Augmentation of a Greater Sage-Grouse Population

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South Central Washington

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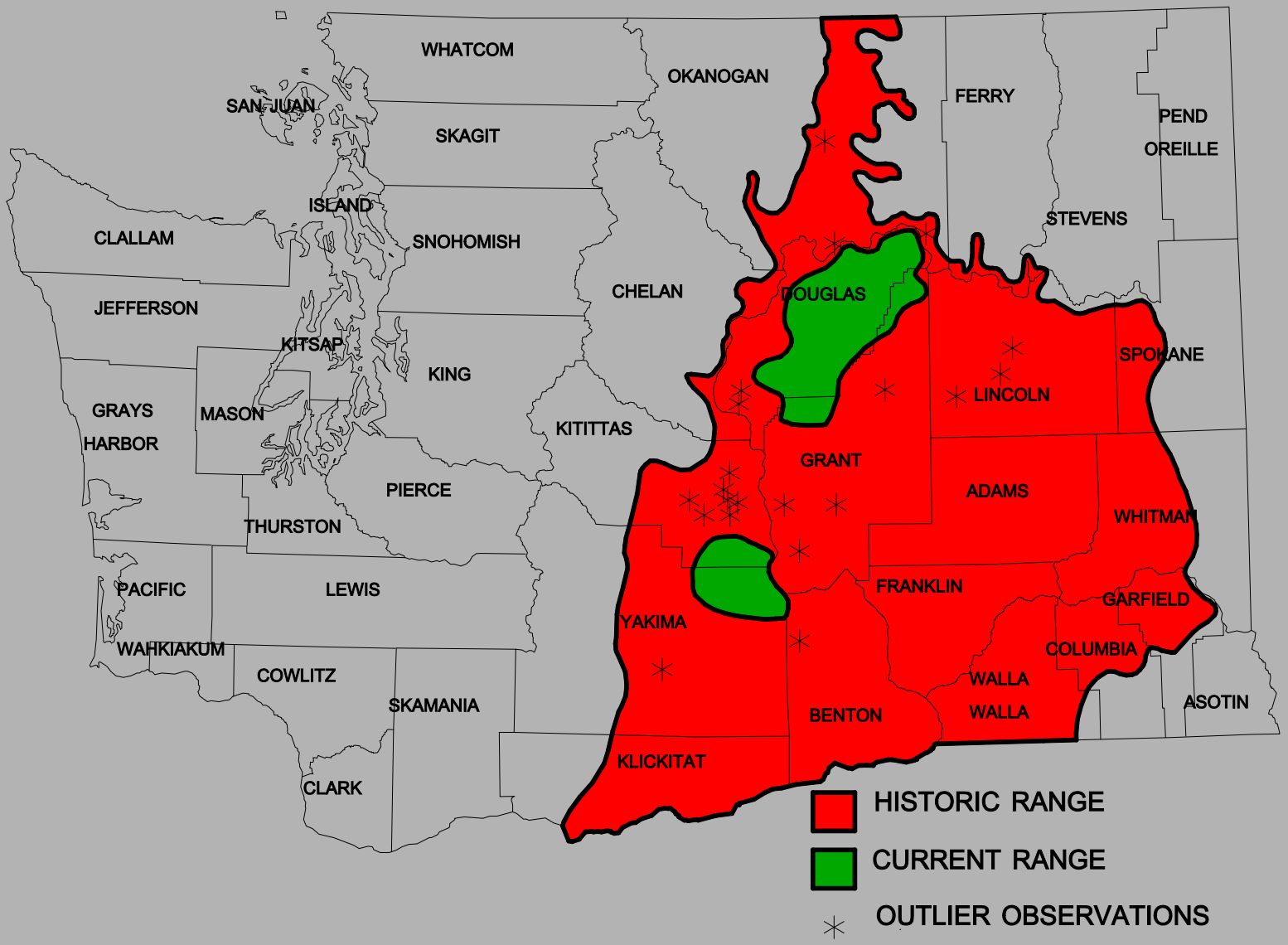
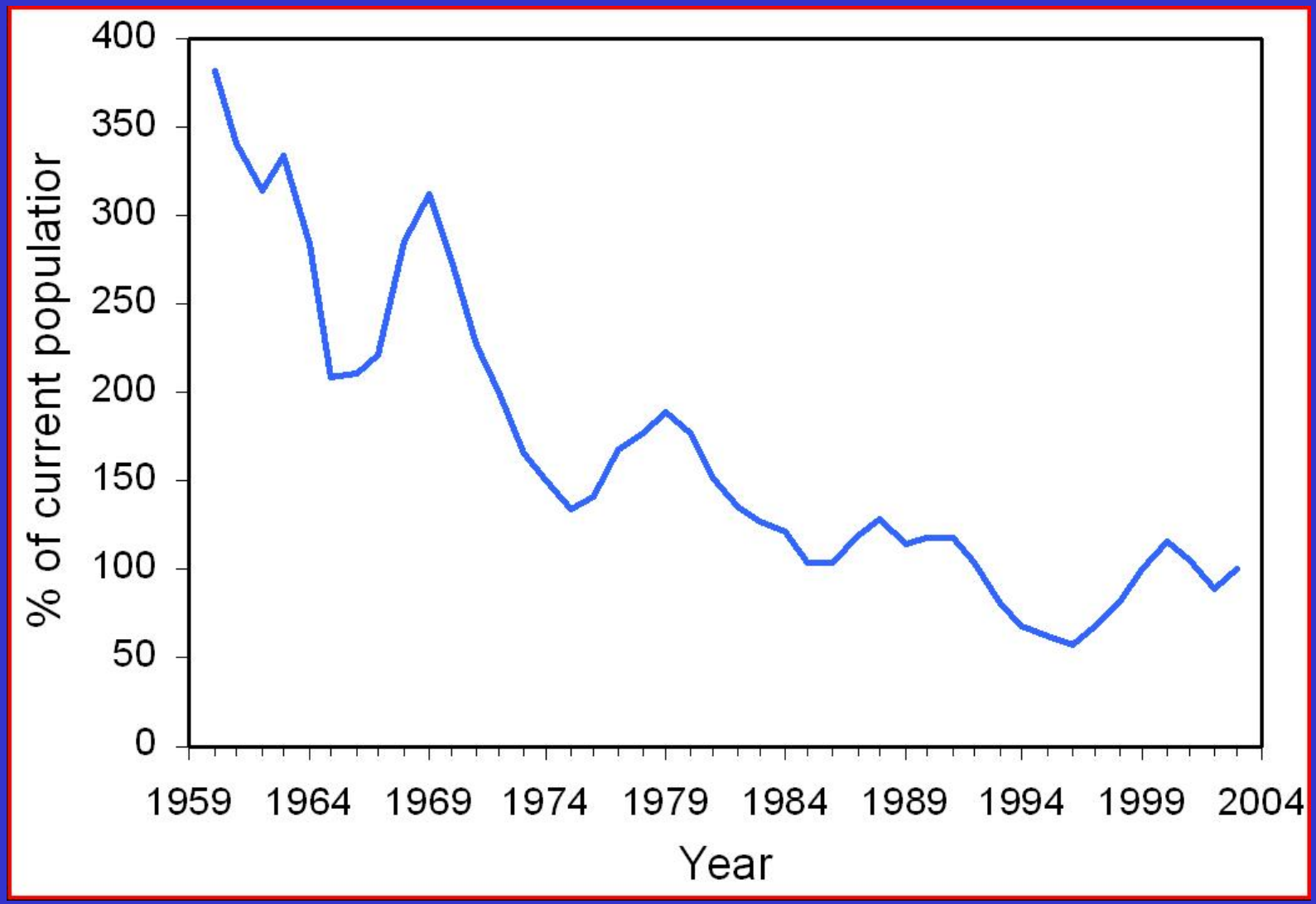
Rangewide Distribution

