

<https://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/swf/2025-2026/se/index.html?mediaBasePath=/Meeting%2001-23-26%20%28Jan-23-26%205-23-16%20PM%29#>

Region I Predator-Prey Research



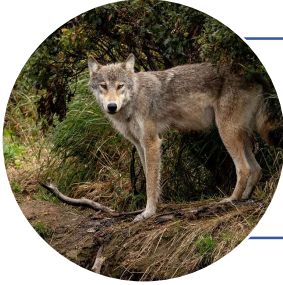
Board of Game Meeting Wrangell, AK January 23, 2026





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Wolf Research in Southeast Alaska – Region I

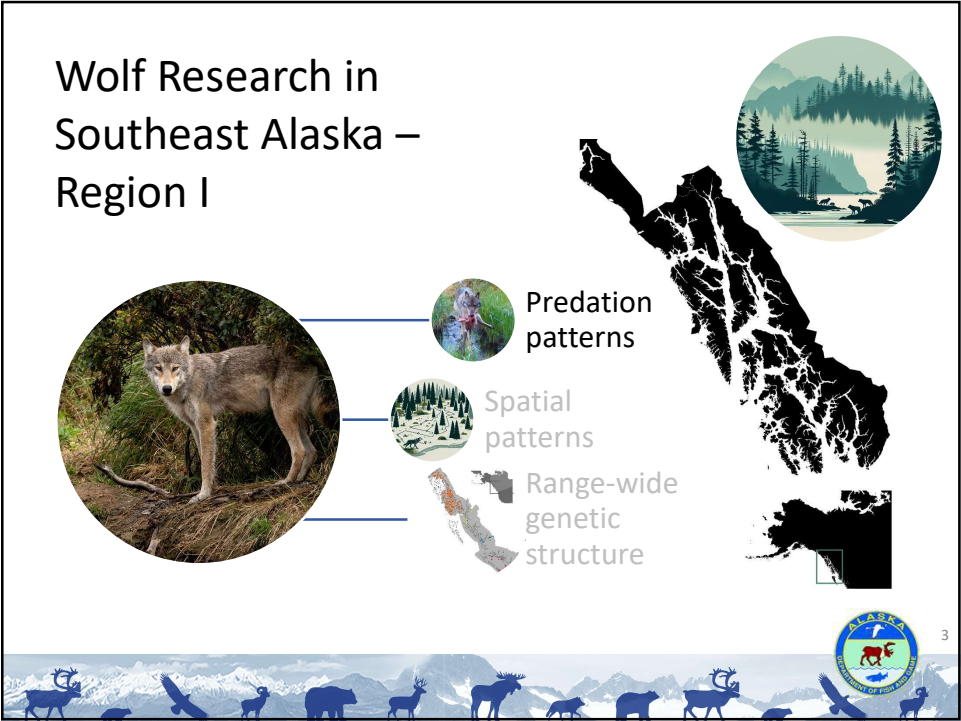


-  Predation patterns
-  Spatial patterns
-  Range-wide genetic structure

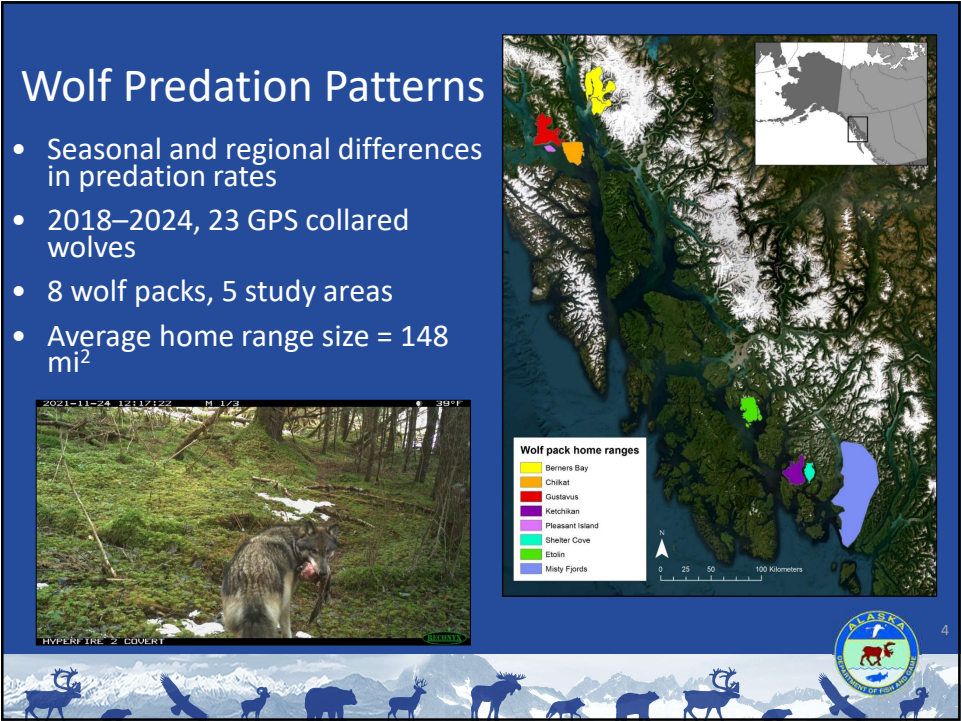




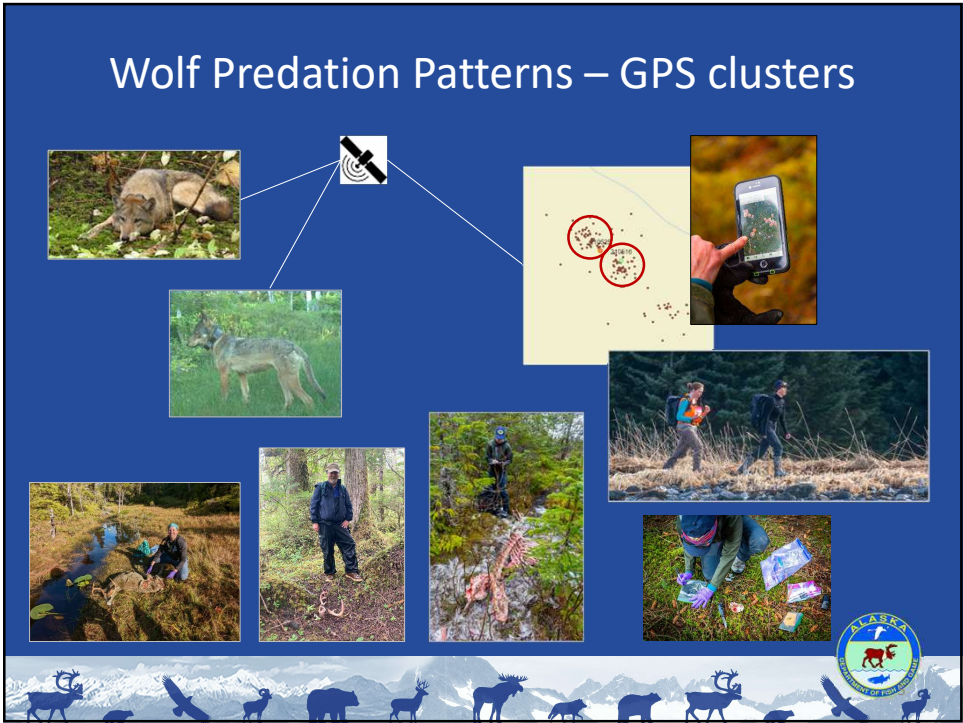
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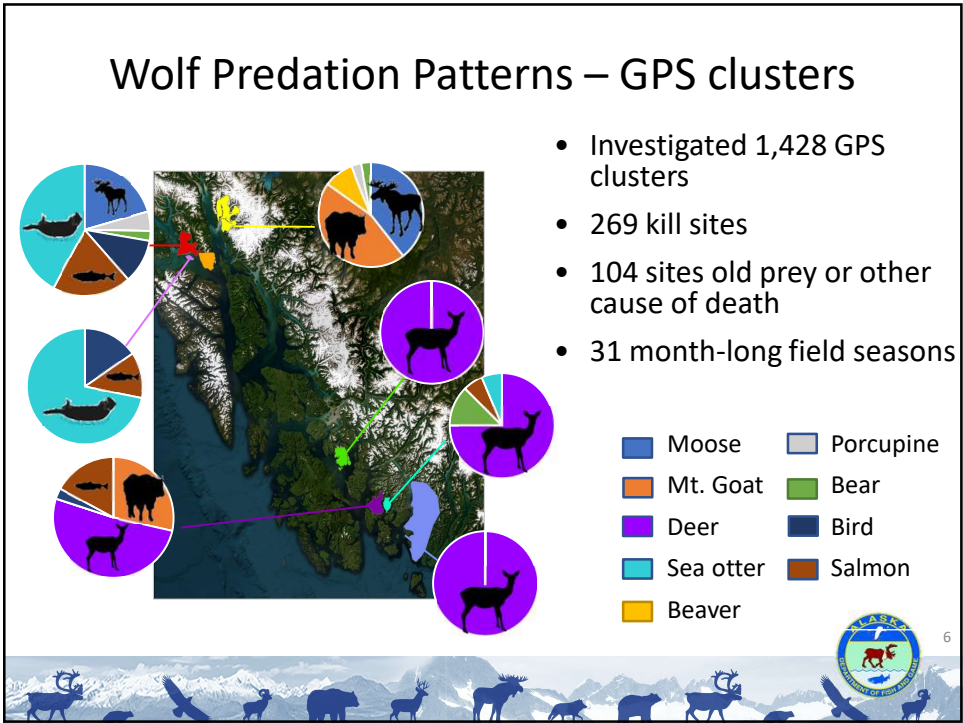
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Wolf Predation Patterns – Scat Analysis



