

# *Wolverine Update*

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# *Wolverine Update*

- Wolverine Biology
- Technical Aspects of Reintroduction
- SB24-171
- 10(j) Designation



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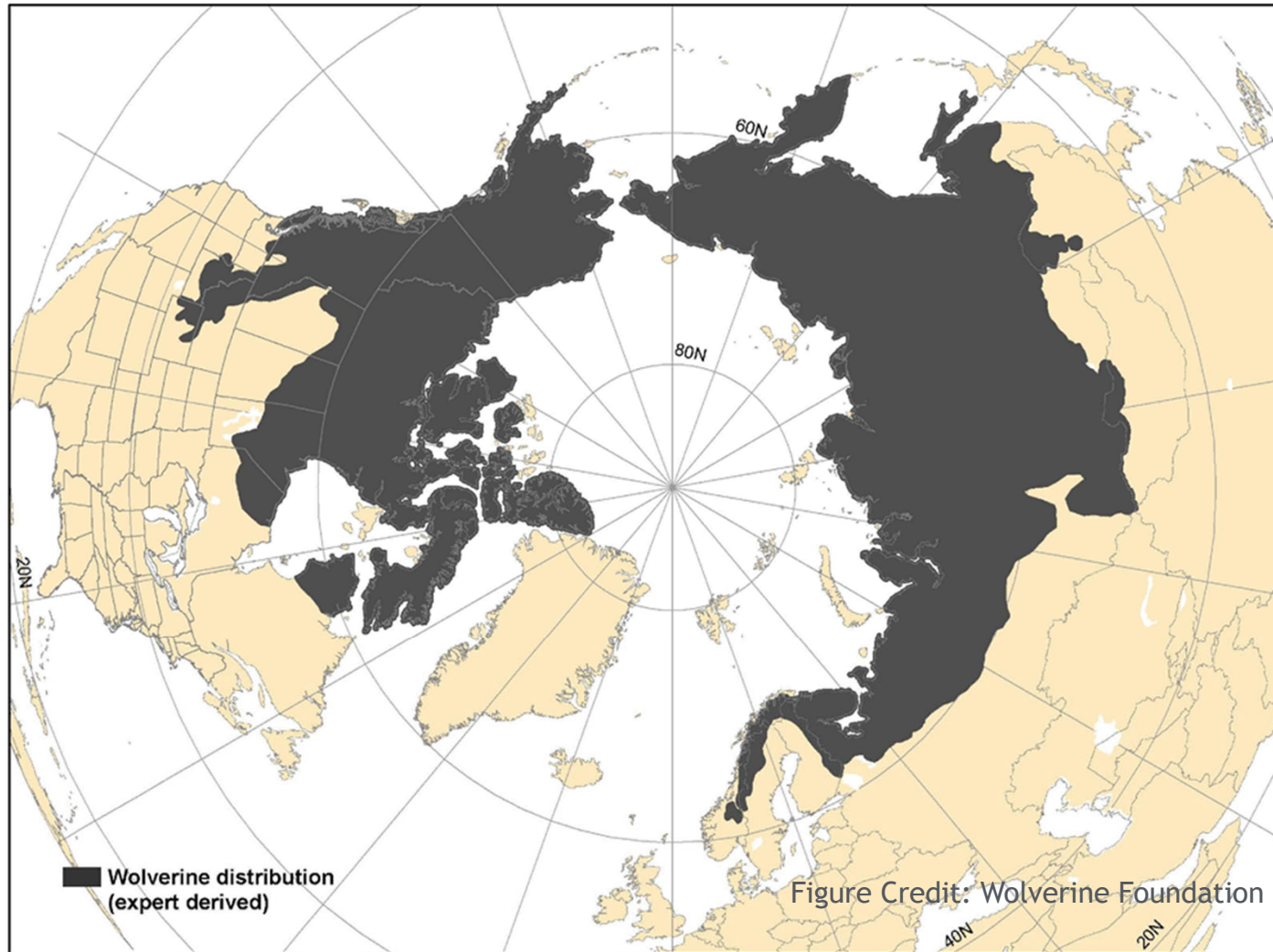
# *Wolverine Biology*

- World's largest terrestrial weasel (15-40lbs)
- Solitary, large territory (20X bobcats & coyotes) (8X lynx)



