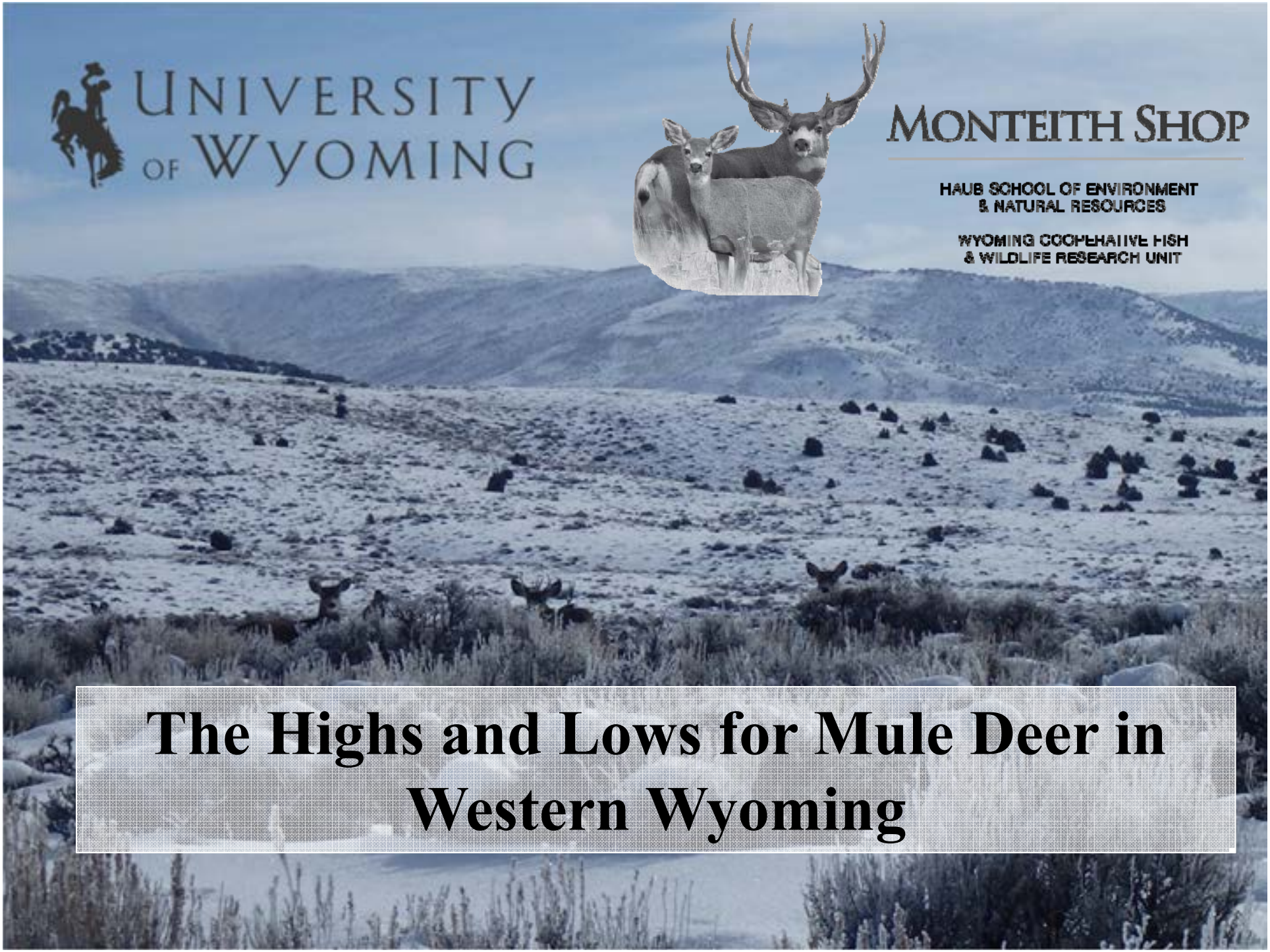


The Highs and Lows for Mule Deer in Western Wyoming

Partners and Funders

Wyoming Game & Fish Department

Wyoming Wildlife & Natural Resource Trust

Muley Fanatic Foundation of Wyoming

National System of Public Lands
U.S. Department of the Interior
Bureau of Land Management

Wyoming Animal Damage Management Board

Wyoming Governor's Big Game License Coalition
WGBGLC

RMEF

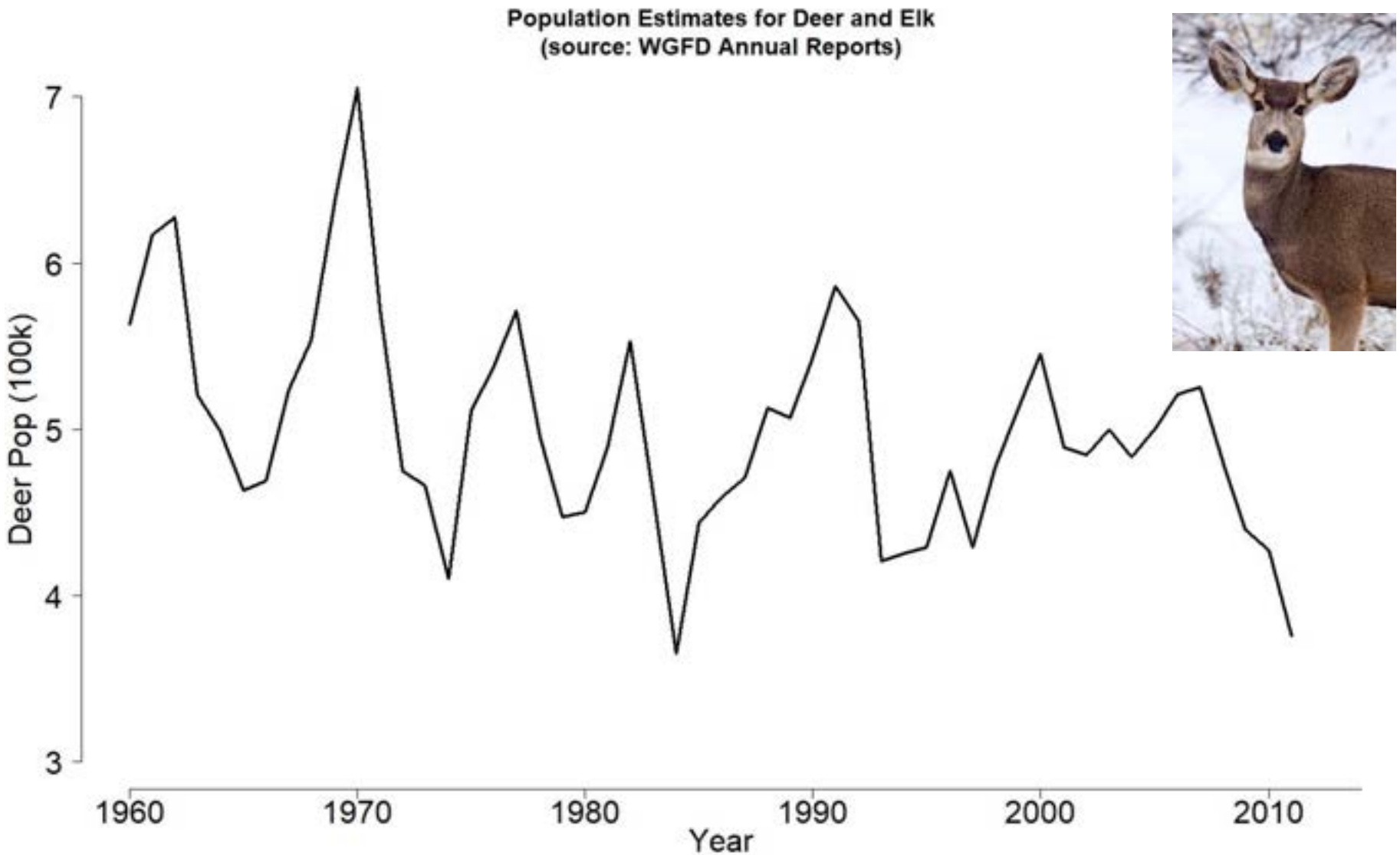
Knobloch Family Foundation

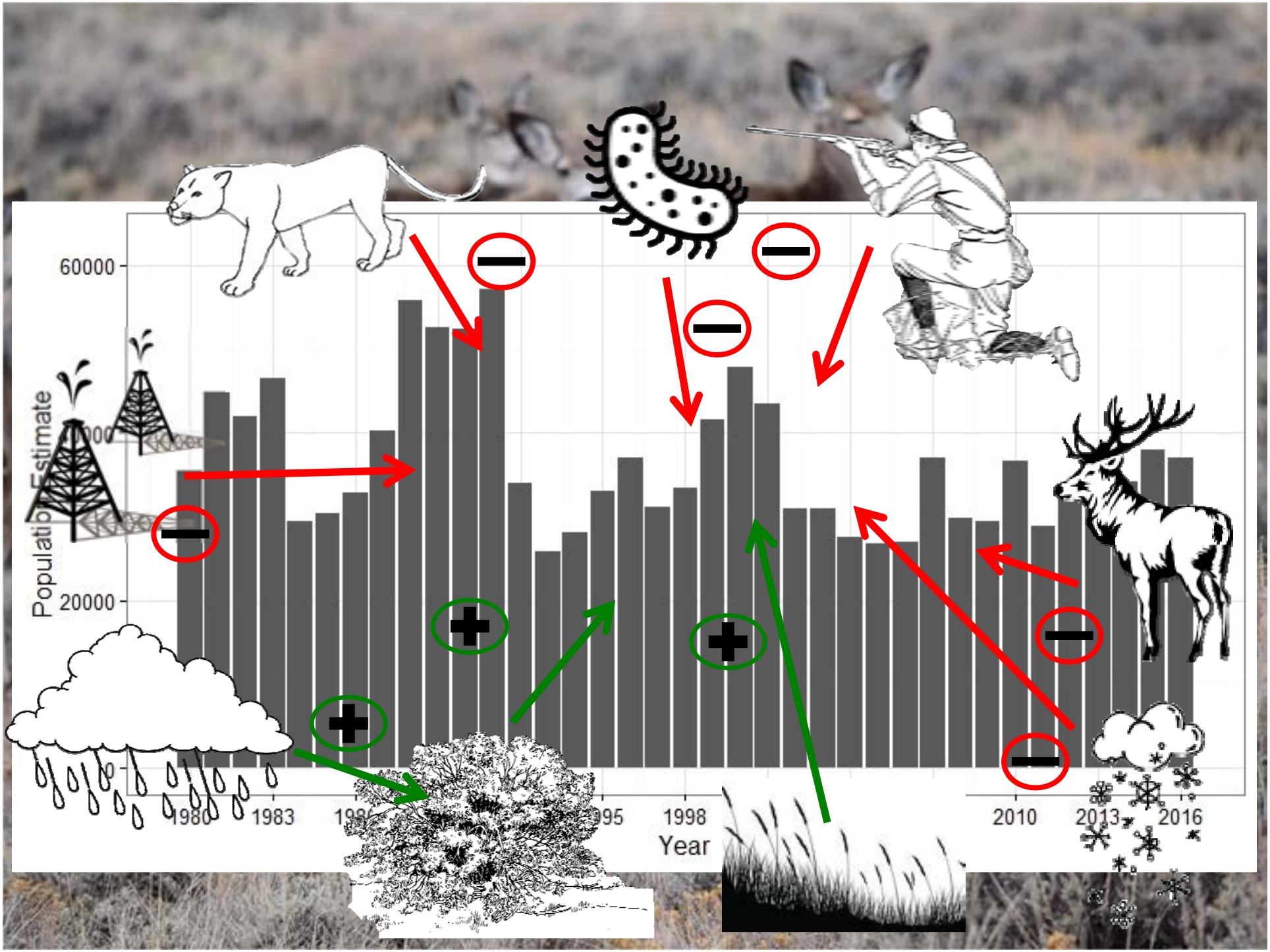
Bowhunters of Wyoming, Inc.

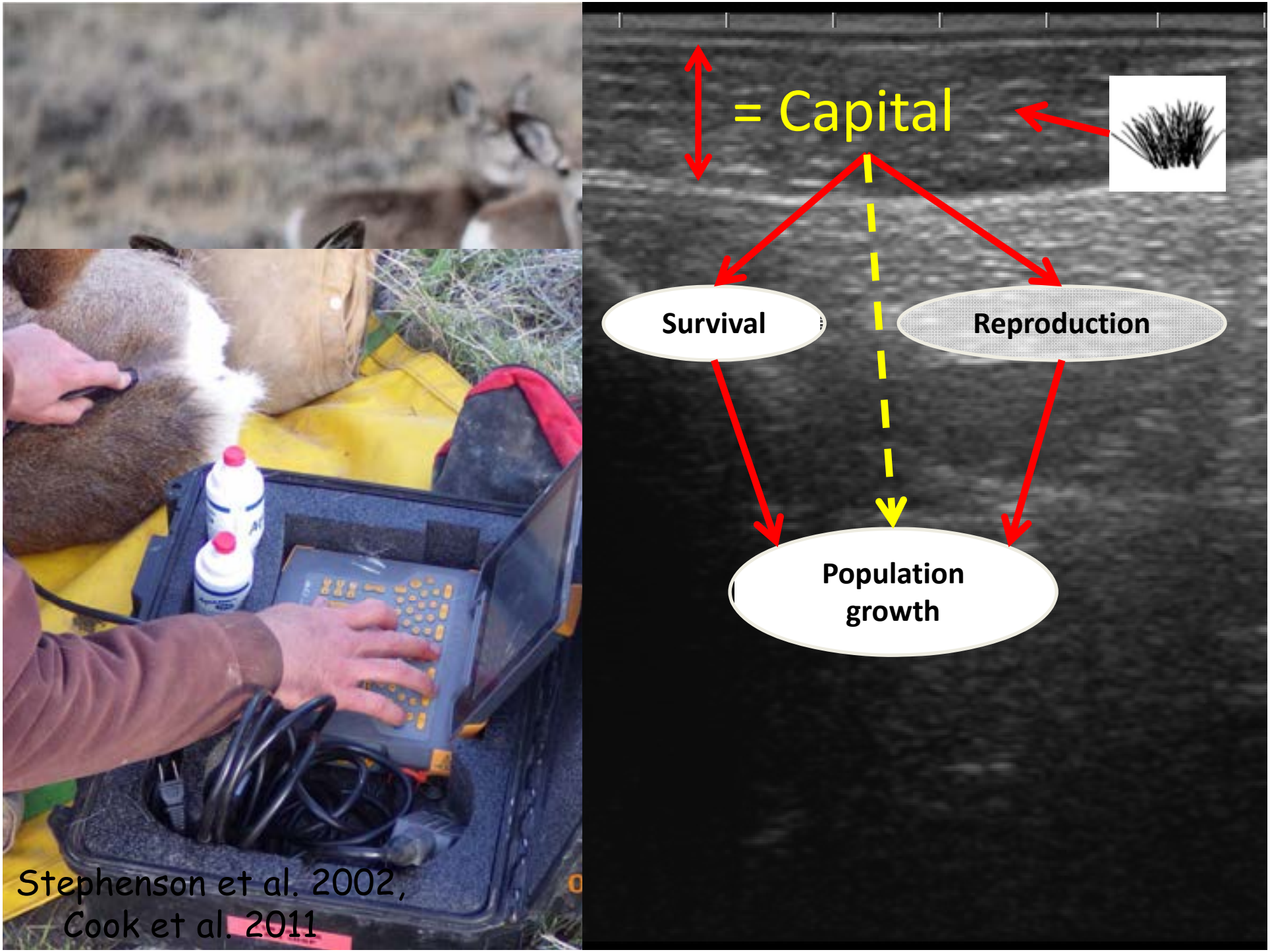
Boone and Crockett Club

Wyoming Outfitters & Guides Association

WSVL

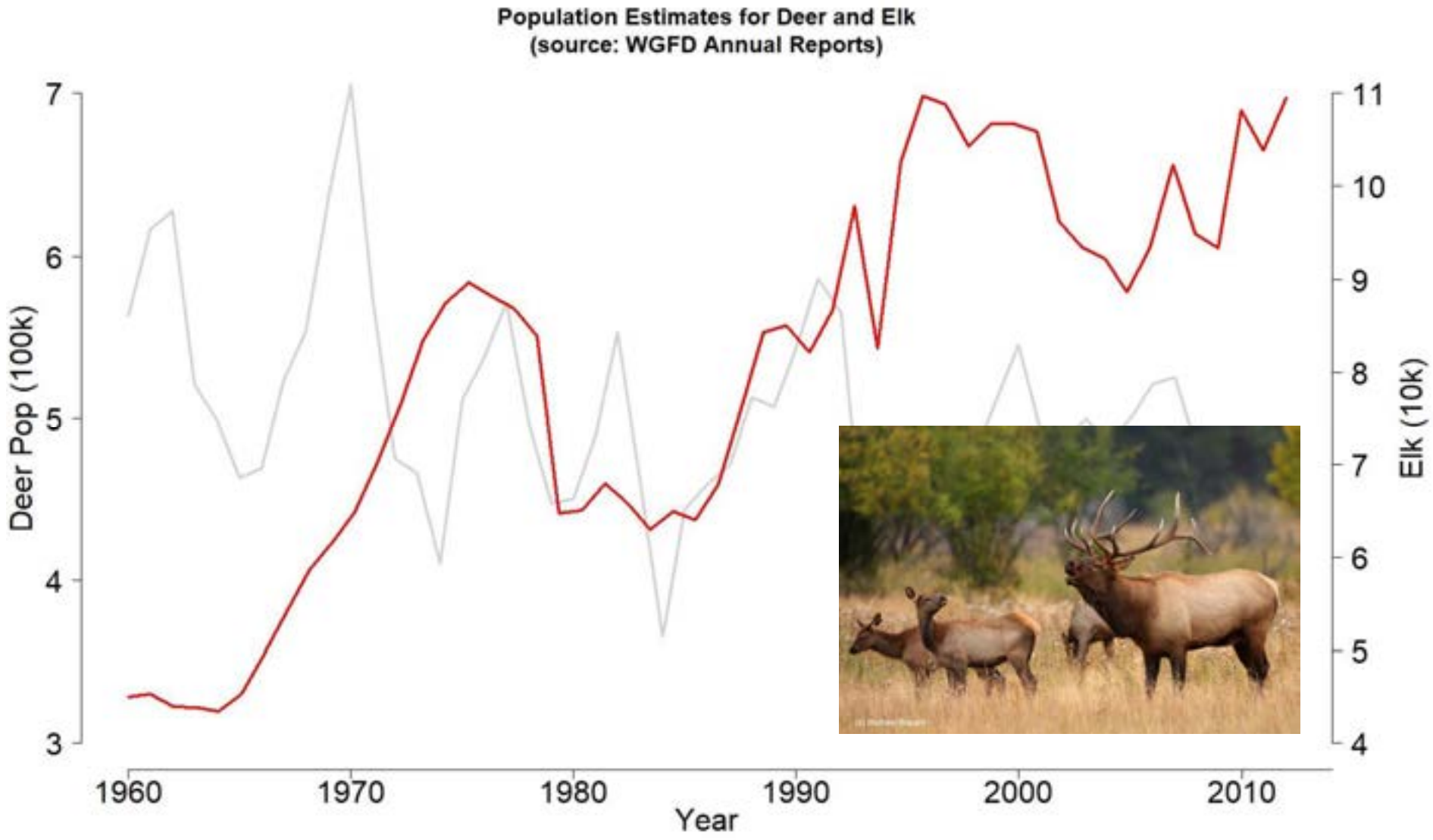

Population Estimates for Deer and Elk
(source: WGFD Annual Reports)
Deer Pop (100k)
7
6
5
4
3
1960
1970
1980
1990
2000
2010
Year