- DNA from wolf scat to identify prey species
- Detects rare prey more accurately
- 860 scats, 2010–2018

Oregon State

UNIVERSITY

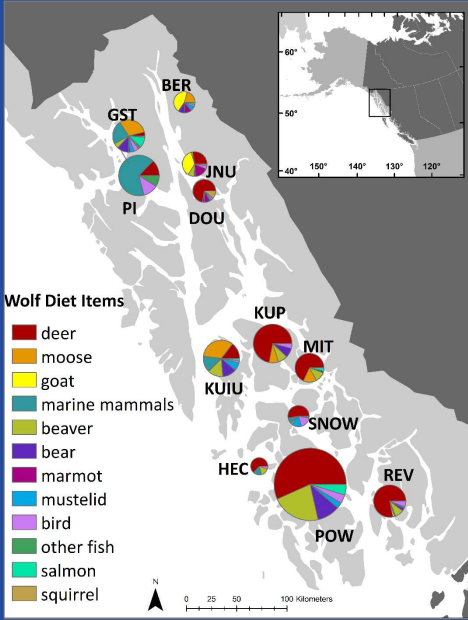
OSU





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Wolf Predation Patterns – Scat Analysis



- 55 prey species
- Ungulates are main prey
- Beaver, black bears, and marine mammals are important alternate prey

Roffler, G.H., et al. 2021. Ecosphere. 12:e03297.





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Wolf Predation Patterns

- Sea otters subsidize wolves
- 76 wolf-killed sea otters in Gustavus and Pleasant Island
- Sea otters in ~20% of wolf scats in Glacier Bay, Katmai coast, and outer islands of Prince of Wales Island

Roffler, G.H., et al. 2023. PNAS. 5(120):e2209037120;
Eriksson, C.E. et al. 2024. Ecology and Evolution. 14(4):11266

Wolf scats containing sea otters

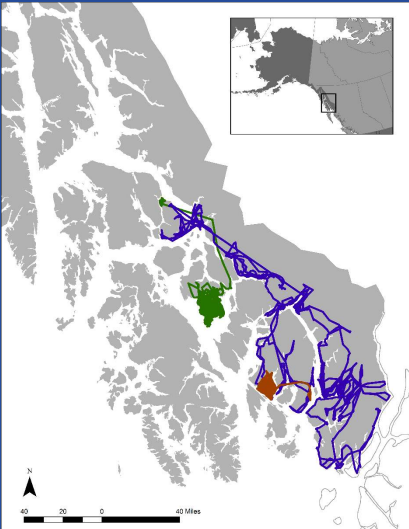
Wolf Research in Southeast Alaska – Region I

- Predation patterns
- Spatial patterns
- Range-wide genetic structure

Wolf Spatial Patterns

Dispersal

- 5 out of 23 wolves dispersed
- Dispersal distances = 30–2,025 miles
- Dispersal duration = 5 days–1 year
- Water crossings = 0.5–4 miles
- Wolf fates = killed by other wolves, trapped, settled with pack



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Wolf Spatial Patterns

- How does logging and changes in forest vegetation affect where and how fast wolves travel?
- GPS collared wolves – GMU 2
- Wolves select and move faster through open habitats
- These areas are also where deer are more exposed and at higher risk of predation.
- Wolf selection of roads and old vs. young forest varied by individual

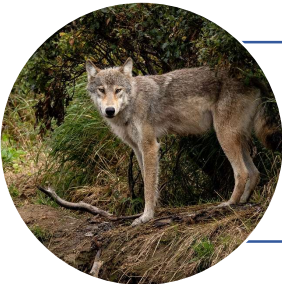


Gregovich et al. 2025, Oecologia, 207(3):40

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Wolf Research in Southeast Alaska – Region I