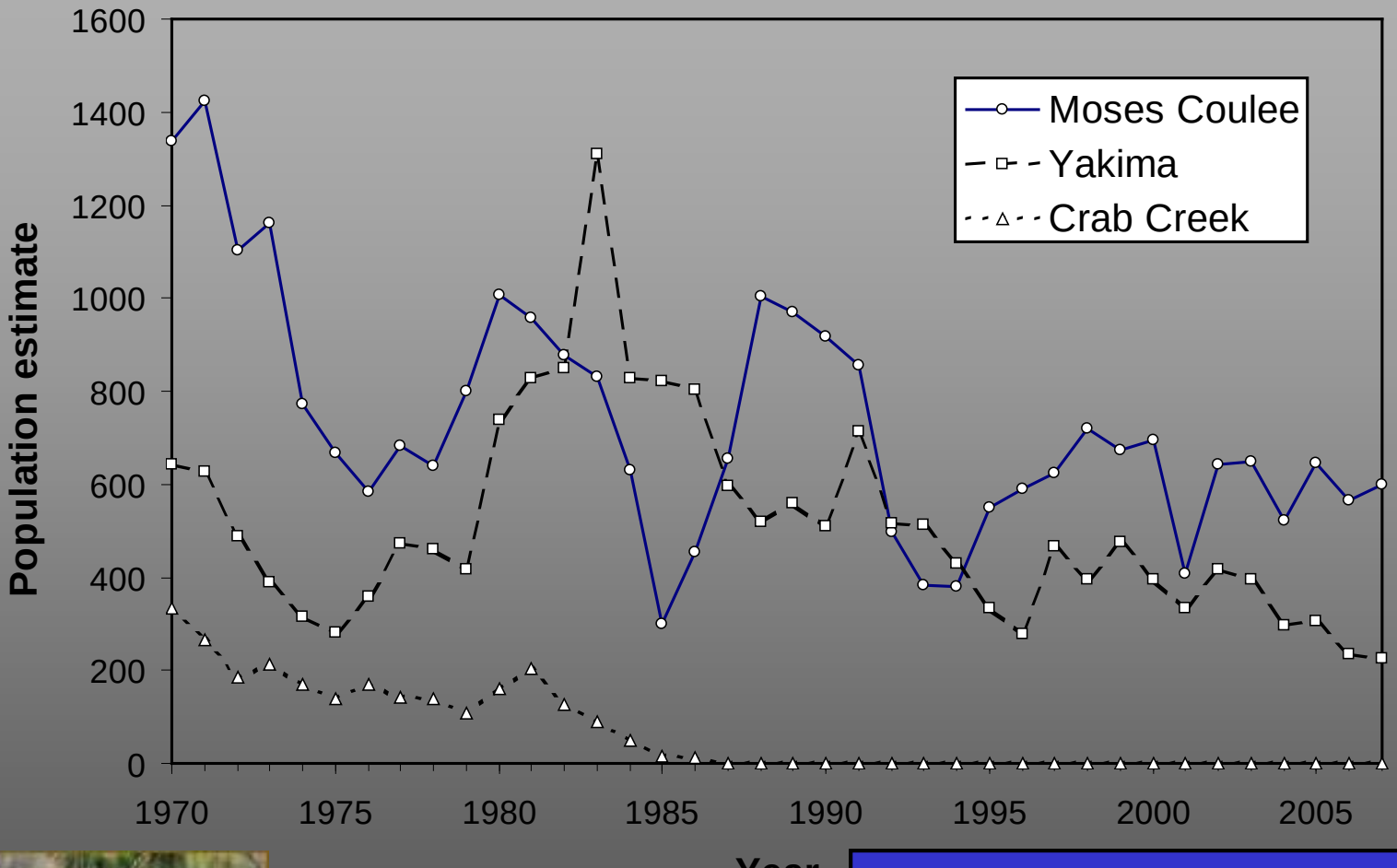
Washington Distribution



Rangewide Population Trend



Wash. Population Trend



2008 estimate

Moses Coulee = 445

Yakima = 187

Total = 632

Genetic Concerns

- YTC pop. had 1 of 38 haplotypes identified across 16 pops. in CA, NV, OR, & WA (*Benedict et al. 2003)*

