

September 14-15, 2016 WAG Meeting Flipchart Notes

Lessons Learned

- explicitly alerting producer to den site - don't assume
- "Up to ..." communication
 - Do you ever say full pack
 - Internal comm. needs to be accurate (press release) + clarify/correct false assertions
- explain variability of wolf behavior (eg. den vs rendezvous)
- Precedent setting for other regions

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- why?
messaging
- Fut
- Unif
- coord

Lessons Learned ^{link w/ enforcement}

- staff safety - never called Joey
- Cluster checking -
 - pushes wolves off wild prey
 - sets unsustainable ~~press~~ precedent
 - Internal team needs to decide protocol.
 - Cultural variability + local
- Future of data sharing
 - why are we doing this?
- Unified front for public
- coordination w/ public affairs or communication

- why?
messaging

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Flipchart Notes

Lessons Learned

- single or shared role "co-lead?"
- "Incident commander"
 - message conveyed? sounds militaristic
- During event -
 - good vs. bad communication
 - what info bits gets to who (up & across)
- Opportunistic vs. red/green light vs. ^{when} another depred.
- Being strategic vs. exhaustive in lethal actions
- "We will cont. lethal until depredations stop"
 - not full pack.
- Communic. feedback loop
 - double check on words

Enabling Conditions

- USFS process + location of grazing allotments
- Goal of protocol is to stop depredations
- Build public understanding of WAG's role
- What is conflict prevention plan for each pack + communication around this & in Advance
- cost eff of non lethals
- west/east - WDFW / USFWS
- sm. land masses on west side of state.

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Flipchart Notes

Lethal protocol

- Where does \uparrow fit with respect to recovery?
- Humane removal of wolves
 - want to understand this
- Terrain - recognizing different tools/methods on diff terrain
- Pack size
- cost effectiveness of non-lethal do you use before need them if only effective for 2 mos?
- Western/Eastern diff. given difference in listings

Protocol - Flag Concerns

- Appropriate non-lethals ^{- publicly avail so its understood for L.P. + public} in different conditions (sm. pastures, open-range)
- Should there be higher expectations if area of chronic depred - given past exper.
- # confirmed + # probables - are the wolves too conditioned by them to eating cattle?
 - Does this set you up for full pack removal?
 - what is the science around this?

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Lethal Protocol

- Needs/Concerns

- Variable threshold can punish most cooperative producers and places undo pressure on staff/dept. to mischaracterize the "1+1"
- how do probables count in protocol
- What does "incremental" mean? Now defined?
- Goal: stop depredations
- Revisit what "full pack removal" means
- What removal looks like where there are repeat/chronic depred + see if there are Δs
- Human/public/staff safety vs. transparency

Report

- What was analysis used to get to "up to full pack removal"
 - why not tiered before
- forest plan (USFS) NEPA, rotation plan, requirements + restrictions + when process began (before grazing season)
- Rec from RD to Director # assoc w/ partial pack
- Depredation reports
- graphical repres. (maps)

Report

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Report

- Spatial representation of den site, depred. sites etc. (perhaps not actual coordinates)
- Do we want to release all info to public?
 - Be careful abt sensitive data
- Timing of plan (grazing) vis-a-vis den site found time
- Consult w/ USFS re: add'l missing livestock
- Time/personnel invested in this effort + \$ spent

Report

- How range riders used & effectiveness vis-a-vis terrain
- History of depredations 2013, 2014
- Salt blocks
- Don't release info that puts families at risk
- Threats (FBI)
- livestock depredated cows, calves, age of calves

Report

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- livestock depredated
cows, calves,
age of calves

Report

- coordination b/w WDFW, USFS, USFWS
- losses: confirmed, probable, other - incl. what is considered "normal loss" for that producer (reference appendix)
- record of communication thus far (eg. WAG updates)
- proximity + larger context of wolf packs in proximity to cattle

Report

- other ungulates in area + sustainability
- Requirements from USFS/NEPA that USFS has conducted

Lethal Protocol

- Outreach to producers + general public w/ revisions

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REPORT

- Detailed accounting of before grazing started, turn out, collared, timing of knowing abt den, efforts to keep wolves/cows sep.
 - finer grain detail
- Details on pasture, area size, topography, terrain
- lethal techniques - how wolves killed / methods

(Question: Is there someone who could be oversight person?)

