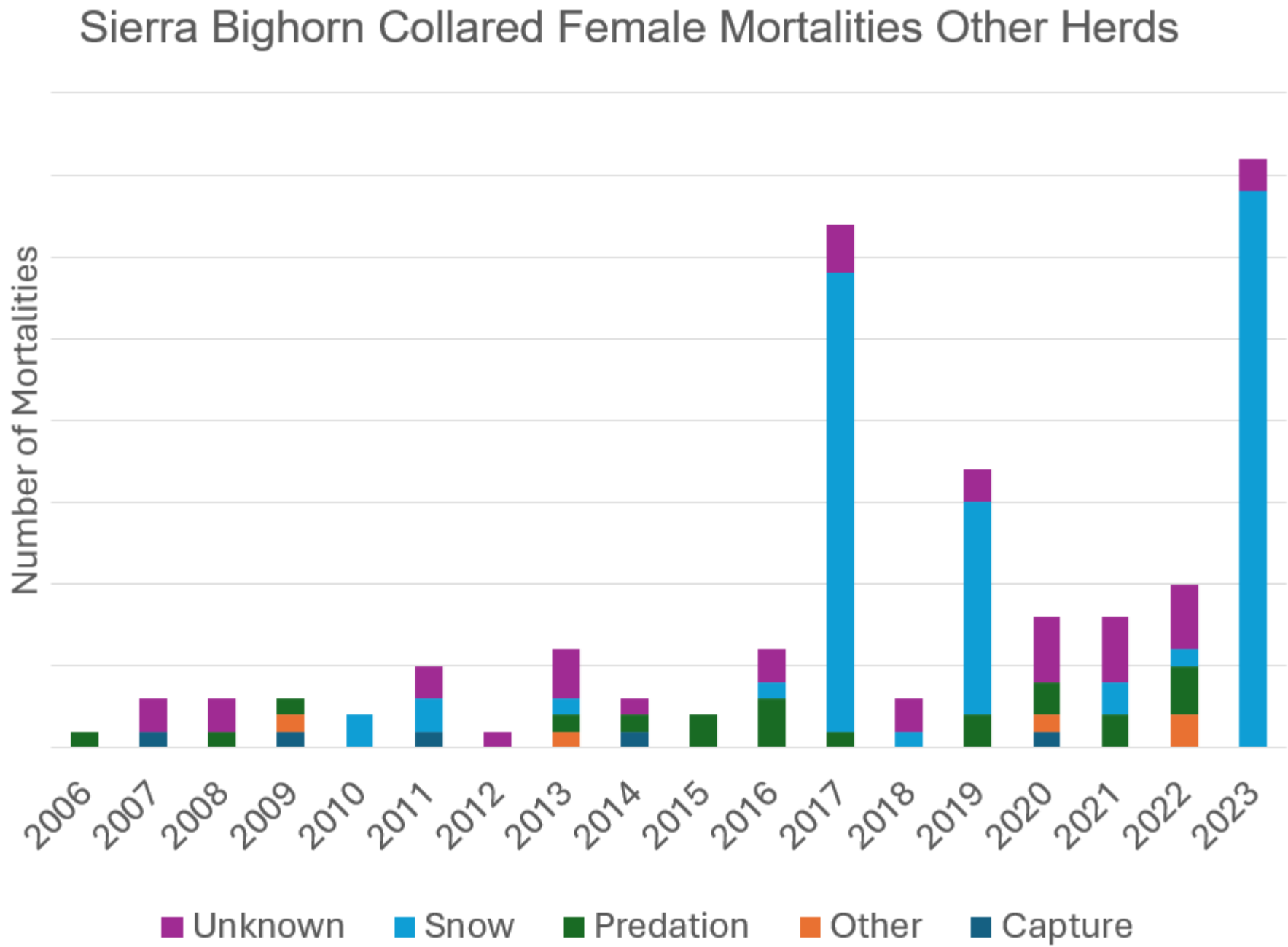
Distribution of Sierra Nevada Bighorn Sheep

