

Is the Barred Owl Displacing the Northern Spotted Owl?

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Spotted Owls and Barred Owls



Barred Owl Range Expansion

- Historically found in the Eastern United States
- Range expansion across Canada since 1900's
- Range expansion south into PNW in the last four decades



Barred Owl (*Strix varia*)



Spotted Owl Threatened by Barred Owls



- Competition between species for prey and nest sites
- Barred owls appear to be the dominant species
- Hybridization

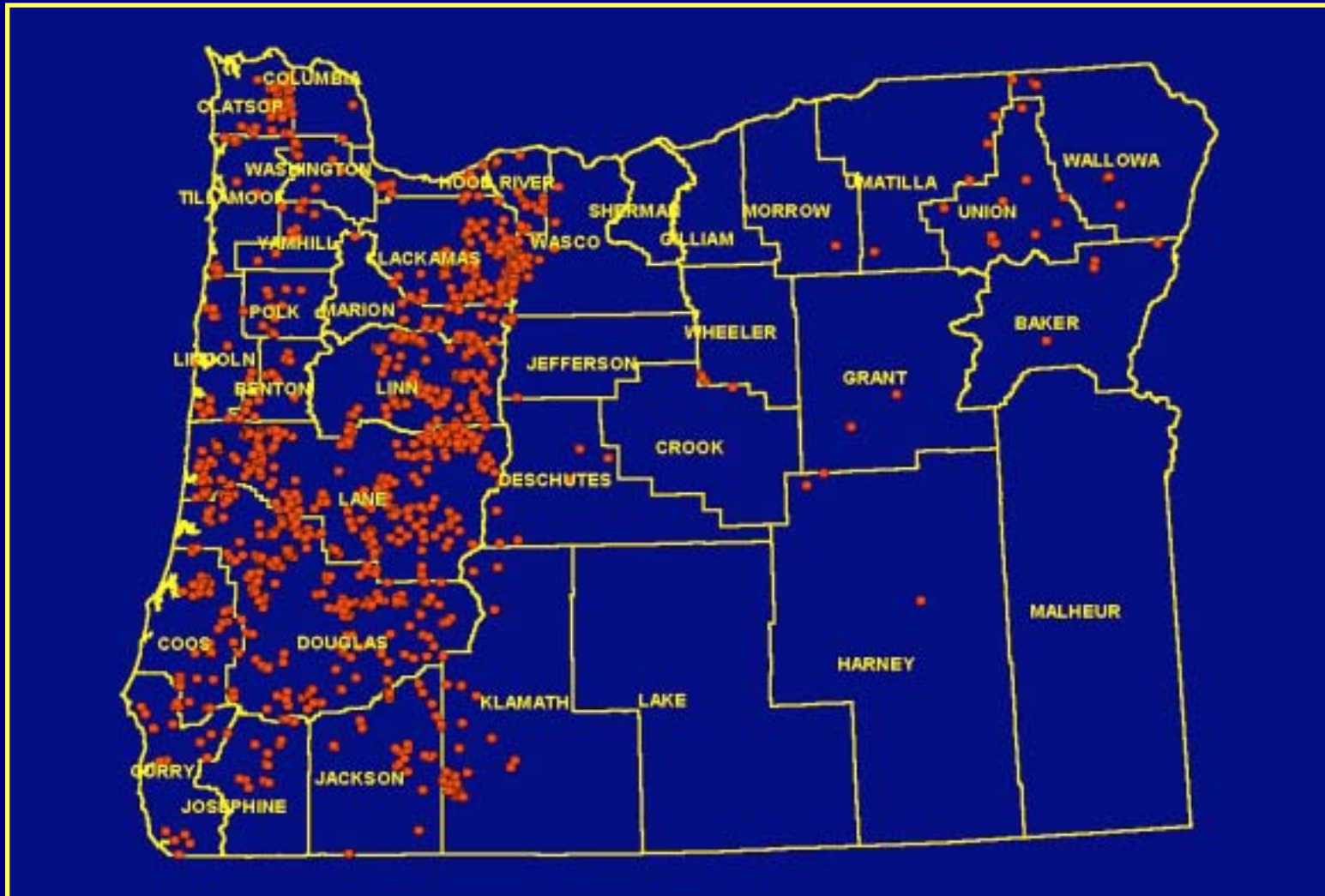
Is the Barred Owl displacing the Spotted Owl?