- lethal protocol as its been developed since wolf plan
- contacting tribes? WAG needing tribal representation
- Investigation incl sick cows?
- DNA in report
- on map - is it forested or open
- communication w/ WDFW + producer (re: non lethal)

Report

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Public Comment

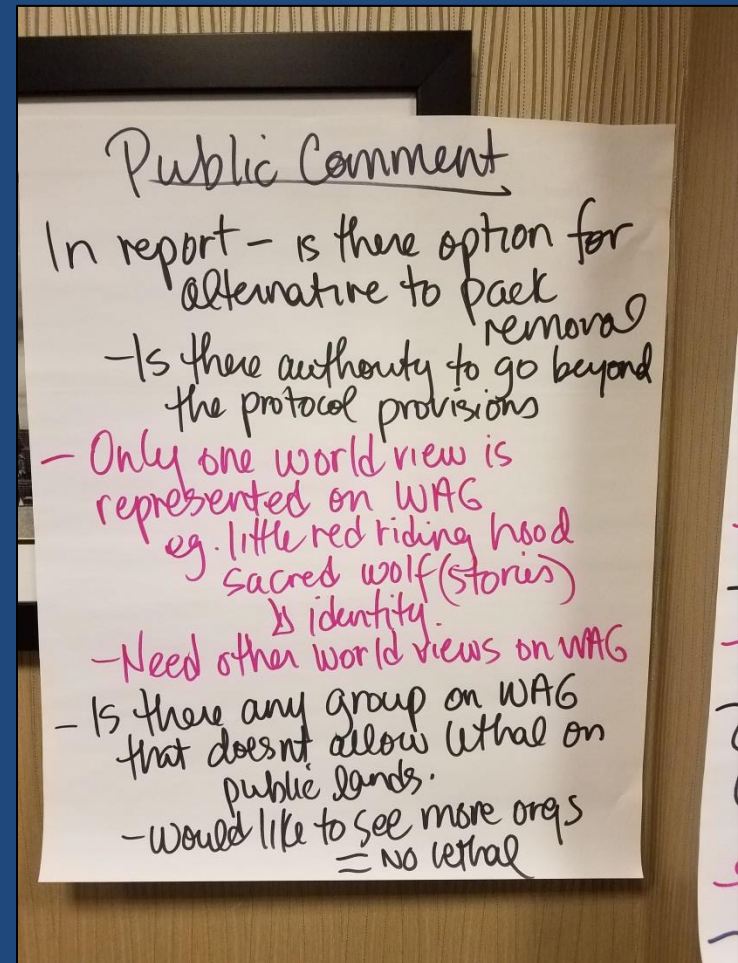
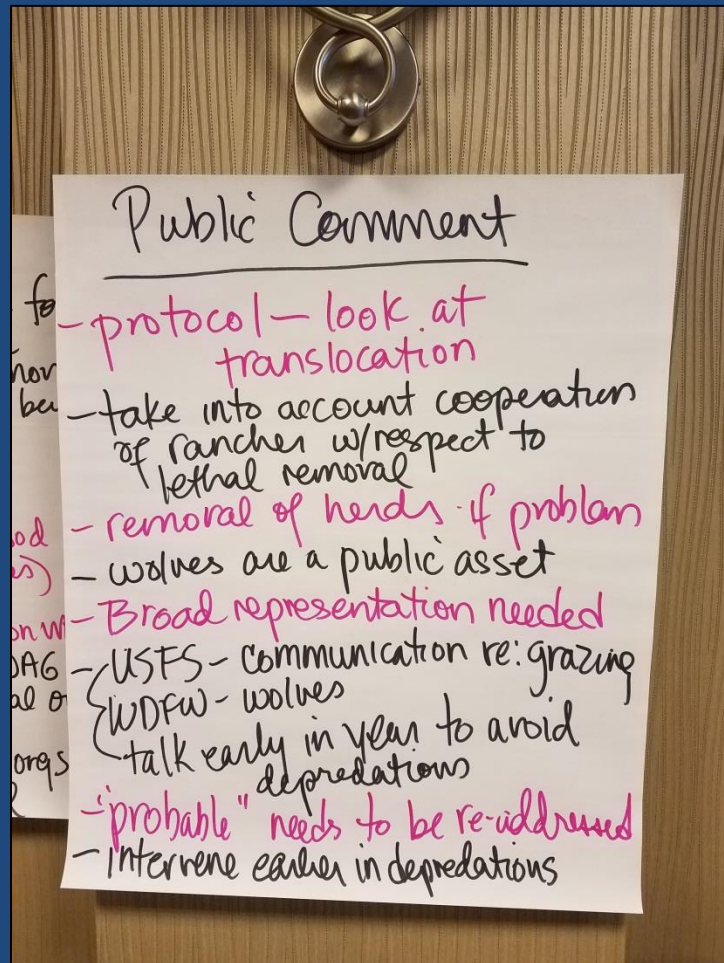
- Do not say "humane" in relation to death of wolves
- Ensure WDFW is following known science
- Is overall health of ecosystem being considered? What studies are being done?
- No one authority ^{-Director} should have say over wolf life.
- Exhaust all non-lethal options before enlisting state
- Federal lease \neq health of cattle
- public land - private producers
- different protocol for public vs private

