

Wolf-Ungulate Research in the GYA and Montana Statewide

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Montana Fish, Wildlife and Parks



NPS Photo



C. Jourdonnais Photo

Acknowledgements

MFWP wildlife biologists and wildlife managers:

Kurt Alt, Neil Anderson, Mark Atkinson, Keith Aune, Lydia Bailey, Bob Brannon, Tom Carlsen, John Firebaugh, Kevin Frey, Justin Gude, Jeff Herbert, Craig Jourdonnais, Fred King, Quentin Kujula, Tom Lemke, Adam Messer, Margaret Morelli, Coleen O'Rourke, Dave Pac, Mike Ross, Carolyn Sime, Shawn Stewart, Tom Stivers, Mike Thompson, Jenifer Verschyul, John Vore, Harry Whitney, and Jim Williams.

Montana State University Collaborators:

Dr. Robert Garrott and Dr. Scott Creel, John Winnie, Jr., Justin Gude, Dave Christianson, Jamin Grigg, and Kelly Proffitt.

Inter-Agency Collaborators:

Ed Bangs and Joe Fontaine of the U. S. Fish and Wildlife Service, Val Asher of USFWS, Turner Endangered Species Fund and MFWP, Dave Hunter, DVM of TESF, and P.J. White and Doug Smith of NPS, Yellowstone National Park

Pilots:

Roger Stradley, Steve Ard, Mark Duffy, Noel Boyd, and Steve Collins; and other pilots statewide who provided skilled and safe flights for biologists.

Methods

- Intensive field study sites in Greater Yellowstone Area
- Extensive statewide FWP population and harvest data
- 2000-2009
- Several agency and academic cooperators, huge effort



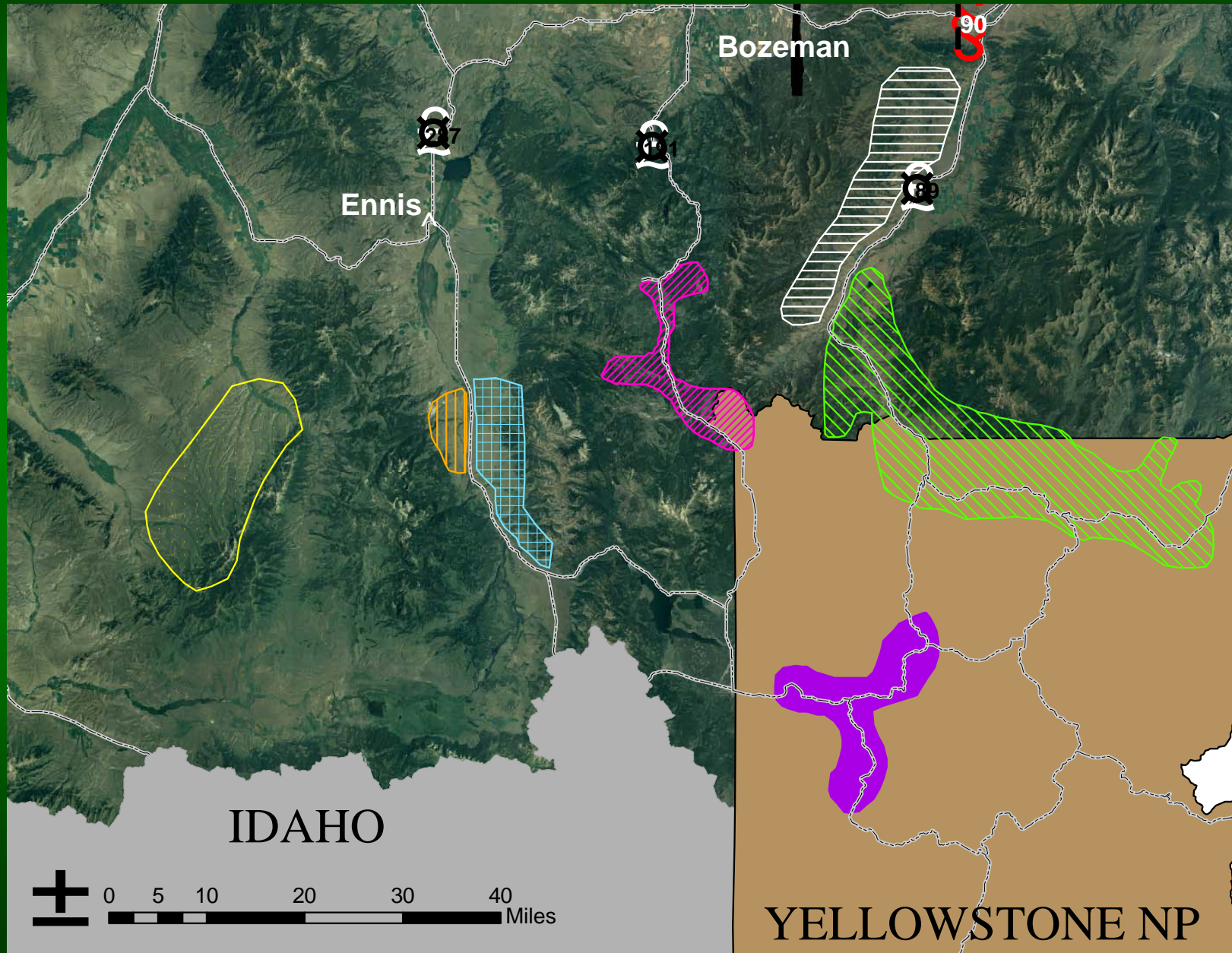
Project Objectives

- Determine wolf impacts on ungulate populations
- Determine wolf impacts on ungulate group sizes, movements, and distribution