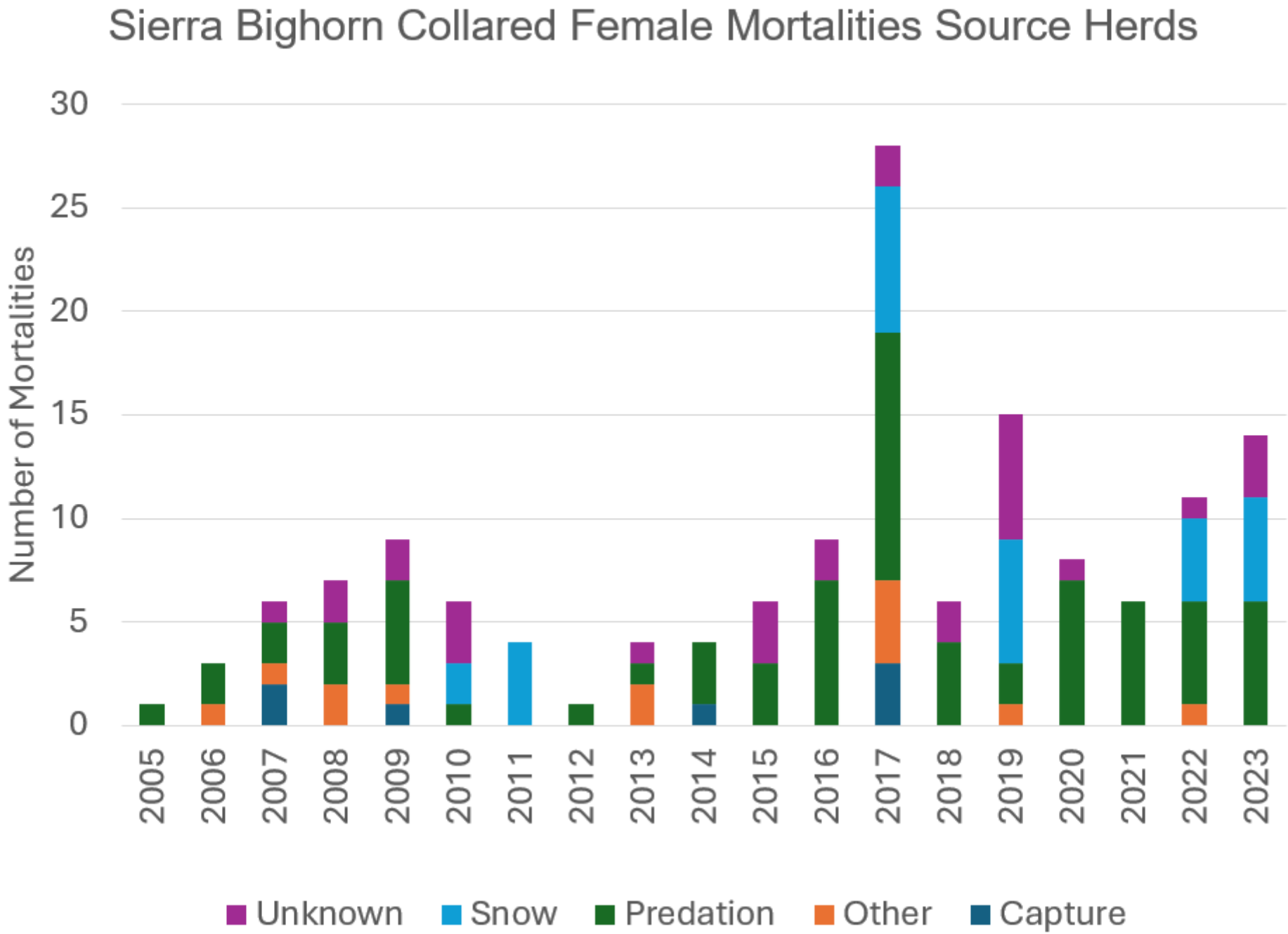

Sierra Bighorn Total Population and Adult & Yearling Female Population Size
Number of Bighorn
700
600
500
400
300
200
100
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Females
Total