60000
20000
Population Estimate
1980
1983
1998
2010
2013
2016
Year

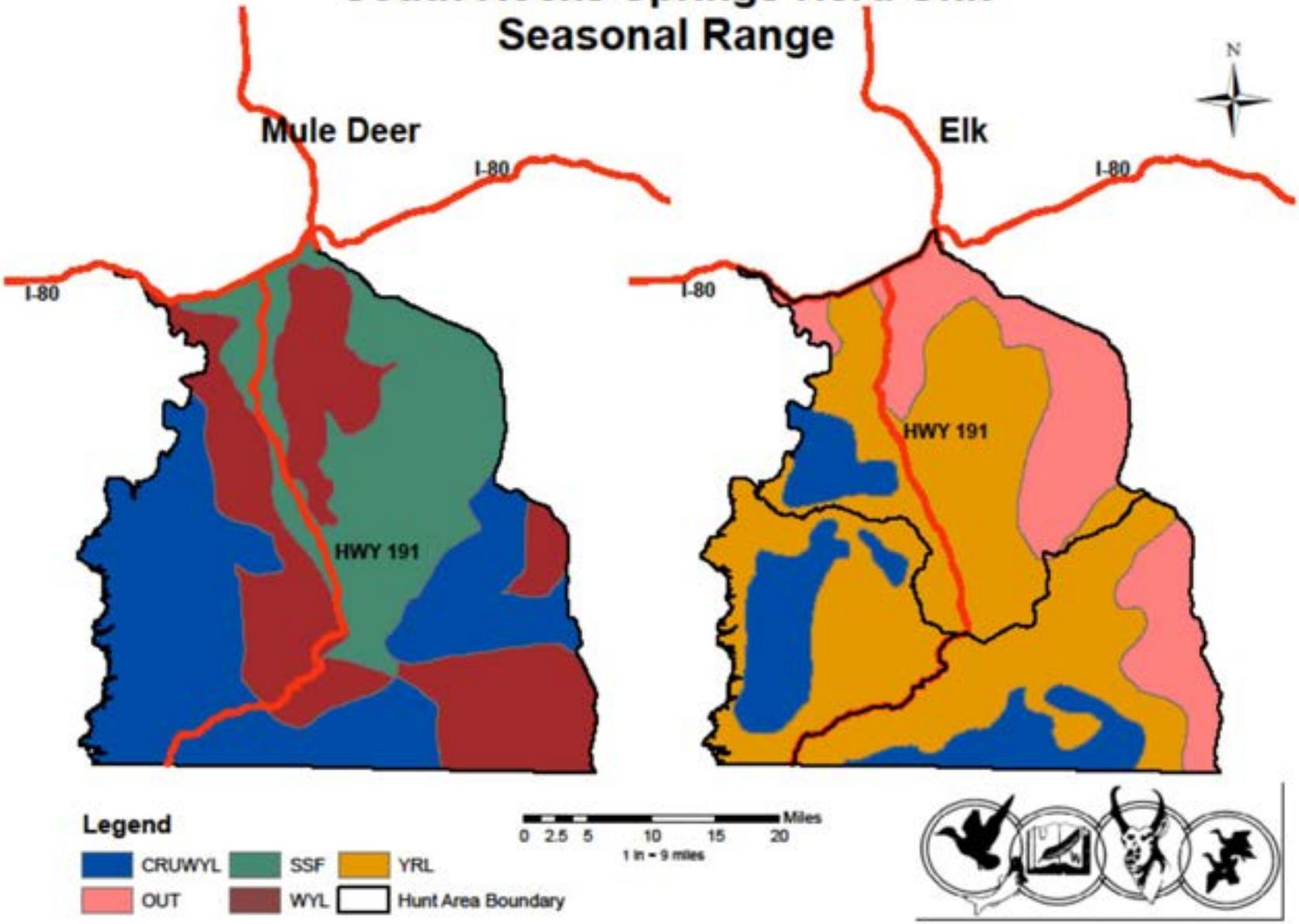

= Capital
Survival
Reproduction
Population growth
Stephenson et al. 2002,
Cook et al. 2011

D.E.E.R. PROJECT
DEER-ELK ECOLOGY RESEARCH

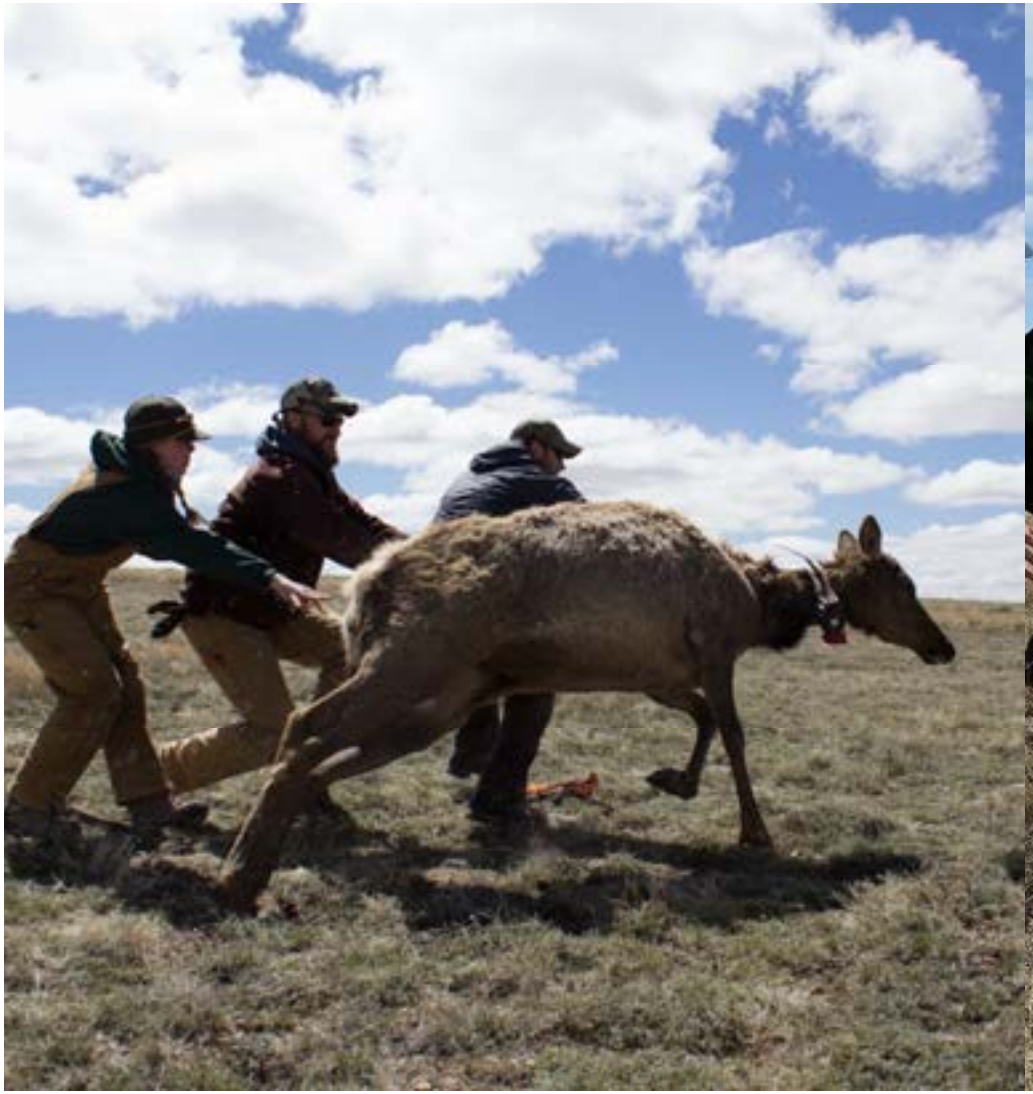
South Rock Springs

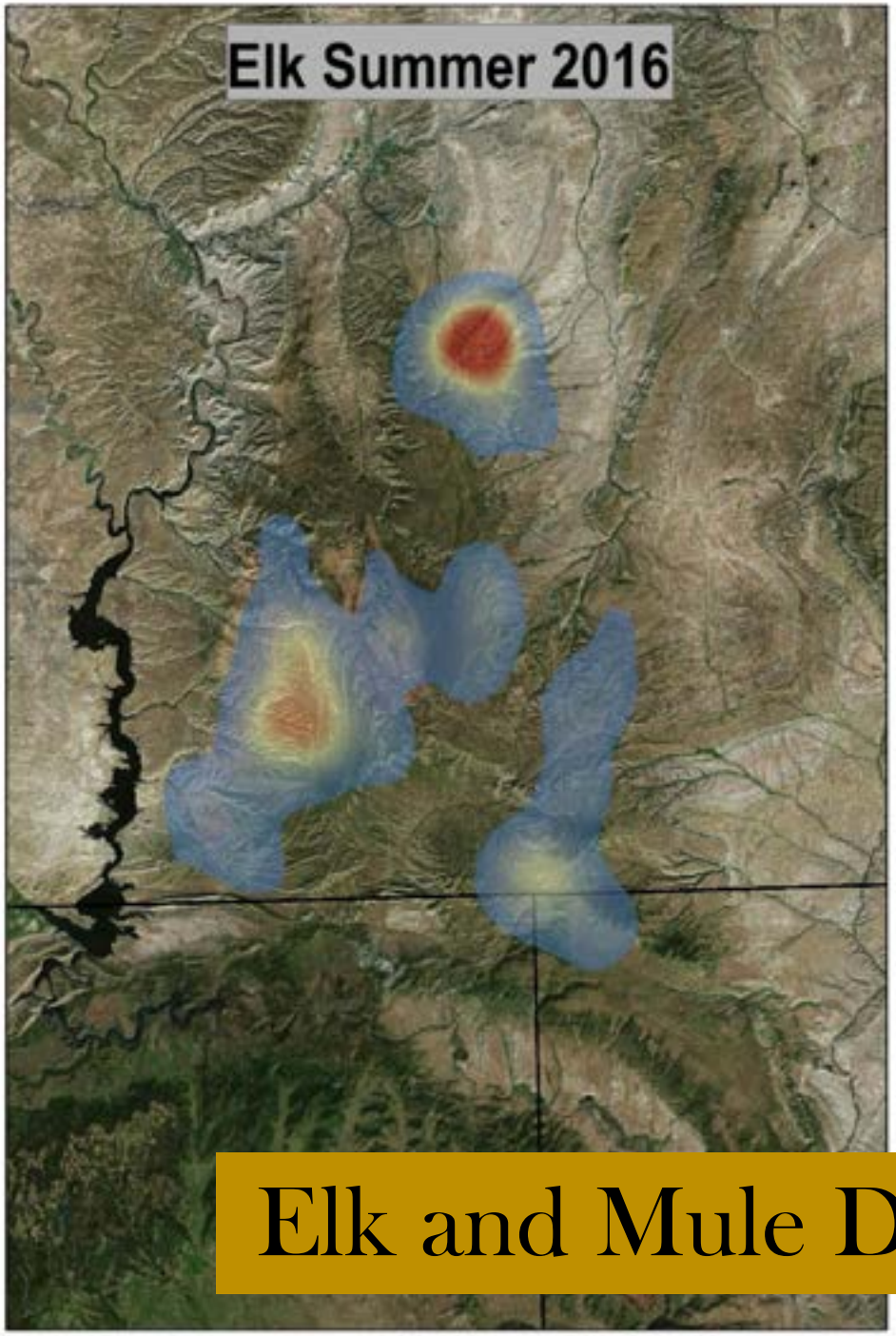

Population Estimates for Deer and Elk
(source: WGFD Annual Reports)
Deer Pop (100k)
Elk (10k)
Year
7
6
5
4
3
11
10
9
8
7
6
5
4
1960
1970
1980
1990
2000
2010

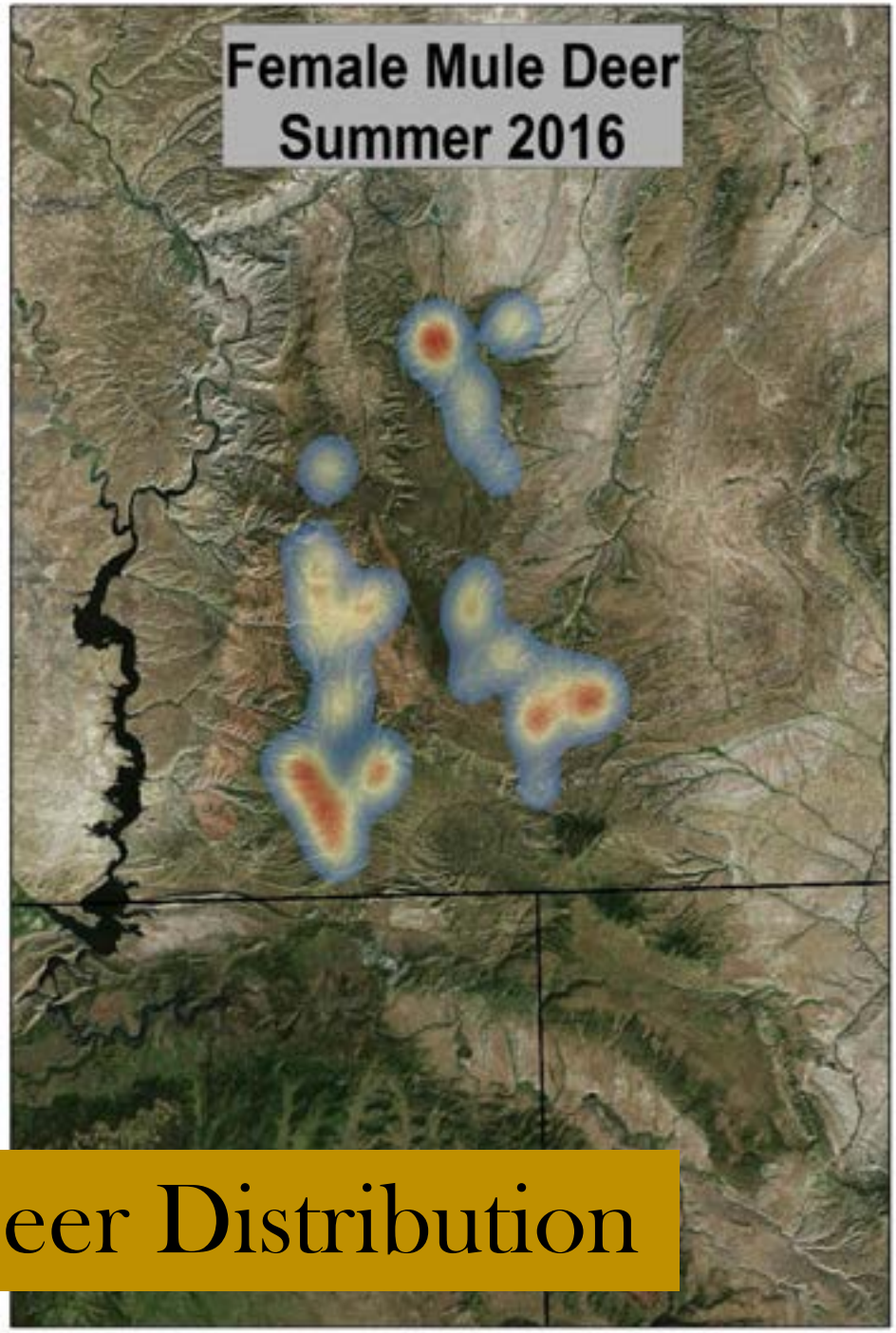
South Rocks Springs Herd Unit
Seasonal Range



