

Four Decades of Cougar – Ungulate Dynamics in the Idaho Wilderness

A Historical Perspective

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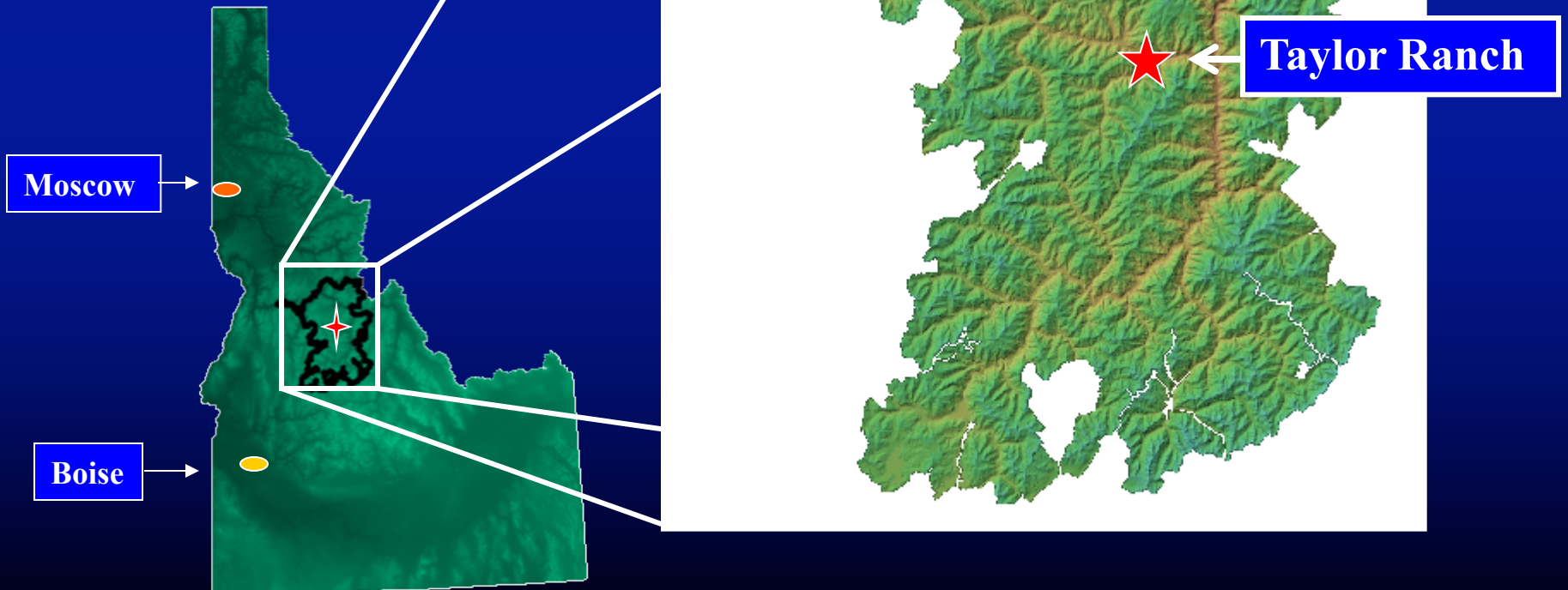
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Taylor Ranch Field Station on Big Creek









Taylor Ranch Field Station

Lou Caswell:

*“Wolf howled, the
first time”*

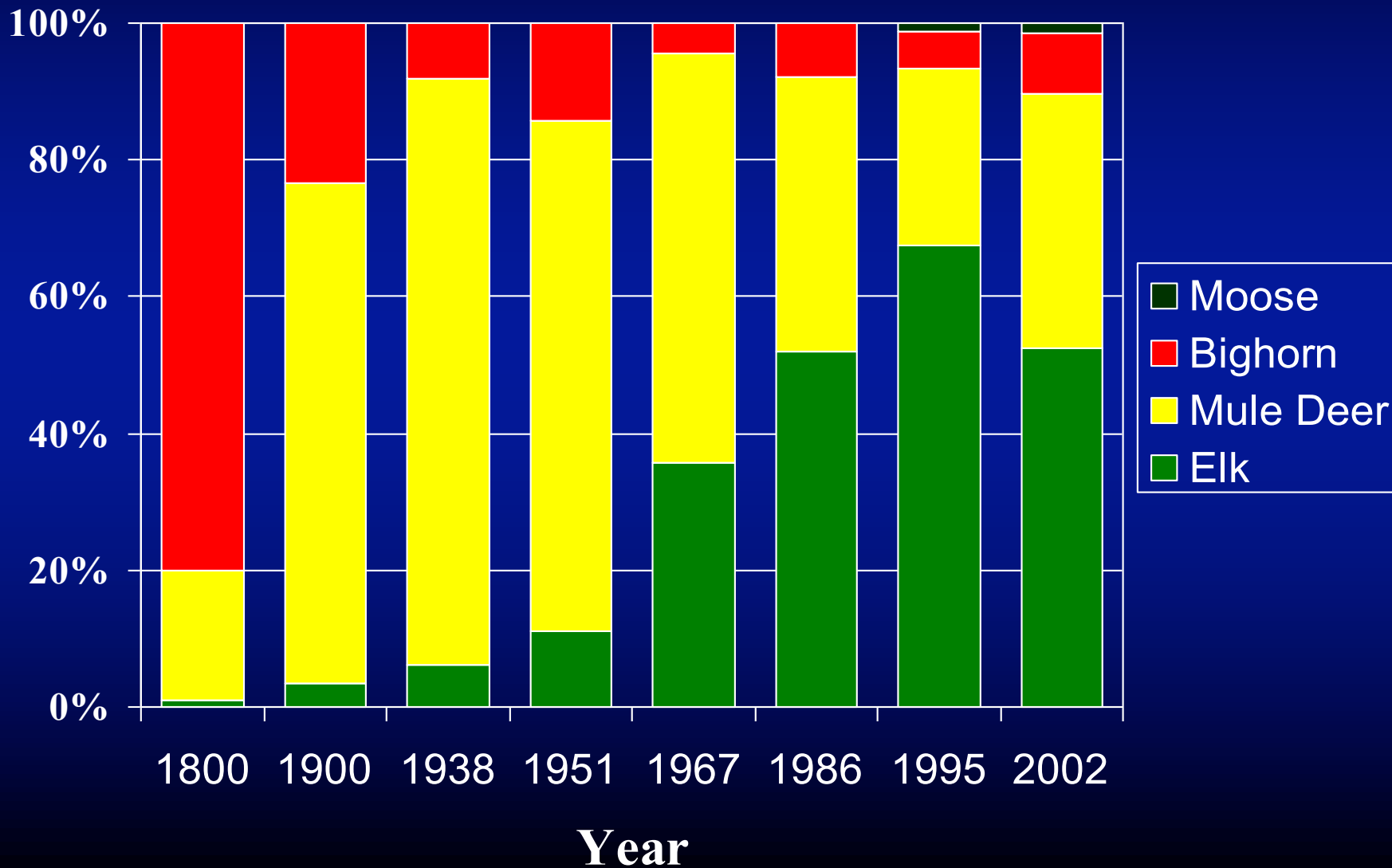
*Dec. 7, 1895,
Caswell Diary
from Cabin
Creek on Big
Creek.*