- Wash. pops. had least amount of genetic diversity (mtDNA and microsatellite alleles) among 46 pops. (*Oyler-McCance et al. 2005)*

YTC Land Use

- 500 sq. miles of shrub steppe.
- Light infantry, Tanks & Stryker Force.
- Hunting, bird watching, & hiking
- Historical light to moderate grazing program ended in 1995

Project Purpose

Long-term Goal

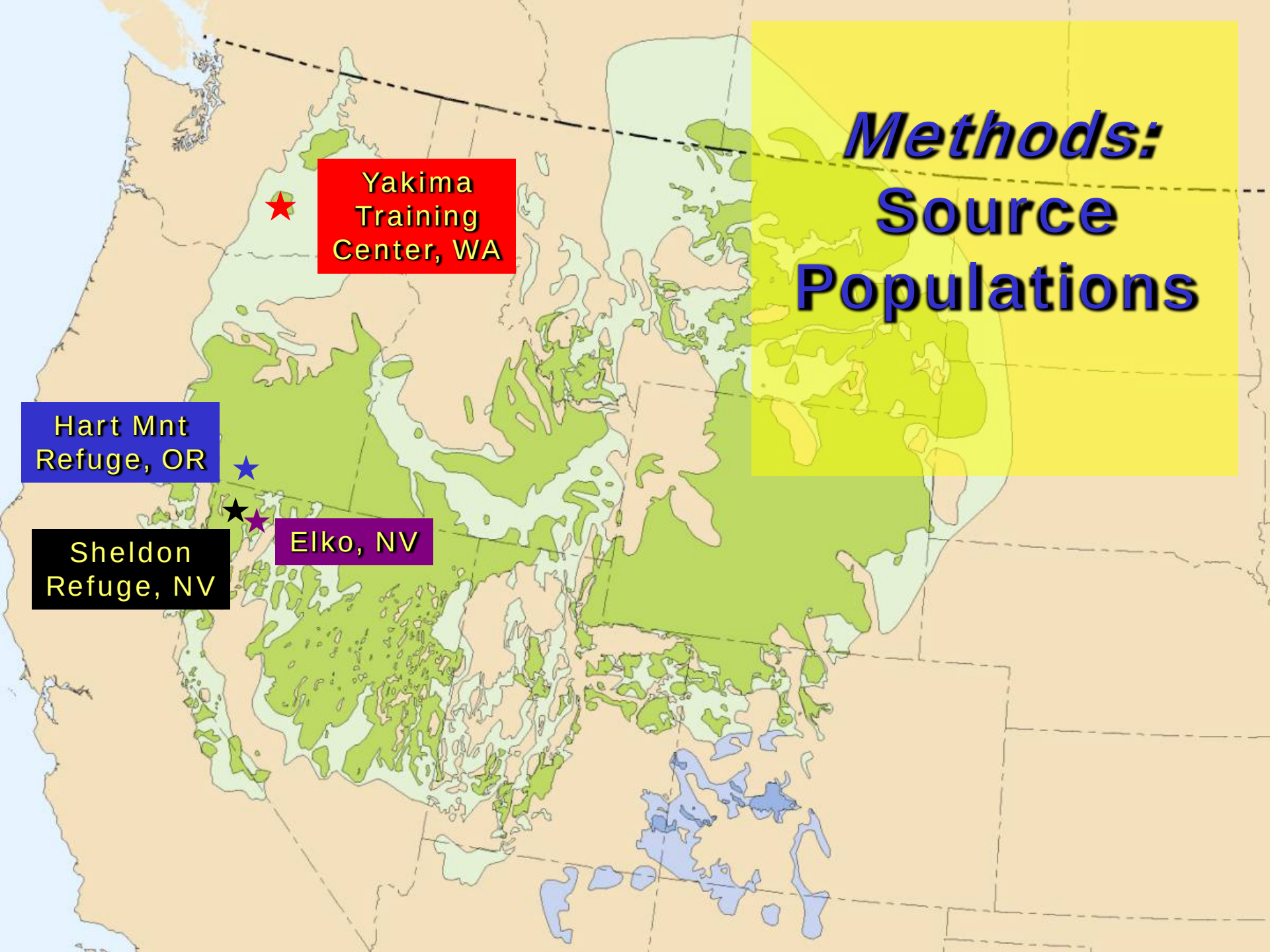
Establish a viable population in a substantial portion of historical range (Stinson et al. 2004. WDFW Recovery Plan)