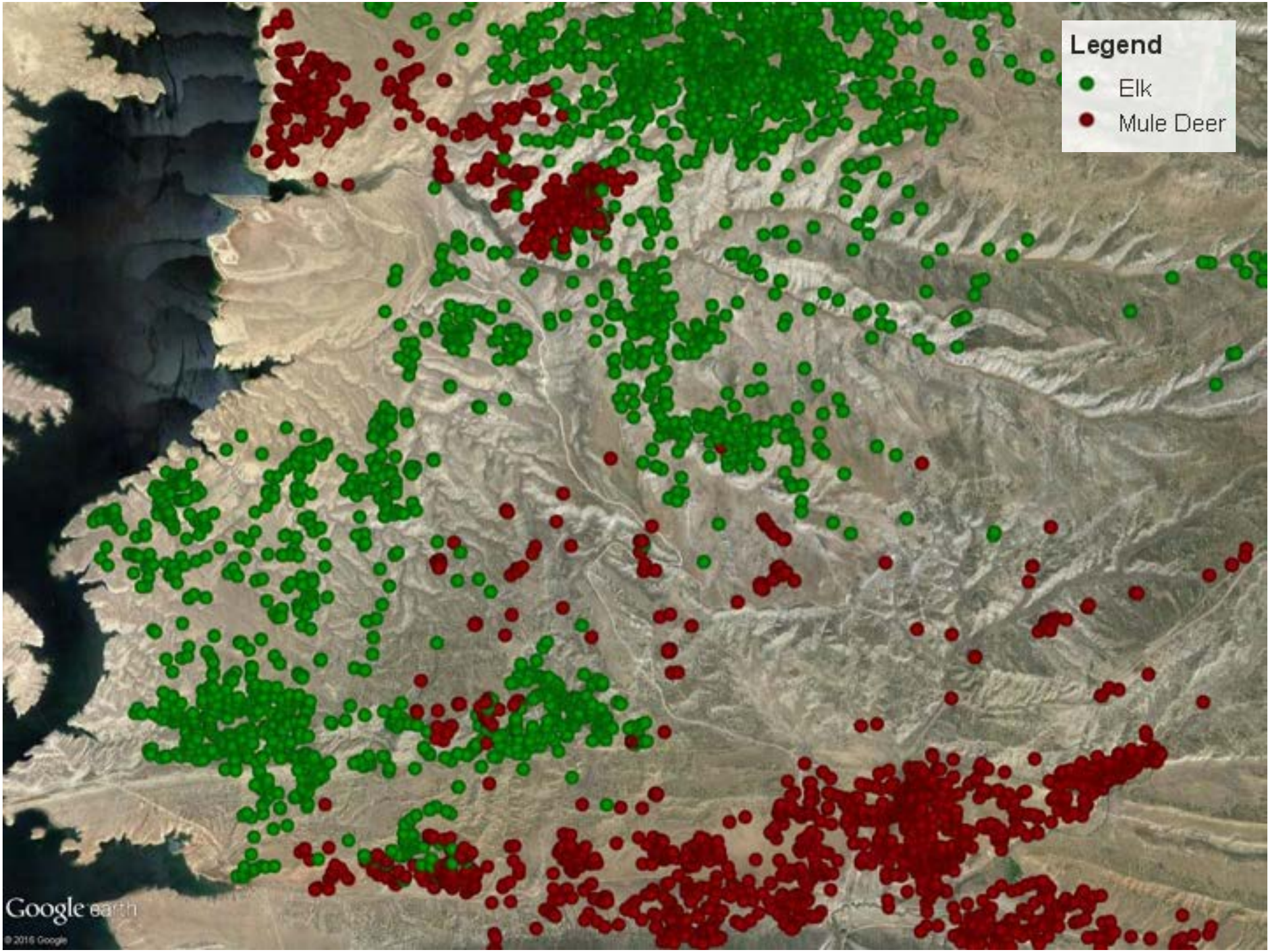
Movement



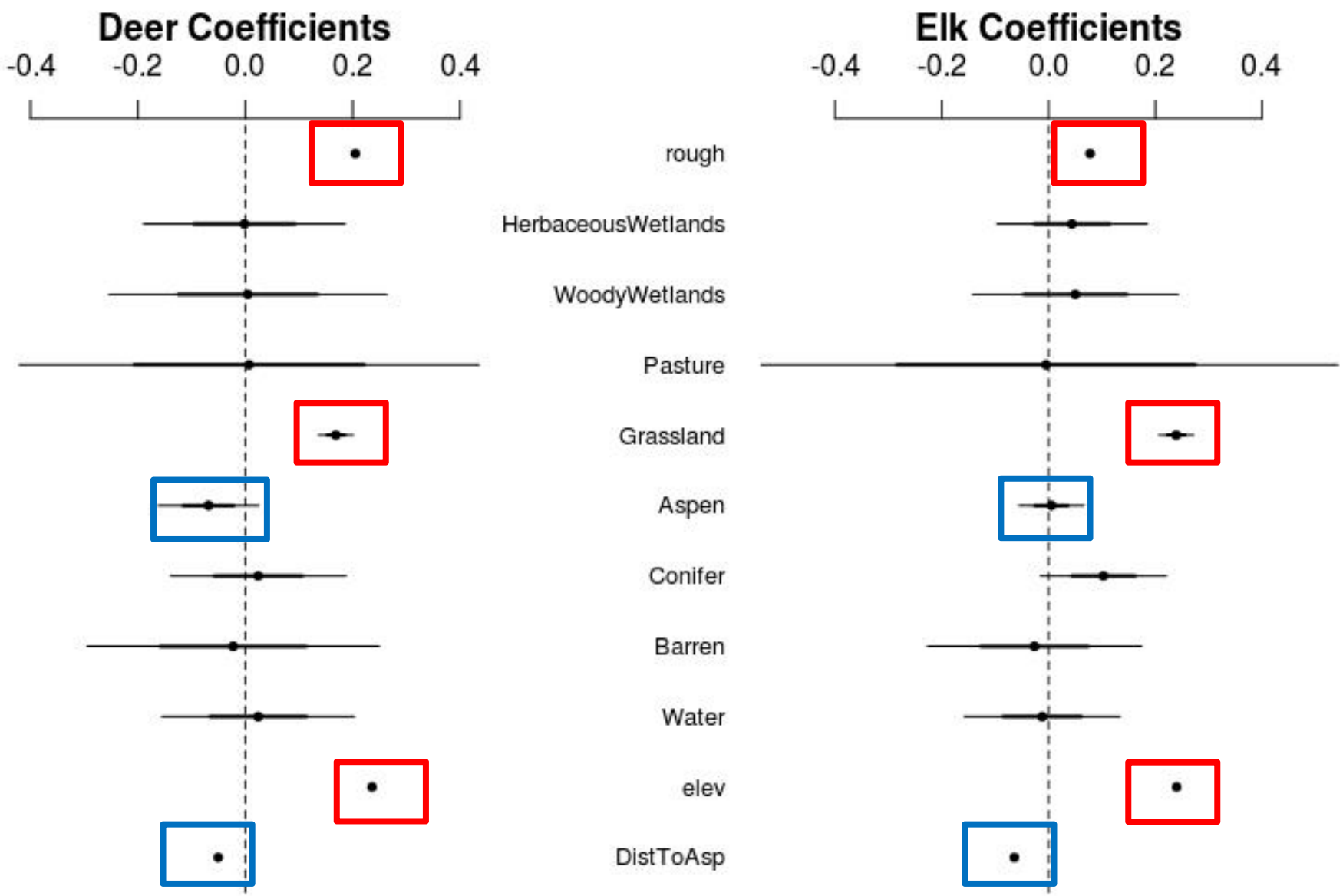




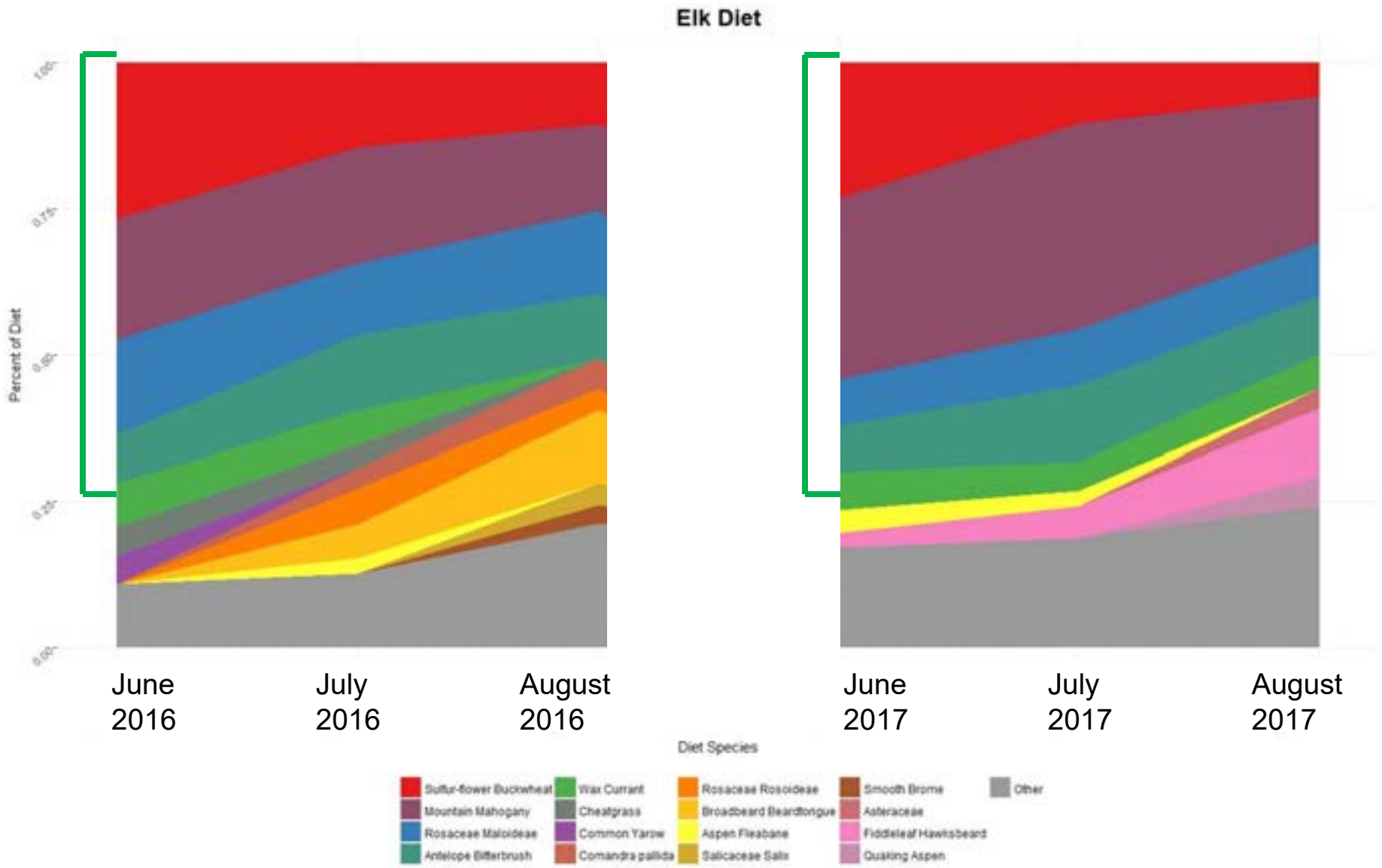
Elk and Mule Deer Distribution

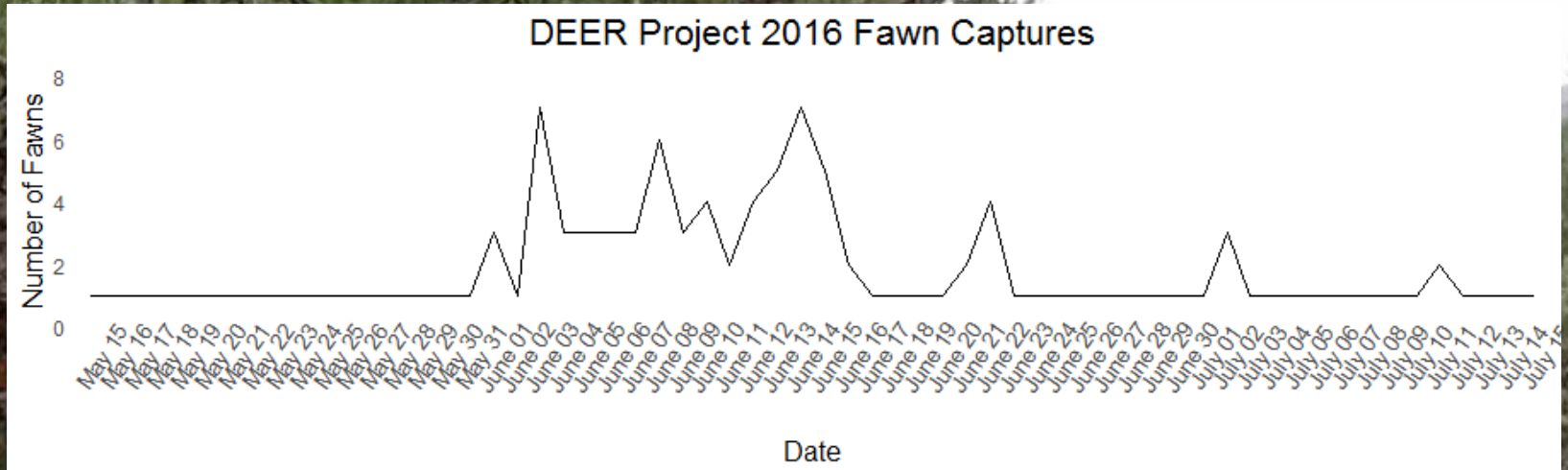

Legend
Elk
Mule Deer
Google earth
© 2016 Google

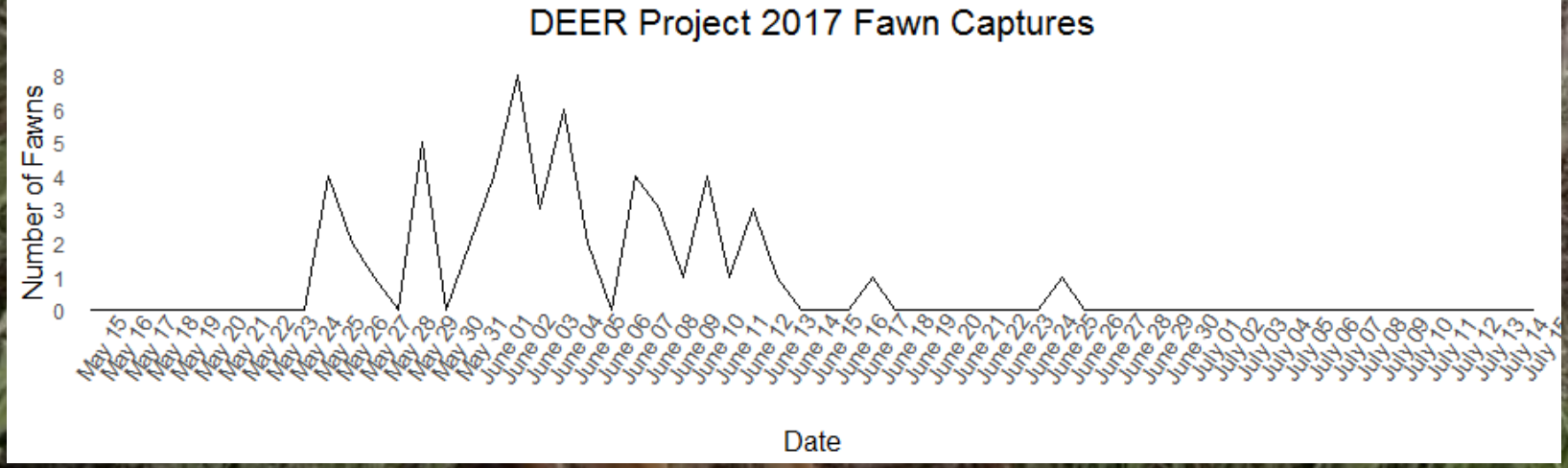
Habitat Selection



Diet Overlap


Elk Diet
Percent of Diet
1.00
0.75
0.50
0.25
0.00
June 2016
July 2016
August 2016
June 2017
July 2017
August 2017
Diet Species
Sulfur-flower Buckwheat
Mountain Mahogany
Rosaceae Maloideae
Antelope Bitterbrush
Wax Currant
Cheatgrass
Common Yarrow
Comandra pallida
Rosaceae Rosoideae
Broadbeard Beardtongue
Aspen Fleabane
Salicaceae Salix
Smooth Brome
Asteraceae
Fiddleleaf Hawksbeard
Quaking Aspen
Other