Snapshots in Time

- Caswell Homestead Diary 1895-1900
- Hornocker & Wiles 1965-1969
- Seidensticker 1970-1973
- Quigley & Koehler 1984-1987
- Akenson & Akenson 1999-2002

Historical Ungulate Abundance On Big Creek





Human Influence on Predators

- “Cougar” Dave Lewis bounty hunter

“Cougar” Dave Lewis

Warren Times Newspaper, April 1888



“Cougar Dave Lewis, who lives over in Middle Fork country took out and was paid bounty for 12 cougar, 1 bear, and a coyote.”

“Cougar” Dave Lewis

Idaho Statesman, July 1922



34 years
later ...

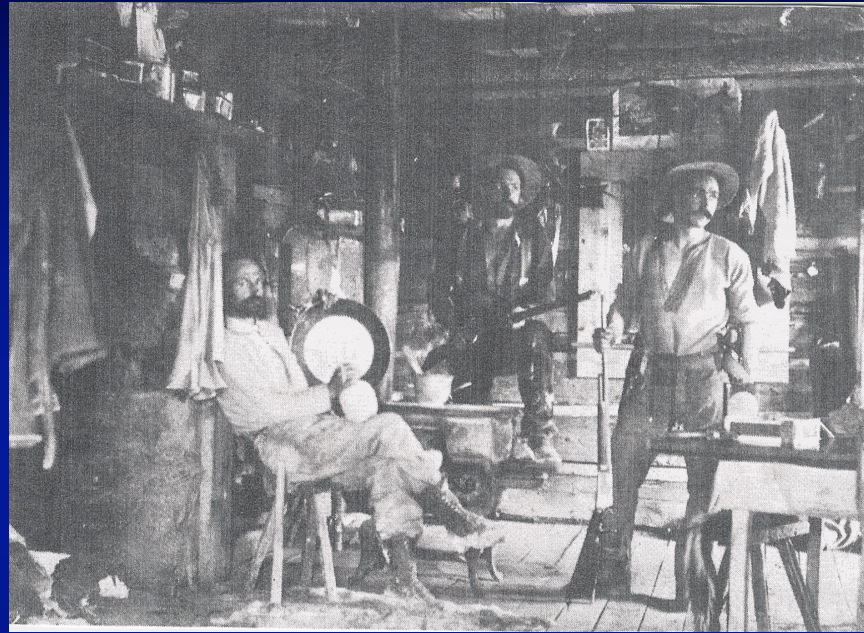
“Mr. Lewis brought to Boise 14 cougars, 15 coyotes, 2 bobcats, 2 foxes, 4 mink, all which were caught last winter.”