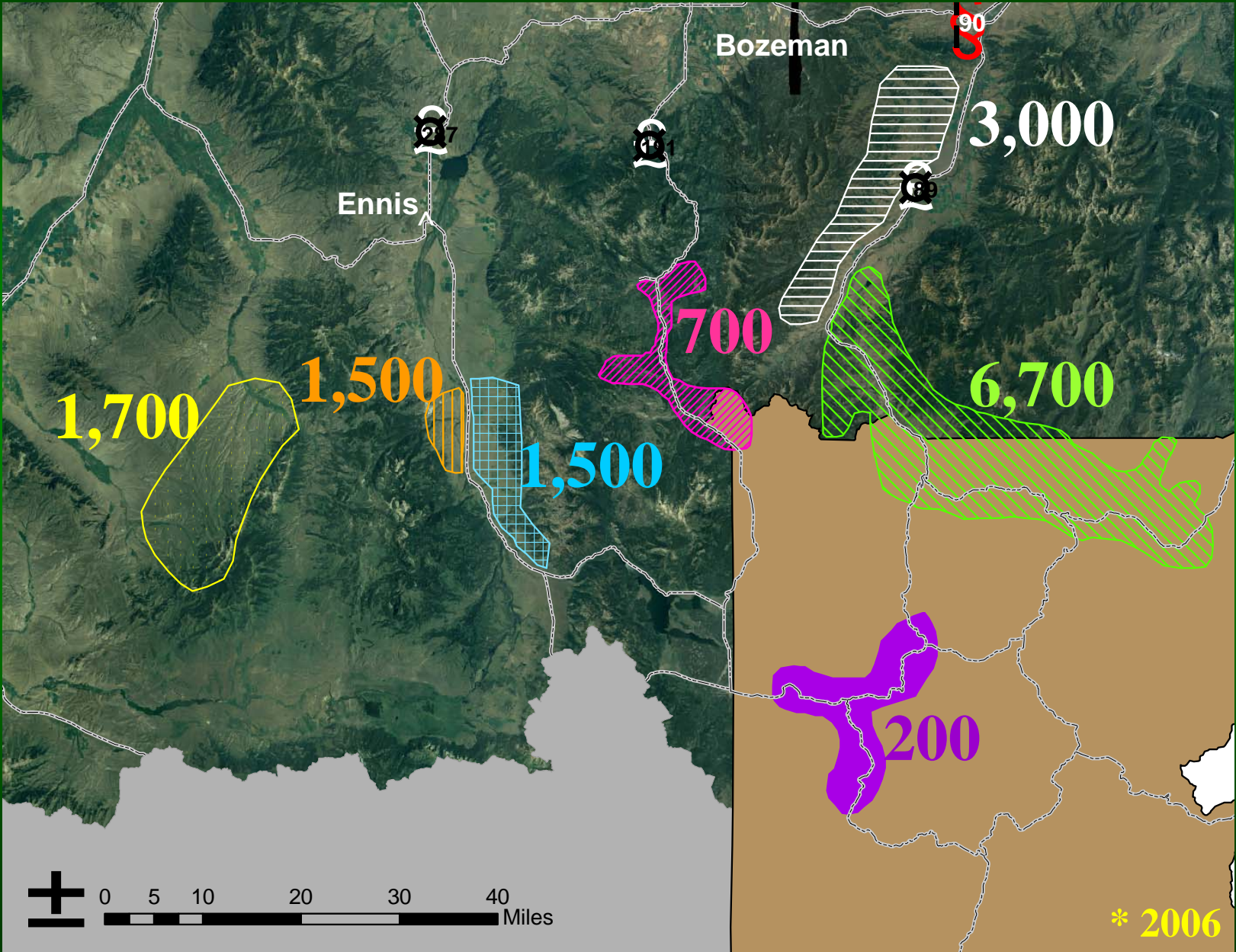


MFWP Photo

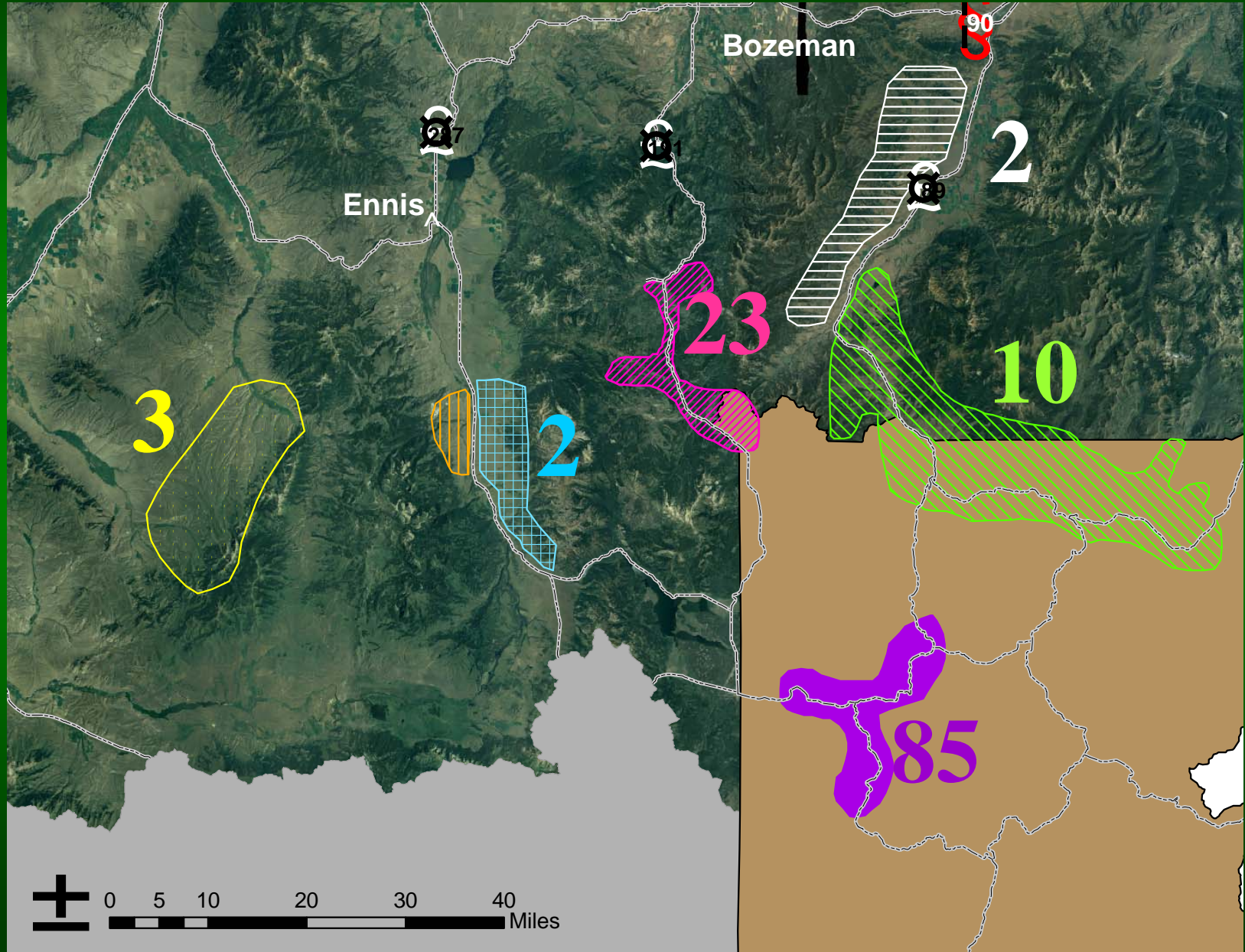
GYA Wintering Elk Herds