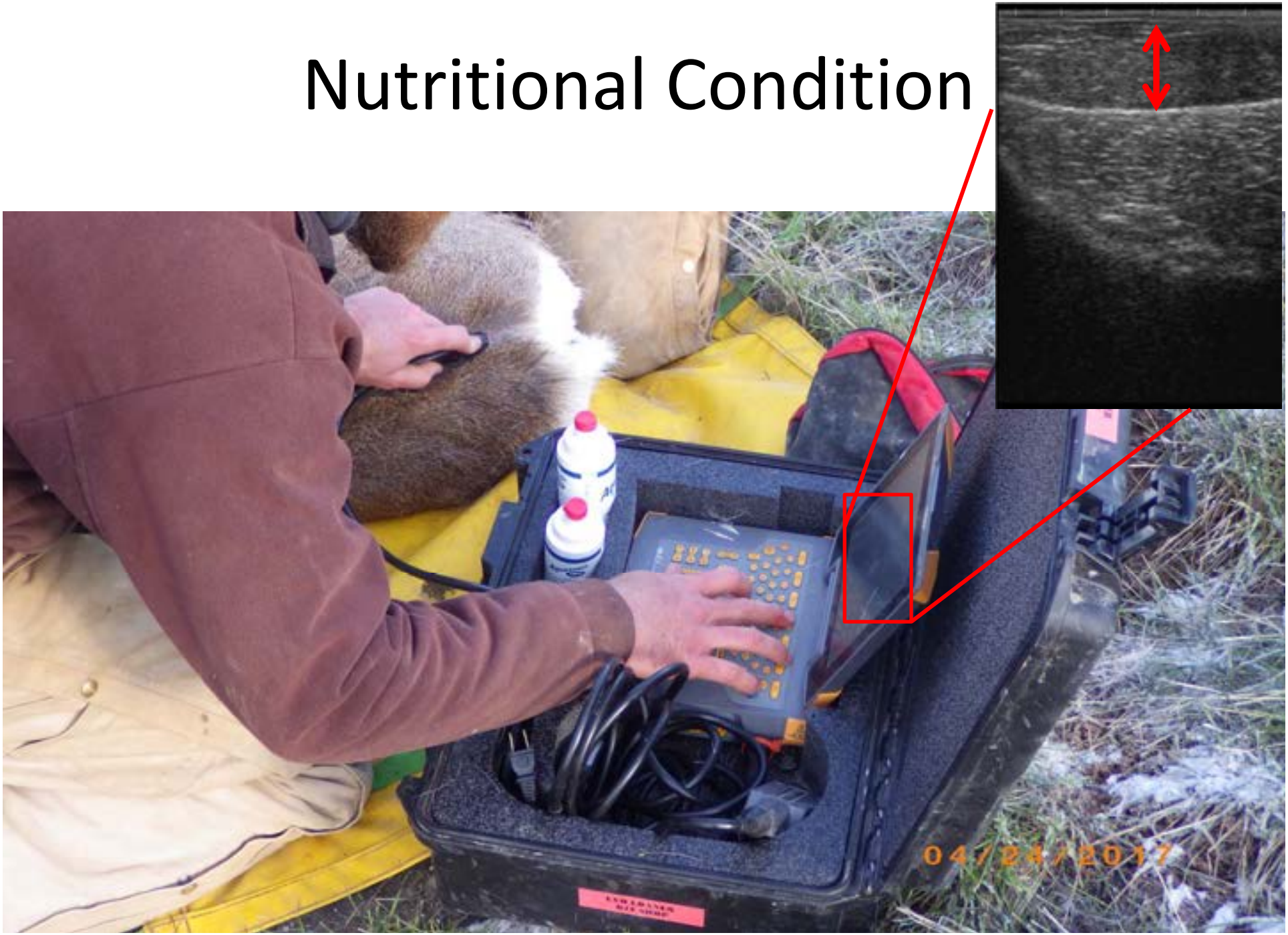


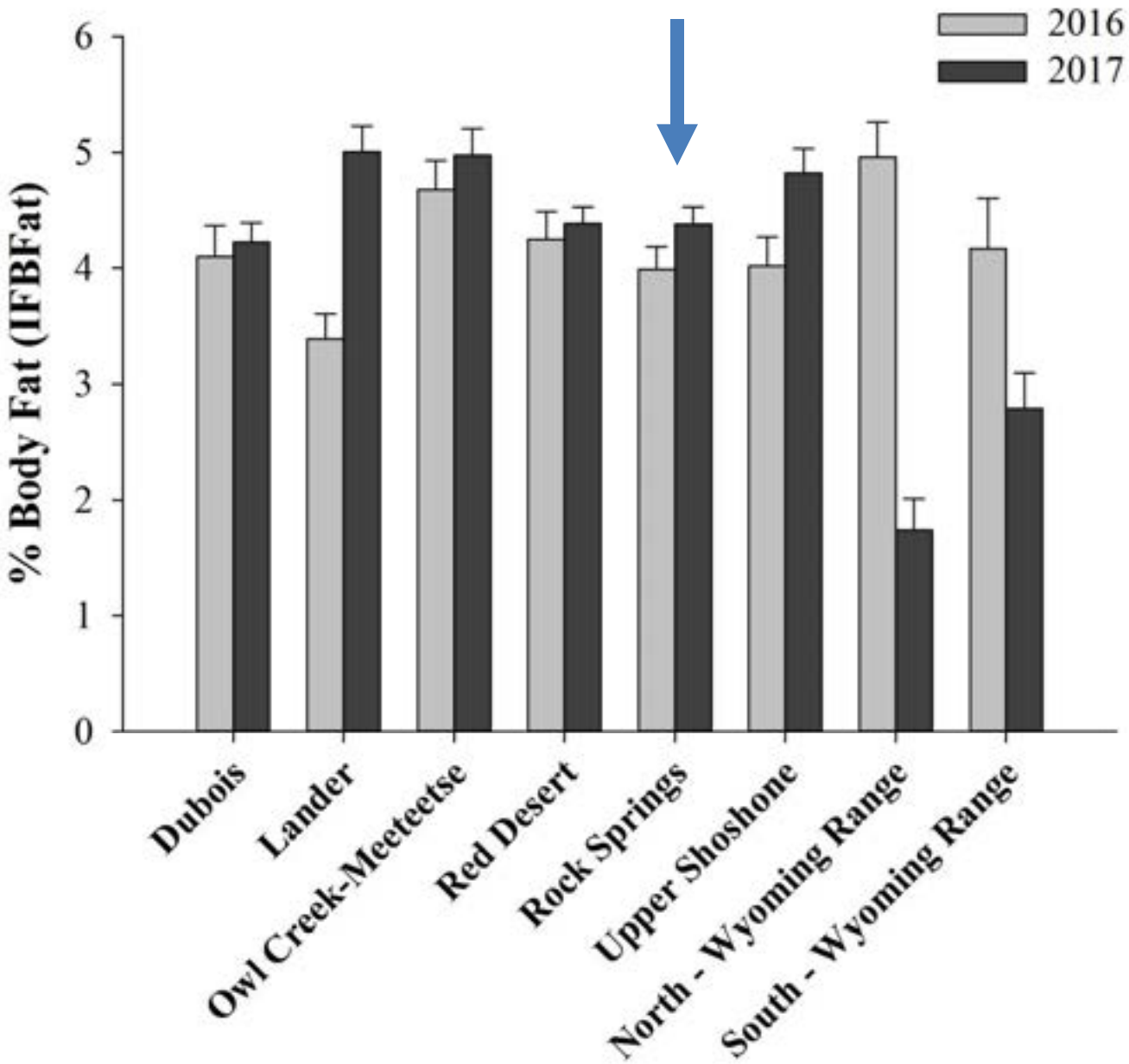


2016: 3.8kg Peak: 10 June 67% mort by Nov

2017: 3.1kg Peak: 1 June 42%

Nutritional Condition

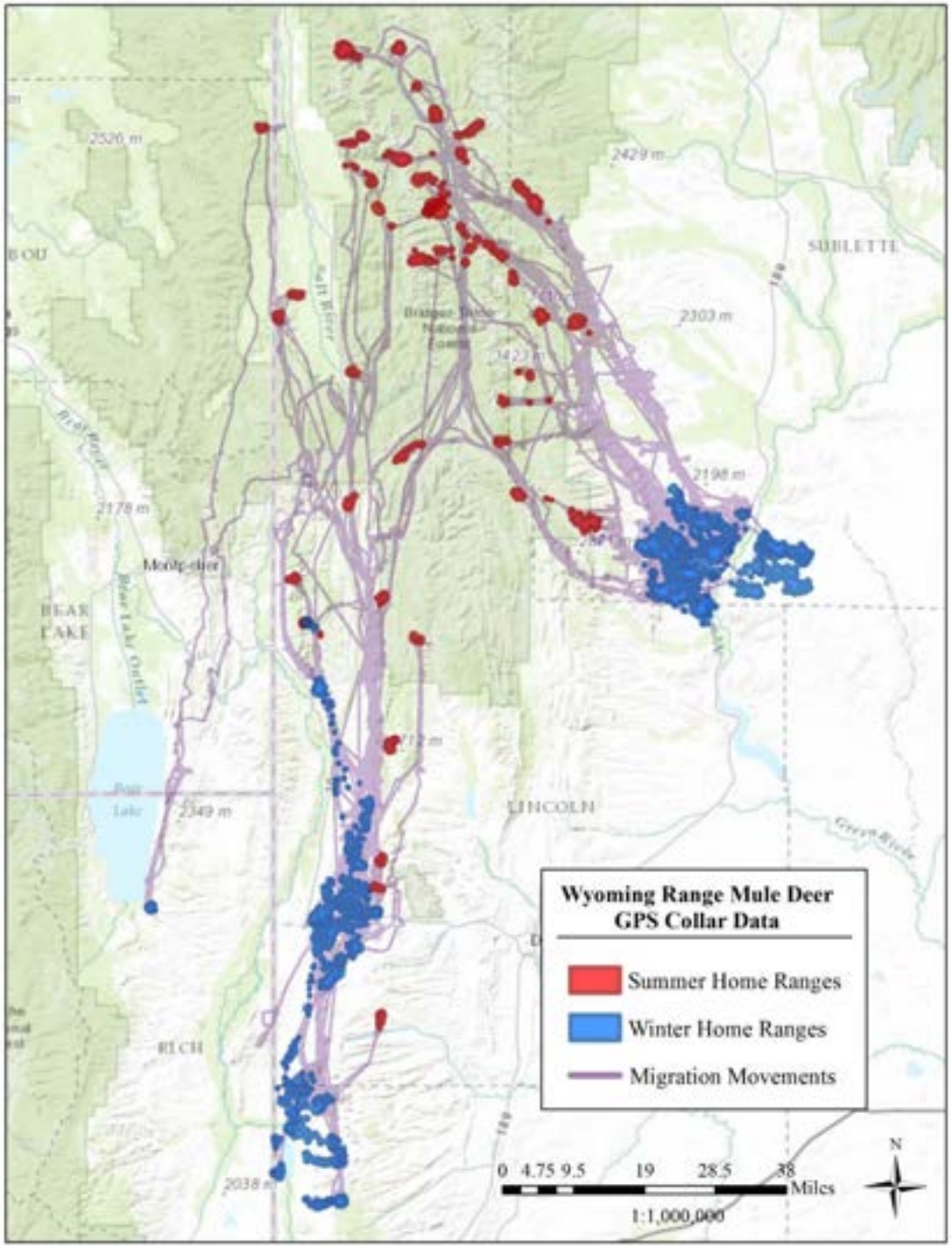



2016
2017
% Body Fat (IFBFat)
0
1
2
3
4
5
6
Dubois
Lander
Owl Creek-Meeteetse
Red Desert
Rock Springs
Upper Shoshone
North - Wyoming Range
South - Wyoming Range

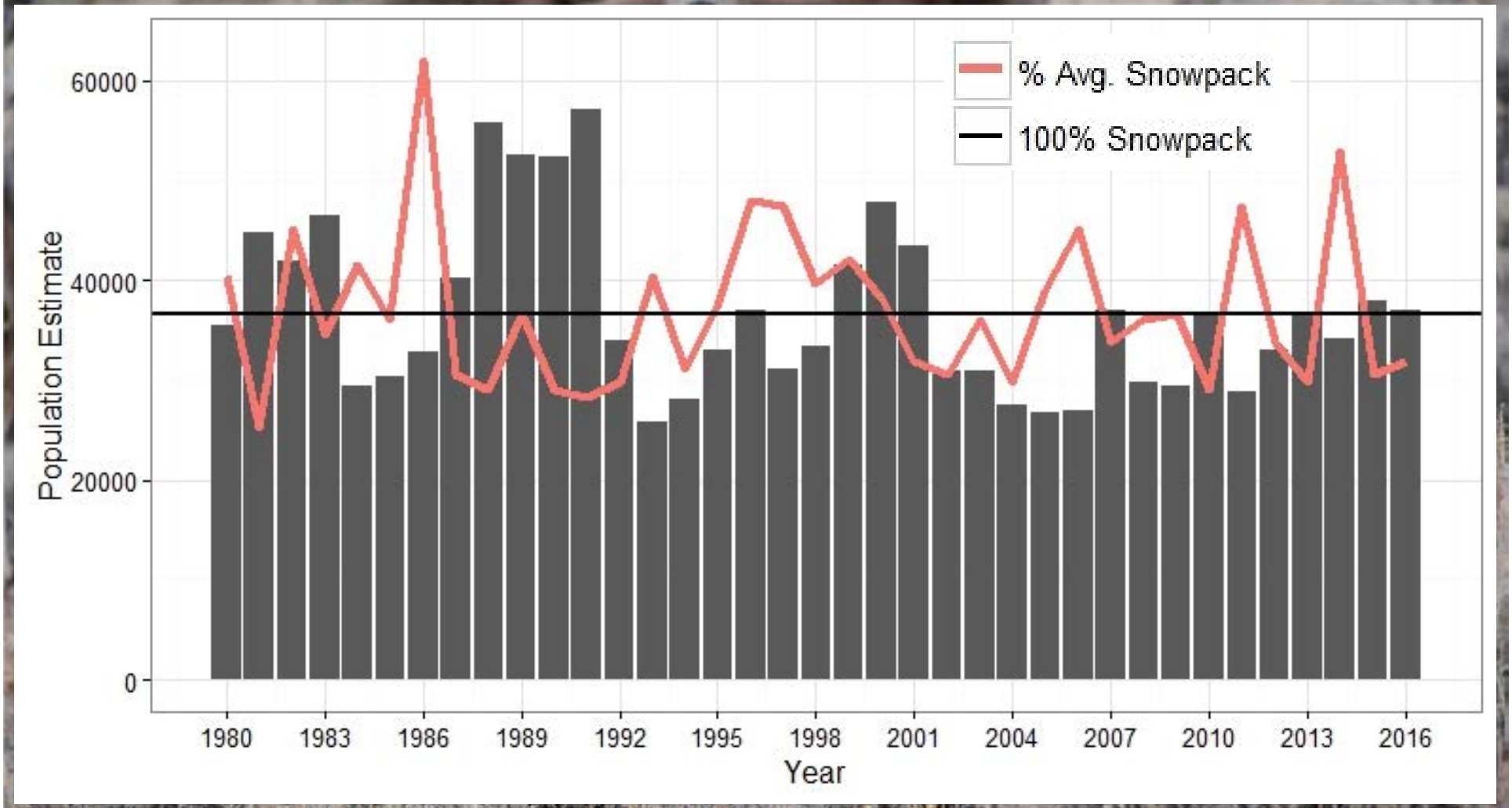
40

- Elk and deer:
  - are spatially segregated
  - select similar habitat
  - consume similar diets
- The “severe” winter of ‘16-17 was beneficial
  - improved nutritional condition
  - better fawn survival

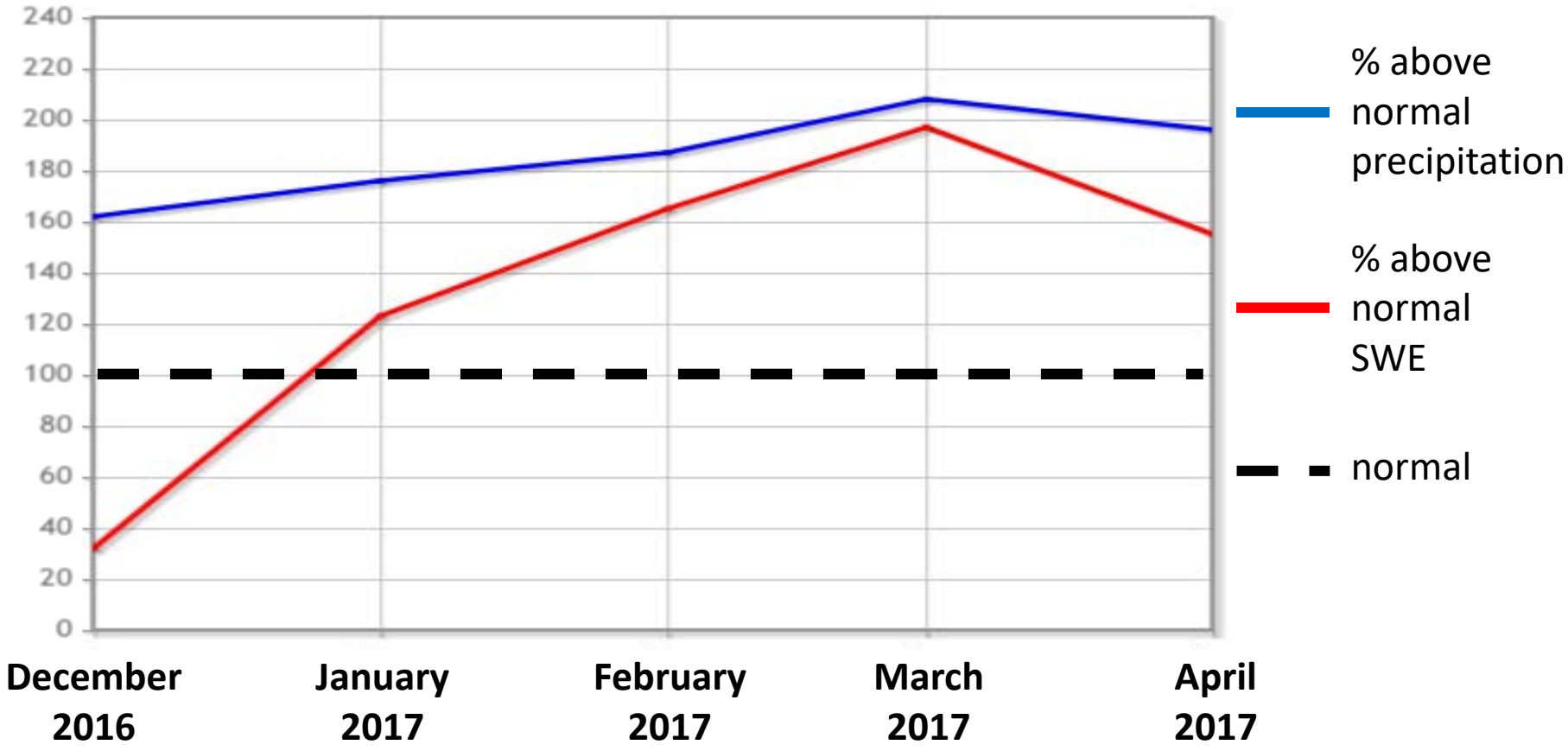
- Much, much more to come


Wyoming Range Mule Deer
GPS Collar Data
Summer Home Ranges
Winter Home Ranges
Migration Movements
0 4.75 9.5 19 28.5 38
Miles
1:1,000,000
N
SUBLETTE
LINCOLN
BEAR LAKE
RICH
Montpelier
2526 m
2429 m
2303 m
2198 m
2178 m
2349 m
2038 m