Predation patterns



Spatial patterns



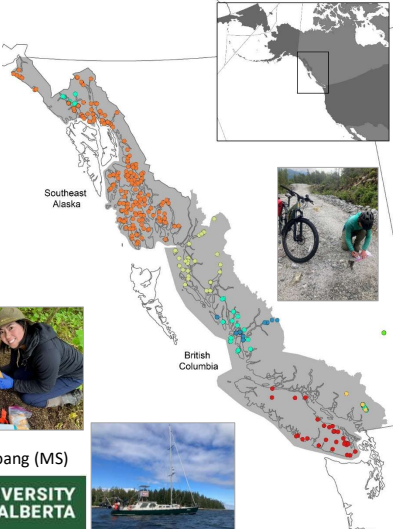
Range-wide genetic structure



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Range-wide Genetic Structure

- Wolf range = ~85,000 miles², 900 miles north to south
- Is there gene flow across the border?
- Differences in genetic diversity between AK and BC?
- 1,551 samples collected
- 453 genotypes, 319 wolves



Michelle Hoang (MS)



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Wolf Research on Prince of Wales Island – GMU 2

Focal area of management concern

- History of logging and habitat change
- ESA and other legal challenges





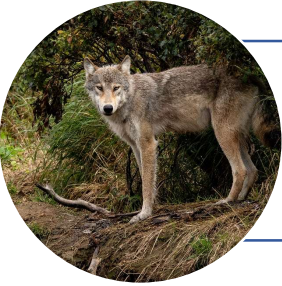
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Wolf Research on Prince of Wales Island – GMU 2