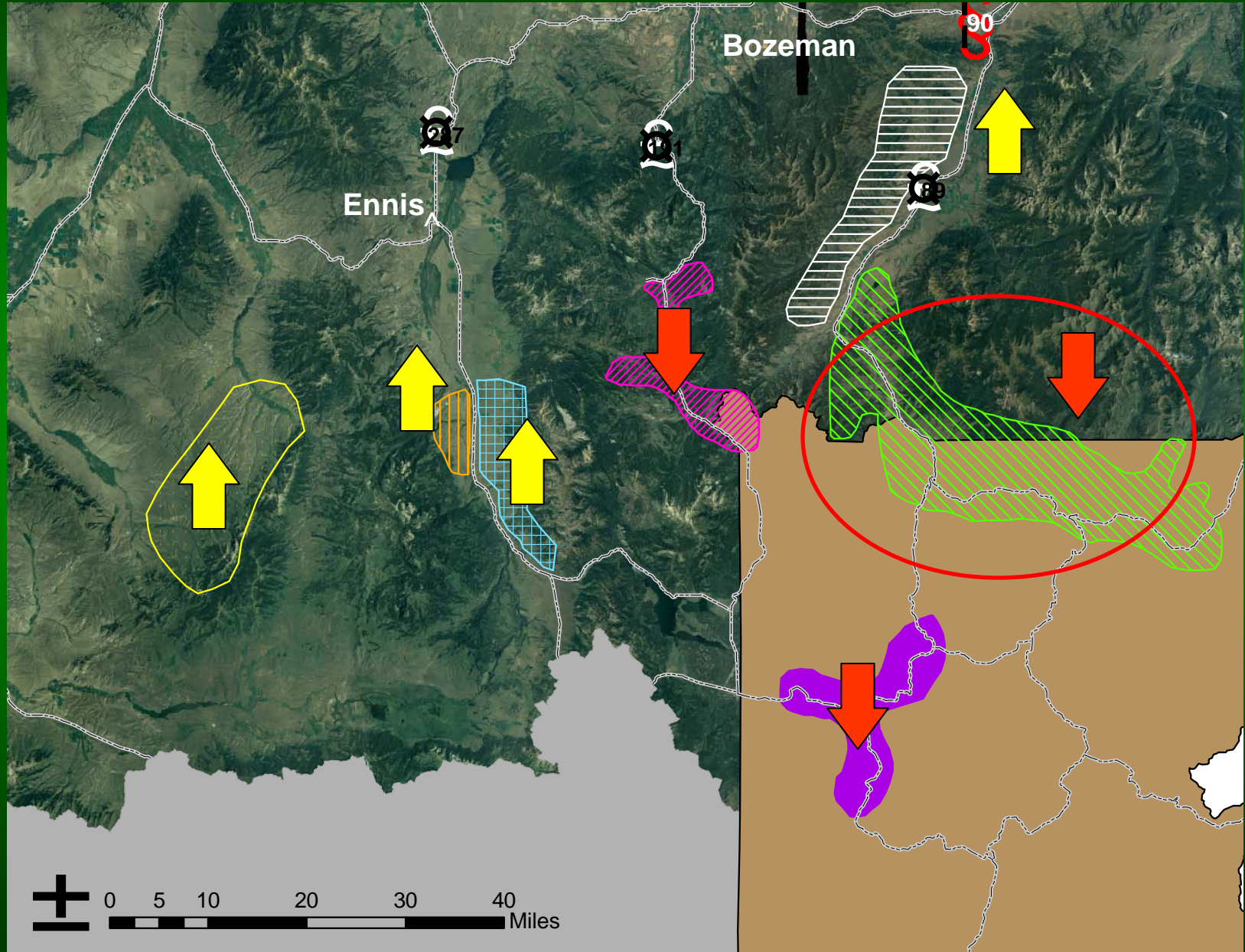
Min. Winter Elk Counts*



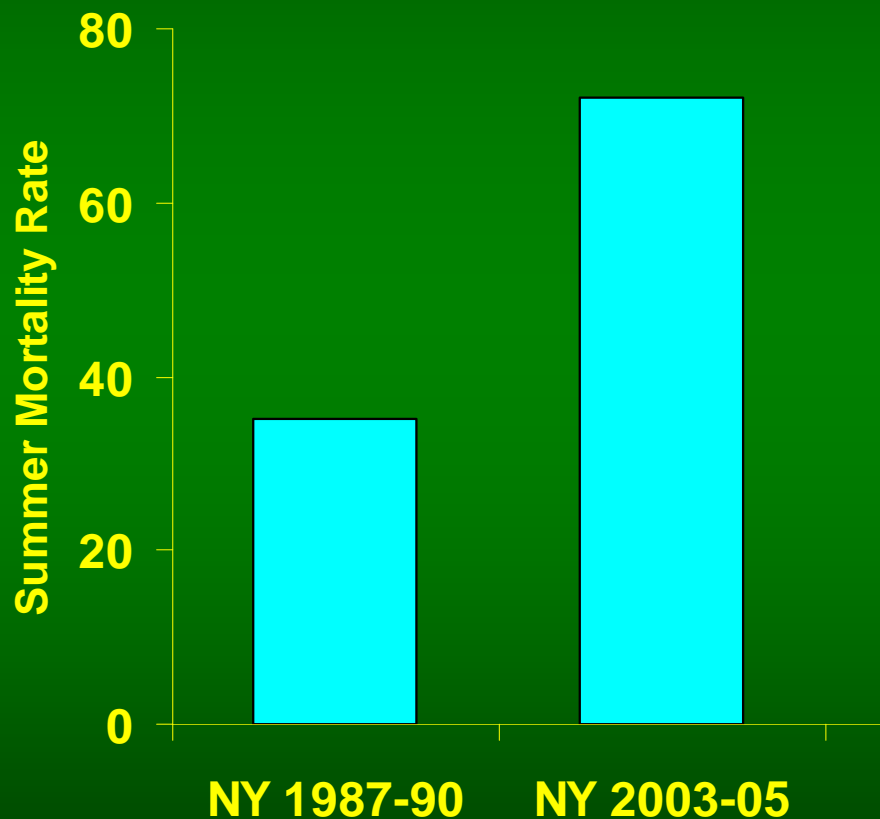
Max Wolves: 1000 elk