Sierra Bighorn

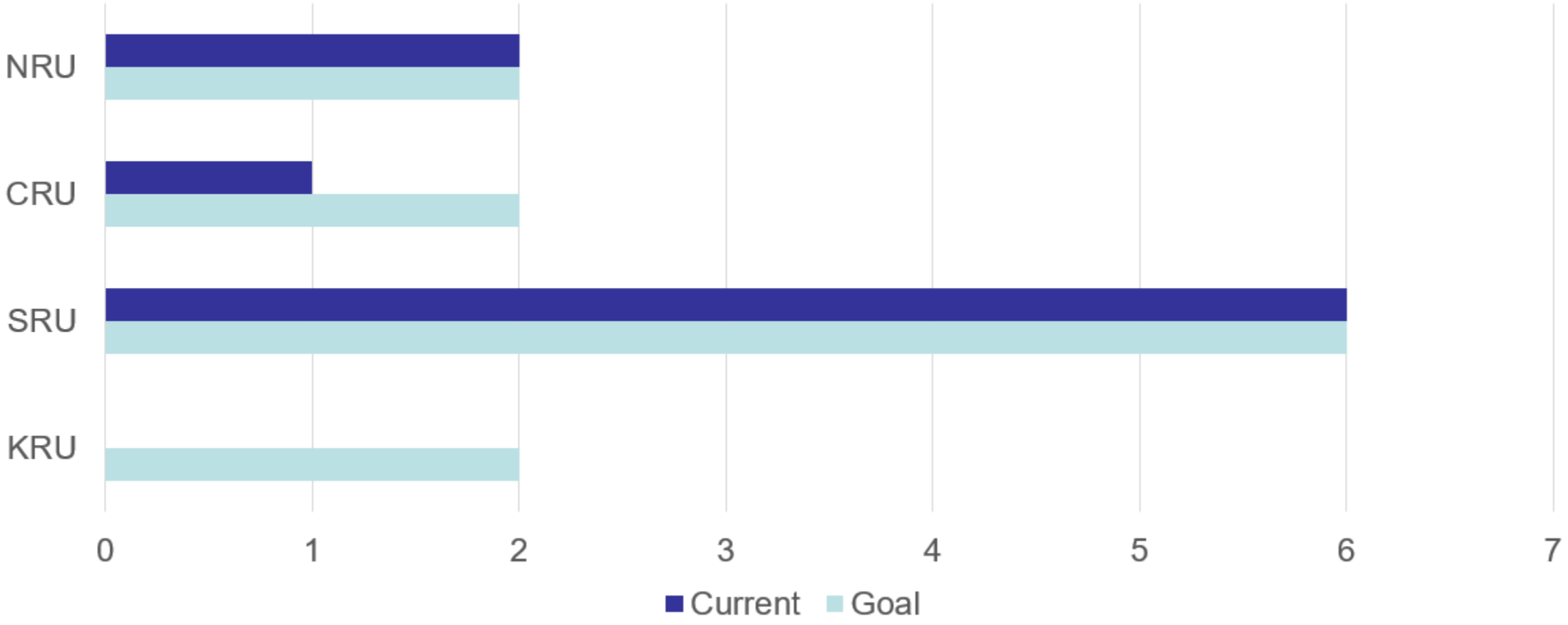




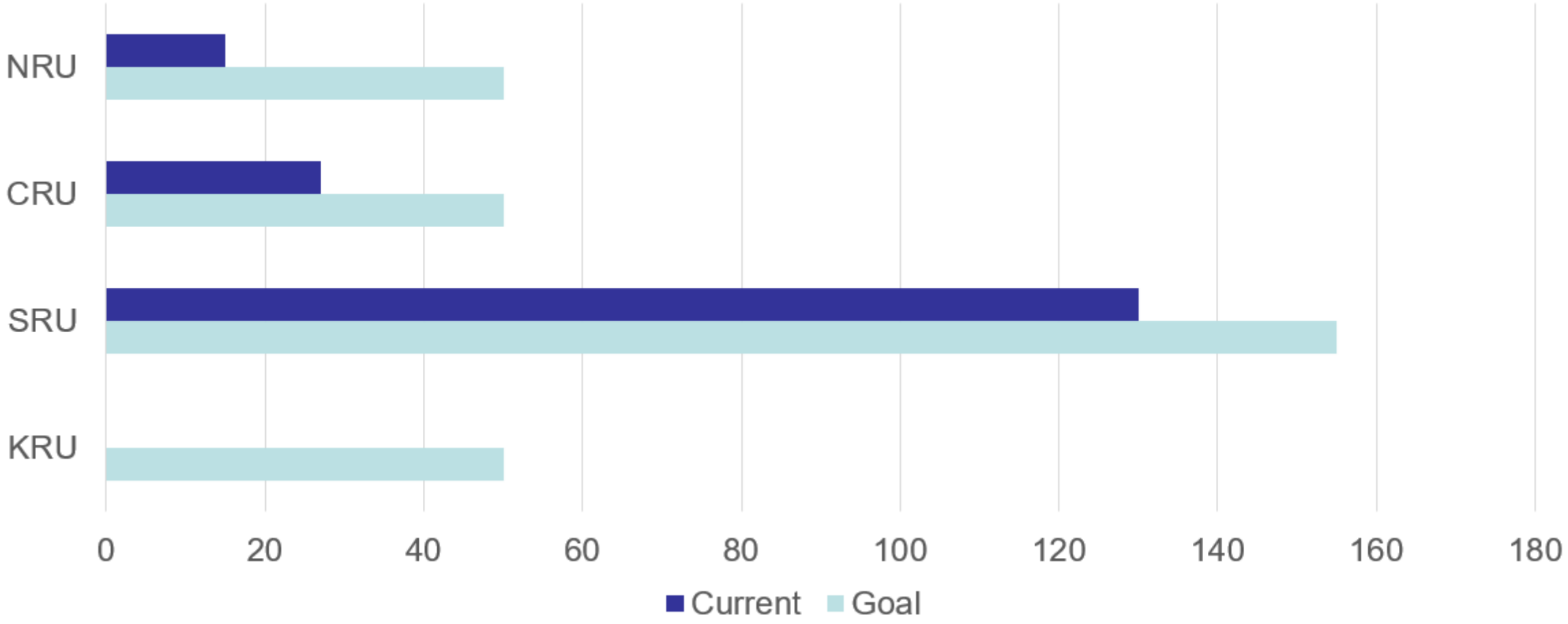

Sierra Bighorn Collared Female Mortalities Other Herds
Number of Mortalities
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Unknown
Snow
Predation
Other
Capture


Sierra Bighorn Collared Female Mortalities Source Herds
Number of Mortalities
30
25
20
15
10
5
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Unknown
Snow
Predation
Other
Capture