Human Influence on Predators

- Caswell Brother's grubstake

Lou Caswell

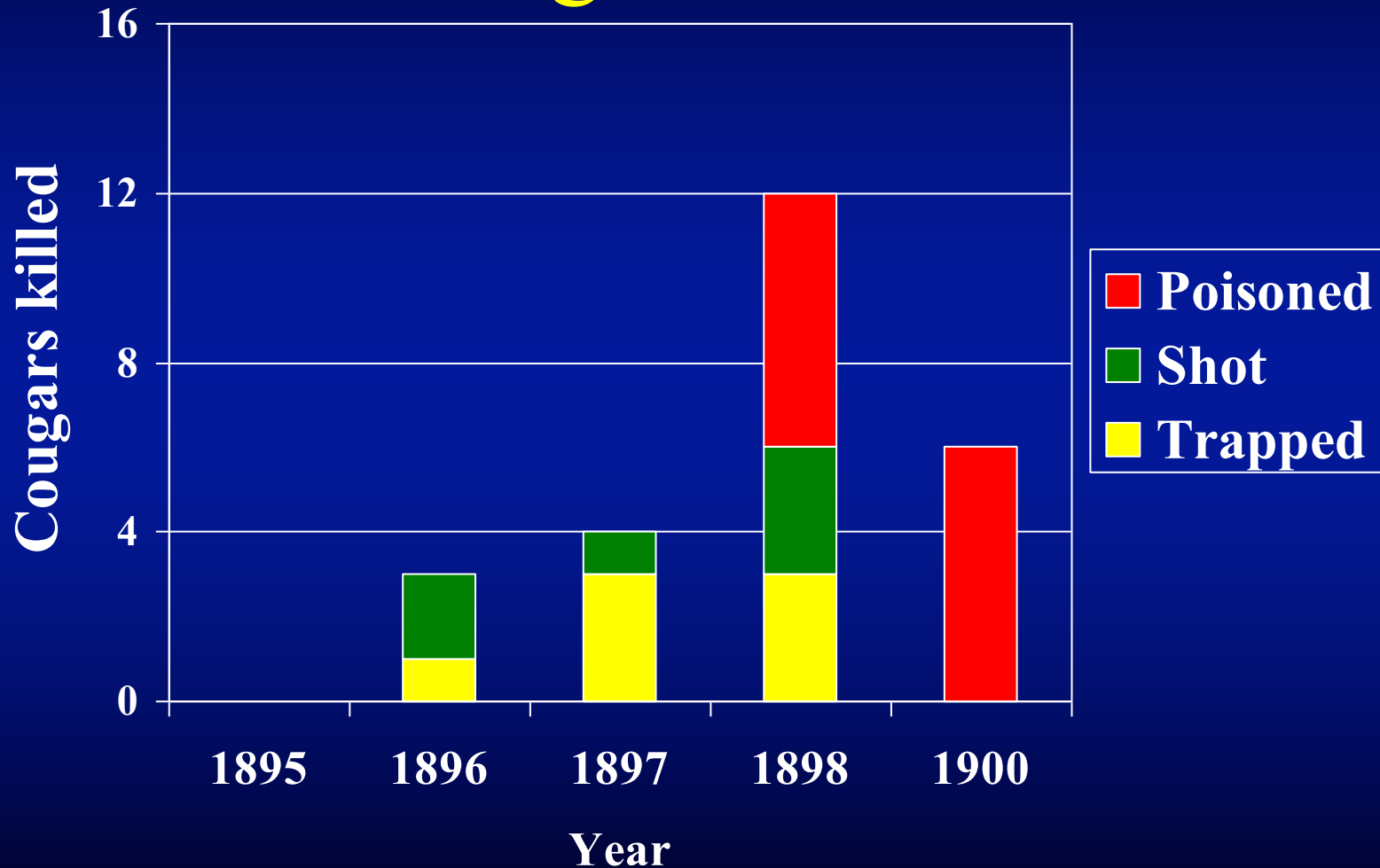
Caswell Diary February 9, 1900



“Went to strychnine bait on Horse Mountain and found 2 tremendous big dead lions. One of the lions had eaten a hole in the skin of the other lion and spoiled it. Brought home the lion tallow to make soap.”

(The 3 brothers recorded killing 25 cougars, 5 bears, 2 coyotes, 1 bobcat, 1 wolf, and 175 ungulates in 5 years)

Cougars Killed by Caswells on Big Creek



Human Influence on Predators

- Depression era trappers

Coski, Trueblood, and Manis

Forest Service Game Count, 1940



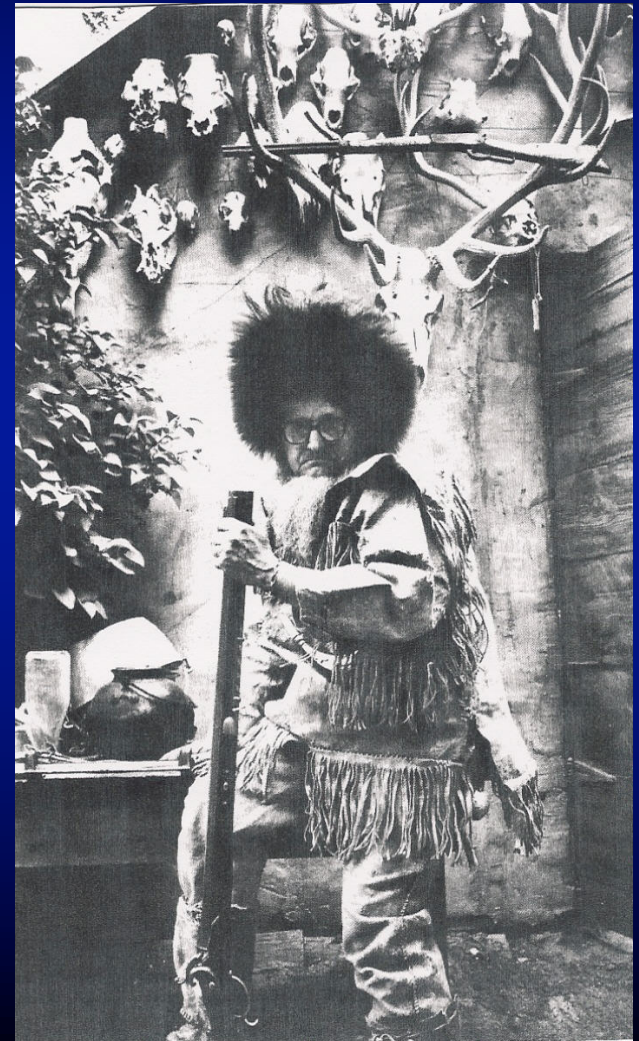
“In order to alleviate the present overgrazed condition of the range it is believed necessary to cut the present deer population in half. From the success of trappers and sign on the winter range it is quite evident that both cougar and coyote are on the decline.”

Coski, Trueblood, and Manis

Forest Service Game Count, 1940

“It might be asked, “What has caused the great increases in deer population?” It is believed that the increase of deer may be laid directly to man’s efforts to control the predators of deer – coyote and cougar.”

(Residents reported trapping 54 coyotes, 49 martens)



Ed James

Hangin' and Rattlin', from 1951



“The game has had too much expert management and is almost a thing of the past now. The last few times I went back there it was like going home with no one left to greet you, and no wildlife to see.”

Human Influence on Predators

- Maurice Hornocker cougar research

Maurice Hornocker

Wildlife Monographs, March 1970

“Lion predation appears incapable of limiting elk and deer populations in the Idaho Primitive Area, but the effect and influence of such predation is of great significance in tending to maintain ecological stability in a wilderness environment.”



Human Influence on Predators

- Wolf reintroduction

Wolf Reintroduction, 1995



Big Creek Outfitter

1998



“We need to harvest more cougars to decrease predation on elk and deer, since we can not control the introduced wolves.”

(Outfitted hunters harvested 17 cougars in 5 years.
Current IDF&G regulations: 2 cougars per hunter)