Public Comments

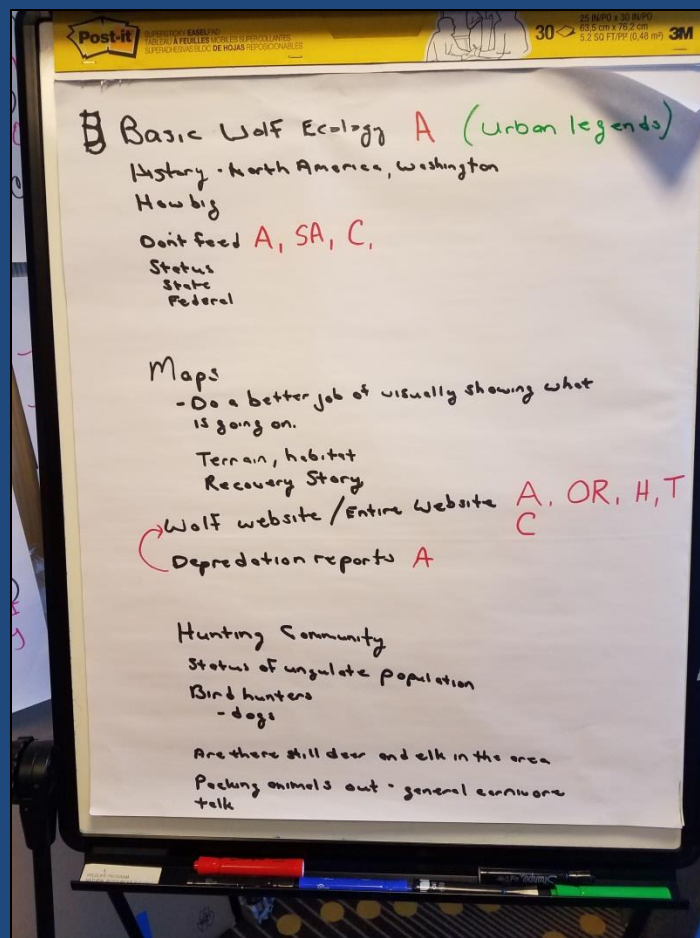
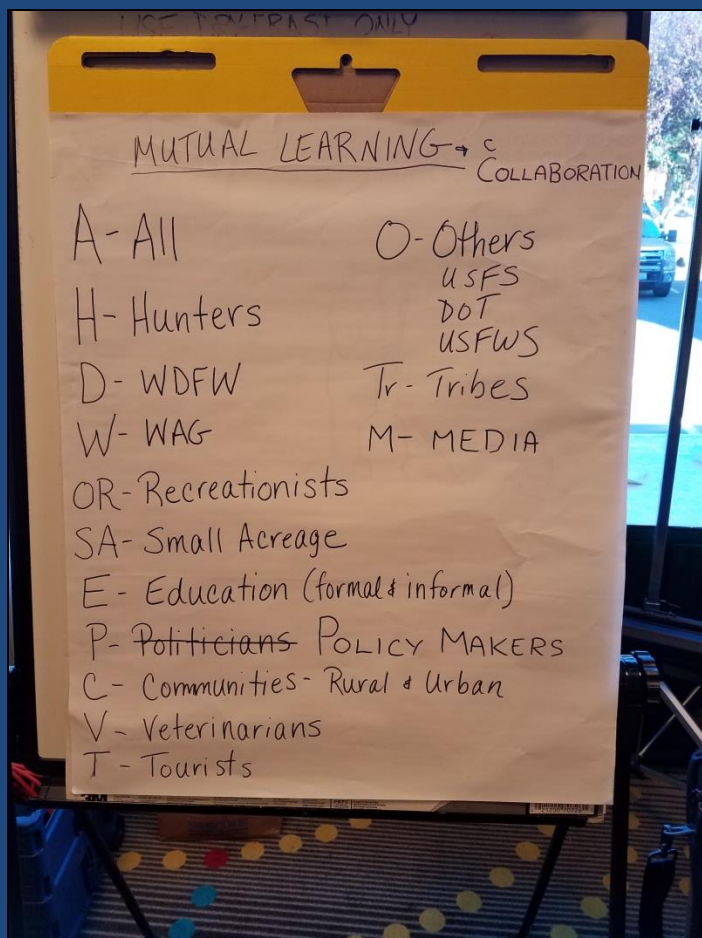
- Can wolves be encouraged to be in remote areas
- or lethal on private
- lethal as tool to encourage wolves to go to public lands
- Do ungulates ^{wild} move away when cattle in forest?
 - communication b/w USFS + WDFW + collar info.
- Pre-plan (USFS + WDFW) to prevent conflict
- Are recent wildfires a factor in Profanity?
- Statement by Predator Defense