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# *Wolverine Biology*



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# *Wolverine Biology*

- Well-adapted to cold, snowy environments
  - Food Storage
  - Denning



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# *Wolverine Biology*

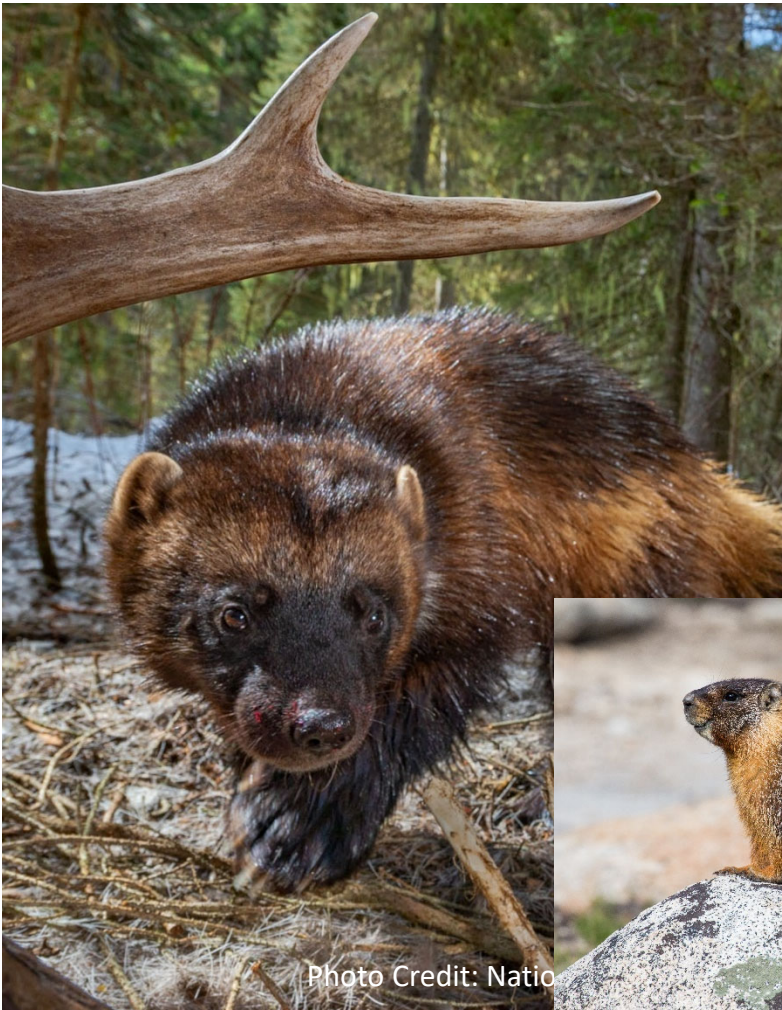


Photo Credit: National Geographic



Photo Credit: Canadian Geographic



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# *Wolverine Biology*

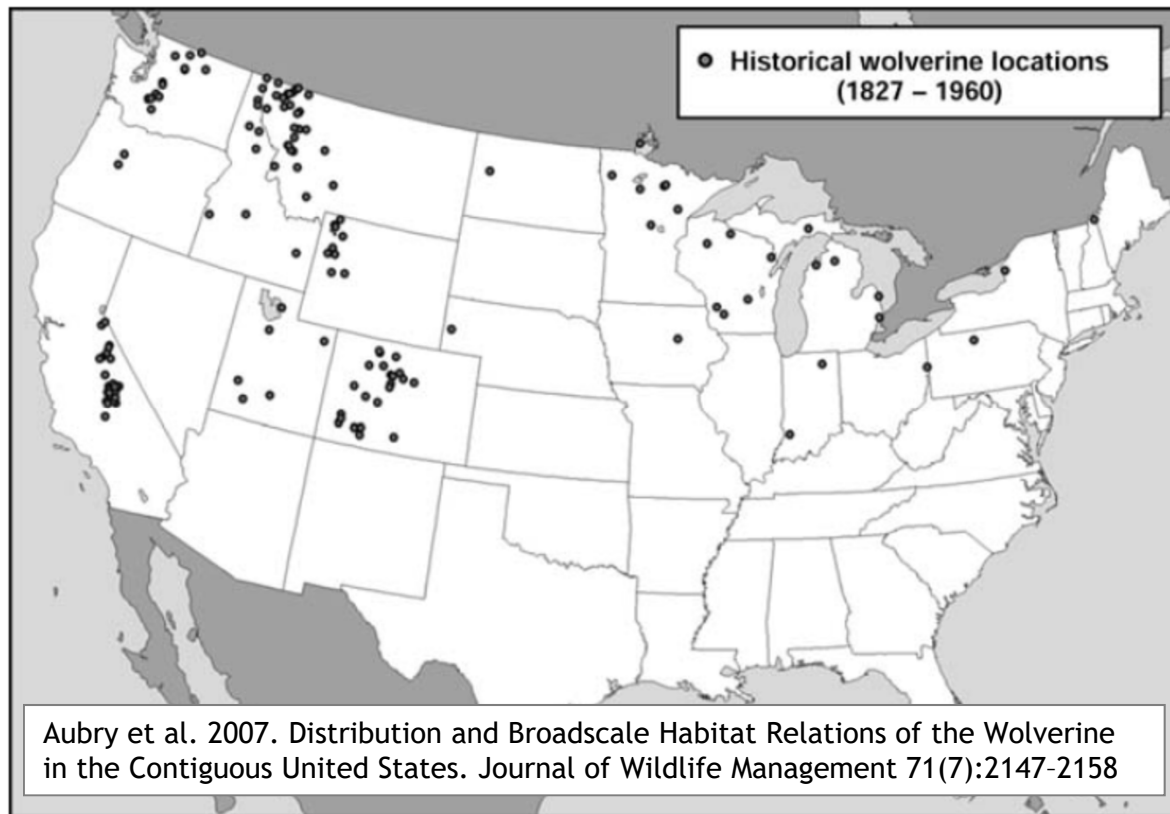
- Breed during summer → delayed implantation → Births occur in Feb/Mar
- Litters = 2-4; every other year
- Females establish next to Mom



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# *History in Colorado*

- This species occurred historically in Colorado



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# *History in Colorado*

- This species occurred historically in Colorado
- Extirpated ~1919  
(unregulated trapping + predator poisoning)
- State Endangered (1973)
- 12 surveys (1979-1996)
  - No confirmed presence