GYA Wintering Elk Trends



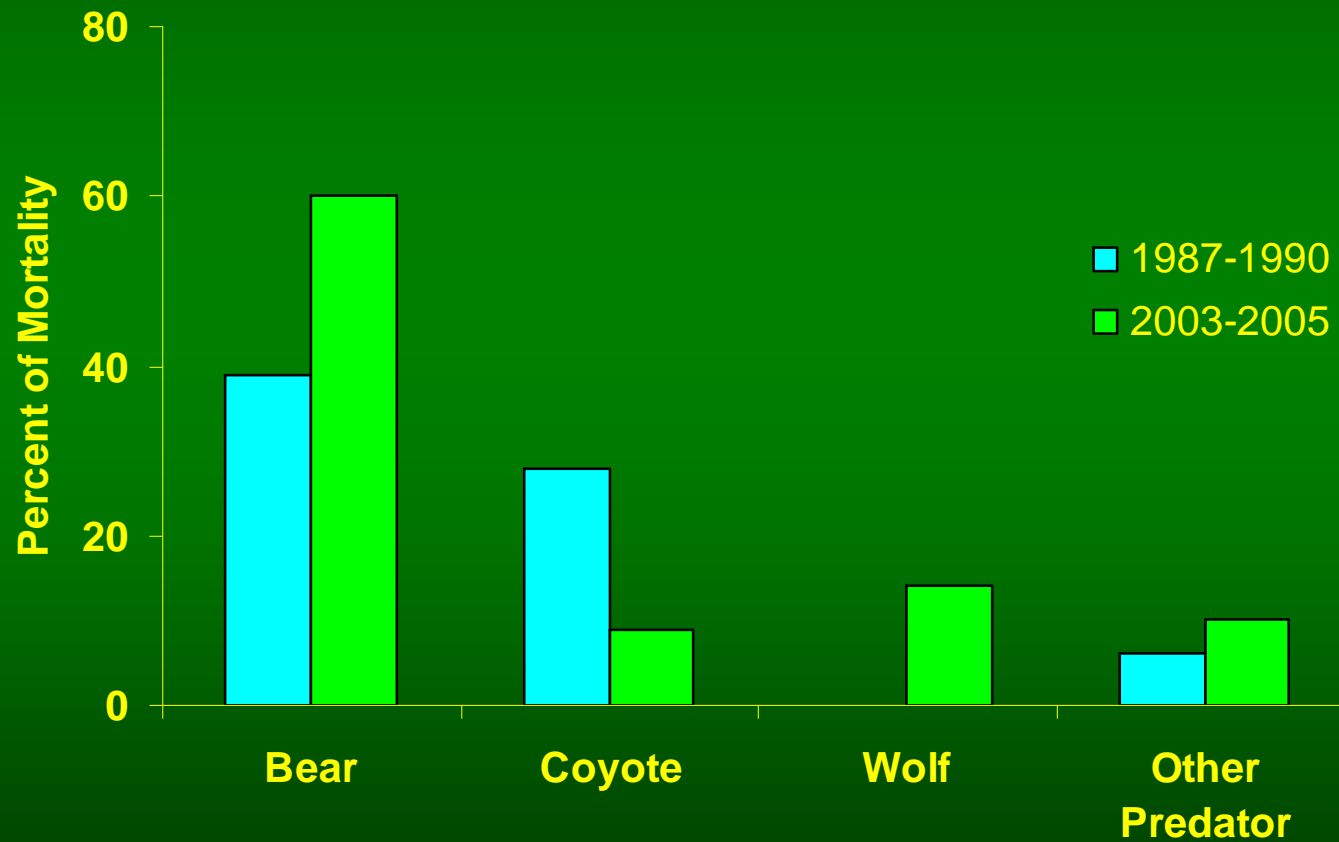
Elk Calf Mortality, Northern Yellowstone Herd



