

Dall's sheep research in the Chugach Range, GMUs 13D and 14C



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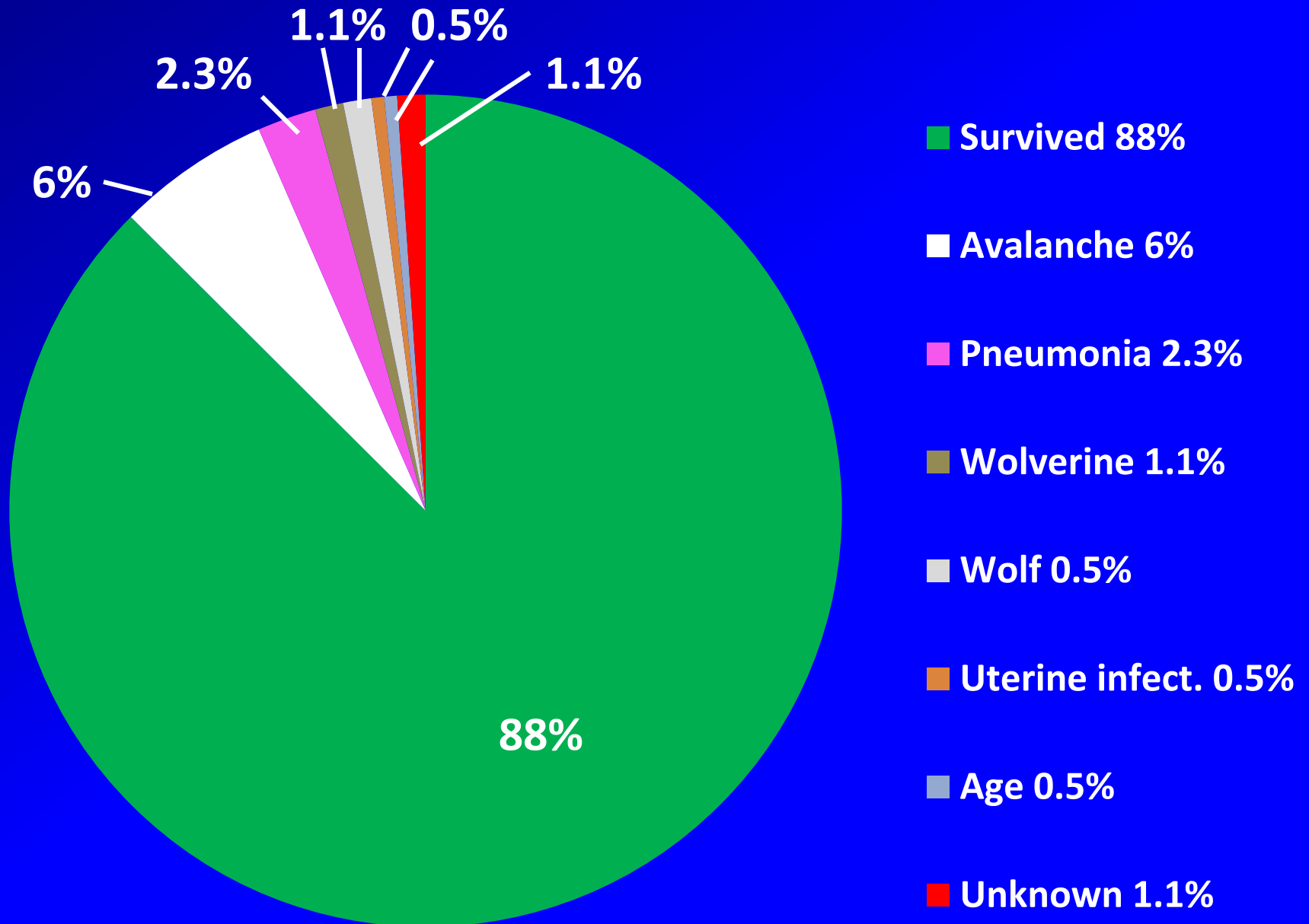
Ewe mortality – 13D