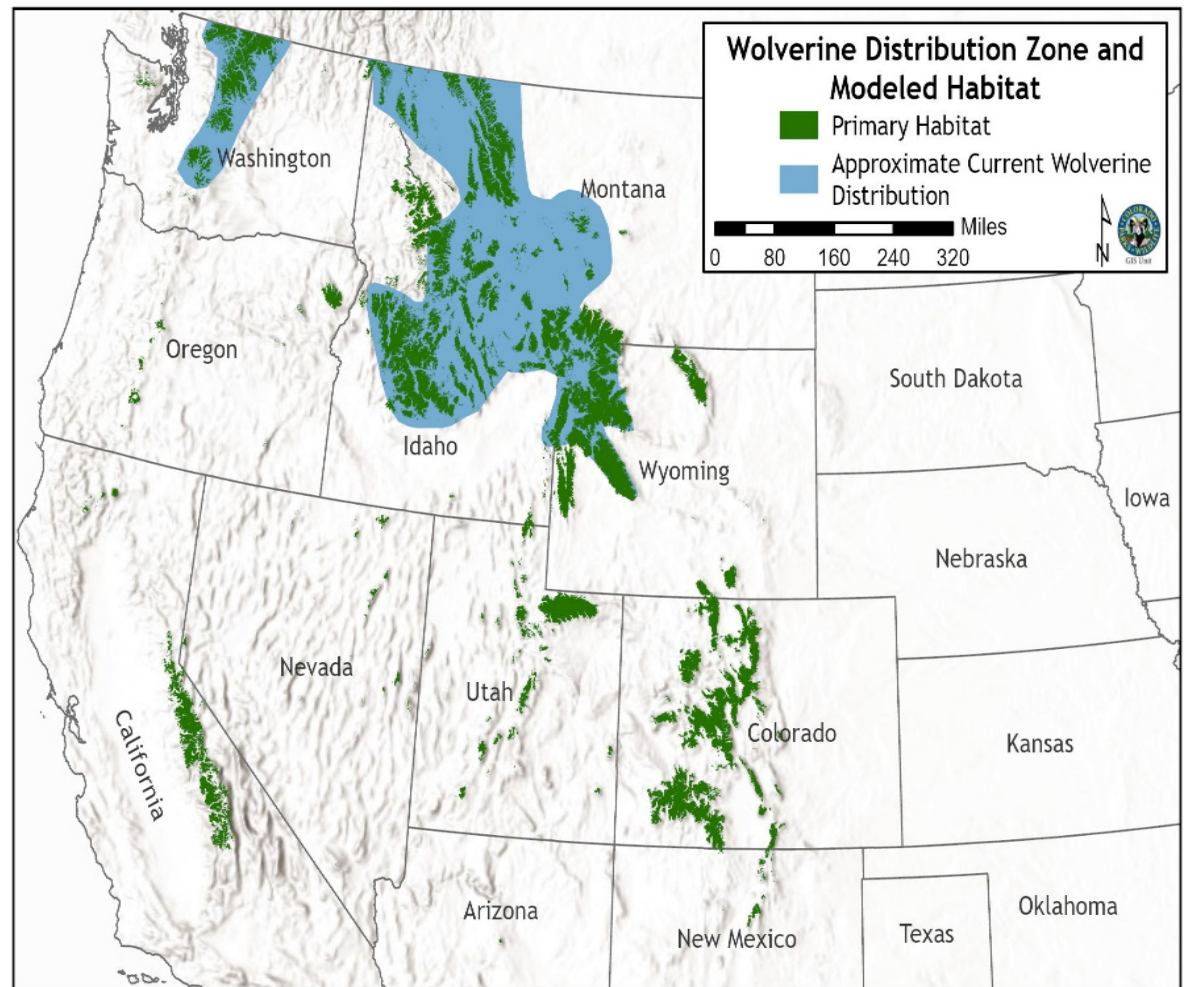
Aubry et al. 2007. *Journal of Wildlife Management* 71(7):2147-2158



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# Modeled Wolverine Habitat

- Colorado = largest remaining block of unoccupied habitat
- ~20% of estimated capacity of the western U.S.
- Isolated from other blocks of occupied habitat



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# *How Many in Colorado?*



~140 (Range = 100 to 180)

Credit: William Wood



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# *Benefits of Wolverines in CO*

- Restore a native species to its historical range
- Increase wolverine population size in the lower 48, potentially by 20% or more
  - Improve Redundancy, Resilience, Representation
  - Improve genetic diversity in lower 48
- Establish a population in a potential climate refugium
  - Colorado high country is projected to weather climate change better than other parts of current range