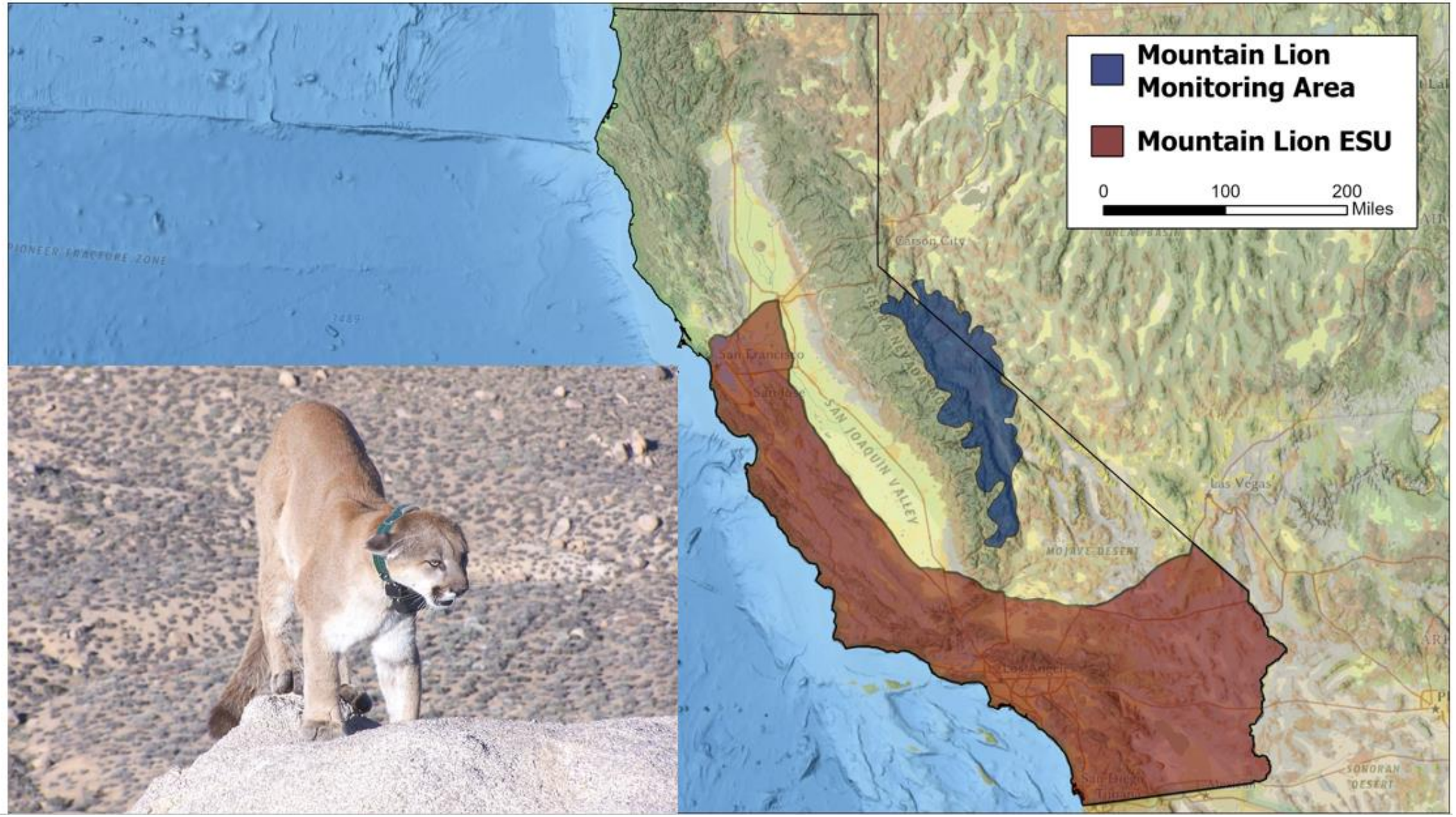
Geographic Recovery Goals



Numeric Recovery Goals



Lions in the eastern Sierra Nevada and Petitioned ESU



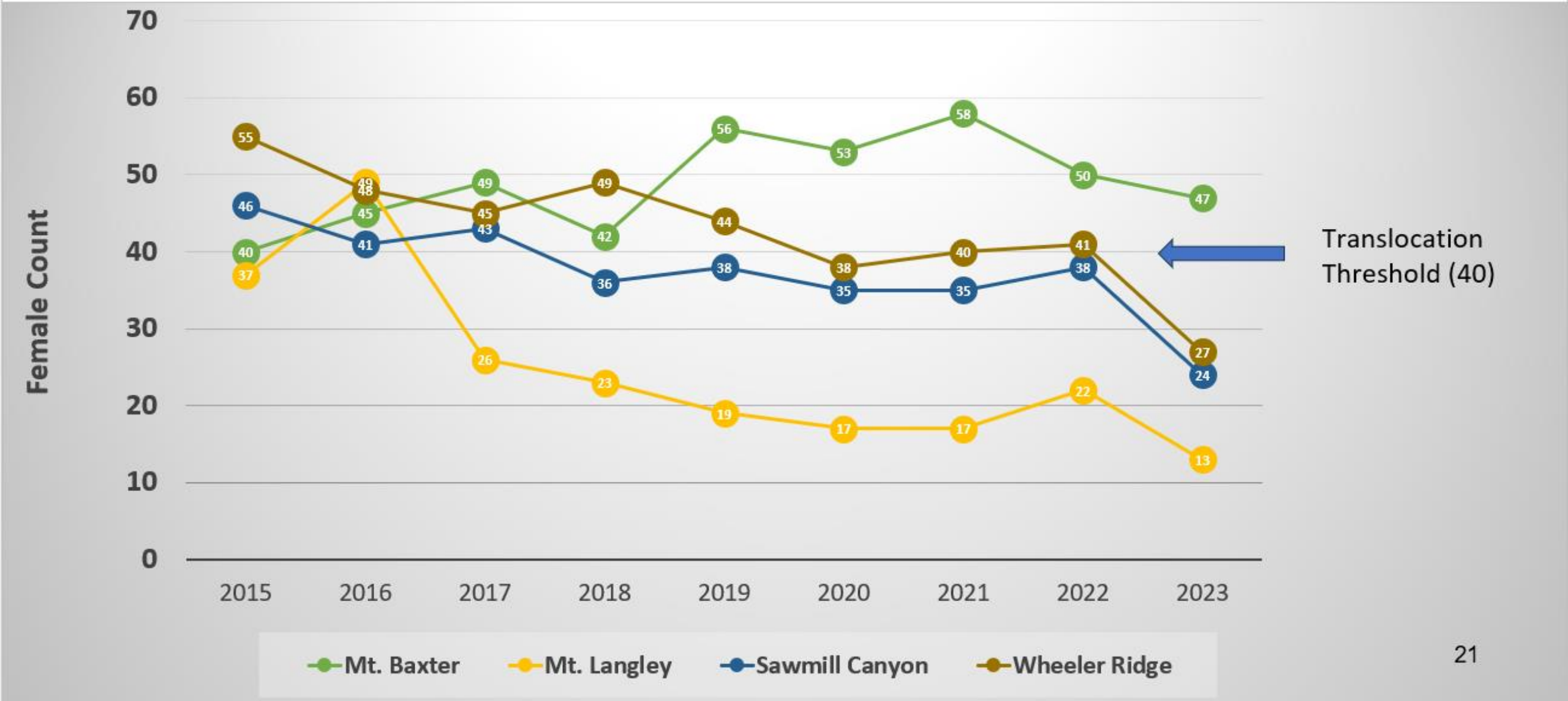
Lion management history

- In 1972, California legislature enacted a moratorium on the hunting of mountain lions
- In 1990, California voters passed Proposition 117 which designated mountain lions as a specially-protected species; hunting was further prohibited but exceptions were made for livestock depredation
- In 1999, California legislature authorized the Department to remove or take any mountain lion that is perceived to be an imminent threat to the survival of bighorn sheep (FGC 4801)

Lion management to recover Sierra Bighorn

- During 1999-2010, 22 mountain lions were lethally taken to protect Sierra bighorn
- During 2017, 2 mountain lions were lethally removed
- Since 2019, we have translocated 19 mountain lions that preyed on Sierra bighorn
- Only lions identified as preying on Sierra bighorn were removed
- In any given year, we have removed <10% of the population of lions in the eastern Sierra and typically far less