22 mortalities 3/2009-2/2014

183 sheep – years of data

≈12.0 % adult mortality/year

Fate of GMU 13D adult ewes 2009-2014



Lamb survival rates – 13D

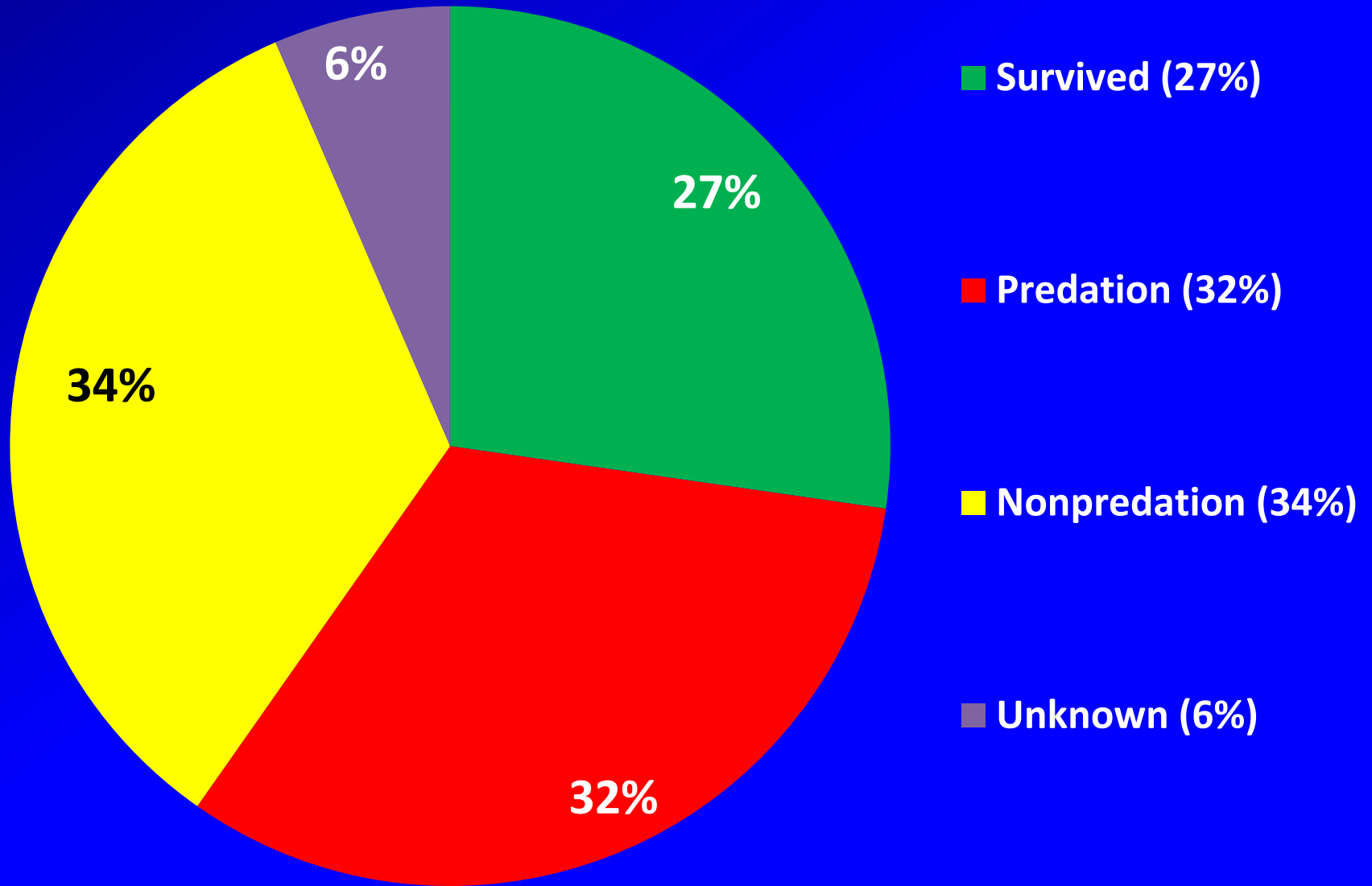
8/19 (42%) 2009 lambs survived to one year