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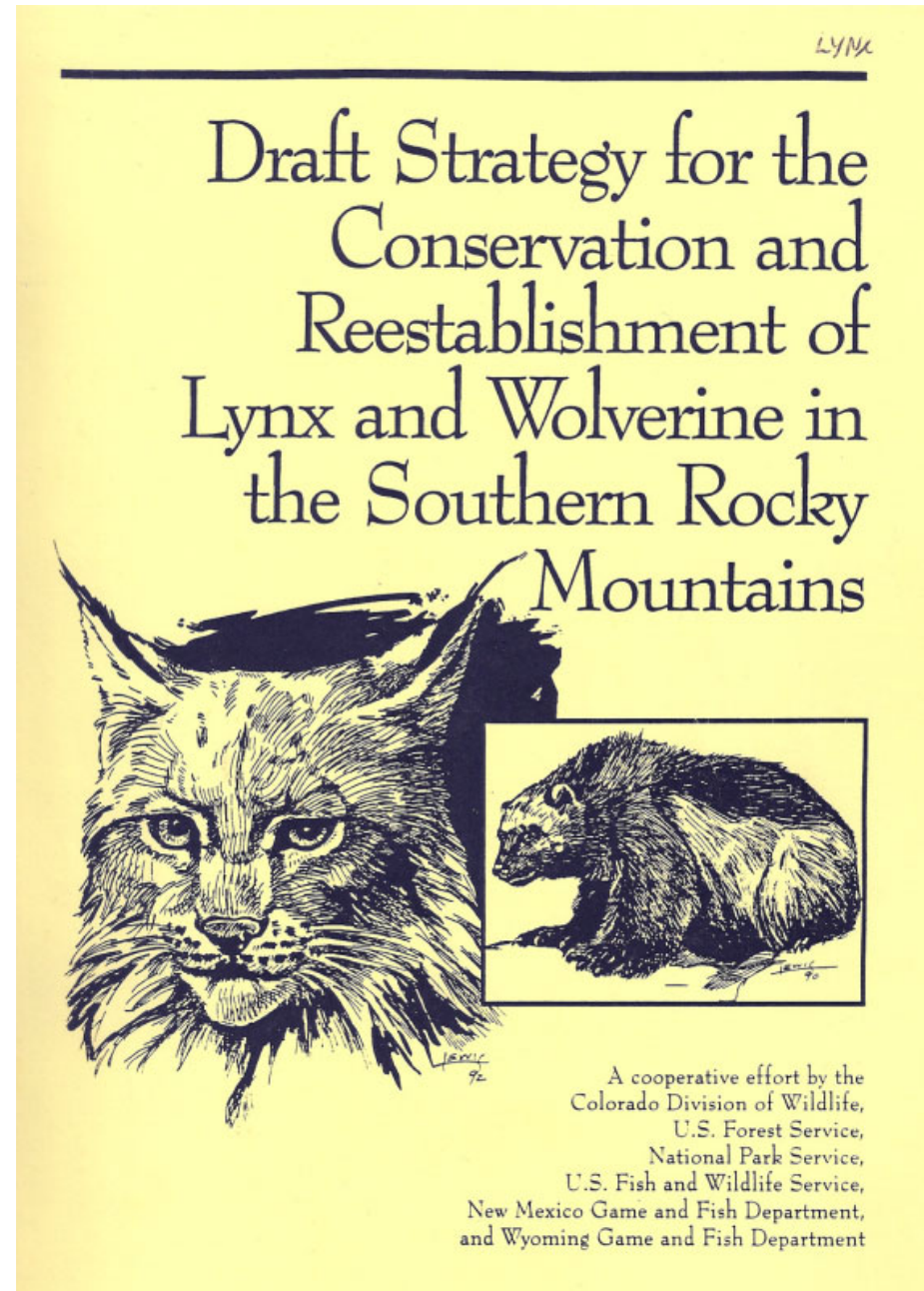
# *Technical Aspects of Reintroduction*



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# January 1998

- Multi-agency draft strategy
- CDOW ultimate elected to conduct lynx restoration only



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# Restoration of Wolverines: Considerations for Translocation and Post-release Monitoring

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# *Population Viability Analysis*

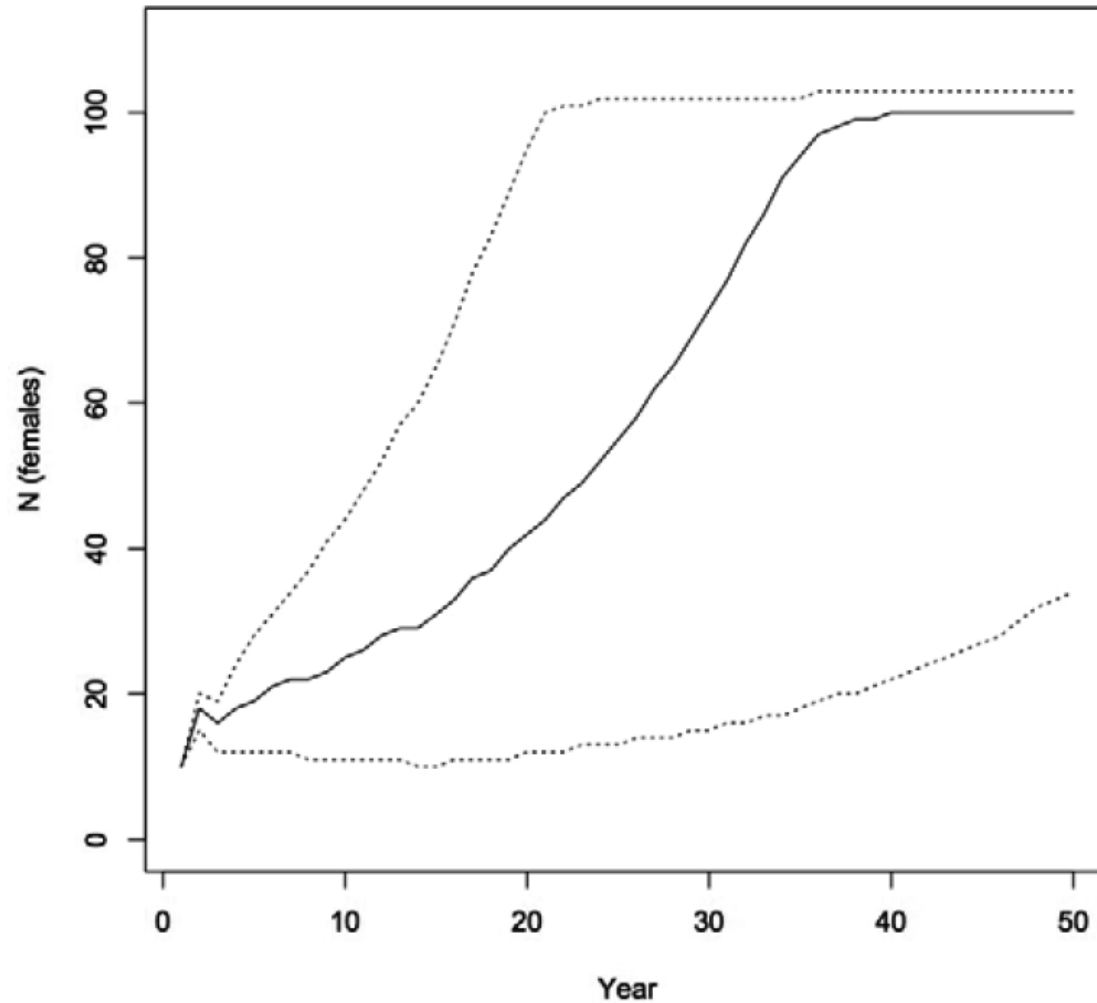
- Translocate ~20% of capacity
- PVA assuming 30 total individuals (20 females, 10 males)
- Assume vital rates (survival, productivity) from Sweden
- Account for random events that could impact vital rates



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# Population Viability Analysis



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# Numbers?