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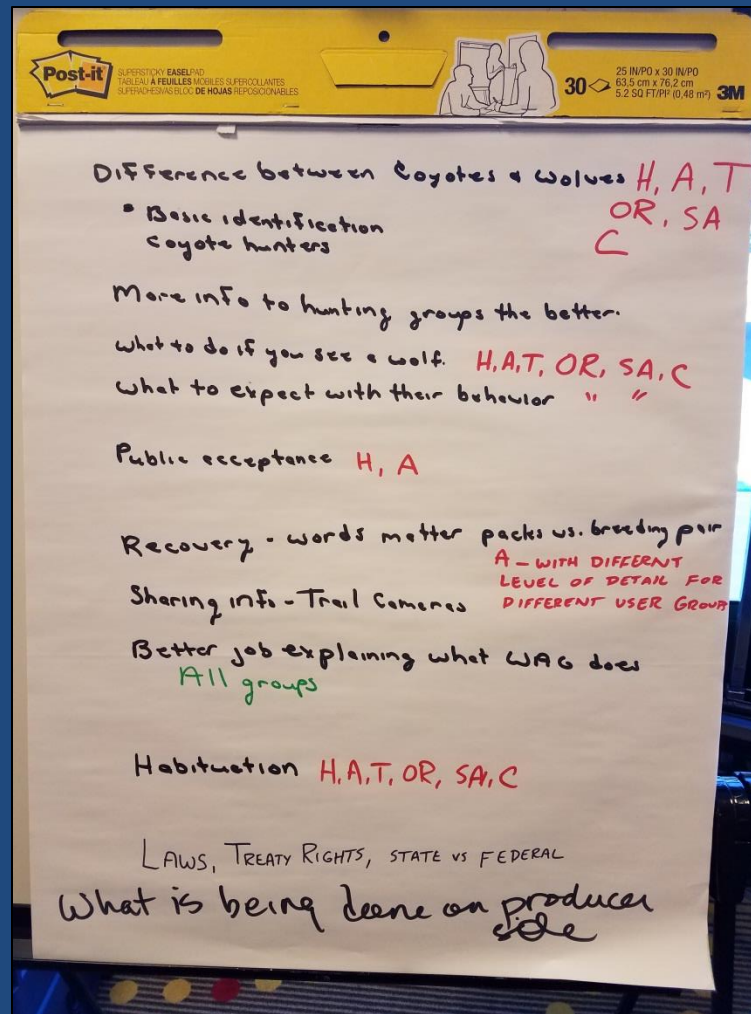
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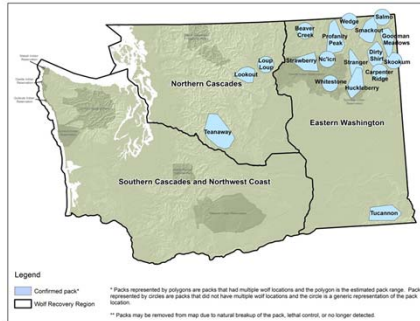