- Radio-collared neonatal elk mortality studies on NY
- 1987-1990; Singer et al. 1997
- 2003-05; Evans et al. 2008 and Barber-Meyer et al. 2008

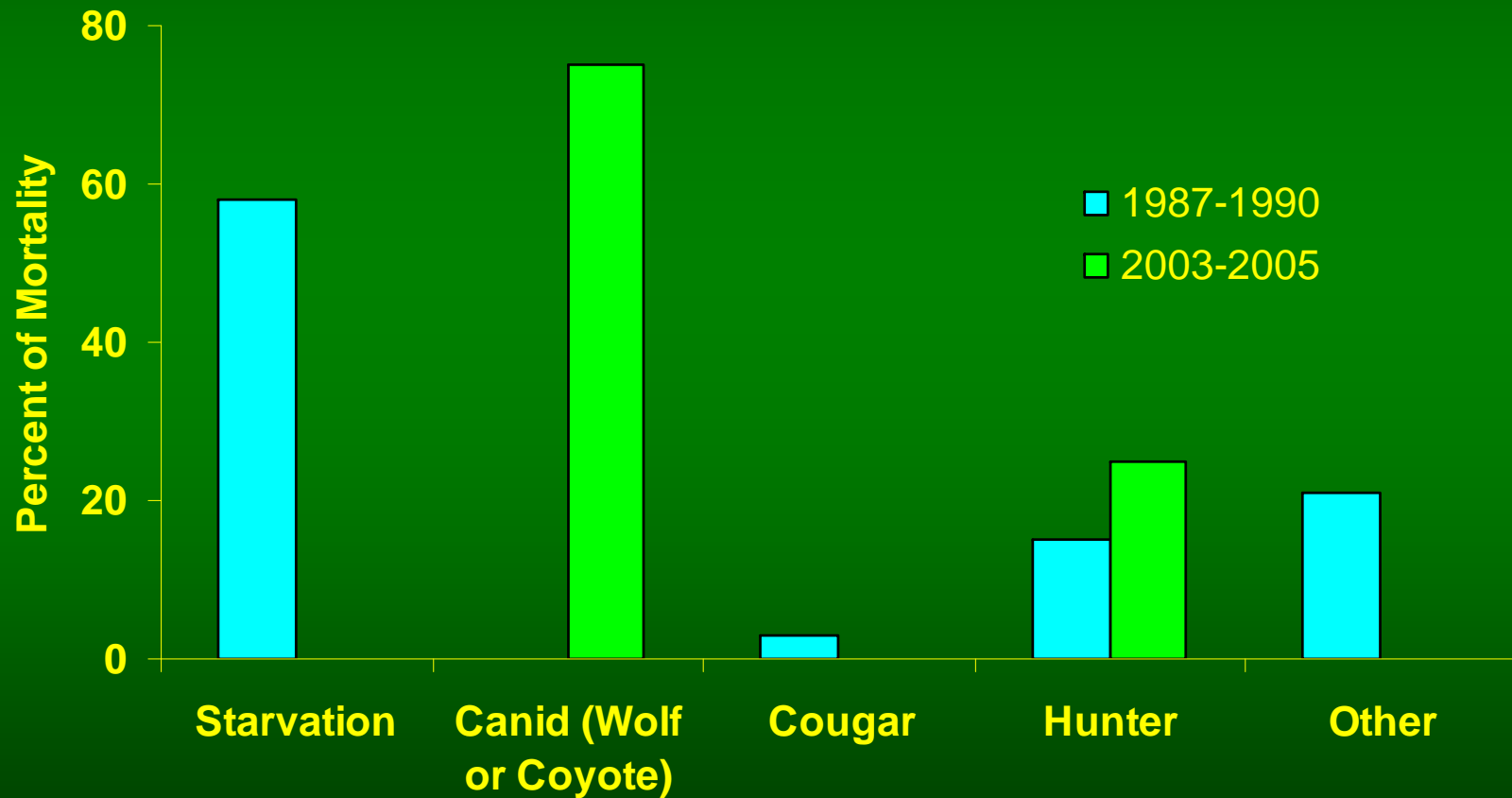
NY Elk Calf Mortality Causes

Summer Mortality (NY)



NY Elk Calf Mortality Causes

Winter Mortality (NY)