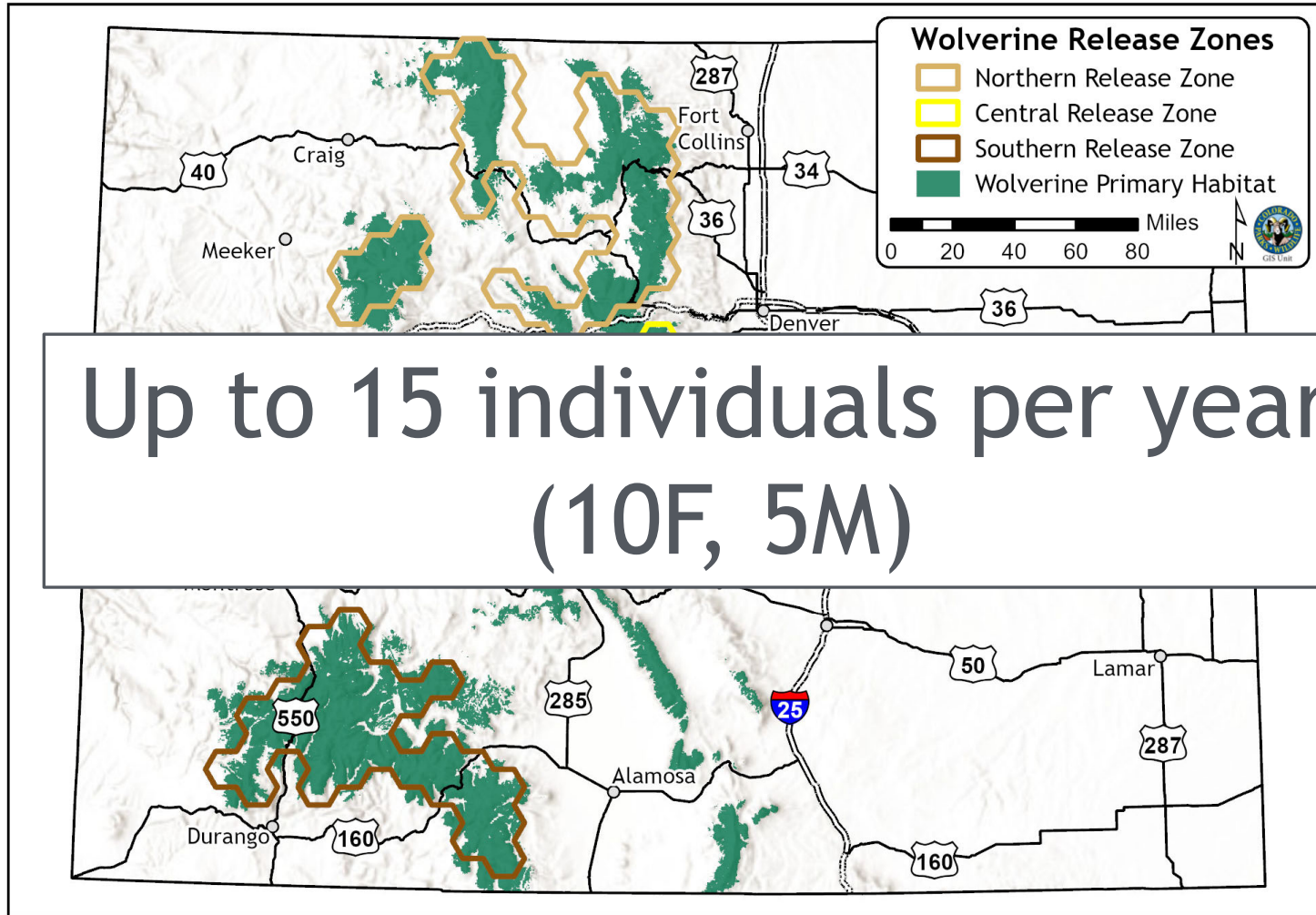


- PVA suggested 30 individuals (20F, 10M) introduced over 2 years will suffice
- We suggest targeting 45 individuals (30F, 15M) over 3 years, if possible
- Insurance in case assumed vital rates don't match CO or other unanticipated issues arise



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# Territory Hexagons (Female)



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# *Mechanics*

- Leverage trapping seasons/trappers in source states or provinces (November - January)
- Bring individuals to Colorado and hold at Frisco Creek Wildlife Rehabilitation Center
  - Exams, treatments, GPS collars
  - Determine pregnancy status & due date, if possible
  - Acclimate & well-nourished
  - Pair males & females