Wolf Conservation and Management Plan for Washington: Population Modeling



WAG Briefing 9/15/2016

John Pierce, WDFW Chief Wildlife Scientist





Research Article

A Meta-Population Model to Predict Occurrence and Recovery of Wolves

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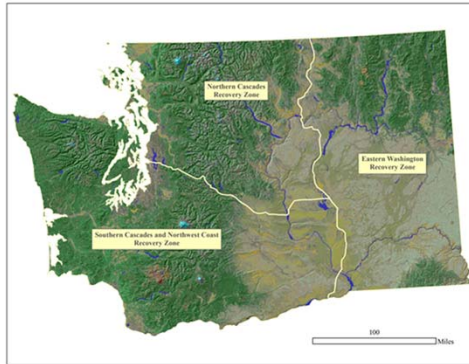
DEREK W. STINSON, *Washington Department of Fish and Wildlife, 600 Capitol Way North, Olympia, WA 98501, USA*

ABSTRACT Wolves (*Canis lupis*) have been recolonizing Washington since 2008. In an effort to guide recovery and management decisions for wolves, we created a spatially explicit meta-population matrix model using vital rates based on empirical data from other states in the northwestern United States to estimate probability of occurrence, terminal extinction rates, and potential recovery time. We applied an existing habitat model for Idaho, Montana, and Wyoming to the Washington landscape to determine the extent of probable habitat. We then simulated an evenly distributed metapopulation based on average size of pack territories reported in central Idaho where average probability of occurrence exceeded 40%. Using the program RAMAS GIS, we created a female-only, stage matrix model with dispersal using population metrics from central Idaho and northwestern Montana. Model simulations that begin in 2009 suggest Washington should reach its recovery goals in approximately 12 years (2021). We used the model to project recovery

The modeling results reported here are in the Wolf Conservation and Management Plan, and have been peer reviewed and published in the Journal of Wildlife Management.

Maletzke, B. T., R. B. Wielgus, D. J. Pierce, D. A. Martorello and D. W. Stinson. 2016. A Meta-Population Model to Predict Occurrence and Recovery of Wolves. *J. Wild. Manage.* 80(2):368-376.

SEPA Process Comments raised Questions:



- Are Population/Breeding Pair Goals outlined in plan adequate to achieve wolf recovery ?
- Can wolf management be customized as local or regional Recovery Zone goals are reached?

Note: This reflected questions related to different time to achieve recovery levels in NE relative to other Zones

WA RAMAS Model

- No data from WA existed at the time, therefore we used data from ID and MT
 - Pack size, survival rates, reproductive potential, Dispersal, Habitat Suitability
- Model validated using population growth estimates from ID and MT
- Evaluated Importance of Immigration from neighboring populations
- Evaluated statewide recovery impacts of lethal removals in NE

We used RAMAS Risk Analysis software (<http://www.ramas.com/>) to project wolf breeding pair occupancy and terminal quasi-extinction risk (probability of falling below recovery goals over a 50 year time period) to examine the affects on recovery at different lethal removal and immigration scenarios.