Human Influence on Predators

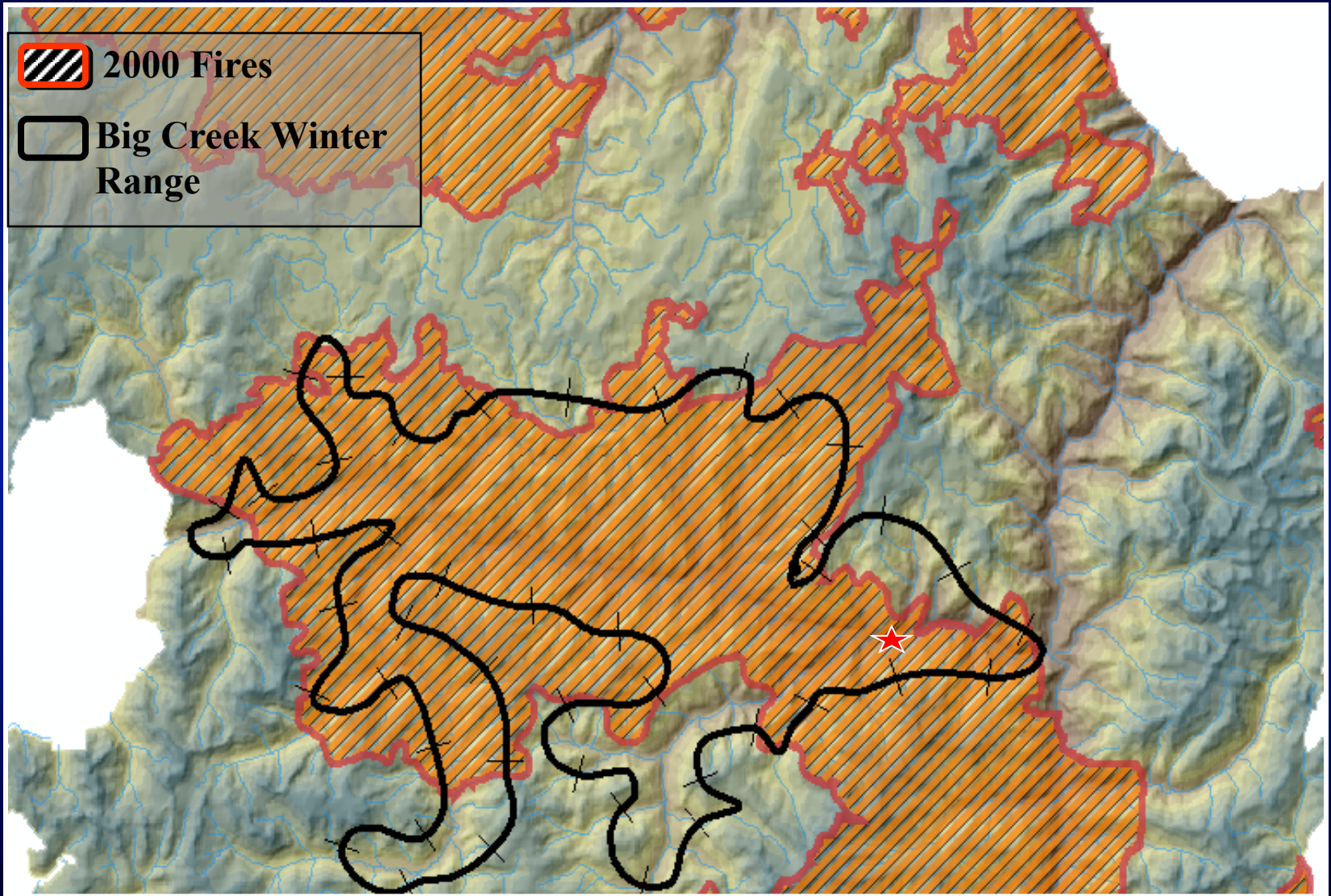
- “Cougar” Dave Lewis bounty hunter
 - Caswell Brother’s grubstake
 - Depression era trappers
-
- Maurice Hornocker cougar research
 - Wolf reintroduction
 - Hunting outfitters offset wolf predation

Diamond Point Fire 2000

175,000 Acres



Diamond Point Fire & Big Creek Winter Range



Maurice Hornocker & Wilbur Wiles

- Cougar – Ungulate Relationships
- Cougar Population Dynamics

John Seidensticker

- Cougar Social Organization

Howard Quigley & Gary Koehler

- Cougar Population Dynamics

Jim Akenson & Holly Akenson

- Cougar – Ungulate Relationships
- Cougar – Wolf Interactions











Ungulate Populations & Trends

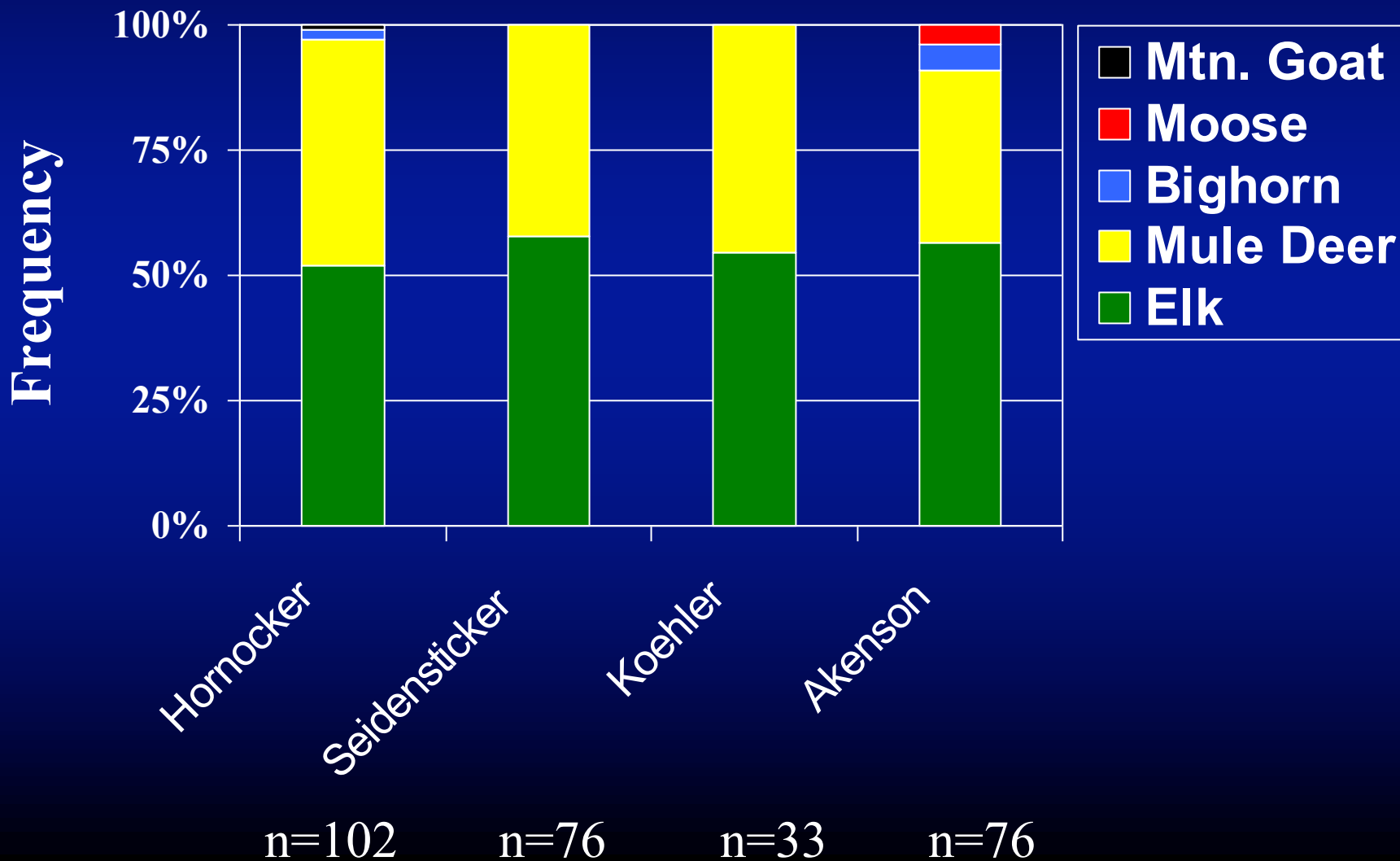
	Elk	Mule Deer	Ungulate Units
Hornocker	1010 ↑	1694 ↑	4597
Seidensticker	786 ↔	2109 ↔	4395
Quigley & Koehler	1299 ↑	1000 ↔	4761
Akenson & Akenson	1185 ↓	700 ↑	4112