PAST: How past events shaped the wolf population

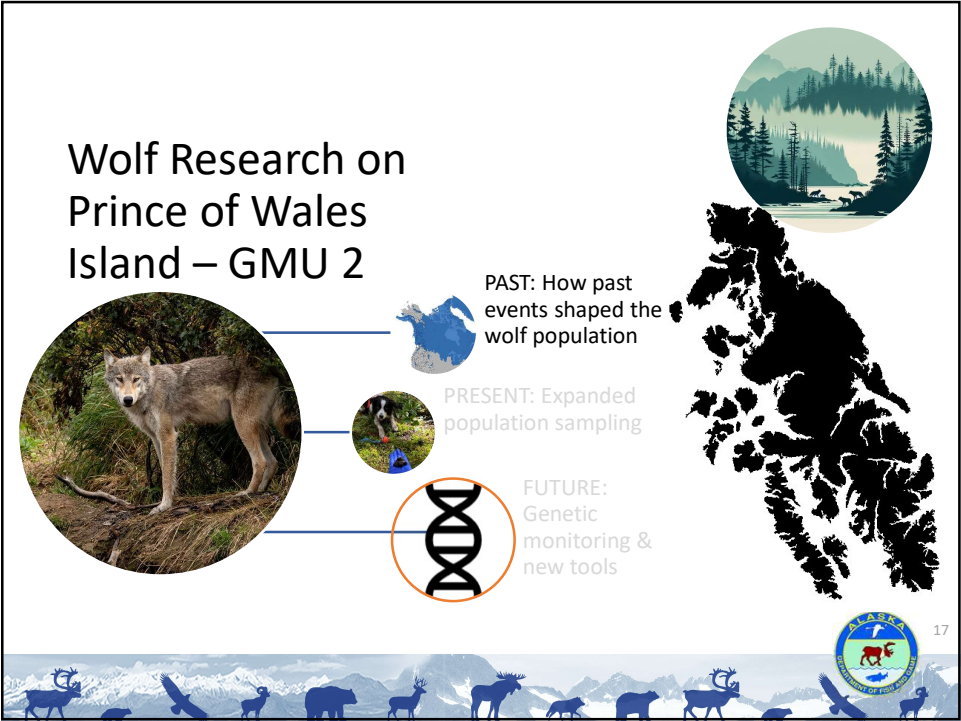
PRESENT: Expanded population sampling

FUTURE: Genetic monitoring & new tools

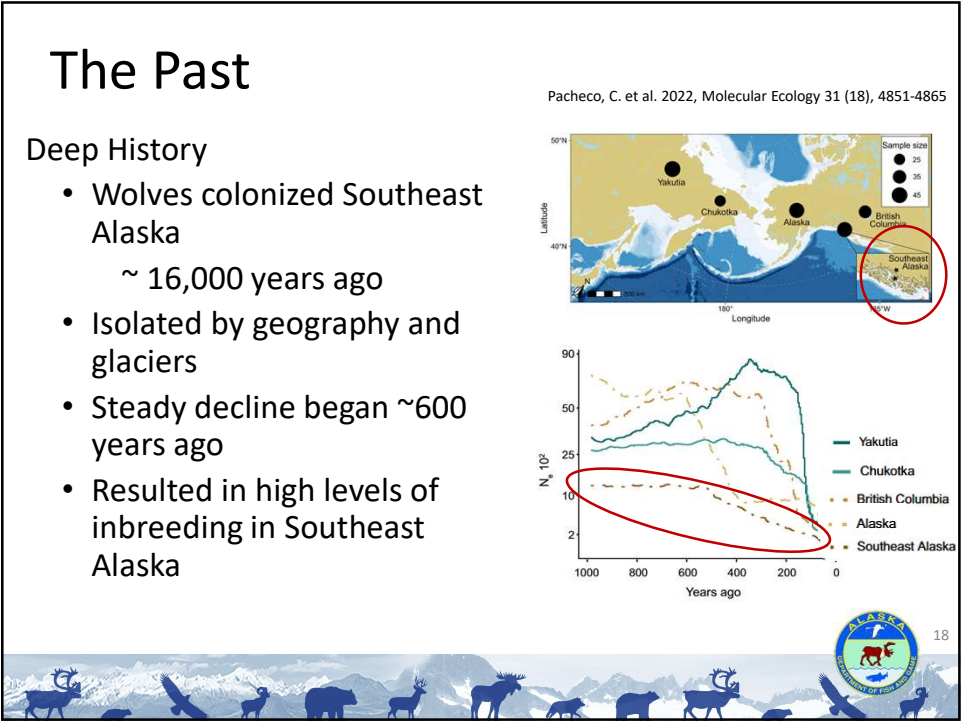