Quasi-Extinction Risk (at time 50 years)

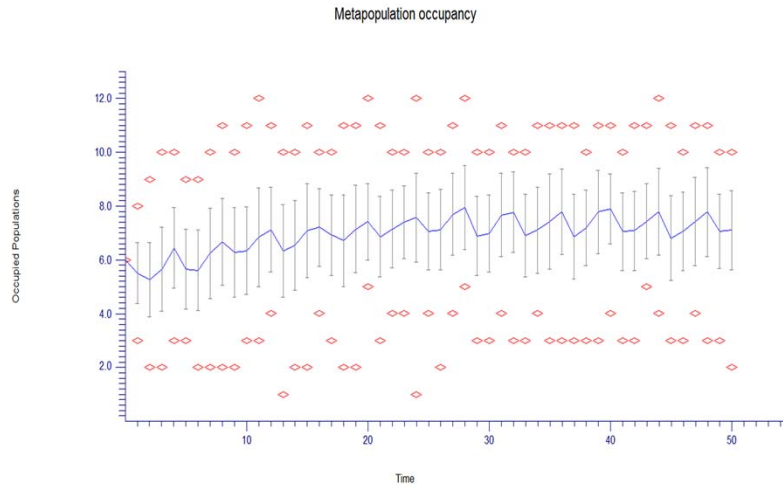
Probability E WA population is below Breeding Pair Threshold, modeled at varying levels of added annual human related mortality

Breeding Pair Threshold	Mortality Level			
	0.1	0.2	0.3	0.5
1				0.01
2				0.03
3			0.03	0.06
4	0.01	0.01	0.1	0.21
5	0.01	0.02	0.21	0.29
6	0.02	0.03	0.42	0.48
7	0.04	0.04	0.66	0.75
8	0.07	0.1	0.8	0.89
9	0.16	0.17	0.9	0.98
10	0.26	0.33	0.95	0.99
11	0.33	0.47	0.97	1
12	0.45	0.6	0.98	
13	0.57	0.77	0.99	
14	0.73	0.85	0.99	
15	0.81	0.95	1	
16	0.91	0.96		
17	0.96	0.99		
18	1	1		

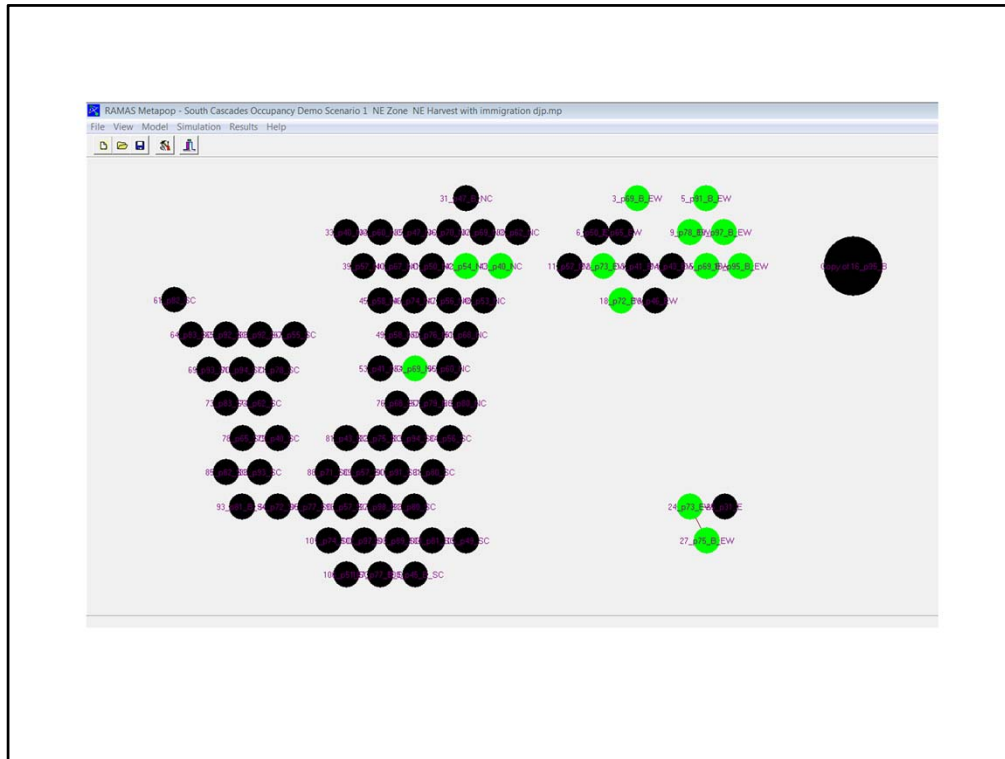
Recovery goals for eastern Washington have a high probability of being met (>99%) at the end of 50 years with additional 10 % or 20% annual mortality above the modeled mortality rate of 28%. Probability of meeting Eastern Washington recovery goals decreases substantially when additional annual mortality levels exceed 20%.