Project Purpose

- **Objectives include augmenting existing populations**
  - Strategy 1: Translocate from healthy populations
  - Strategy 2: Monitor movements, reproduction & survival
  - **Strategy 3: Evaluate at genetic & population levels**

Project Hypothesis

If the population does not respond positively to the translocation, then population declines may be related to habitat deficiencies.


Methods:
Source Populations
Yakima Training Center, WA
Hart Mnt Refuge, OR
Elko, NV
Sheldon Refuge, NV

Methods: Capture & Processing

- Nightlighting in March & August
- Transmitters attached
- Age determined
- Measurements
- Blood samples

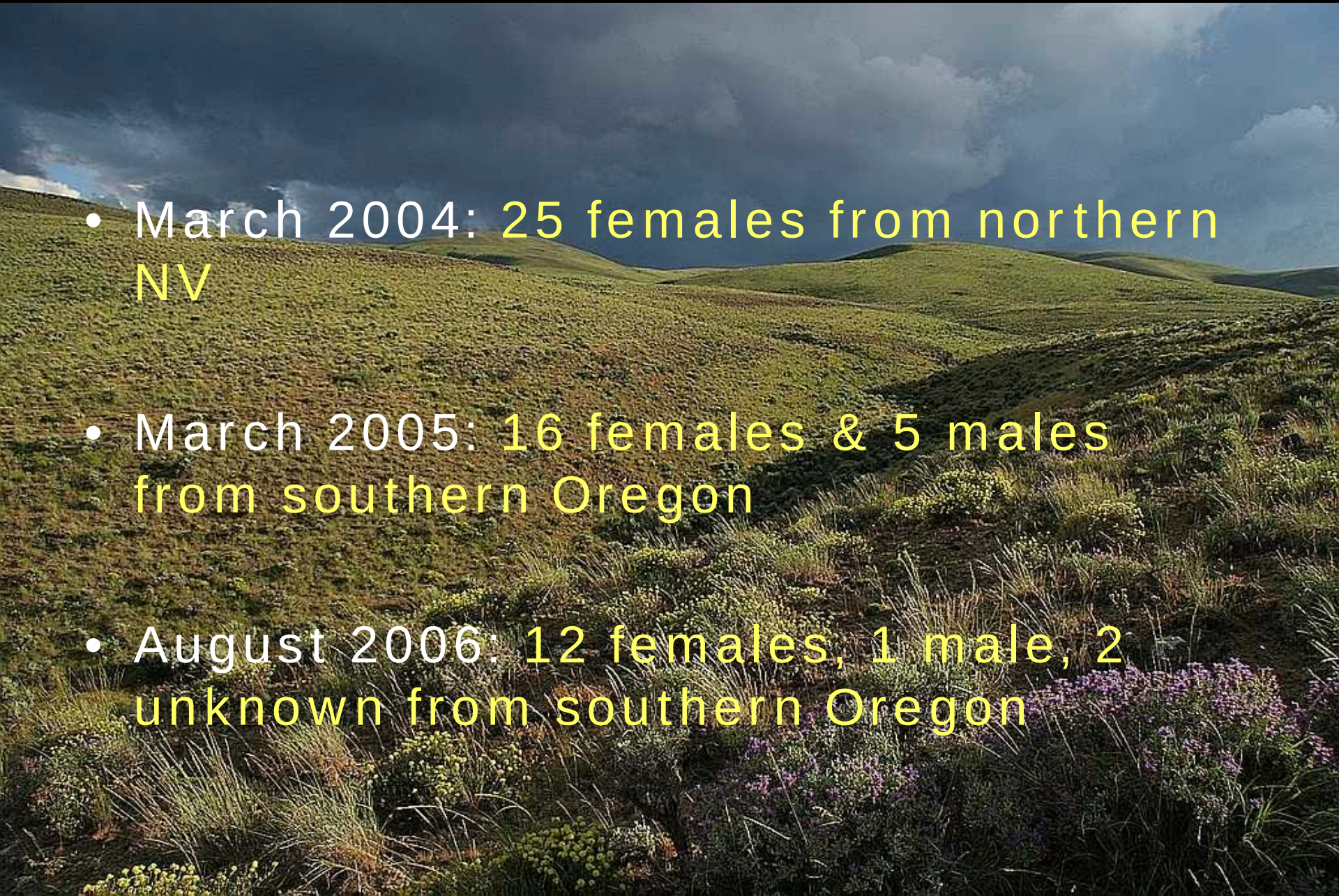
Methods:
Transport & Release

- Cardboard boxes
- Ground & Air
- Released directly from box
- < 23 hours
- 3 release sites near active leks

Methods: Monitoring

- Year-round tracking
  ~1 per week:
  - Reproductive success
  - Movements
  - Survival

Results: translocations



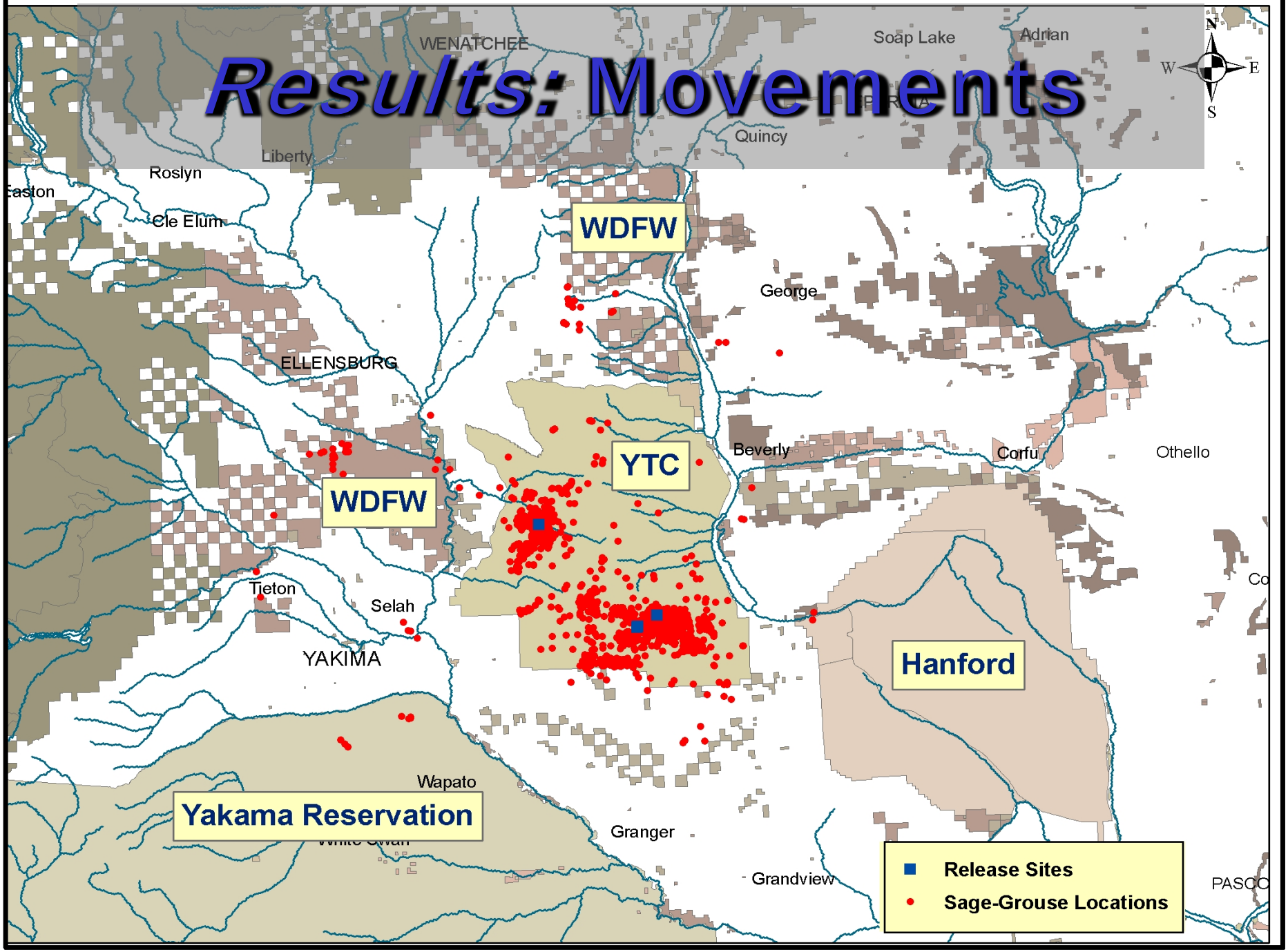
- March 2004: 25 females from northern NV
- March 2005: 16 females & 5 males from southern Oregon
- August 2006: 12 females, 1 male, 2 unknown from southern Oregon