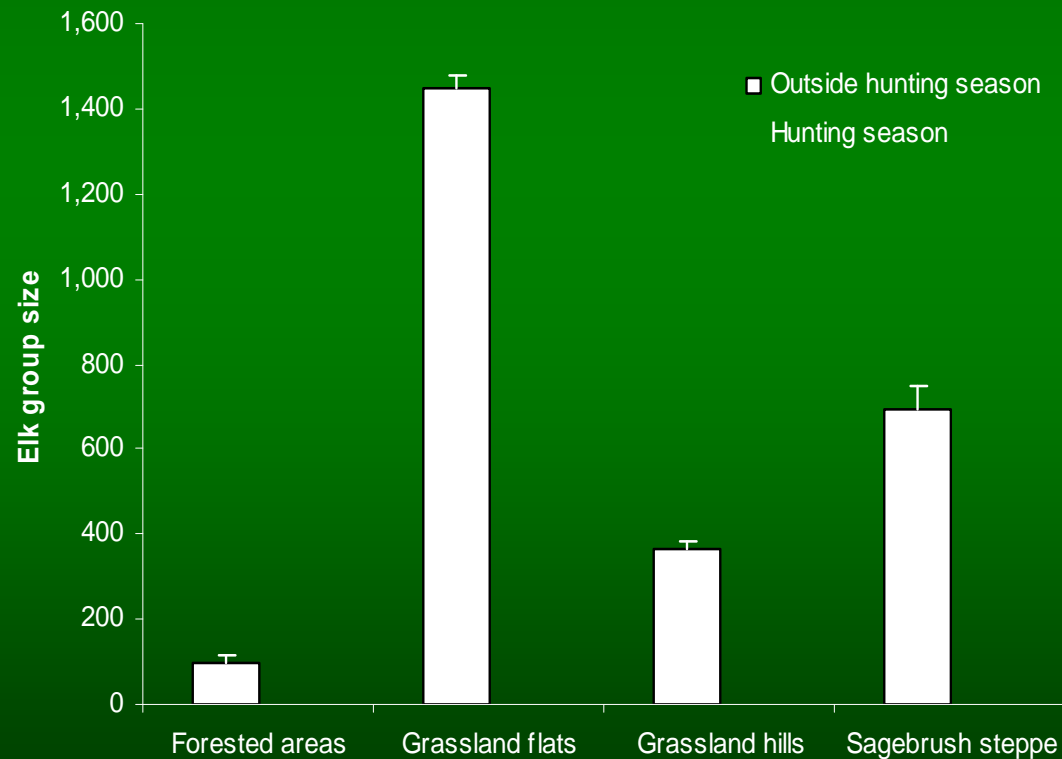


Do Wolves Affect Elk Group Sizes, Movements, or Distribution?