Eastern Washington Recovery Zone Occupancy Levels

Model with 30% Lethal Removal every 4 years in NE



The number of breeding pairs in Eastern Washington recovery zone remains at or above recovery levels or 50 years time frame, under additional human caused mortality (lethal removal)



Refer to Appendix G in the Wolf Conservation and Management Plan.

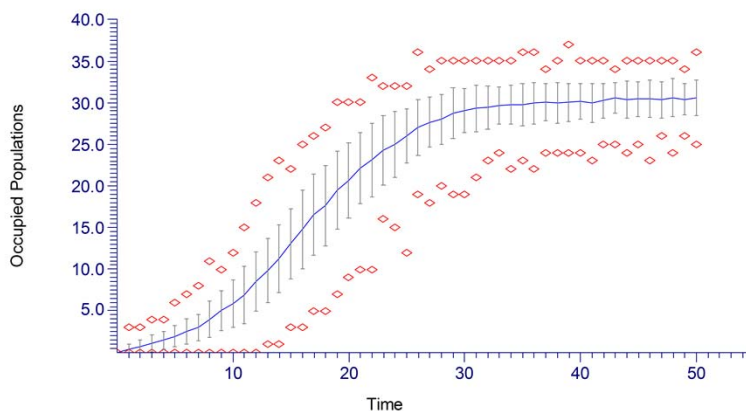
Assumptions/parameters used in RAMAS model:

- 1) Pack territory size of 933 km² (360 mi²) based on data from Idaho (n = 13, USFWS 2000) and Washington (n = 2).
- 2) Survival data from northwestern Montana (Smith et al. 2010), except pup survival of 0.81 (see discussion in Appendix G).
- 3) Four hypothetical packs were used to mimic a low level of immigration, two in British Columbia and one each in northern Idaho and Oregon, except when simulations assumed no immigration.
- 4) Frequency of successful dispersal between packs was a function of distance; maximum dispersal distance used was 200 km (124 miles).
- 5) Average pack size = 8 individuals.
- 6) Average litter size = 4 pups.
- 7) For scenarios where growth was limited and territories were selected, territories with the highest probability of occupancy (based on the suitable habitat model) were used where possible, while maintaining recovery region pack delisting requirements.
- 8) Inbreeding depression was not included.