100 Years of Cougars on Big Creek

- Populations of large mammals, both ungulates and carnivores have varied widely
- Humans have played a prominent role in these changes, despite the remoteness
- The cougar is a resilient animal that has persisted under extreme natural and human caused changes in its environment



Ungulates Killed by Cougars in 4 Time Periods



Effect of Cougar Predation on Ungulate Populations

Hornocker:

Elk >> Deer

Seidensticker:

Elk >> Deer

Quigley & Koehler:

Elk = Deer

Akensons:

Elk = Deer

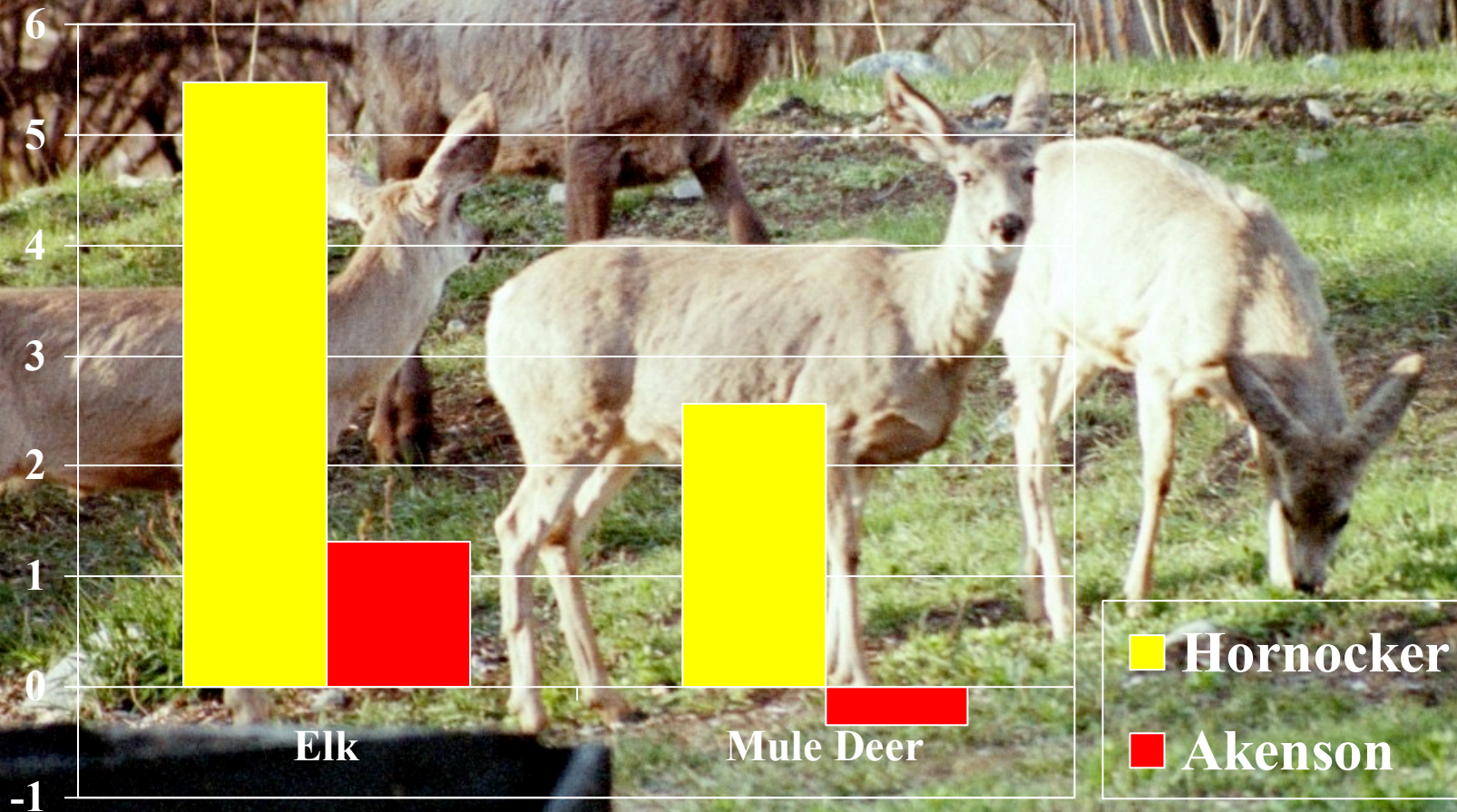
Composition of Cougar Killed Elk (%)