Multiple studies produced variable results

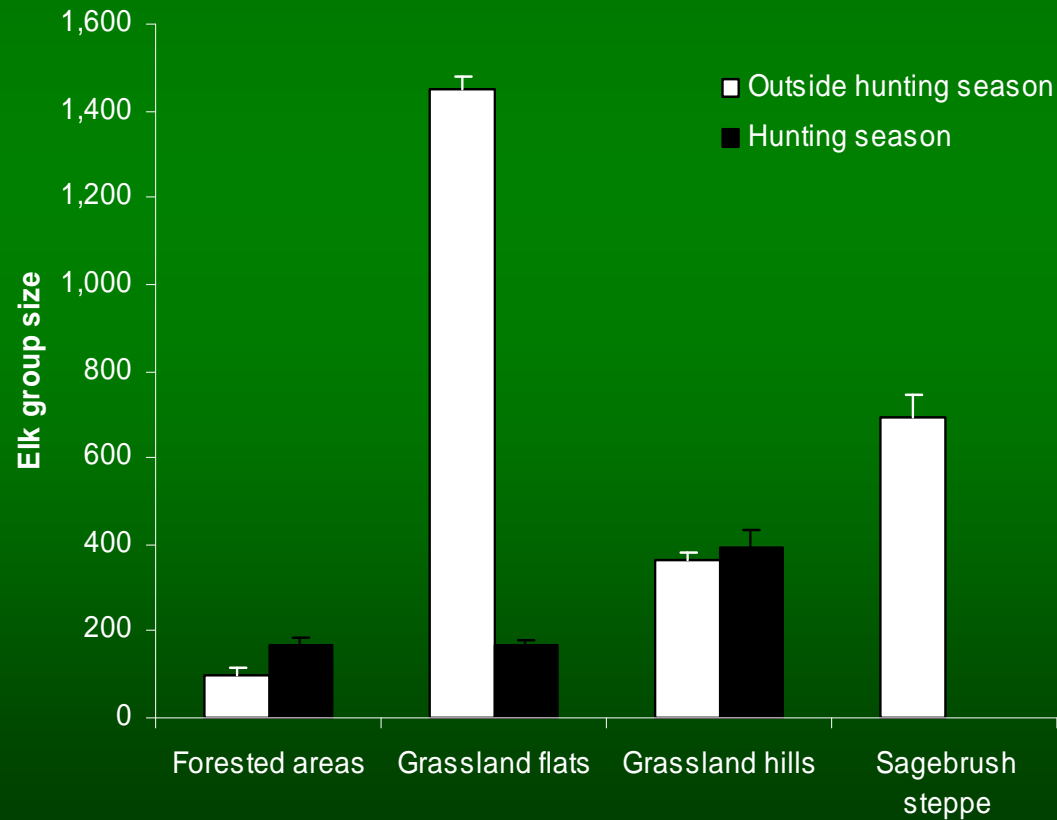
Elk group sizes

- Group sizes vary by habitat type and hunting risk



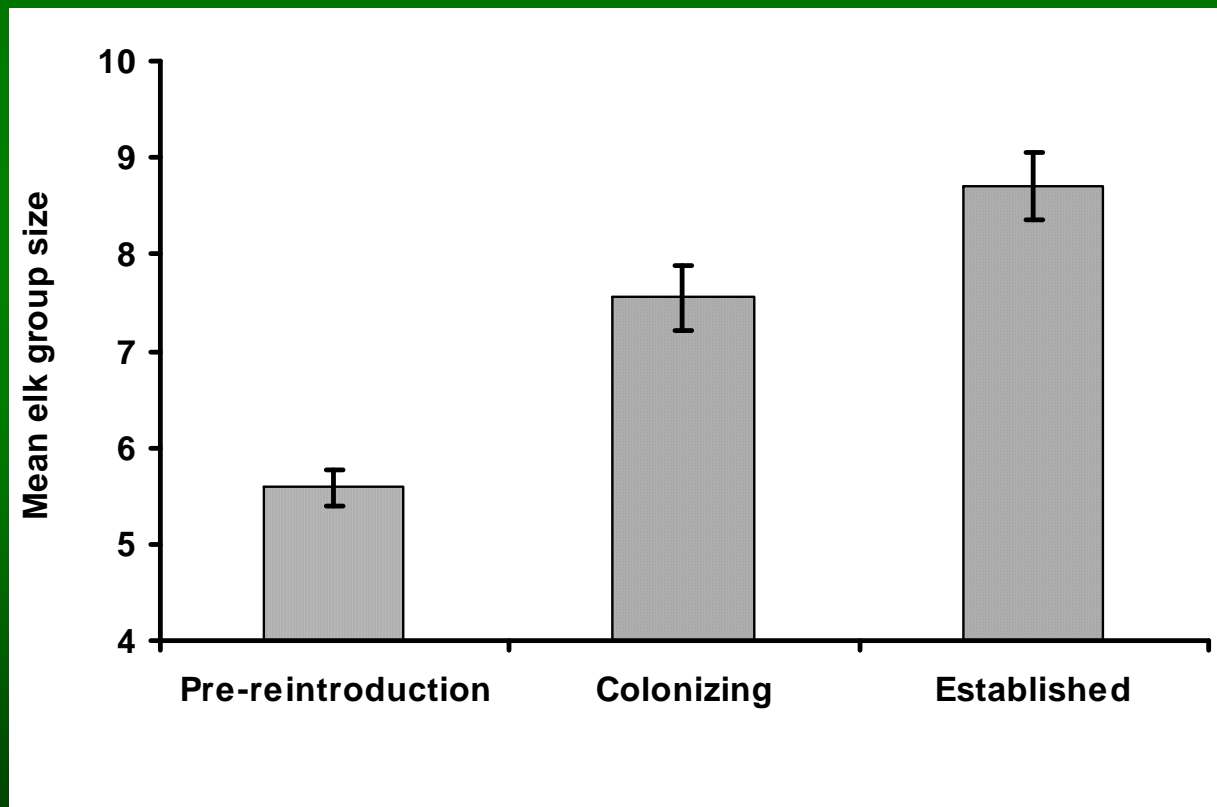
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Elk group sizes

- Madison-Firehole study area in YNP



Gower, C. N., Garrott, R. A., White, P. J., Cherry, S. & Yoccoz, N. G. (2009) Elk group size and predation: a flexible strategy when faced with variable risk. *The ecology of large mammals in central Yellowstone: sixteen years of integrated field studies*. (eds. R. A. Garrott, White, P. J. & Watson, F. G. R.) Elsevier, Academic Press, California, USA.

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- Movement rates (increased; Proffitt et al. 2009)
- Winter range displacement (Madison headwaters, Gallatin Canyon; extreme wolf-elk ratios; Gower et al. 2008, Cunningham et al. 2009)

Do Wolves Affect Elk Group Sizes, Movements, or Distribution?

Elk appear to respond differently based on local conditions, habitat types, time of year, and # wolves