Wyoming Range Mule Deer Herd



Severe Winter of 2016/2017



Mark Gocke, WGFD

Fat
Reserves

Changes in % Body Fat
and
Reproductive Status

Fawn Survival

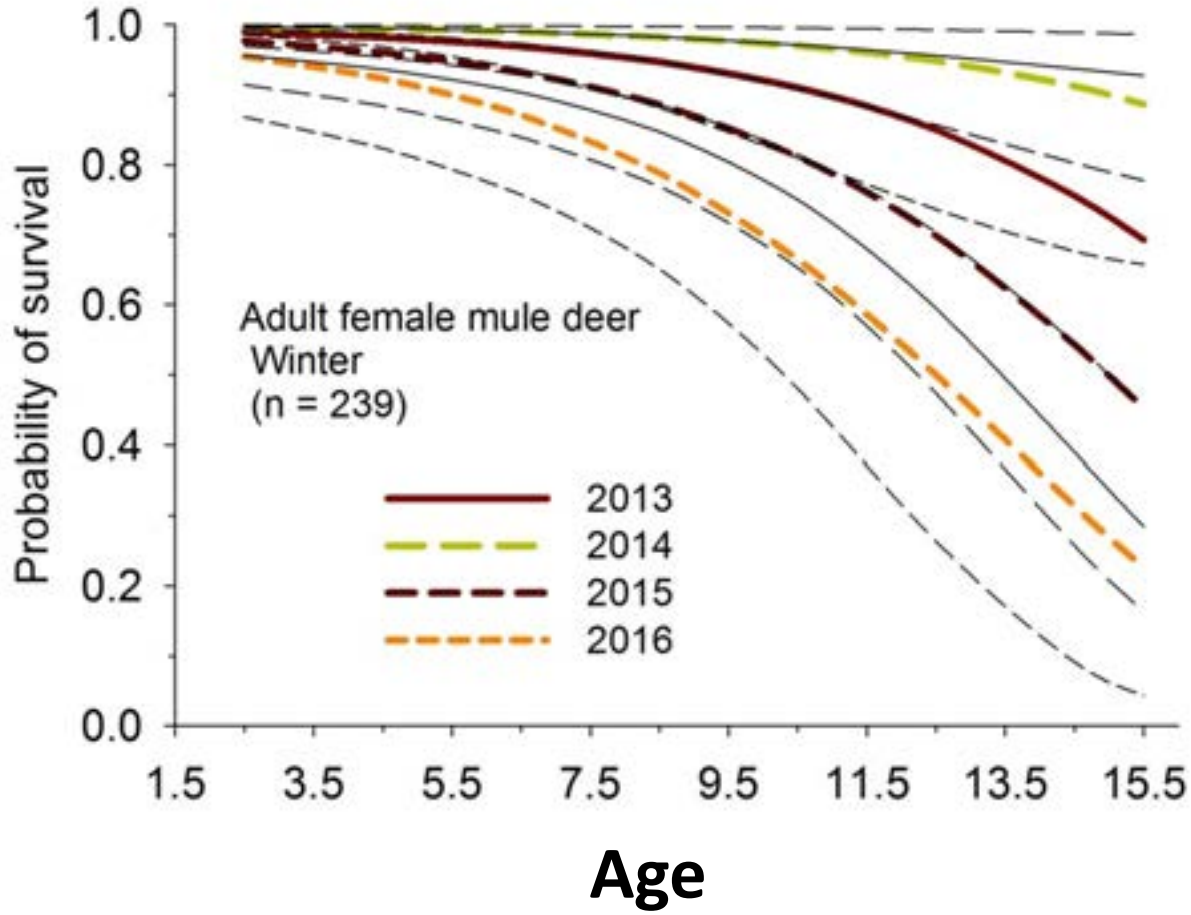
Winter Survival

MORTALITY

37% of Collared Adults

100% of Collared Fawns

Adult Winter Survival



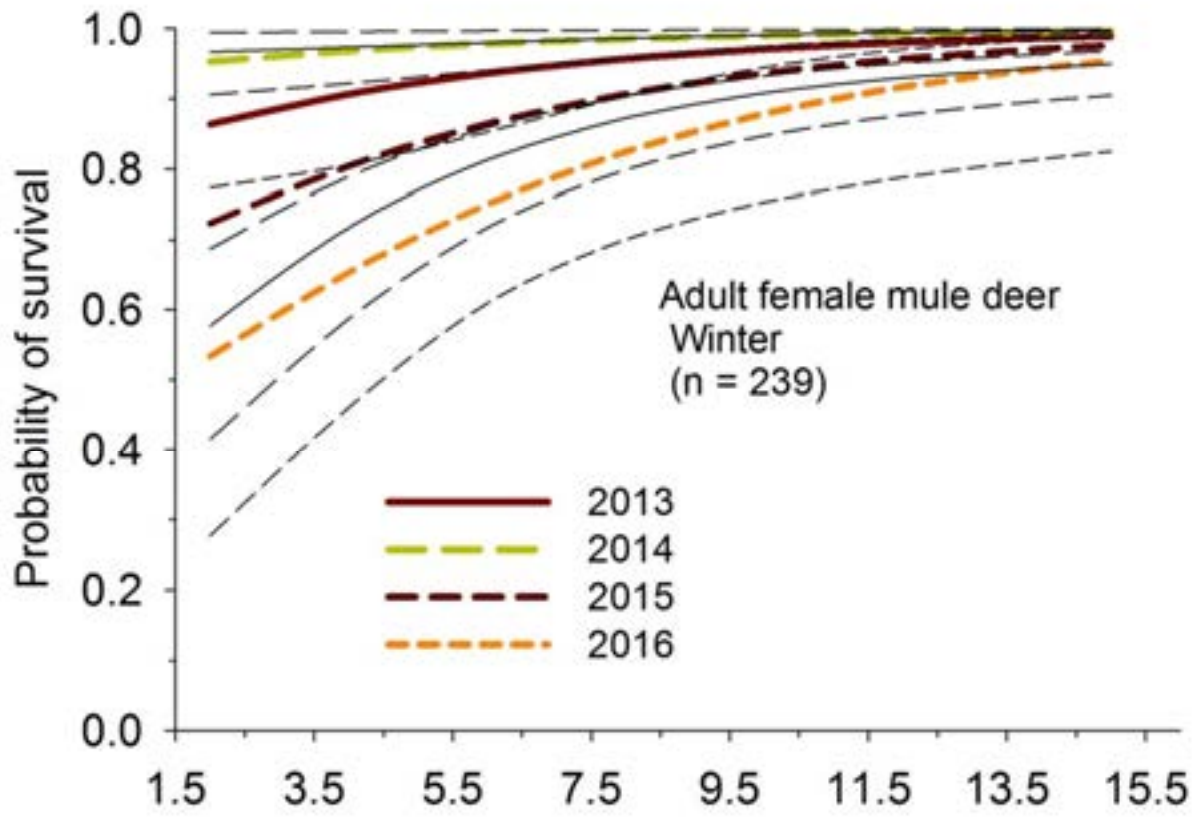
2013 – 0.95

2014 – 0.98

2015 – 0.83

2016 – 0.62

Adult Winter Survival



% Body Fat in December

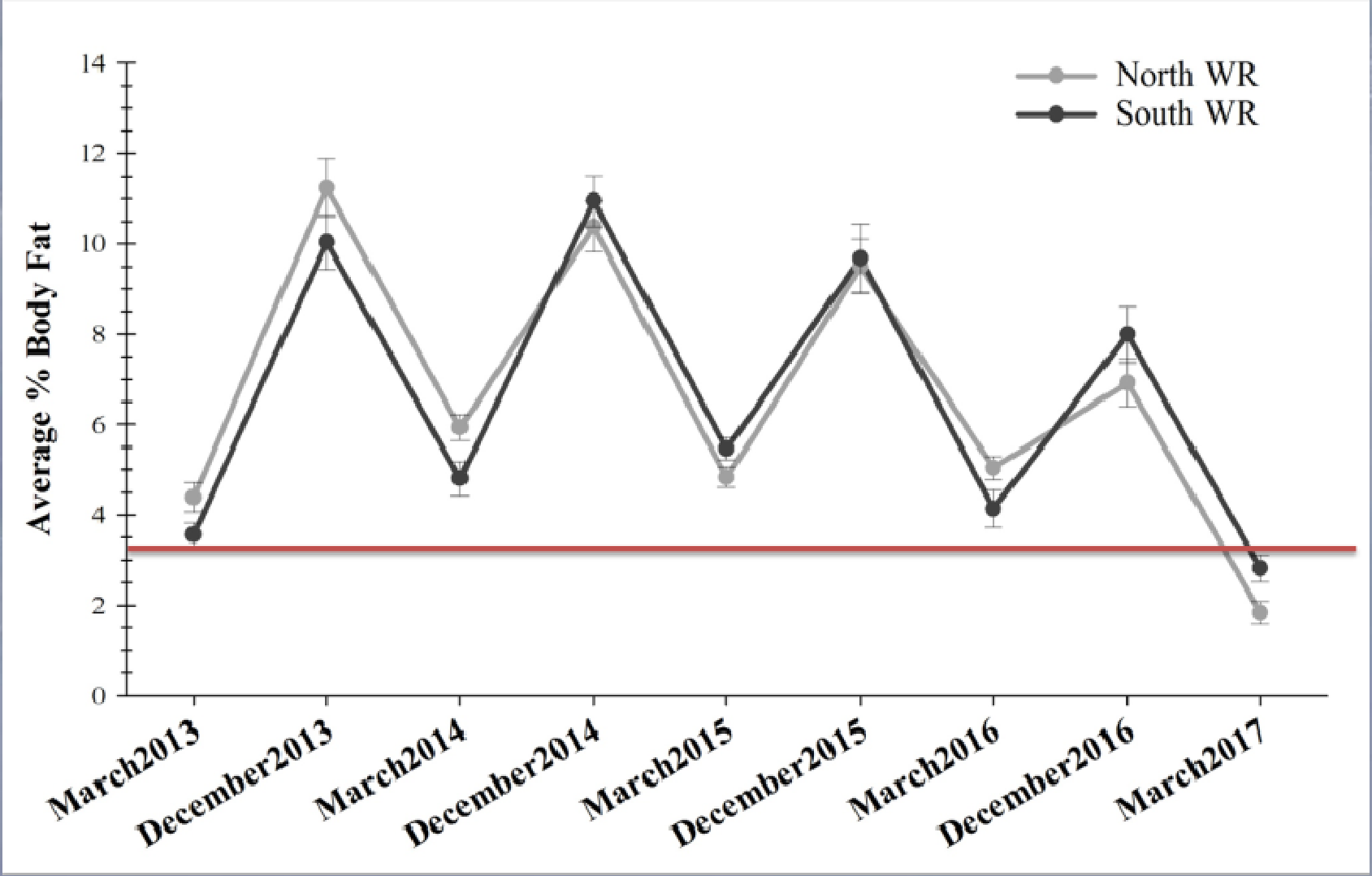
2013 – 0.95

2014 – 0.98

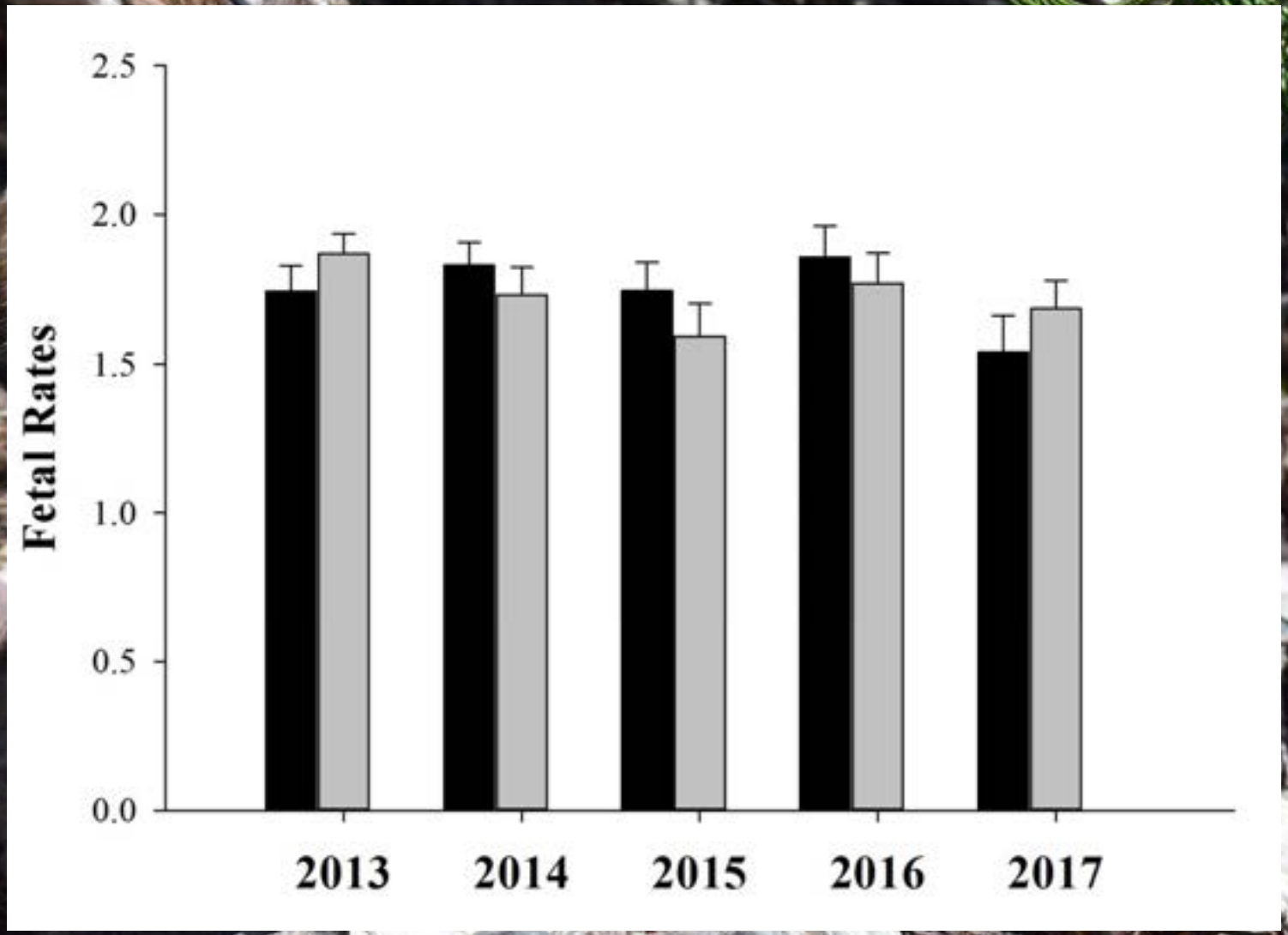
2015 – 0.83

2016 – 0.62

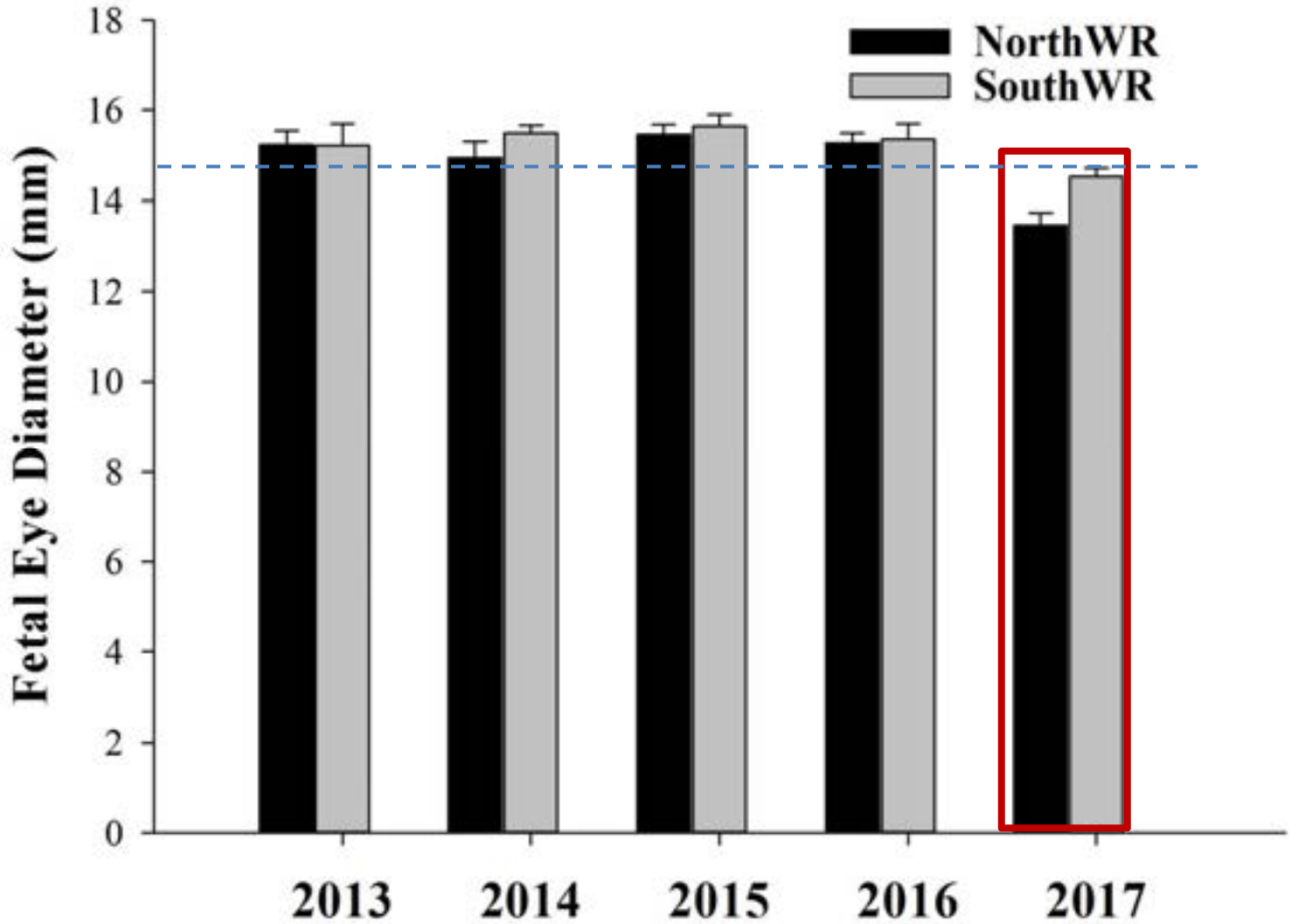
Nutritional Condition