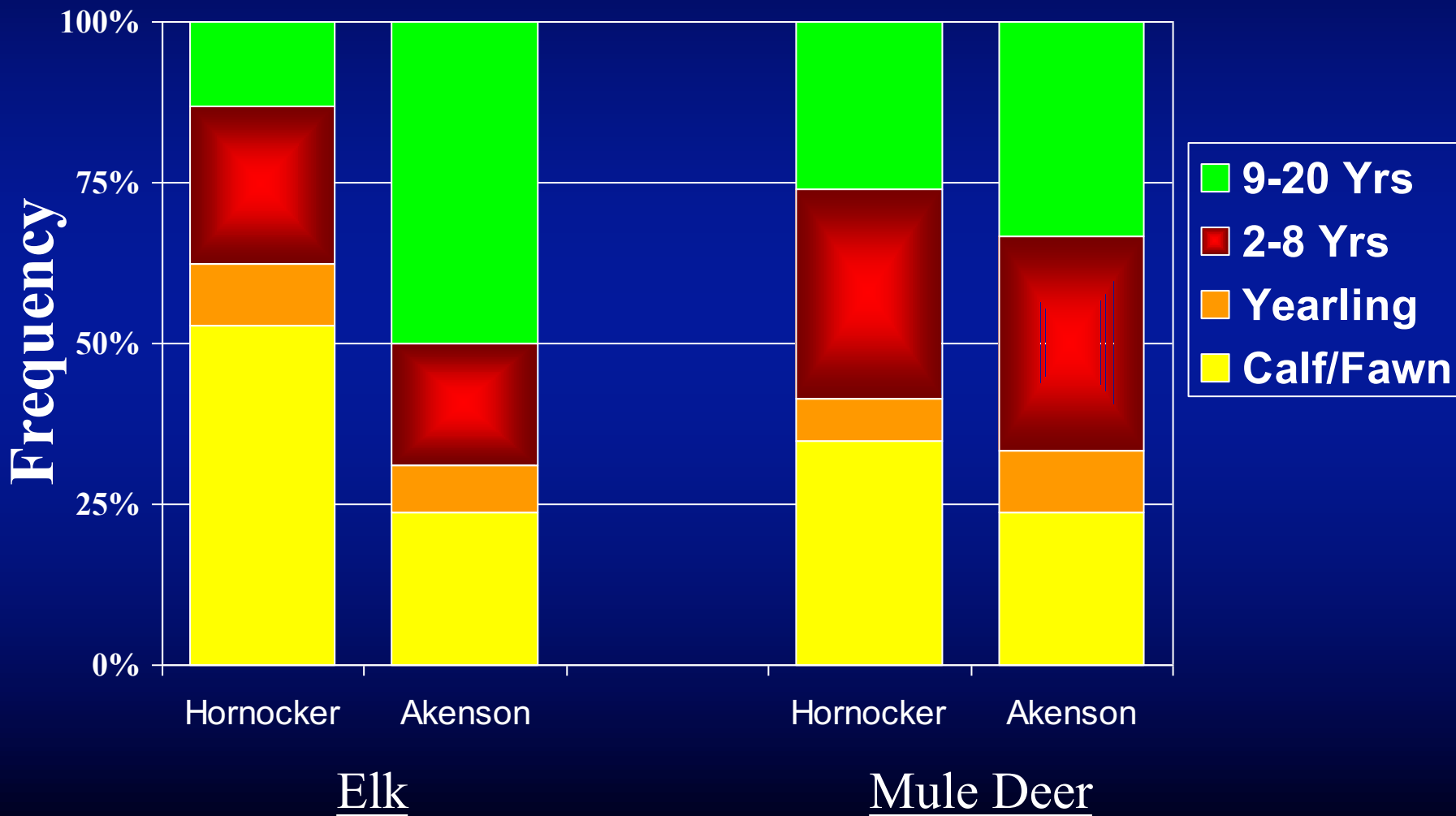
	Calf	Cow	Bull	
Hornocker	53	30	17	n=53
Seidensticker	37	40	23	n=43
Akenson	23	77	0	n=43

Calf & Fawn Vulnerability to Cougar Predation

(predation age ratio / population age ratio)



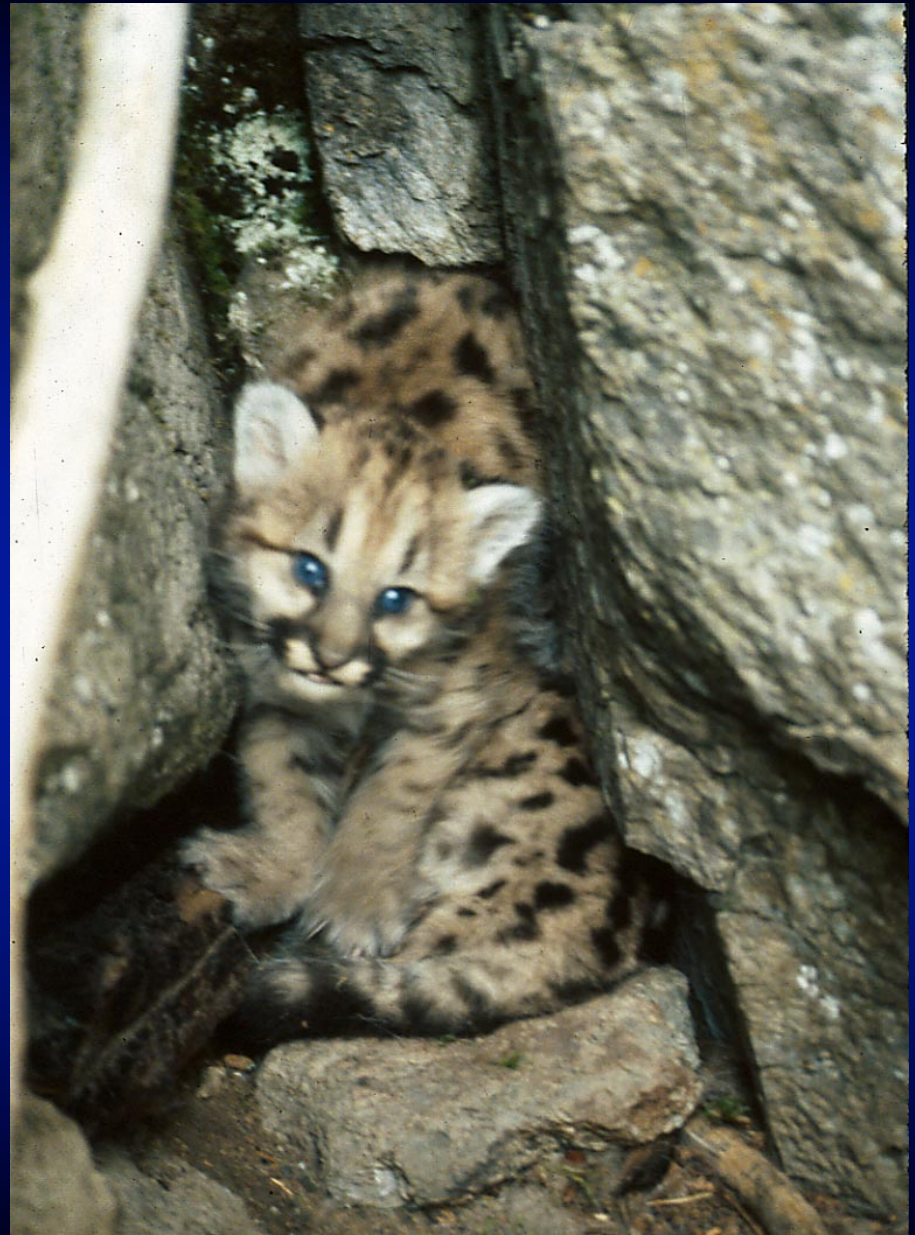
Age Classes of Elk & Mule Deer Killed by Cougars during 2 Time Periods