Conclusions

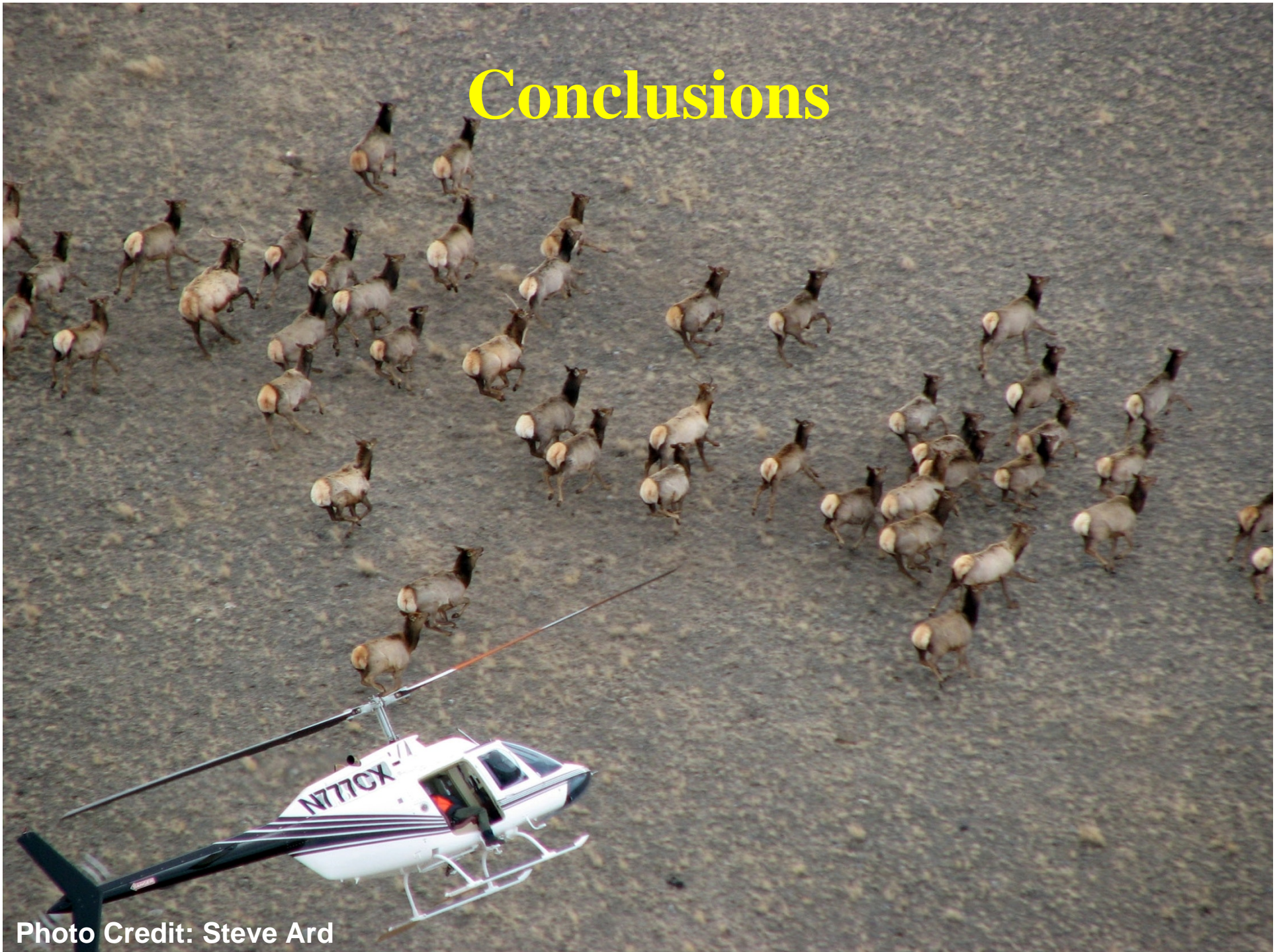


Photo Credit: Steve Ard

Different Areas, Different Ecology



C. Jourdonnais Photo

Predator-Prey Ratios are Key



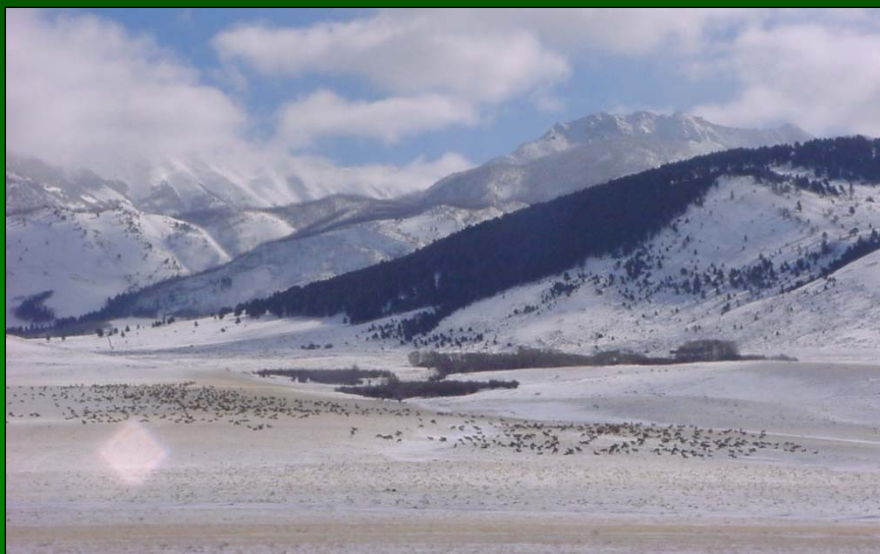
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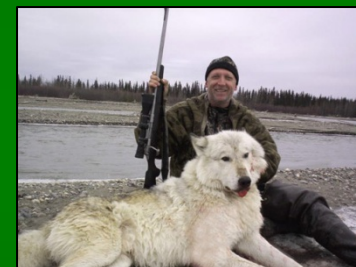
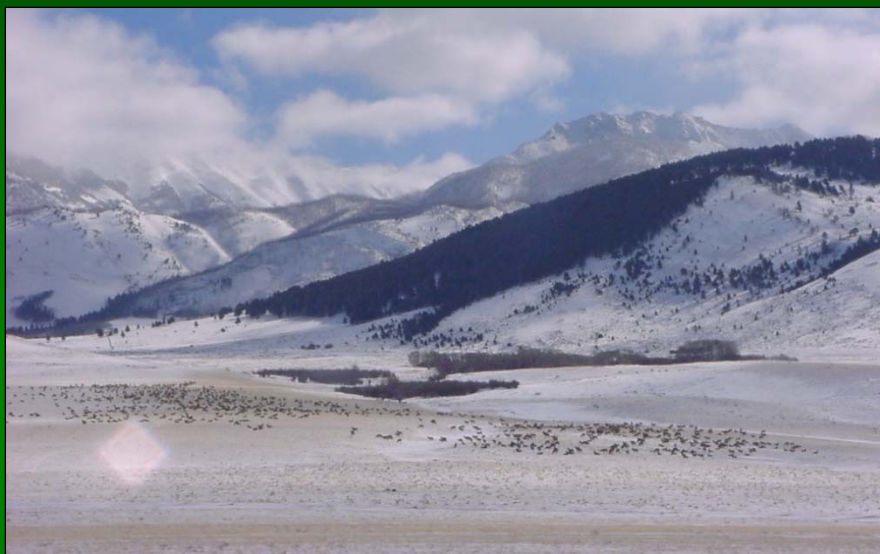


Insights for Montana's Ungulate Herds



Many herds winter in low elevation open agricultural valleys
Lower vulnerability of wolf predation
 homogeneous landscape + lower snowpack
Low wolf:elk ratio
 livestock depredations = wolf control
 wolf vulnerability to harvest?

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Impacts of Wolf Predation – Likely Modest

Insights for Montana's Ungulate Herds



- Some herds winter in forested-mountainous environments**
- Higher vulnerability to wolf predation**
 - heterogeneous landscape + higher snowpack
- Higher wolf:elk ratio**
 - less conflict with livestock production
 - wolf vulnerability to harvest?

Insights for Montana's Ungulate Herds



Some herds winter in forested-mountainous environments

Higher vulnerability to wolf predation

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Higher wolf:elk ratio

less conflict with livestock production

wolf vulnerability to harvest?

Impacts of Wolf Predation – Perhaps Substantial

Other Factors Matter, Too



More information at:

<http://fwp.mt.gov/wildthings/wolf/game.html>