2/21 (9%) 2010 lambs survived

4/26 (15%) 2011 lambs survived

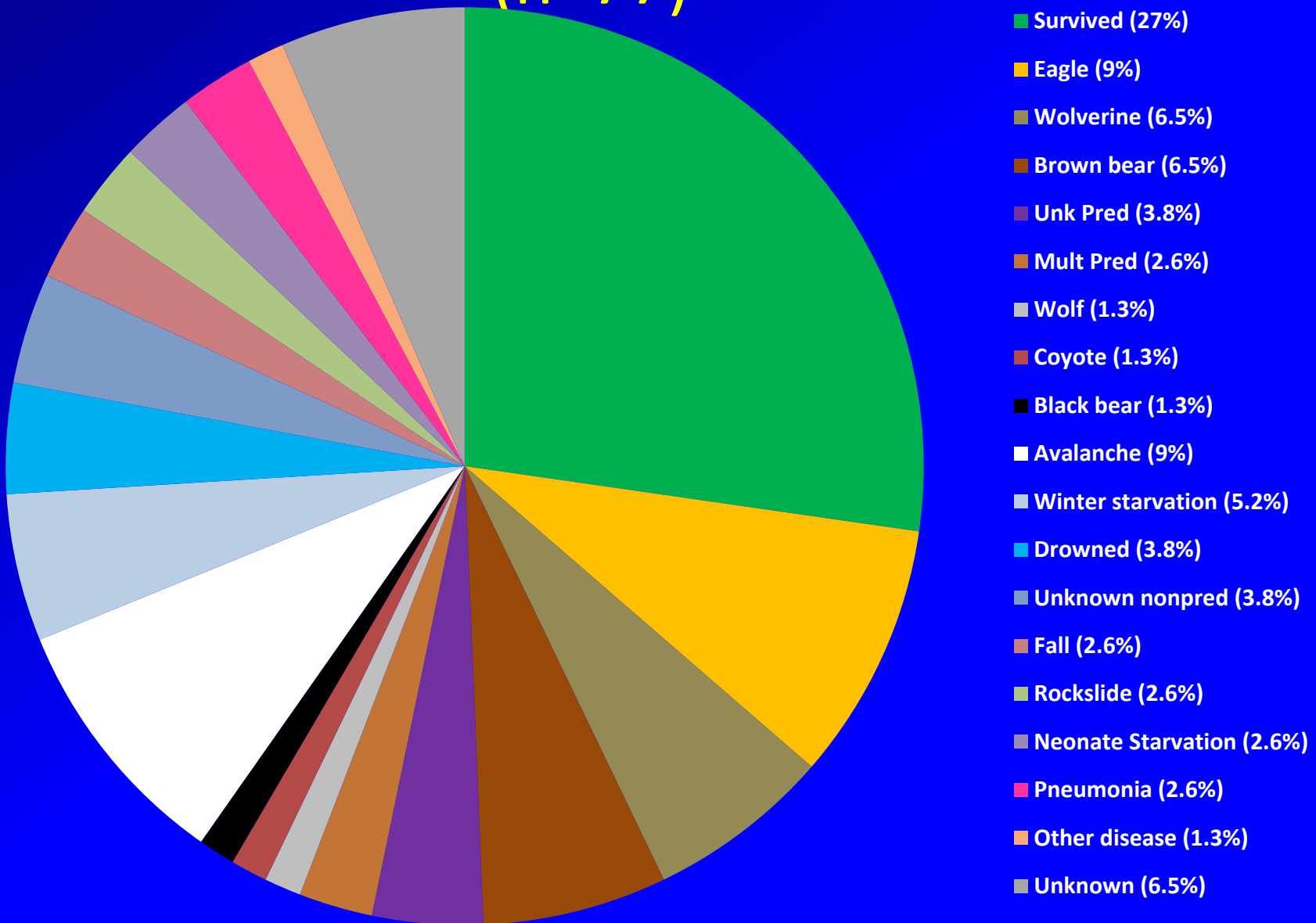
7/11 (63%) 2012 lambs survived

GMU 13D - Fate of 2009-2012 lambs (n=77)



GMU 13D - Fate of 2009-2012 lambs

(n=77)



Summary - GMU 13D

Annual adult survival rate \approx 87.5%

AK range 1999-2003 = 76-91% (Arthur 2003)

Brooks 2009-2011 = 77-88% (Arthur 2012)

16% adult mortality due to predation

84% adult mortality to nonpredation

AK range 1999-2003 = 100% adult mortality to predation

Brooks 2009-2011 = 100% adult mortality to predation

(Arthur 2003; Arthur 2012)

Summary - GMU 13D

Lamb survival to 1 year 2009-2012 \approx 42%, 9%, 15%, 63% respectively (27% average)

AK range 1999-2003 = 12%, 23%, 16%, 36% (Arthur 2003)

Brooks 2009-2011 = 68%, 48%, 28% (Arthur 2012)

44% of lamb mortality due to predation (25/56 lamb deaths caused by predators)

AK range 1999-2003 = 90% (Arthur 2012)

Brooks 2009-2011 = 72% (Arthur 2012)

56% of Chugach lamb deaths were not caused by predators

Conclusions - GMU 13D

Predation -Accounts for only 1/7.5 adult, 1/2 lamb deaths

Low percentage, and broad distribution across predator species suggests population is not predation limited

Disease - Low presence/prevalence major wildlife diseases

Disease does not have population-level effects

Some animals succumb to pneumonia (additional stressors?) but overall, disease not a major factor

Conclusions - GMU 13D

Annual pregnancy rates in 4 of 6 years (62%, 88%, 66%, 21%, 91%, and 18%) lower than observed in other populations

Low pregnancy rates along with poor body condition strongly suggests nutrition/habitat/weather issue

Final steps

Project slated to end after current year --
it's time to ask new questions

Finish analyses:

- Long term reproductive history

- Weather/limited winter range due to
snow/ice?

 - Satellite imagery

 - Temperature records

- Trace mineral levels and blood chemistry

Future Research

Empirical support for FC harvest?

Rates and causes of mortality, 2-8 years old

Movement and dispersal

Energetics during rut, compare heavily and lightly harvested areas

Do weather changes affect sheep and/or habitat?

Warmer and wetter winters

Vegetation community changes and treeline advancing (Dial et al 2007)

Thanks !

Mike Harrington, Becky Schwanke, Tony Kavalok,
Thomas McDonough, Chris Brockman,
Kyle Smith, Cory Stantorf, Brianne Boan, Wade Schock

Mike Meekin, Mike Litzen, Matt Keller, Mark Shelton,
David Rivers, Tommy Levanger, Chris Jordan, Troy Cambier,
Joe Fieldman