Resident Adult Cougar Population Through 4 Decades

Project	Year	Total Adults	Adult Males	Adult Females
Hornocker	1967	9	3	6
Seidensticker	1972	9	3	6
Quigley & Koehler	1987	13	3	10
Akenson & Akenson	2000	10	4	6
Akenson & Akenson	2002	6	2	4

Cougar Reproduction



Mean Number of Female Cougars Documented with Litters During Winter

- Hornocker 3.50/year n=14 litters
- Akenson 1.75/year n=6 litters

Mortality of Collared Adult Cougars



•Quigley & Koehler 42% n=12

•Akenson & Akenson 83% n=6

All Known Adult Cougar Mortality



	Total	Hunter	Intra-specific	Natural	Other
Hornocker 5 yr.	5	4	0	1	0
Quigley & Koehler 4 yr.	6	3	0	2	1
Akenson 5 yr.	23	17	3	3	0

Intraspecific Strife among Males

- Hornocker:
No fighting, rare in a stable population
- Akenson:
3 male cougars killed in intraspecific fights; injuries and scars common on males



Interspecific Killing by Cougars



	Bobcat	Coyote
Hornocker	0	3
Seidensticker	0	1
Koehler	5	2
Akenson	2	3

Big Creek Wolves



- Diet was almost identical to cougars
- One wolf pack home range overlapped most of the areas used by cougars
- Wolves usurped cougar kills and displaced cougars