South Cascades and Northwest Coast Recovery Zone Occupancy Levels

Model without Lethal Removal in NE

Metapopulation occupancy

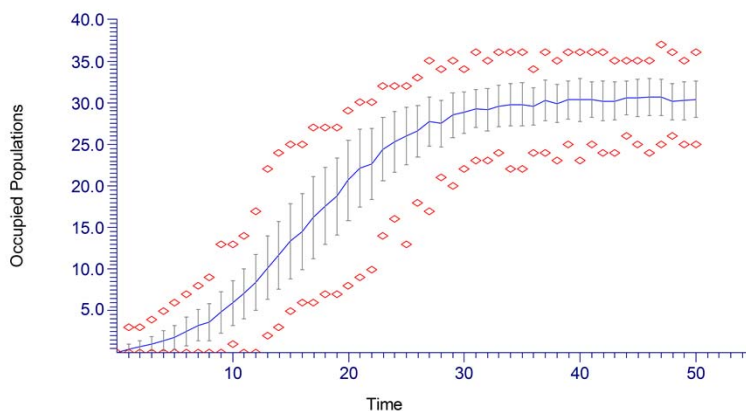


Without additional human caused mortality (beyond the 28% included in the base model), the wolf population in the South Cascades and Northwest Coast recovery zone is expected to reach 4-5 breeding pairs (occupied populations) in 7-9 years. The modeled range in years reaching 4-5 breeding pairs could be as short as 2 years or as long as 15 years.

South Cascades and Northwest Coast Recovery Zone Occupancy Levels

Model with 30% Lethal Removal every 4 years in NE

Metapopulation occupancy



There is little if any delay in reaching wolf recovery goals in the South Cascades and Northwest Coast recovery zone when additional human caused mortality is increased (30% every 4 years) in the NE WA population. Compare with previous slide.

NOTE: The results of this exercise are not considered definitive, and vary widely depending on the assumptions used, especially about wolf survival and immigration.

Scenario (100 simulations, 50 years)	Parameter ^a	Result	Conclusion/Notes
1. Statewide growth, 73 possible territories, start with 2 occupied territories, assume immigration	Tx	0	With immigration, wolves would maintain about 58 packs (under these assumptions ^a , and modeled habitat).
	Mo	58.3 (52-67)	
	Qx	0	
2. Statewide growth, 73 possible territories, start with 2 occupied territories, assume no immigration	Tx	0.02	With no immigration, the population may grow to 56 packs, but there is a 2% chance it would decline to extinction.
	Mo	45 (0-57)	
	Qx	0.02	
4. 23 packs (distributed as 9 EW, 7 NC, 7 SC) to approximate the 6/4/5 recovery objective, no additional growth , assume immigration	Tx	<0.01	When recovery objective of 15 successful breeding pairs met and immigration assumed, the likelihood of needing to relict is high (0.93).
	Mo	19.2 (14-22)	
	Qx	0.93	
6. Recovery objectives (i.e., 6 breeding pairs) met in the Eastern WA recovery region, but not in the other two recovery regions; assume immigration, management Quasi-extinction at statewide level (<46 adult-dispersing females)	Tx	<0.01	Conducting wolf management in the Eastern WA recovery region after recovery objectives are met there, but before regional objectives are met in the other two regions, will not inhibit the ability to achieve recovery in all three regions over time.
	Mo	57 (47-64)	
	Qx	<0.01	
7. Recovery objectives (i.e., 6 breeding pairs) met in the Eastern WA recovery region, but not in the other two recovery regions; assume immigration, management Quasi-extinction at recovery region level (<12 adult-dispersing females)	Tx	<0.01	Conducting wolf management in the Eastern WA recovery region after recovery objectives are met there, but before regional objectives are met in the other two regions, will not inhibit the ability to achieve recovery in eastern WA; model assumed 2 of 6 pairs established in Blue Mountains.
	Mo	11 (6-13)	
	Qx	<0.03	

Overall conclusion from the modeling is that:

- 1) the recovery goals outlined in the plan are adequate to achieve recovery, assuming these goals are not treated as a “cap” and social tolerance of wolves allows the wolf population to fill unoccupied habitat.
- 2) increased levels of human caused mortality in the NE region (that include current levels) will not affect the ability of wolves to achieve statewide recovery goals.

This table is copied from the Appendix H in the Wolf Conservation and Management Plan. Results of nine scenarios of wolf population modeling in Washington using RAMAS (see Appendix G in the plan).