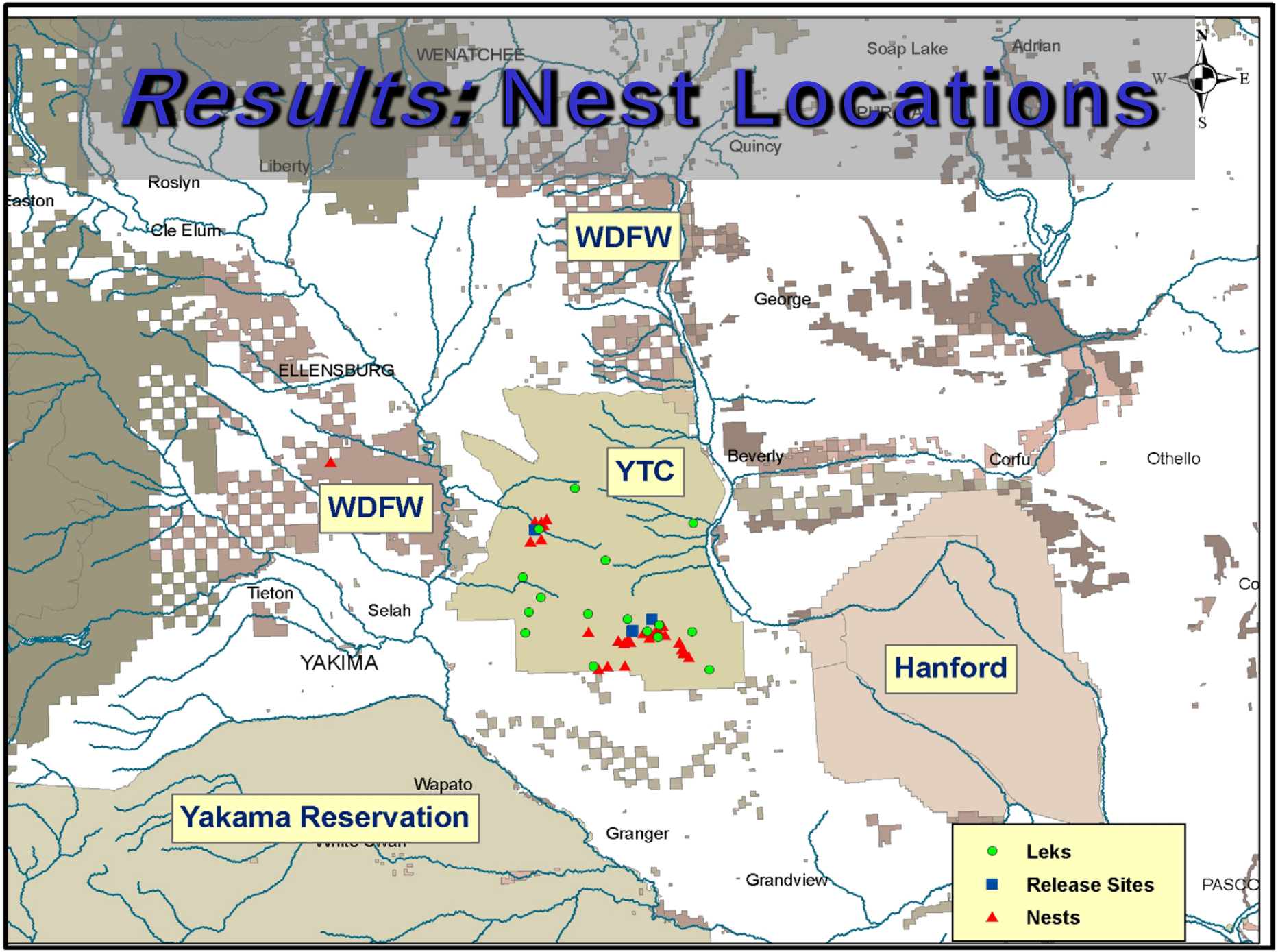
Results: Reproduction

Year	Monitored Females	Total Nests	Nesting Likelihood	Nest Success	Fledging Success
2004	22	9	41% (9/22)	44% (4/9)	0%
2005	28	13	46% (13/28)	77% (10/13)	89% (8/9) ≥18 chicks
2006	12	7	58% (7/12)	57% (4/7)	50% (2/4) ≥2 chicks
2007	12	9	75% (9/12)	56% (5/9)	60% (3/5) ≥5 chicks
Total or Mean		38	55%	59%	50-66% ≥25 chicks

Results: Movements From Release Sites

	Nevada Birds (n=25)	Oregon Birds (n=27)	Overall (n=52)
Mean Distance (km) (SE)	23 (1.5)	7 (1.2)	14 (1.5)
Median	21	5	15
Range	9 – 45	1 – 23	1 – 45


Results: Movements
WENATCHEE
Soap Lake
Adrian
Quincy
Liberty
Roslyn
Cle Elum
WDFW
George
ELLENSBURG
YTC
Beverly
Corfu
Othello
WDFW
Tieton
Selah
YAKIMA
Hanford
Wapato
Yakama Reservation
Granger
Grandview
PASCO
Release Sites
Sage-Grouse Locations
N
S
W
E


Results: Nest Locations
WENATCHEE
Soap Lake
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Quincy
Liberty
Roslyn
Cle Elum
WDFW
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YAKIMA
Hanford
Wapato
Yakama Reservation
Granger
Grandview
PASCO
Leks
Release Sites
Nests

Results: Observed Survival

Origin and Date	1st Year Annual Survival
Nevada (March 2004) (n = 23)	57%
Oregon (March 2005) (n = 11)	73%
Oregon (August 2006) (n = 14)	38% (10 juveniles)
Overall	56% (65% excluding August release)

Comparisons with other studies

Parameter	This Study	YTC (Sveum 1995)	Strawberry Valley, UT (Baxter et al. 2008)	Rangewide (Schroeder et al. 1999)
Nesting Likelihood	55%	95%	39% (1st spring) 73% (2nd spring)	68 – 100%
Nest Success	59%	40%	67%	15 – 70%
Annual Survival	65%	66%	60%	53 - 75%

Conclusions

- The short-term objective of introducing new genes appears to have been accomplished
- The population so far has continued to decline, however
- If it does not respond in next few years then habitat may be deficient

Future Work

- No additional translocations planned
- Feather Collections at leks
- Blood sampling
- Lek monitoring

Acknowledgements

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