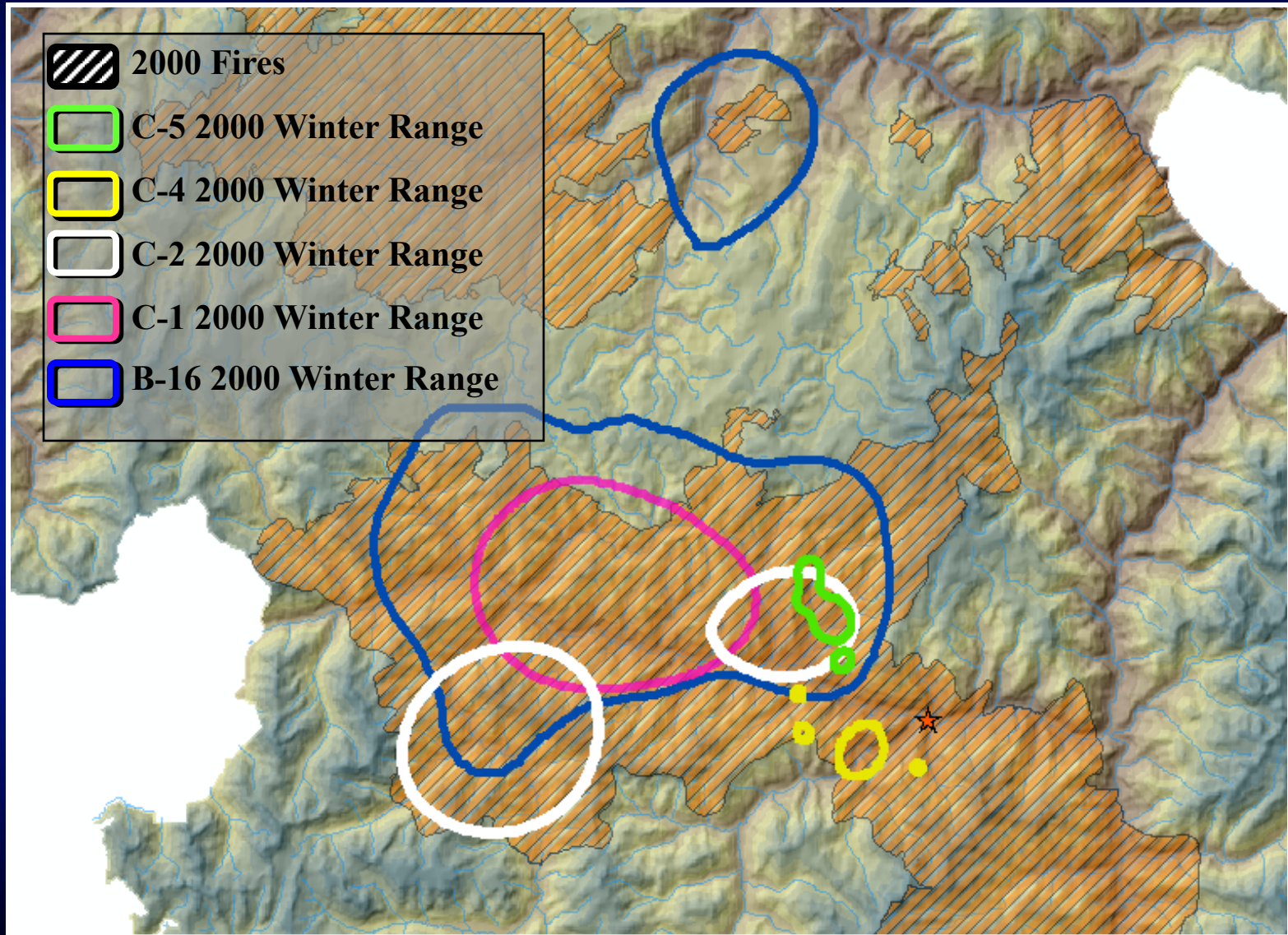
Scavenging



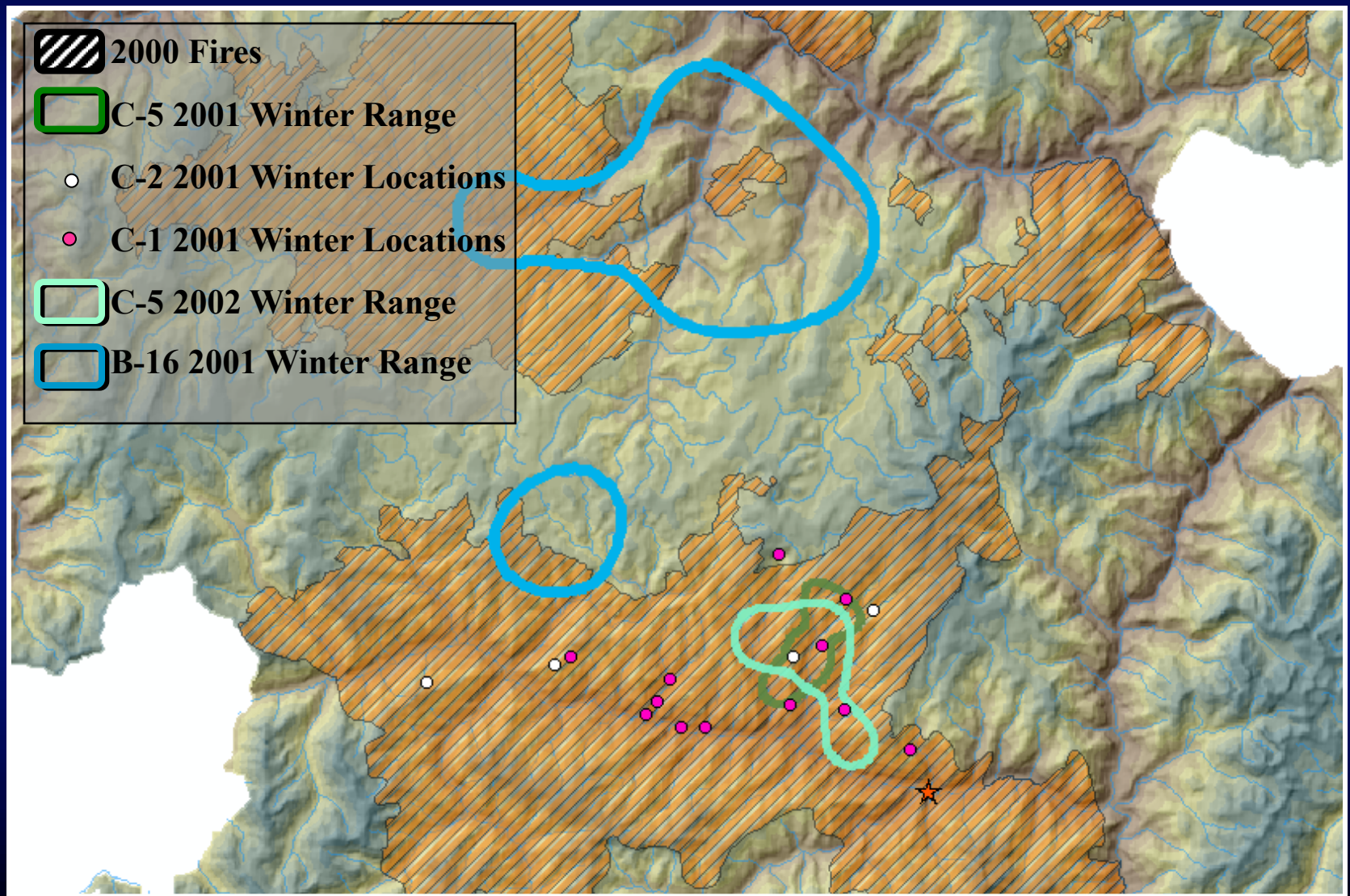
Wildfire 2000

- Several cougars died in the forest fire
- Many elk did not use the burned winter range in 2001
- Competition with wolves was reduced, since wolves moved to another drainage
- Cougars responded to fire by diversifying their diets
- Cougar reproduction and numbers were reduced

Wolf & Cougar Home Ranges Pre-Fire



Wolf & Cougar Home Ranges Post-Fire





Four Decades of Cougar Population Trends

Hornocker/
Seidensticker



- Cougar population stable
- Prey base increasing
- Cougar season closed

Quigley/
Koehler



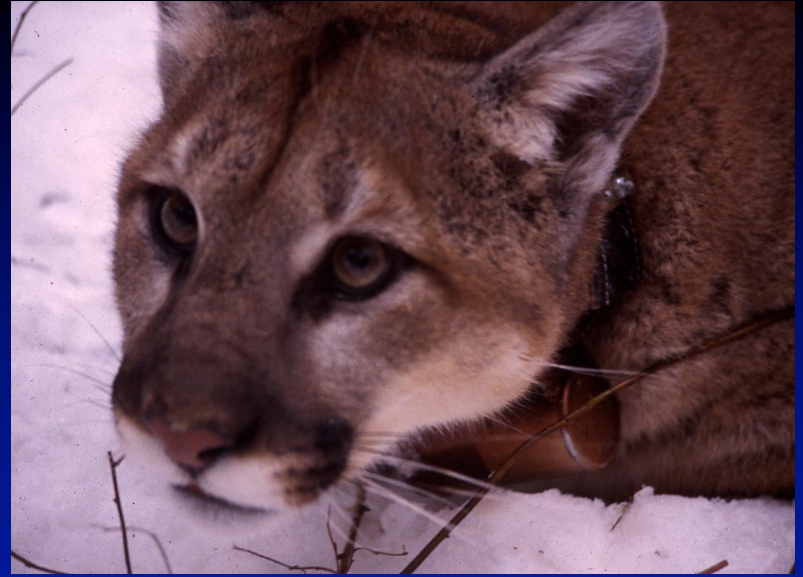
- Cougar population up
- Prey base increasing
- Cougar hunting light

Akenson/
Akenson



- Cougar population declining
- Prey base declining
- Cougar hunting increasing
- Major environmental change:
wildfire and wolves

Conclusions



- We gain insight and perspective by studying animals long term at the same site under different environmental conditions.
- A new phase of cougar population dynamics has emerged as cougars adapt to changes caused by large scale fire and the establishment of a wolf population.