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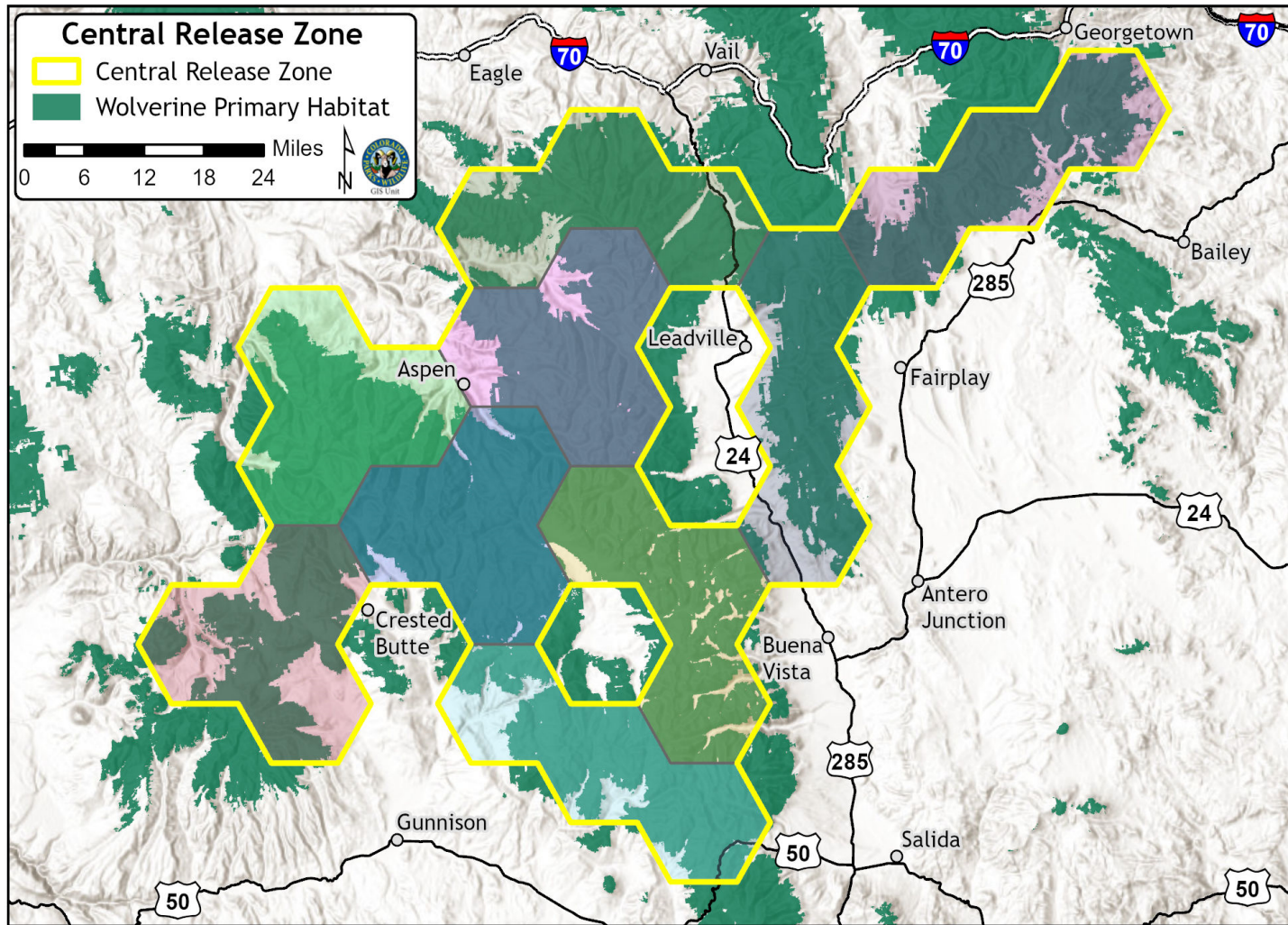
# *Mechanics*

- Males & non-pregnant females can be released after sufficient time at Frisco Creek
- 1 female per 900-km<sup>2</sup> Release Unit; male(s) released “in between” every 2 females
- Ideally individuals released into prepared dens in snow; provisioned regularly as needed
- Pregnant females will be held longer if possible
- If possible, pregnant females will be released away from settled males to minimize infanticide → WELL provisioned



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# Release Zone (e.g., Central)



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# Source Populations

- Ecological Similarity
  - Landscape (mountains & trees vs. tundra)
  - Mortality sources (cougars present or absent)
  - Food sources (marmots present or not)
- Genetics
  - Genetic Diversity (i.e., heterozygosity)
- Political & logistical considerations (not yet evaluated)

Credit: William Wood



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# Benchmarks

- Establishment Phase (~Years 1–3, or longer)
  - A minimum of 30 wolverines (released or born in Colorado) have developed site fidelity within Colorado
  - This group has survived at least 1 year in Colorado
  - Both male & female home ranges occur in at least 2 of the 3 Release Zones

Credit: Manfred Werner



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# Benchmarks

- Growth Phase (~ Years 4–10 or longer)
  - Evidence of breeding in Colorado
  - Evidence of production of young
  - Recruitment of young born in CO to age 1
  - Wolverines born in CO survive, breed, and produce young
- ➔ Estimated annual survival and recruitment = stable or increasing population (i.e. viable)