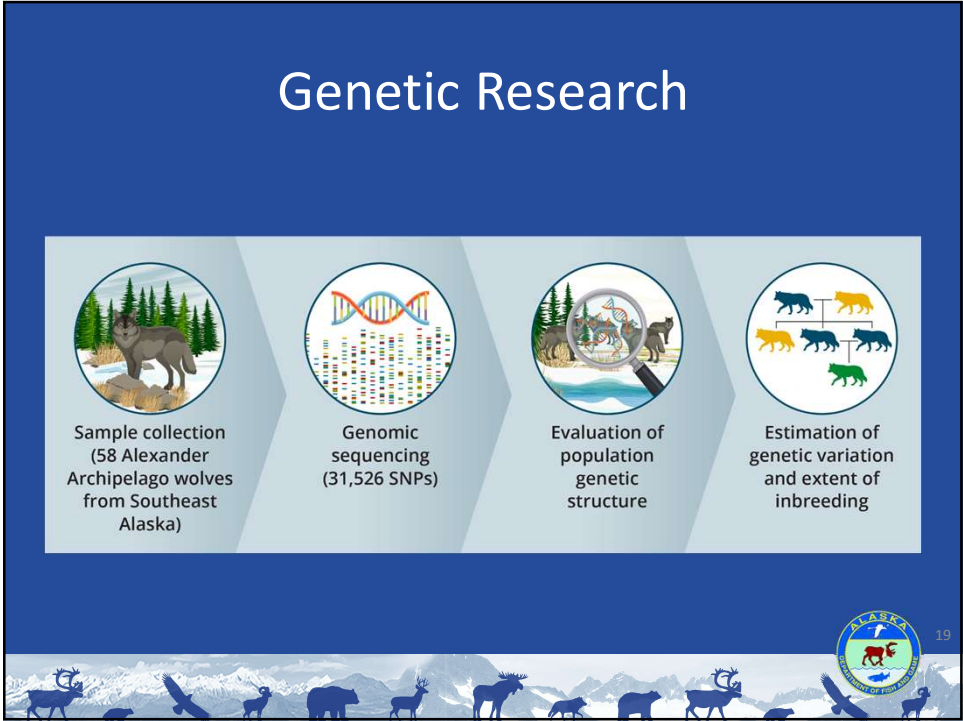
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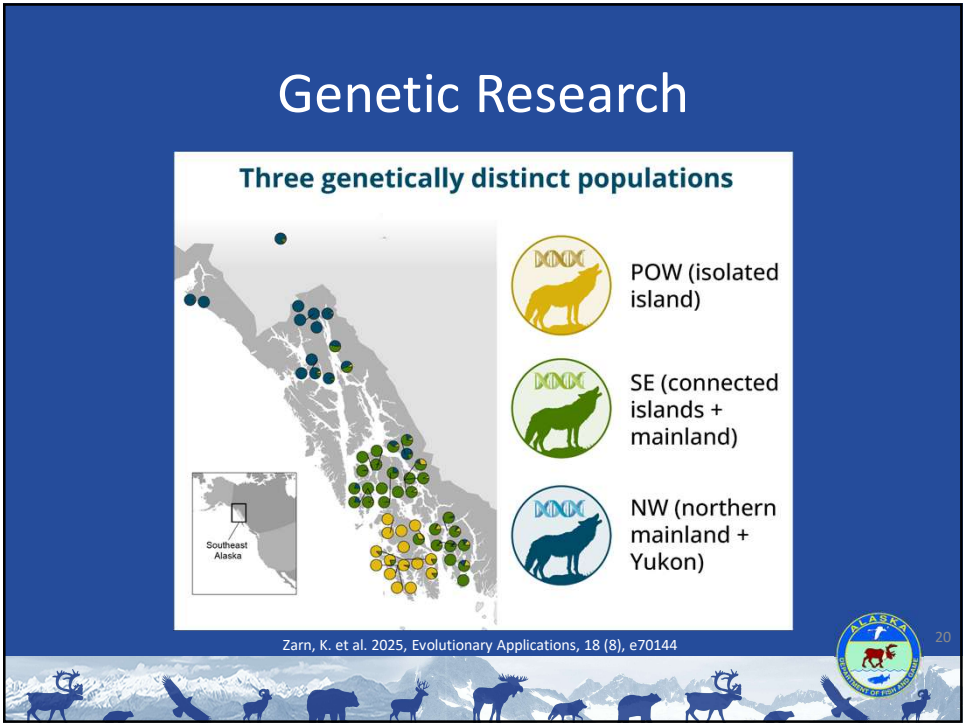
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Genetic Research