Comparable Fetal Rates

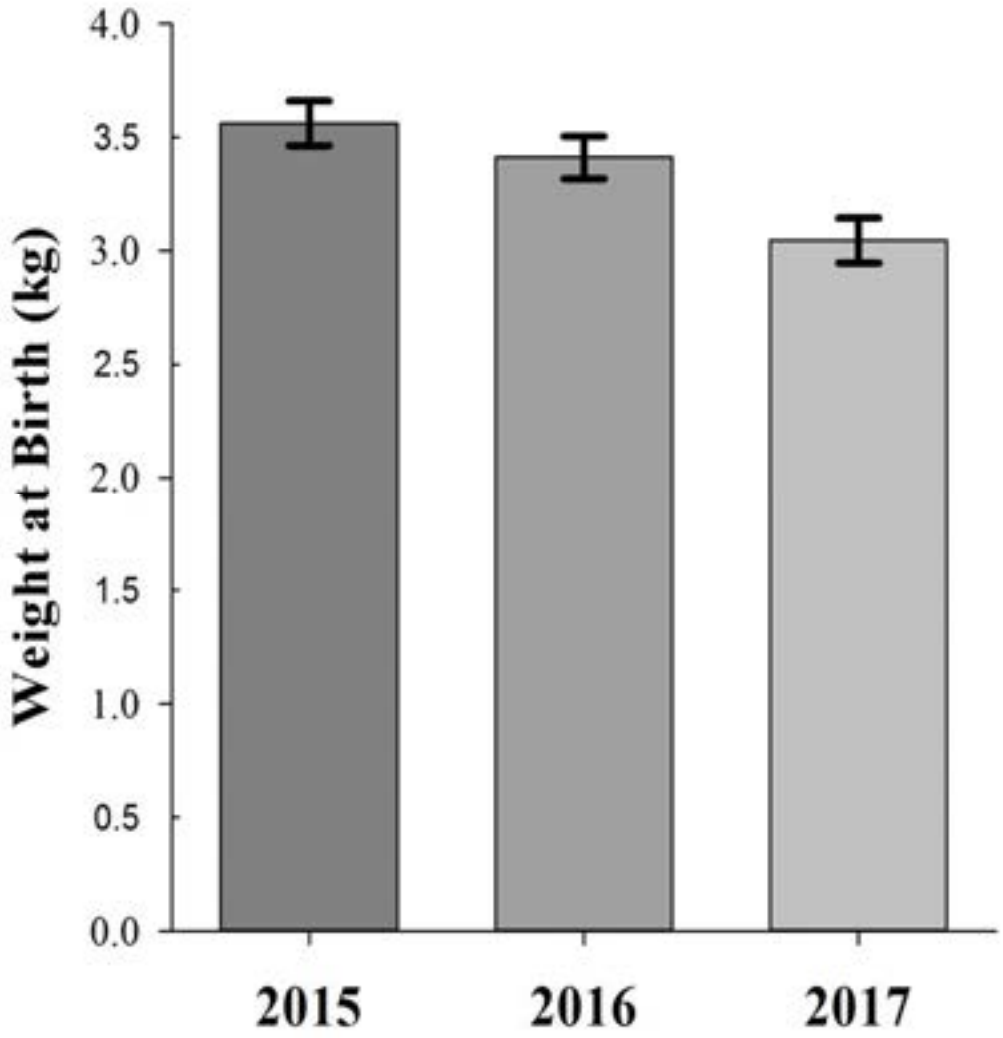


Decreased Fetal Development



	2015	2016	2017
Median Birthdate	June 10	June 13	June 17

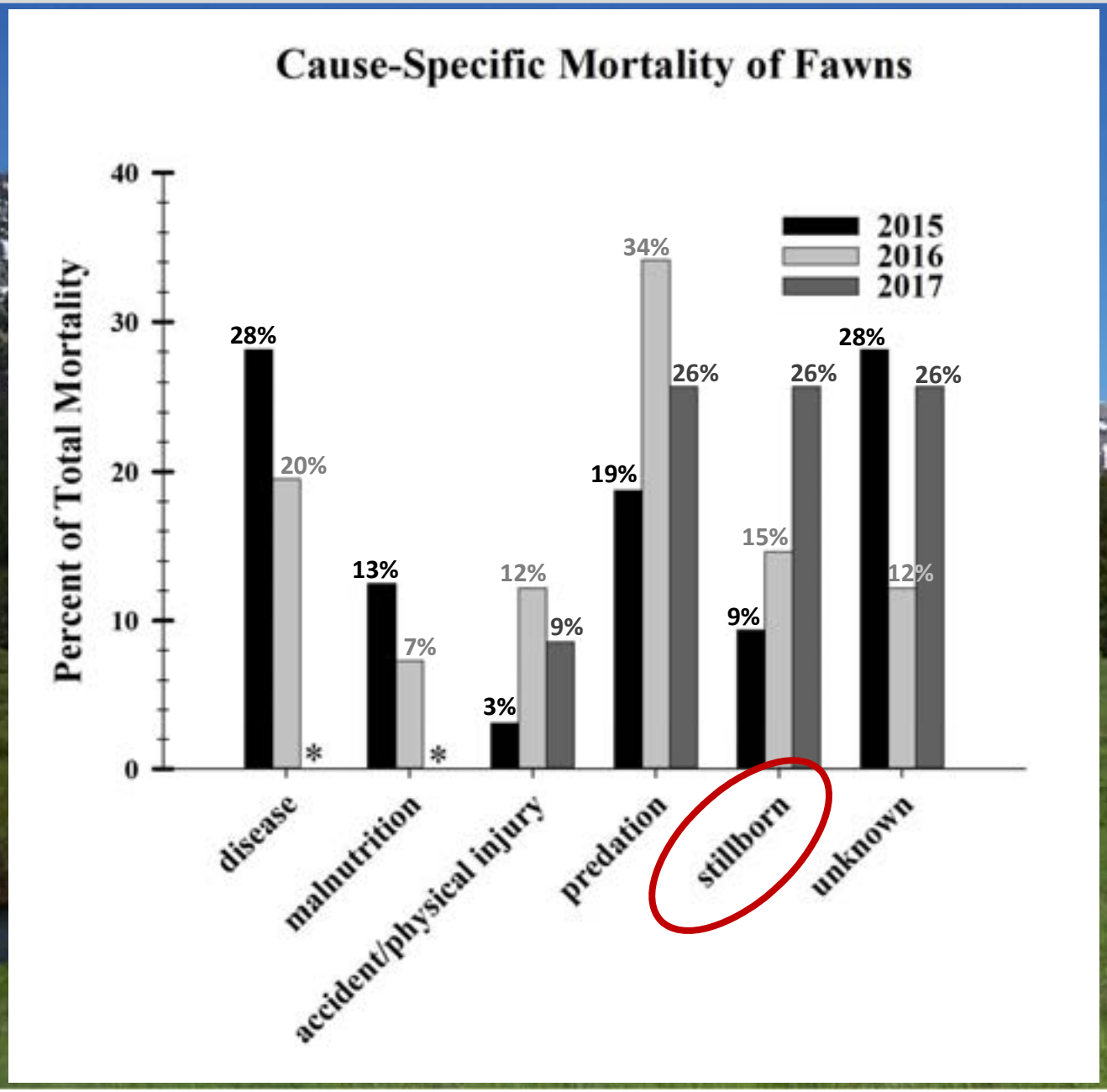
Decreased Birthmass

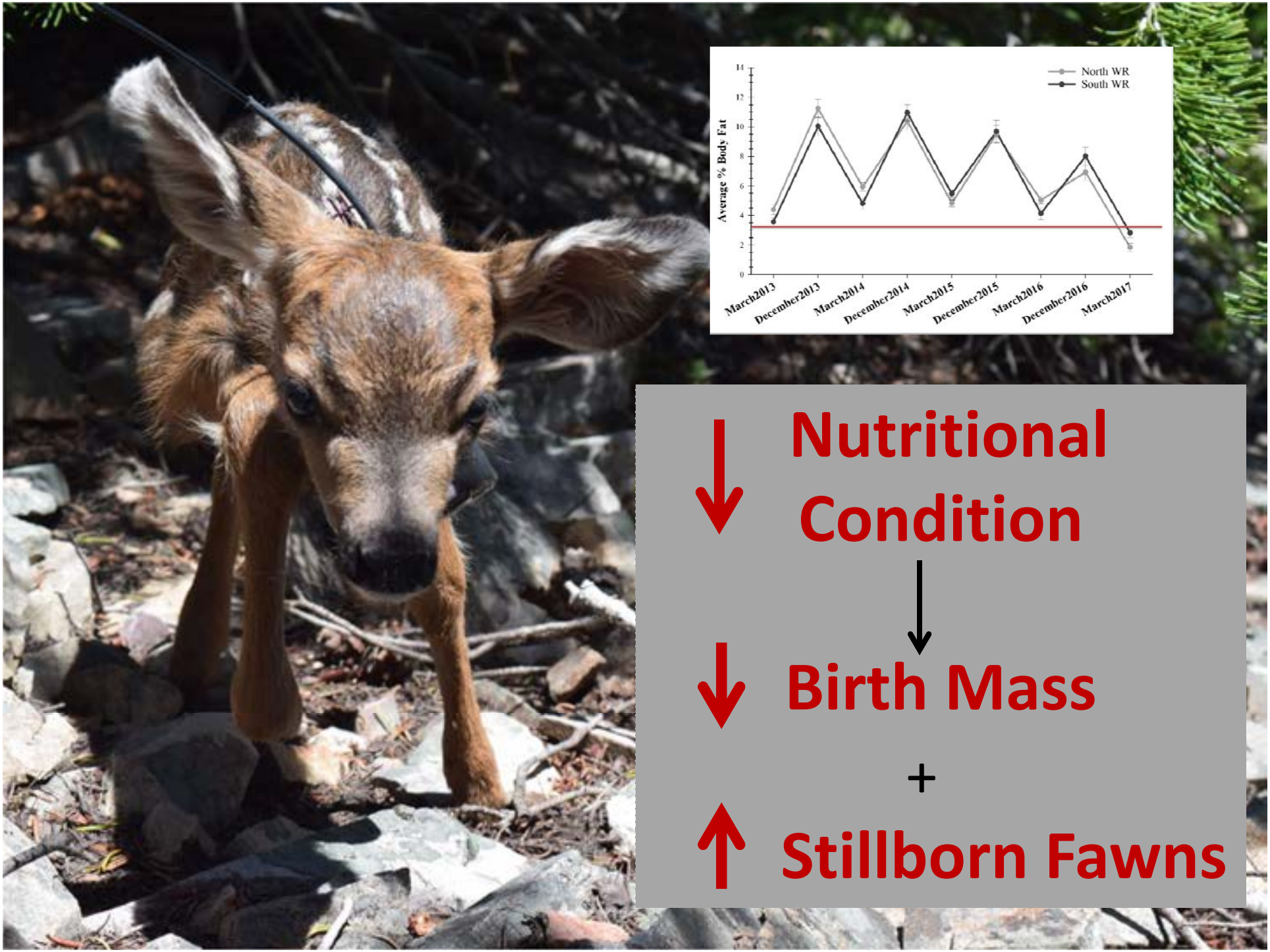


Summer Range – Fawn Survival

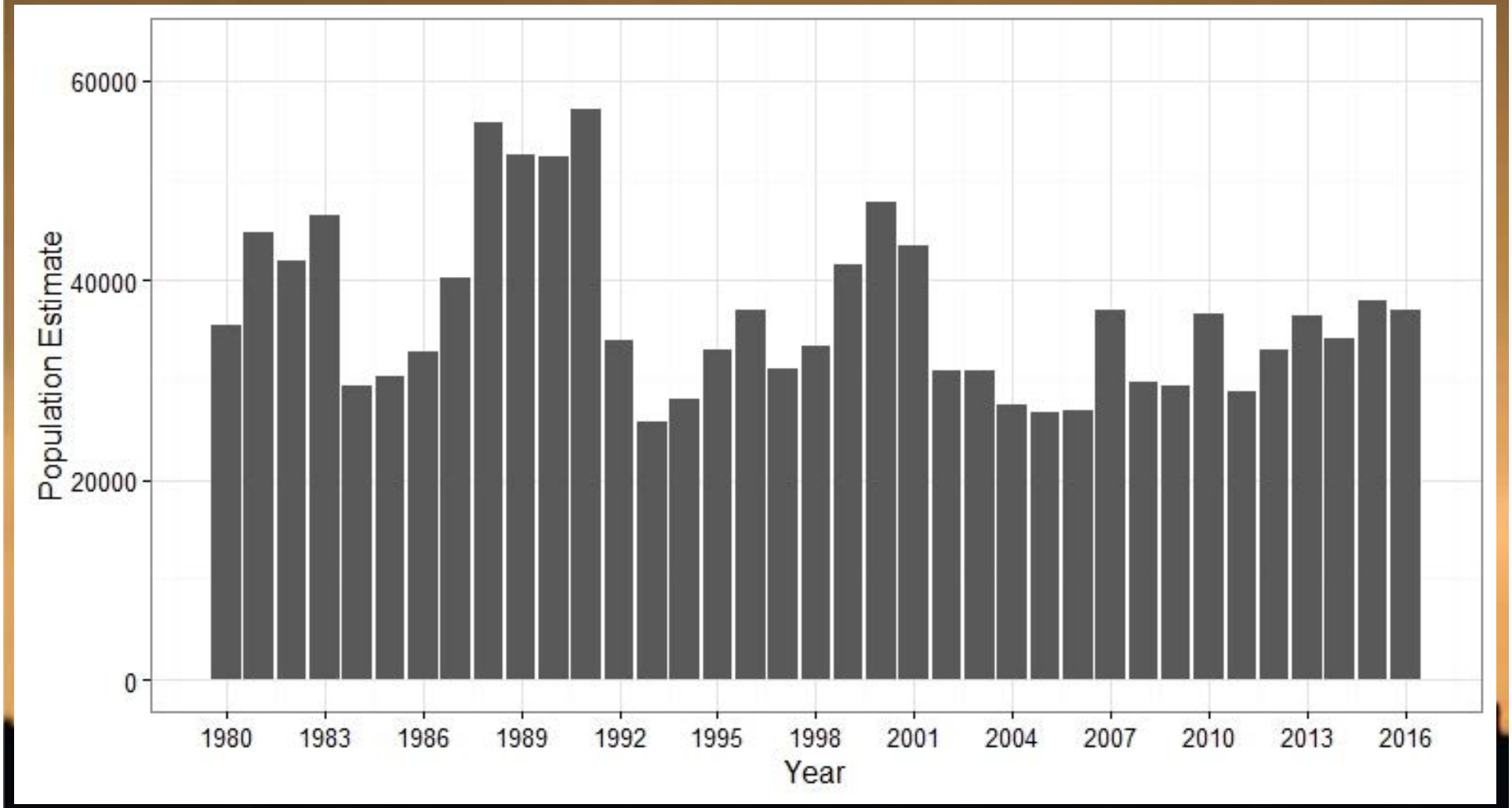
2015 Cohort	2016 Cohort	2017 Cohort
58 Fawns Tracked	70 Fawns Tracked	67 Fawns Tracked
Summer Mortalities **45%**	Summer Mortalities **56%**	Summer Mortalities **52%**
Winter Mortalities **10%**	Winter Mortalities **44%**	Winter Mortalities **0 (so far)**
Total Mortalities 55%	**Total Mortalities 100%**	**Total Mortalities NA**