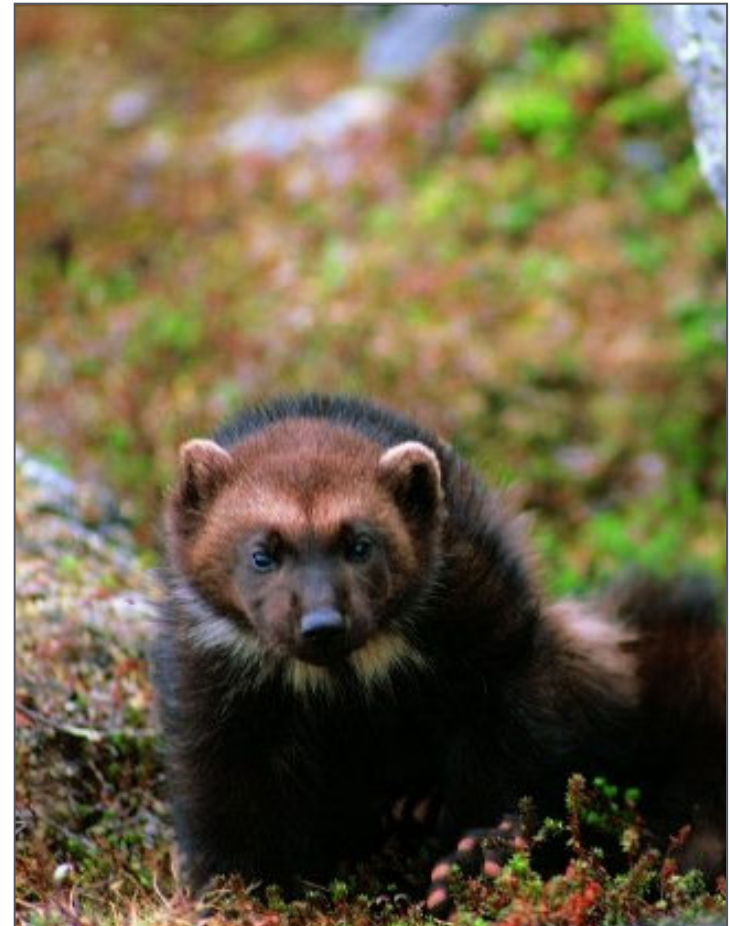
Credit: Manfred Werner



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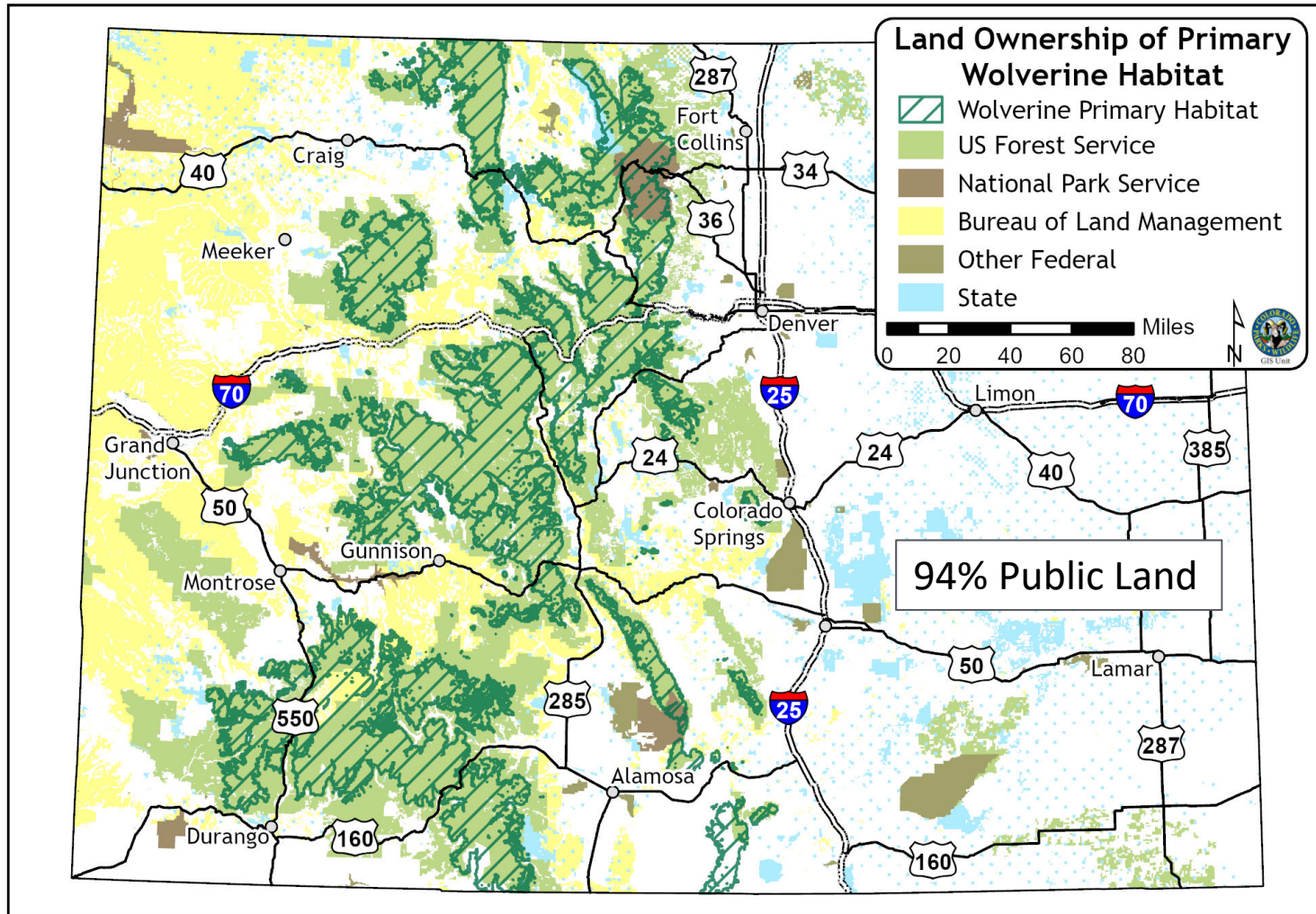
# *Conservation Issues*