Declines in abundance of bighorn source herds



Restoring bighorn translocation stock

Growth Rate (r)	Years to recover
0.02	37
0.05	15
0.1	7
0.2	4

- Moderate to high lion predation results in negative population change
- If we can stop the decline, it will take decades for source herds to increase from <20 to 40 adult females unless we reduce mortality and promote higher growth rates (e.g., 10% per year)

Summary

- The variables that drive ungulate population dynamics in the eastern Sierra are complex and multifactorial
- In mule deer, nutrition is influenced by recent fire history on winter ranges and weather swinging between drought and severe winters; nutritional stress influences prey vulnerability
- In Sierra bighorn, individuals that use high elevation winter ranges to avoid predation are vulnerable to severe winters; bighorn that use low elevation winter ranges to optimize nutrition are exposed to high lion predation that is an additive source of mortality

Acknowledgments

- California Department of Fish and Wildlife
- U. S. Fish and Wildlife Service
- National Park Service
- U. S. Forest Service
- Bureau of Land Management
- Sierra Nevada Bighorn Sheep Foundation
- Yosemite Conservancy
- Wild Sheep Foundation
- Sequoia Parks Conservancy
- California Deer Association
- Special thanks to many field assistants without whom the demographic data would not exist

CDFW Releases More Than 2 Million Chinook Salmon into Klamath River

May 24, 2024

The California Department of Fish and Wildlife (CDFW) this week successfully completed the release of more than 2 million fall-run Chinook salmon smolts into the Klamath River.

On Wednesday, May 15, CDFW released approximately 1.3 million fall-run Chinook salmon smolts below the Iron Gate Dam and carried out another release of approximately 800,000 fish from the same location on Wednesday, May 22.

The salmon smolts were trucked about 7 miles to the release point from CDFW's new, state-of-the-art Fall Creek Fish Hatchery. The fish carried coded-wire tags and had their adipose fins clipped to later identify them as being of hatchery origin and provide scientists and hatchery managers with data about their life histories and the success of the release.

Although still undergoing the final phases of construction, CDFW's new Fall Creek Fish Hatchery, which replaces the 63-year-old Iron Gate Fish Hatchery on the Klamath River, has already exceeded its production goal of 3.25 million salmon in its first year of operation, the combined result of the excellent water quality in Fall Creek, a tributary to the Klamath River, along with improved efficiencies of the facility itself.

The salmon smolts are about six months old and average just under 3 inches in length. The smolt releases began earlier than scheduled last week due to warming temperatures in the Klamath Basin and C. Shasta disease concerns. C. Shasta – or Ceratonova shasta – is a naturally occurring freshwater parasite native to the Klamath River that can cause disease in young salmon. The fish are particularly susceptible in warmer water temperatures. Those concerns were alleviated this week, however, with a return of cooler temperatures to the Klamath Basin.

Dam removal provided a dramatic backdrop to CDFW's salmon releases. The three remaining Klamath River dams targeted for removal – JC Boyle, Copco 1 and Iron Gate – are all being actively deconstructed. Their removal is ahead of schedule and could open up free fish passage and access to hundreds of miles of new spawning and rearing habitat to salmon returning from the ocean as early as this fall.

CDFW plans another release of 250,000 to 300,000 yearling fall-run Chinook salmon later this year. If dam removal proceeds at its current pace, CDFW expects to release the fish directly from its Fall Creek Fish Hatchery into Fall Creek, which has been inaccessible to salmon due to its location behind the Iron Gate Dam.

Dam removal, the transition to the state-of-the-art Fall Creek Fish Hatchery, increasing variability in hatchery releases at different salmon life stages to supplement in-river production and the strong relationships forged with tribal partners that have made these actions successful are all critical components of the California Salmon Strategy for a Hotter, Drier Future (PDF)(opens in new tab) released by Gov. Gavin Newsom in January 2024.