Summer Range – Fawn Survival

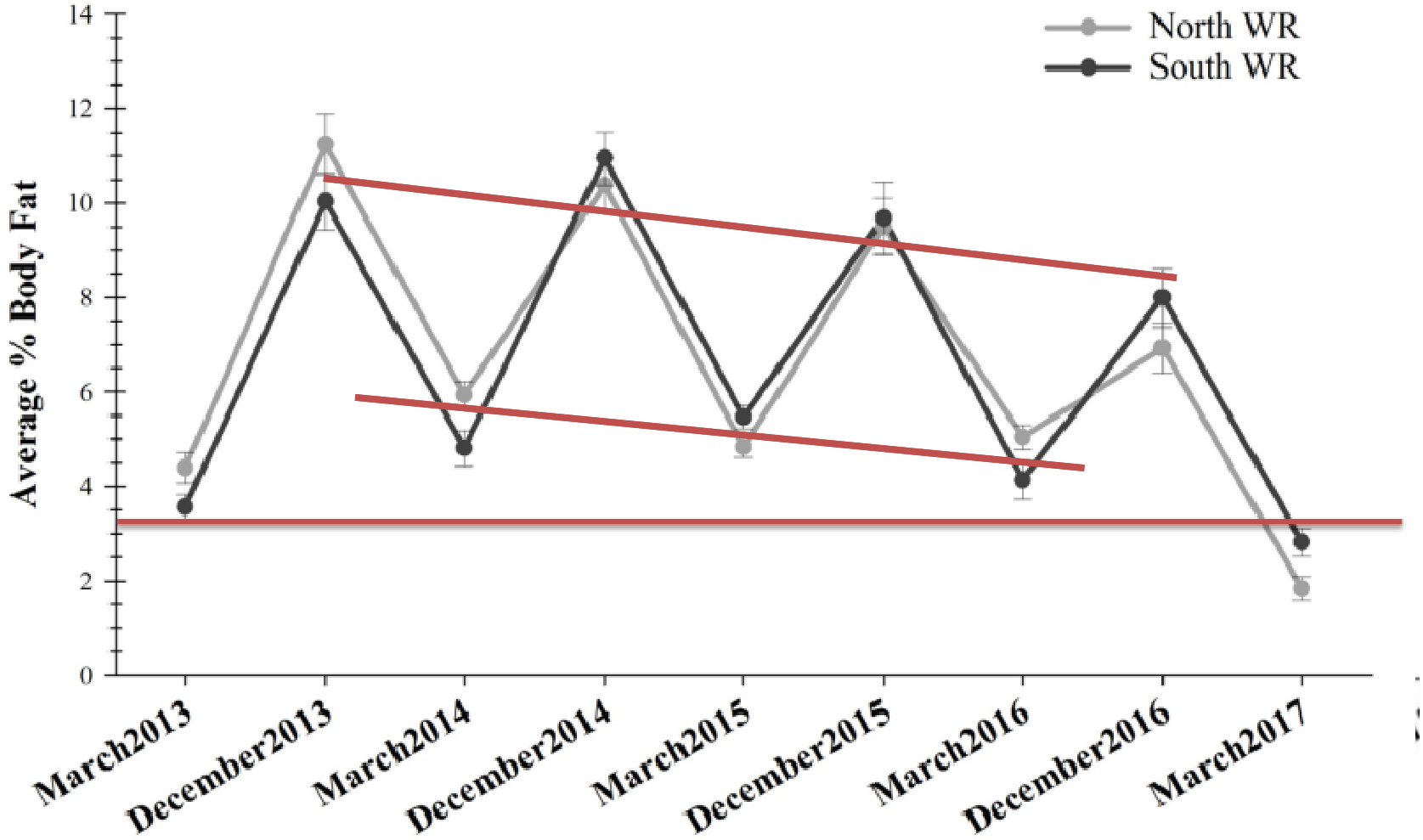


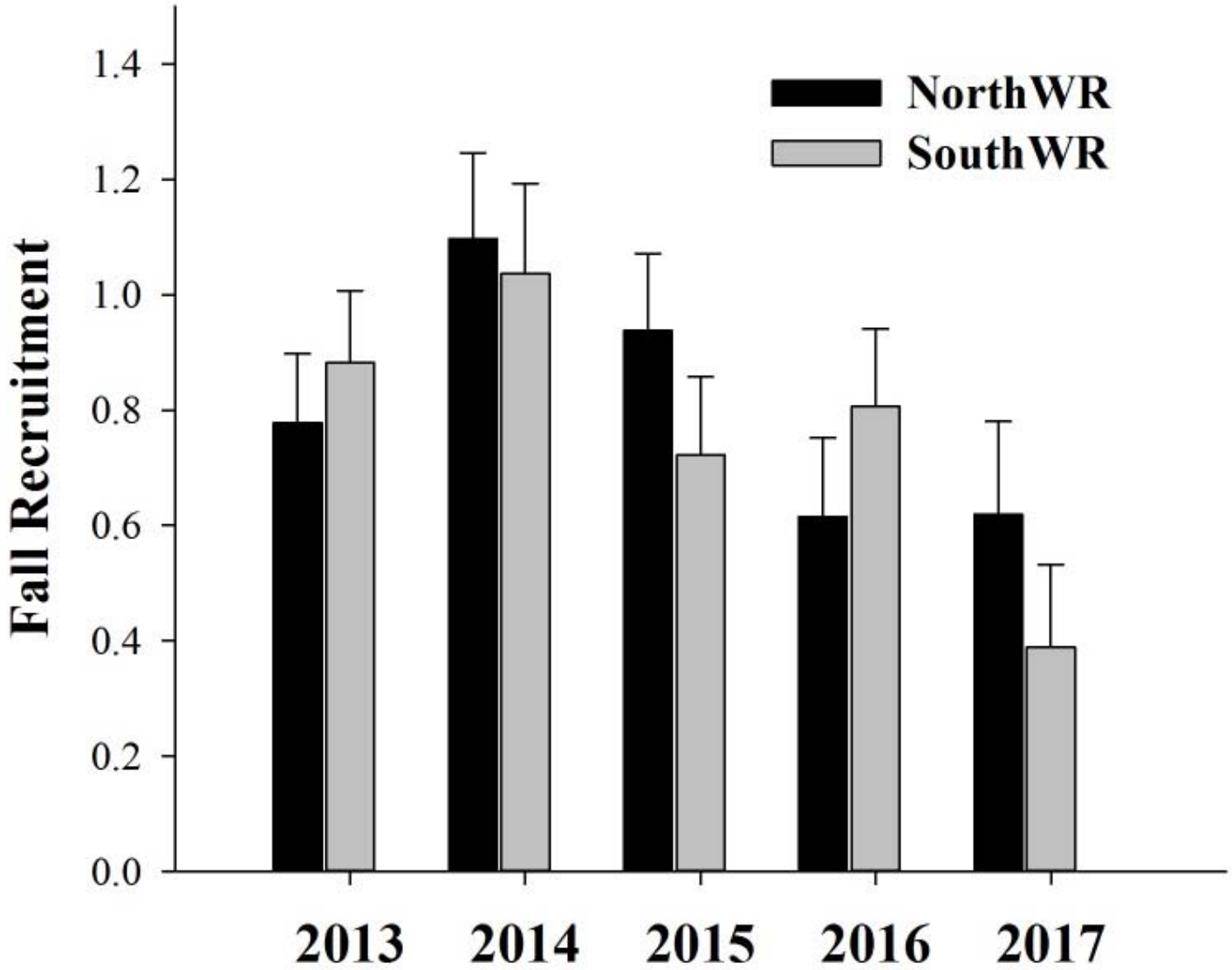

North WR
South WR
Average % Body Fat
0
2
4
6
8
10
12
14
March2013
December2013
March2014
December2014
March2015
December2015
March2016
December2016
March2017
↓ Nutritional Condition
↓
↓ Birth Mass
+
↑ Stillborn Fawns

Wyoming Range Mule Deer Herd

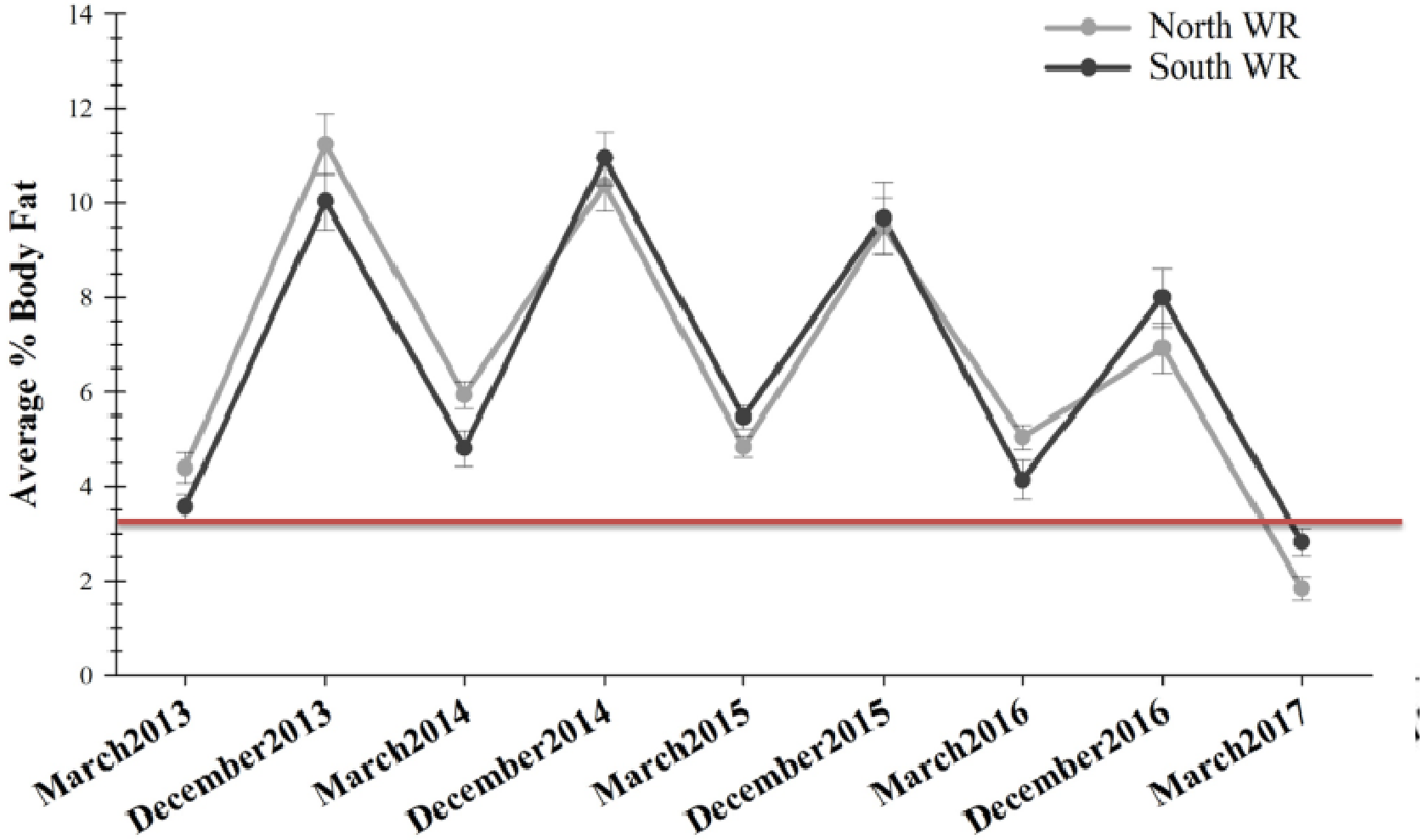


Nutritional Condition

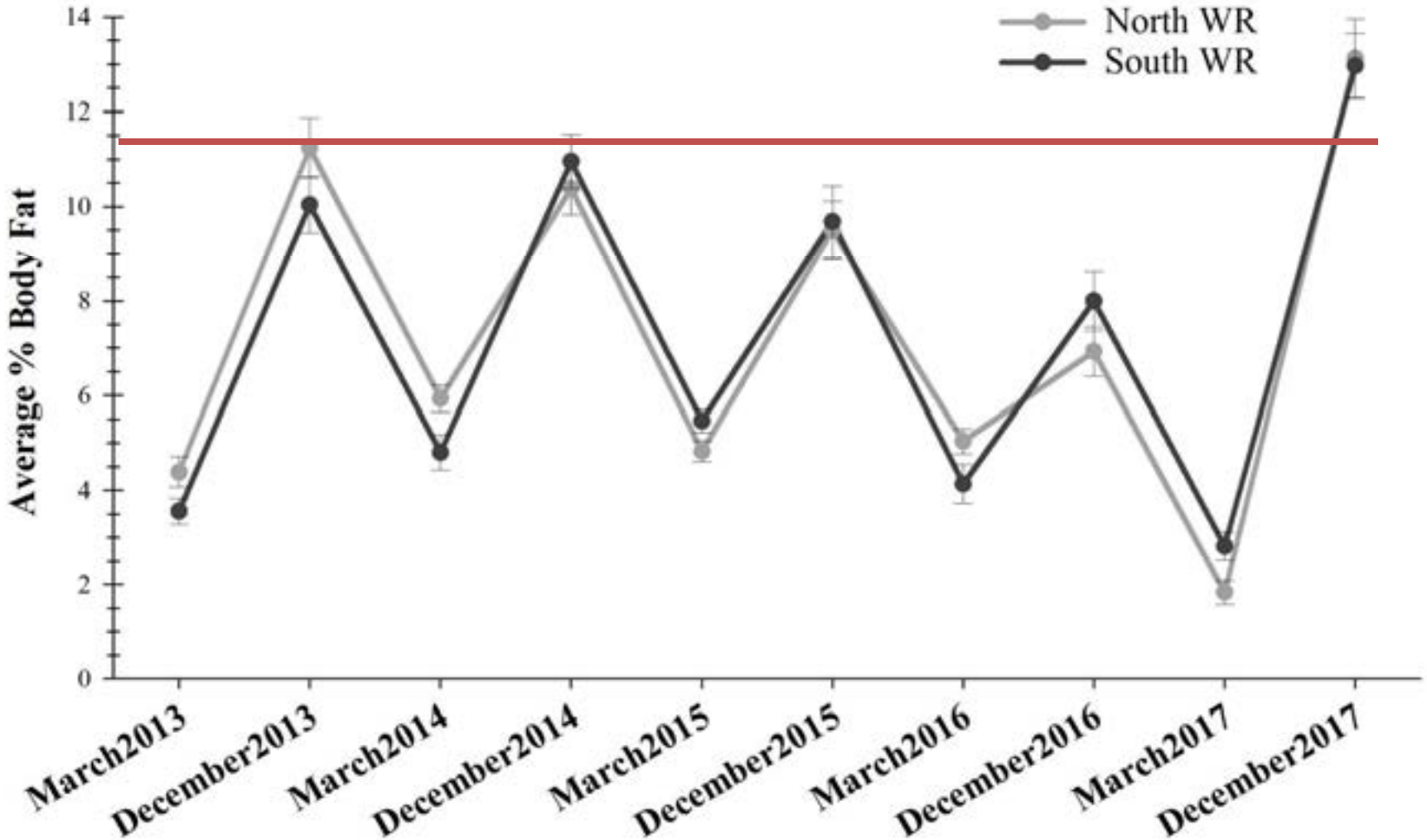



Fall Recruitment
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
NorthWR
SouthWR
2013
2014
2015
2016
2017

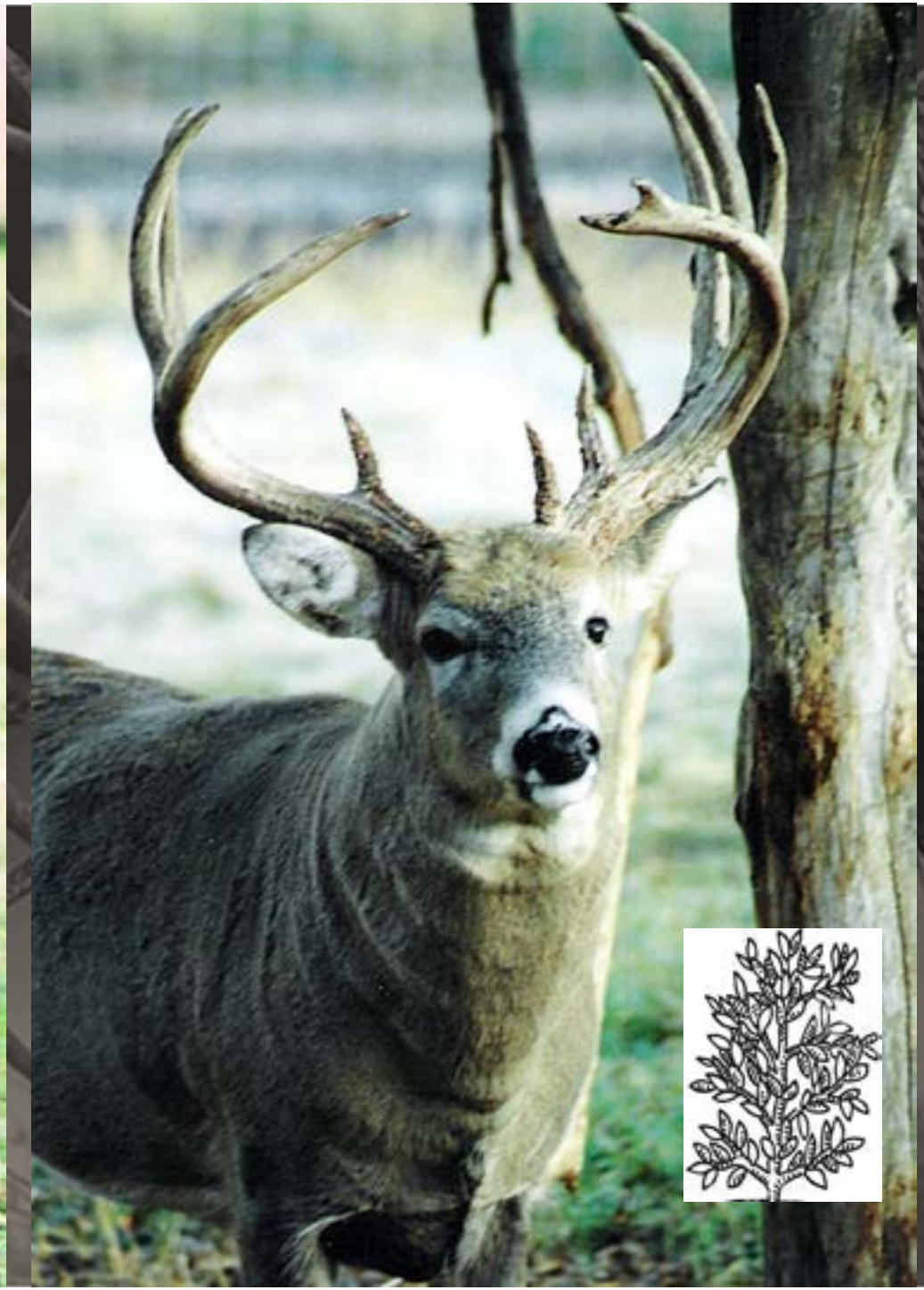
Nutritional Condition



Nutritional Condition



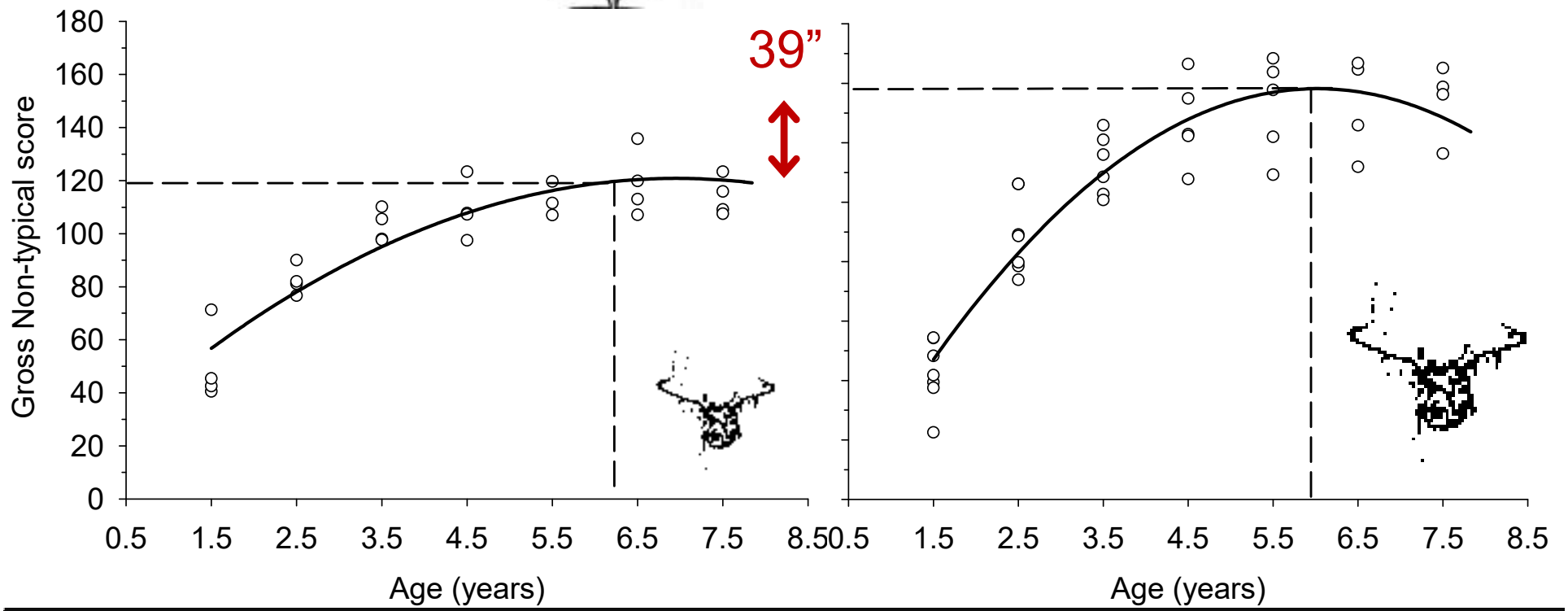
2016-17 Winter…..