- Human-caused mortality
- Human disturbance & roads
- Food availability
- Effects on other wildlife
- Climate Change
- Livestock depredation
- Winter Recreation



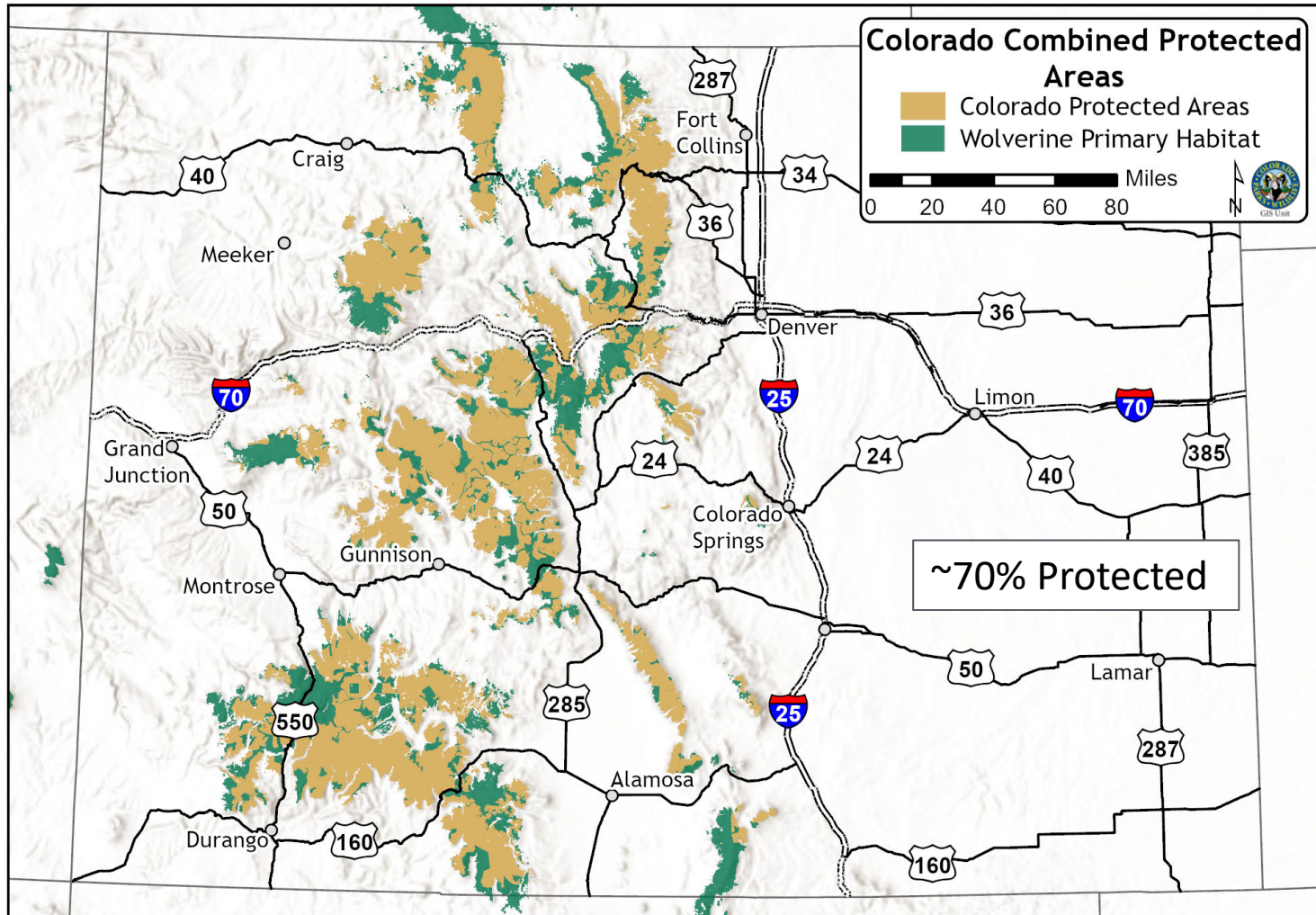
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# Conservation Issues



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# Conservation Issues



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# Reminder

- No agency has attempted this
- CPW has done its due diligence
- Everything is unknown to a degree
  - Capacity in Colorado?
  - Survival? Productivity?
  - Habitat selection?
  - Release protocols?
- Will likely require adaptation



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# *SB24 - 171*

- Authorizes CPW to reintroduce wolverine into Colorado
- Wolverines will not be translocated until a 10(j) rule has been published designating Colorado as an experimental, nonessential population
- CPW will work cooperatively with federal land management agencies to implement the reintroduction
- CPW will comply with applicable federal laws (e.g., NEPA)
- CPW will develop a plan for execution of the reintroduction along with reports to the legislature as required.
- CPW will develop a plan for communicating with interested parties
- The Colorado Parks and Wildlife Commission will adopt rules to allow compensation for livestock losses due to wolverine depredation.



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# *USFWS 10(j) Designation*

- Reintroductions into unoccupied habitat
  - Experimental, nonessential population
  - Reduce regulatory burden
- Process
  - Collaborative with USFWS
  - NEPA - Environmental Assessment or Environmental Impact Statement
  - Timeline ~ 1-2.5 years



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# *Next Steps*

- Restoration Plan - Technical details
- 10j rule development
- Collaboration with states and providences
- Coordination with the USFS, NPS and other federal land management agencies
- Development of a plan for stakeholder outreach
- Development of a communications plan
- Development of draft rule for depredation compensation



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# Questions?

"M56" Rocky Mountain National Park

Photo courtesy Ray Rafiti ©



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