POW wolves



- Isolated and genetically distinct
- Genetic diversity
- Inbreeding ($F_{ROH} = 0.39$)



- Long-term population decline
- High bottleneck in the 1970s



Only one immigrant detected, indicating rare gene flow



Increase in inbreeding after the bottleneck

Zarn, K. et al. 2025, Evolutionary Applications, 18 (8), e70144

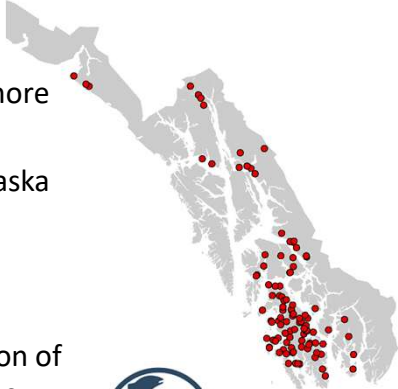


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Genetic Research – Next Steps

Expanded genetic markers

- Whole genome sequencing – more information
- Sequencing more Southeast Alaska wolves
- Changes in population size and migration patterns over time
- History of isolation or connection of island and mainland wolf groups
- Whether inbreeding could reduce wolf fitness



National Genomics Center
— FOR WILDLIFE AND FISH CONSERVATION —



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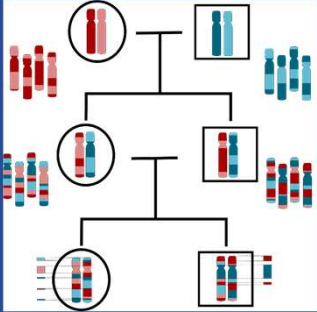
Genetic Research – Next Steps

Inbreeding

- Could lead to inbreeding depression (negative fitness effects)
- Difficult to measure in wild populations
- Research to measure genetic load

Management considerations

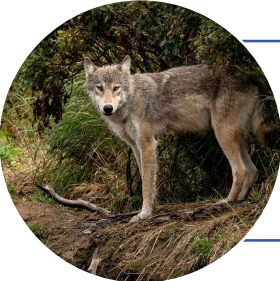
- What does success look like?
- Establish monitoring programs to assess success of management actions



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Wolf Research on Prince of Wales Island – GMU 2