Disparity in growth

1st generation

1st generation

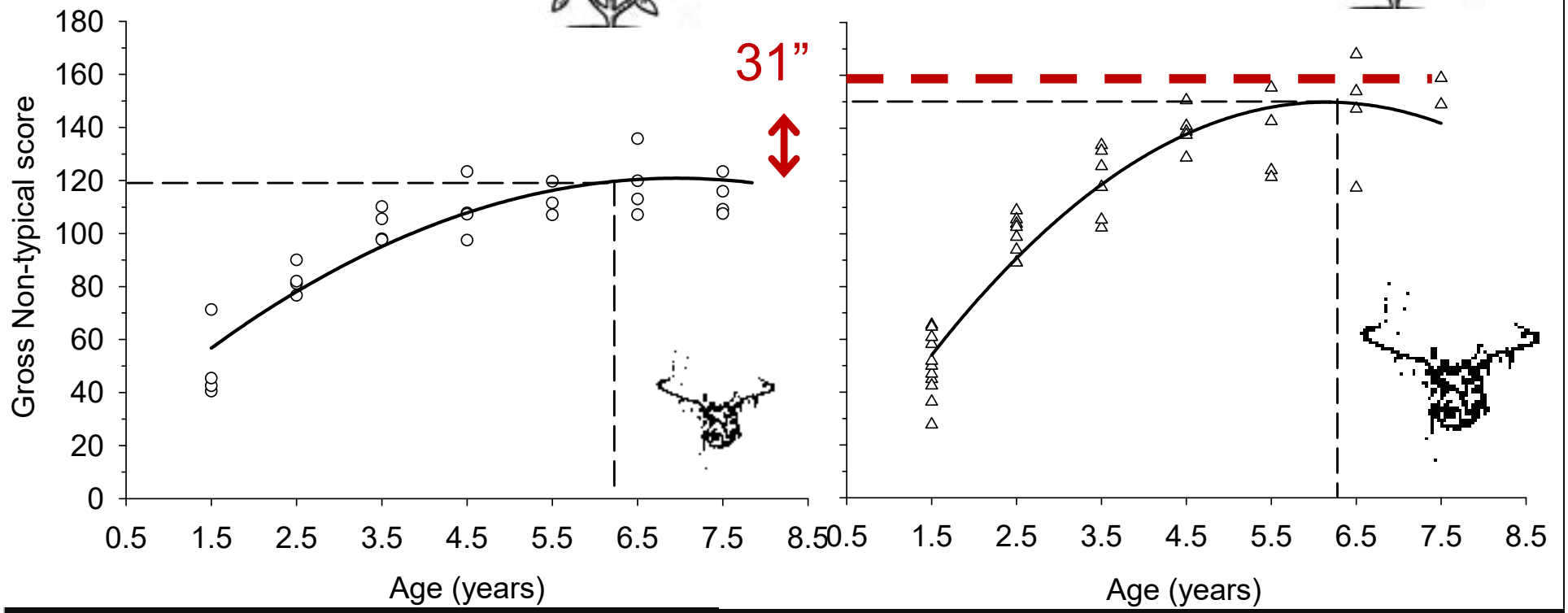


Monteith et al. 2009, Journal of Mammalogy

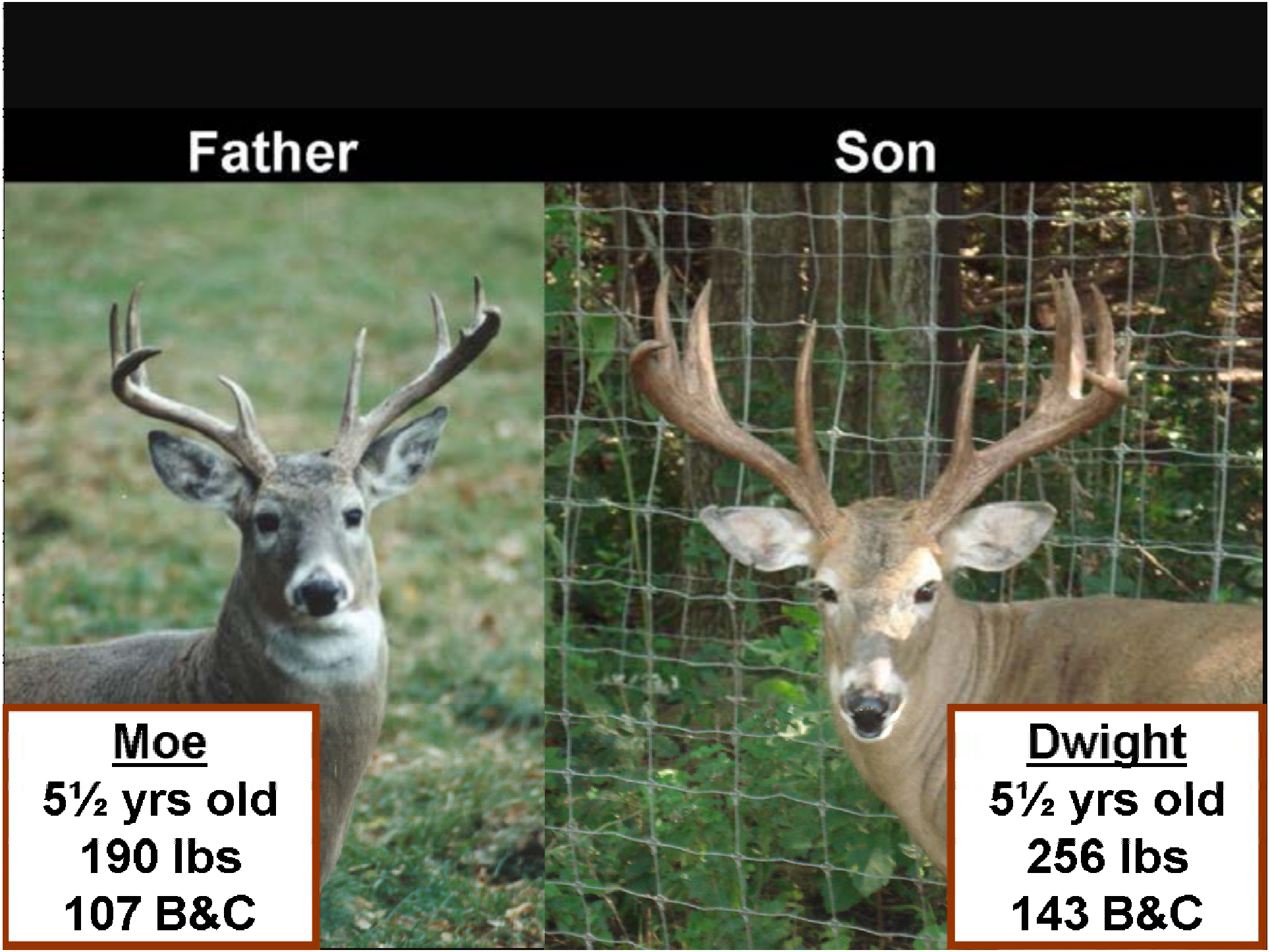
Small father, Large son

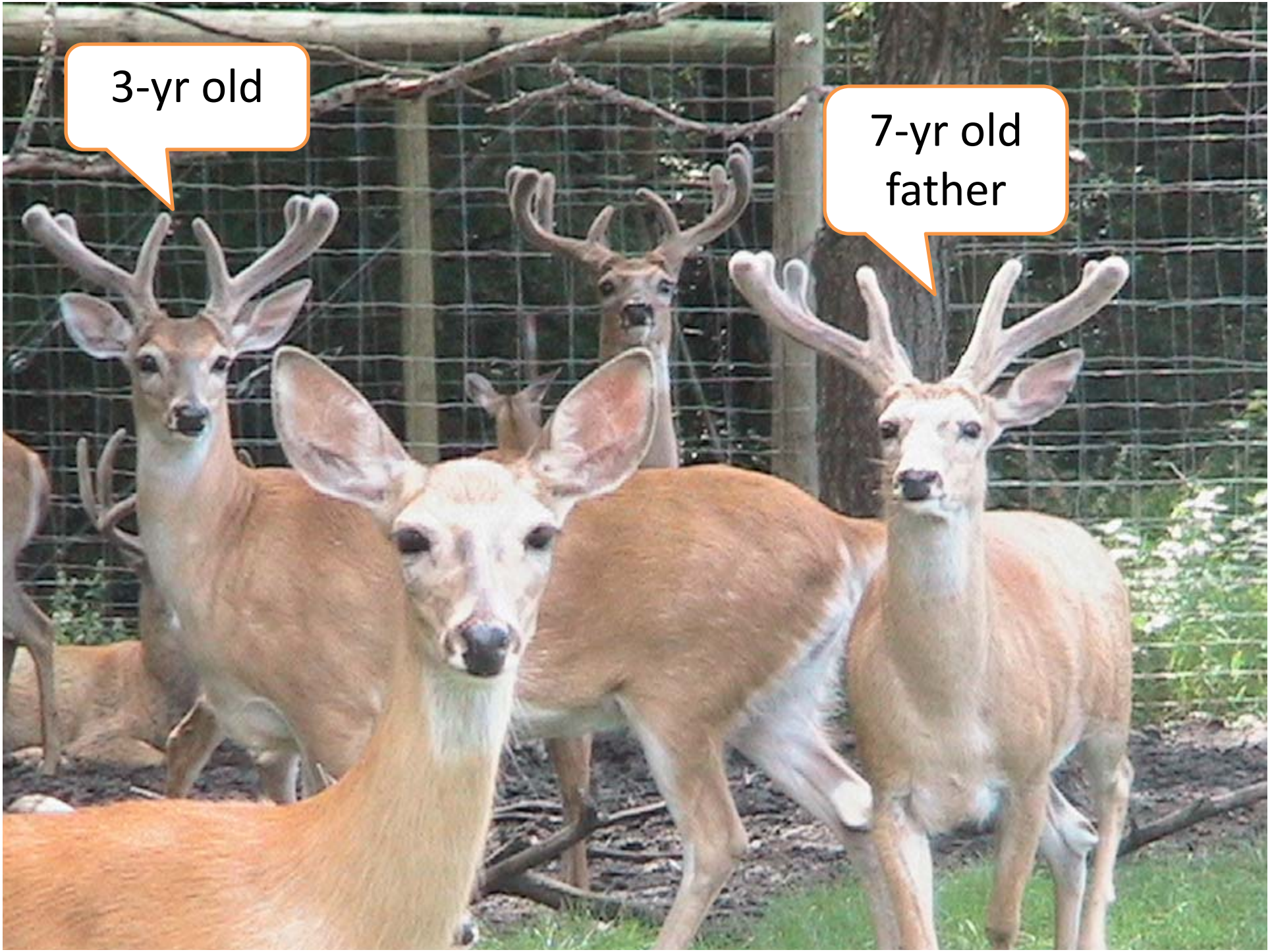
1st generation

2nd generation

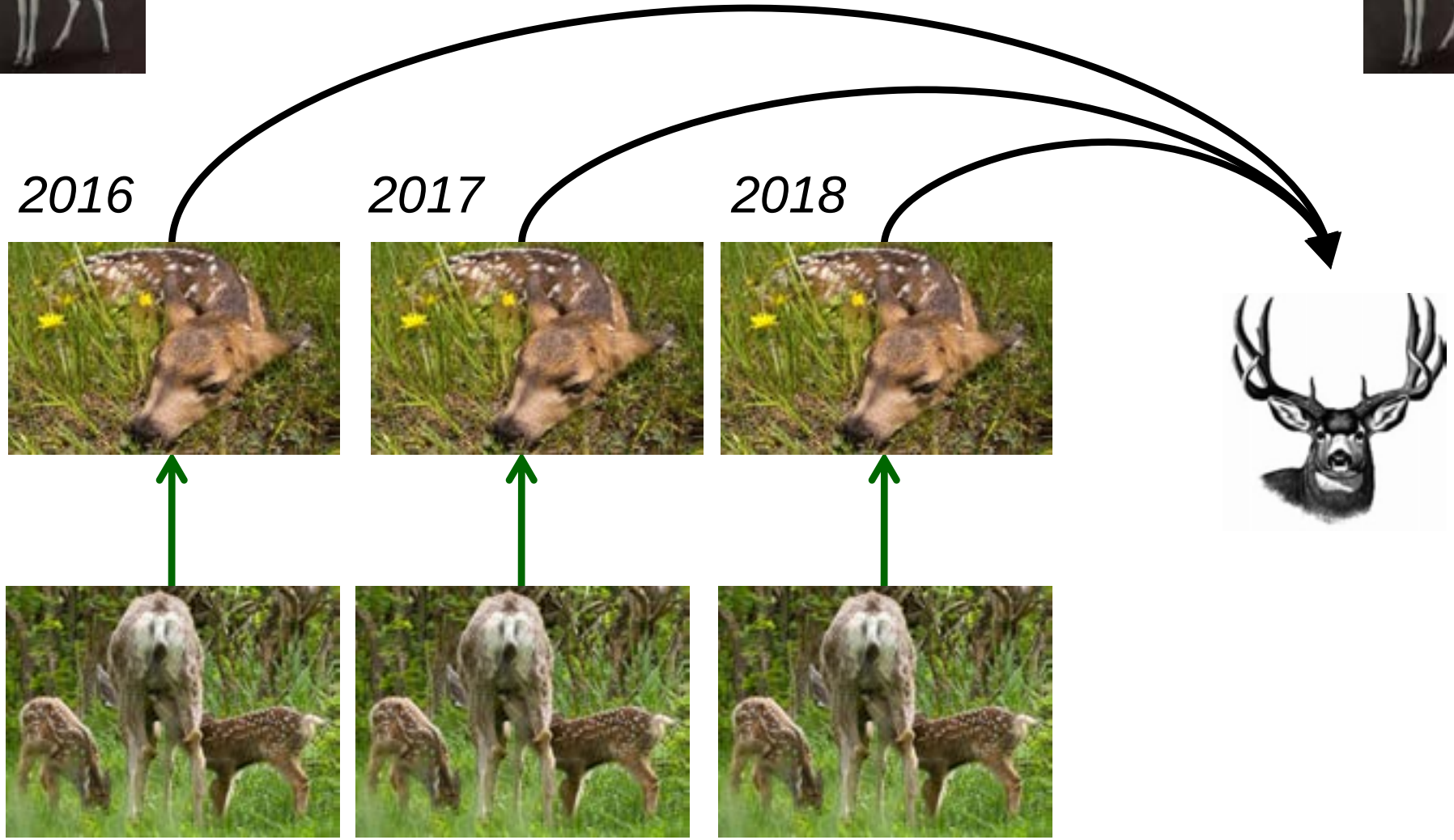


Monteith et al. 2009, Journal of Mammalogy

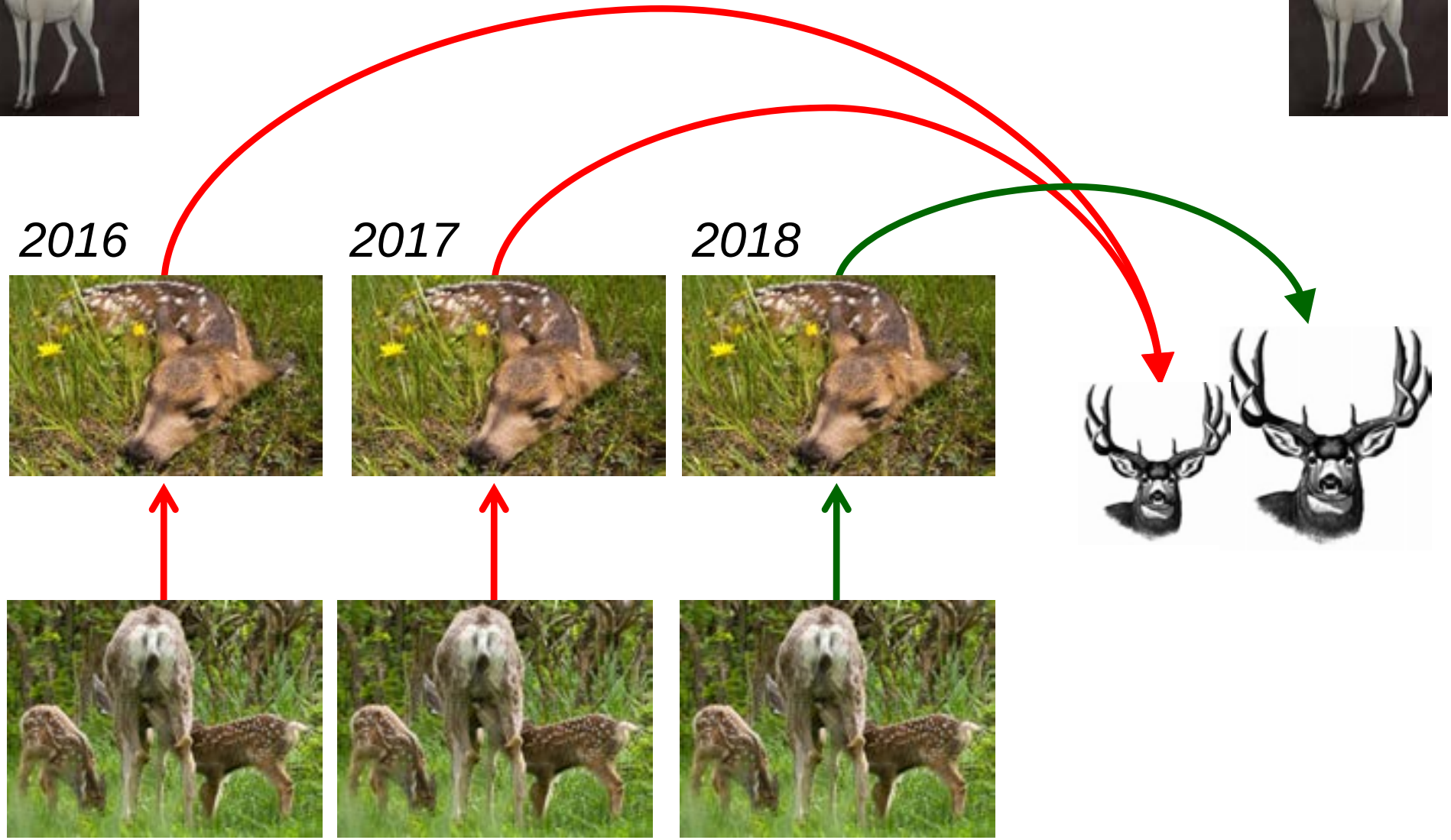

Father
Son
Moe
5½ yrs old
190 lbs
107 B&C
Dwight
5½ yrs old
256 lbs
143 B&C


3-yr old
7-yr old father

Ghost of nutrition past



Ghost of nutrition past



There's more to
mom than meets
the eye