PAST: How past events shaped the wolf population

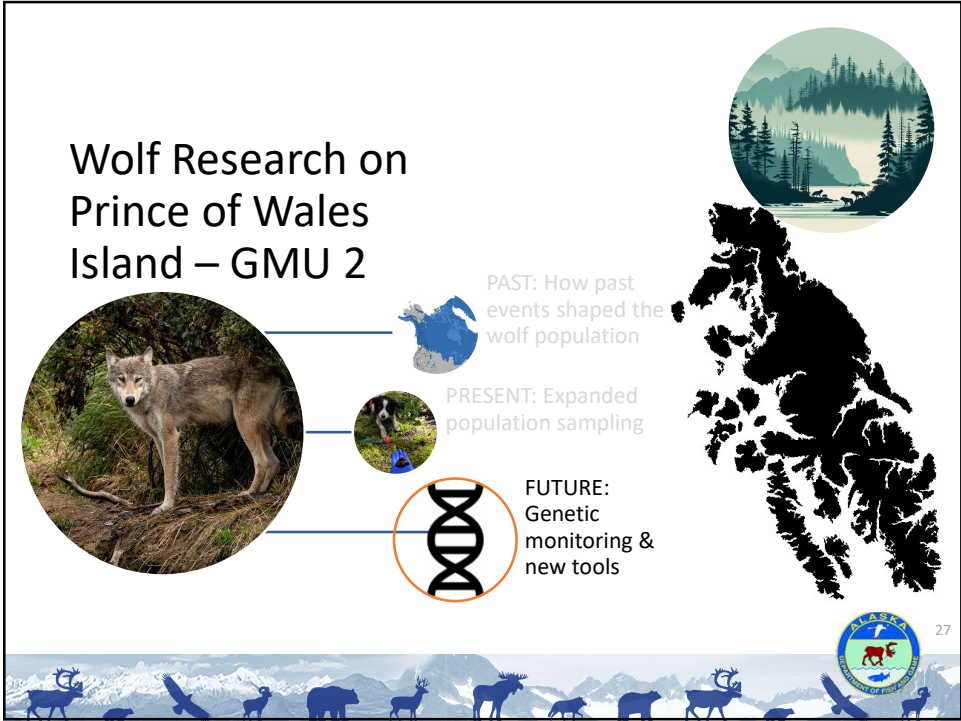
PRESENT: Expanded population sampling

FUTURE: Genetic monitoring & new tools

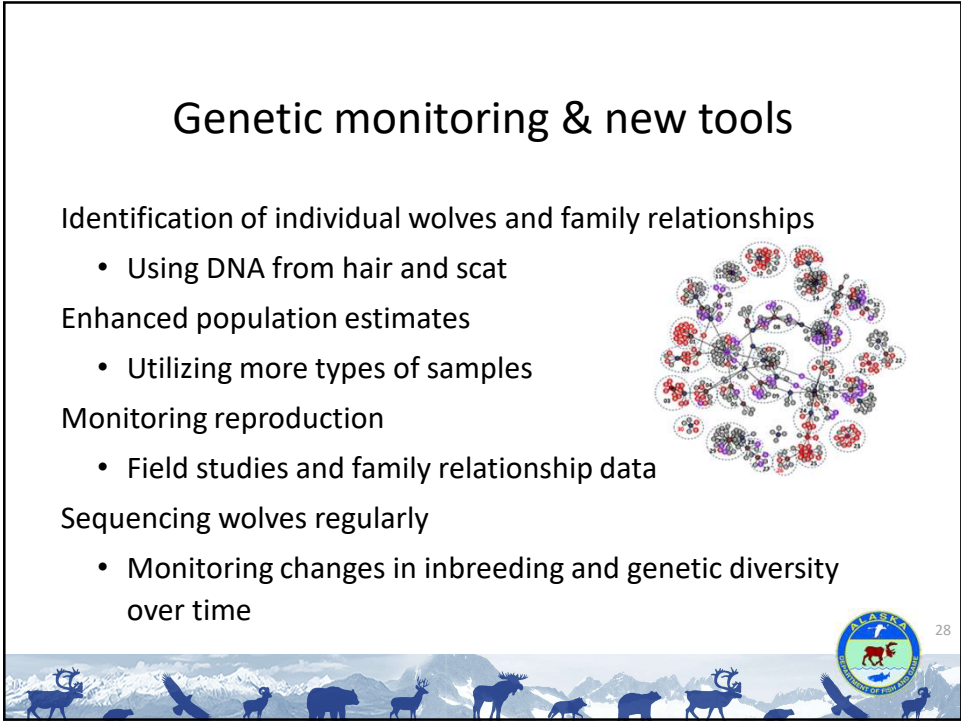
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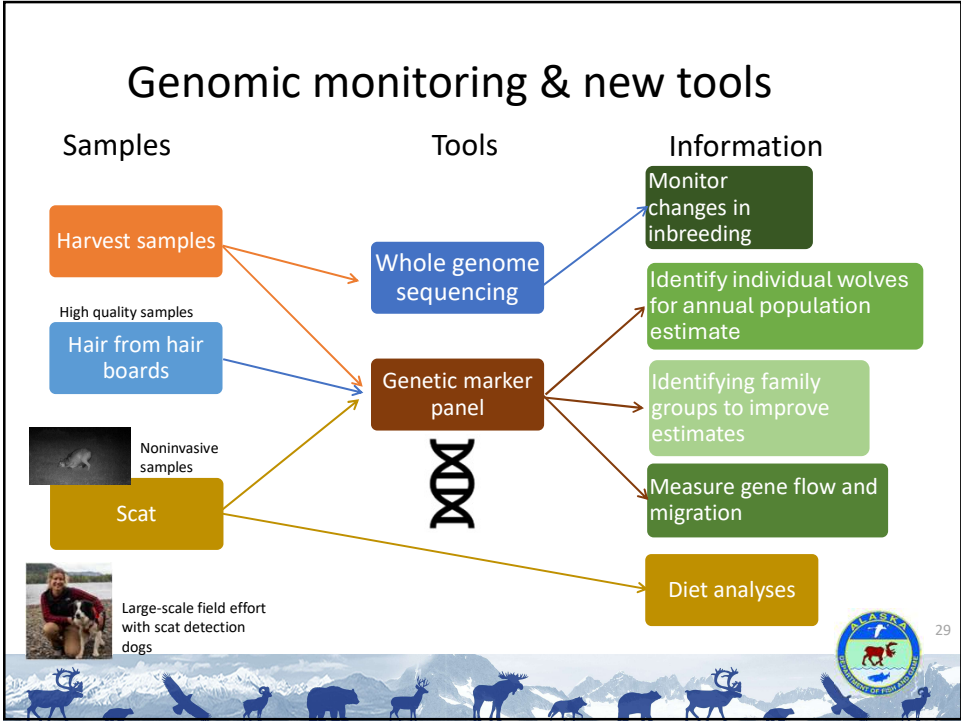
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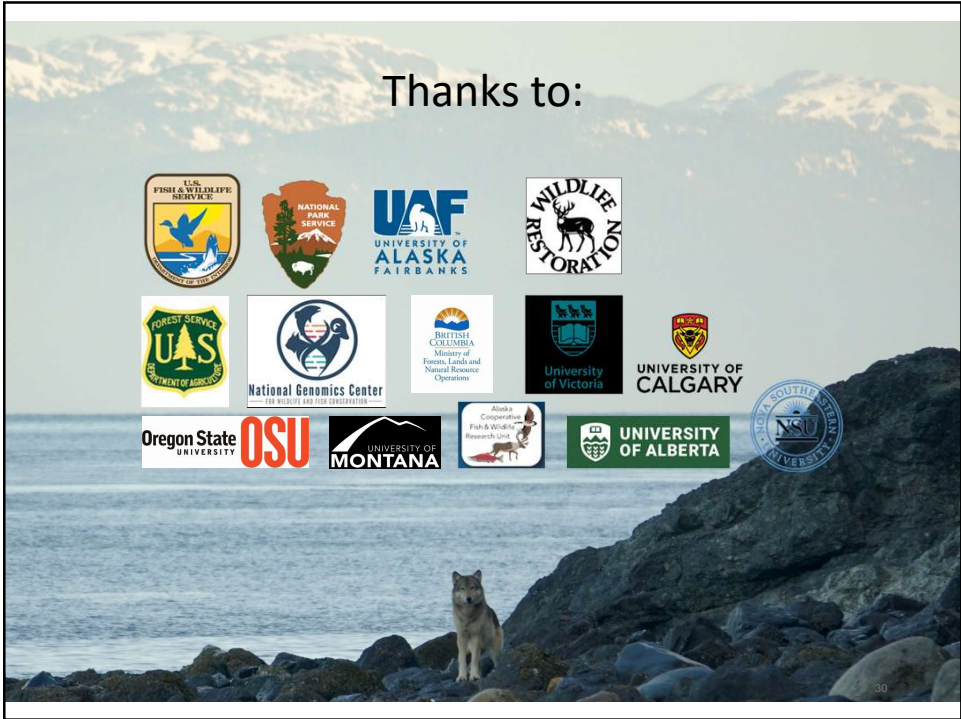
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