1. Distribution and increase of Barred Owls in Oregon
2. Increase in Barred Owl detections at Spotted Owl territories
3. Spotted Owl occupancy before and after Barred Owl detection
4. Fate of Spotted Owls after Barred Owl detection
5. Hybridization between Spotted Owls and Barred Owls

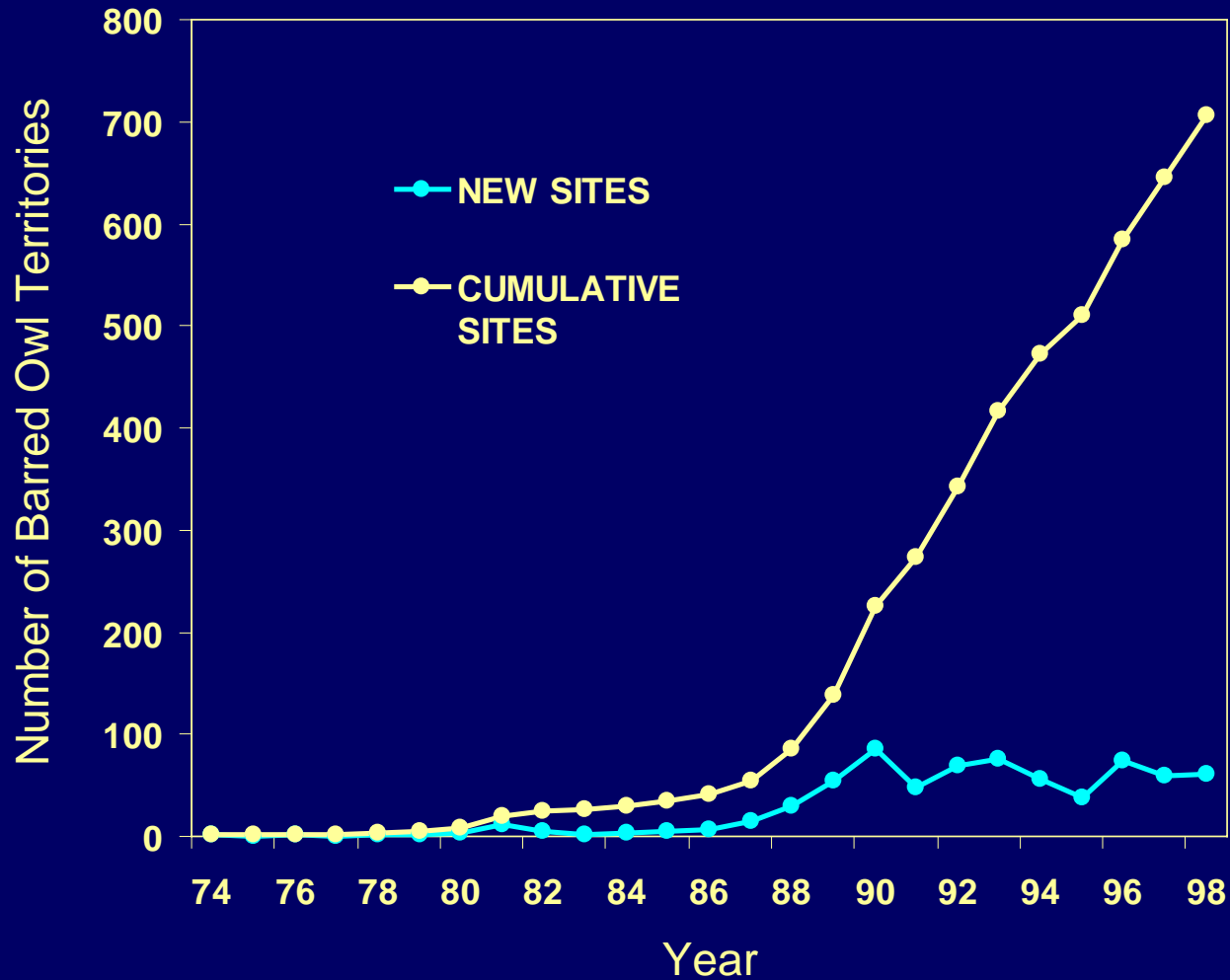
1) *Distribution and Increase of Barred Owls in Oregon*

- Obtain Barred Owl records between 1974 and 1998 from public and private sources
- Reduce multiple responses of individual/pairs of Barred Owls to one “site” or “territory” (1.43 km radius)
- Describe increase and expansion in unique Barred Owl territories over time

Barred Owl Territories in Oregon (1974 - 98)



New and Cumulative Barred Owl Territories (1974 - 98)



2) Increase in Barred Owl Detections at Spotted Owl Territories

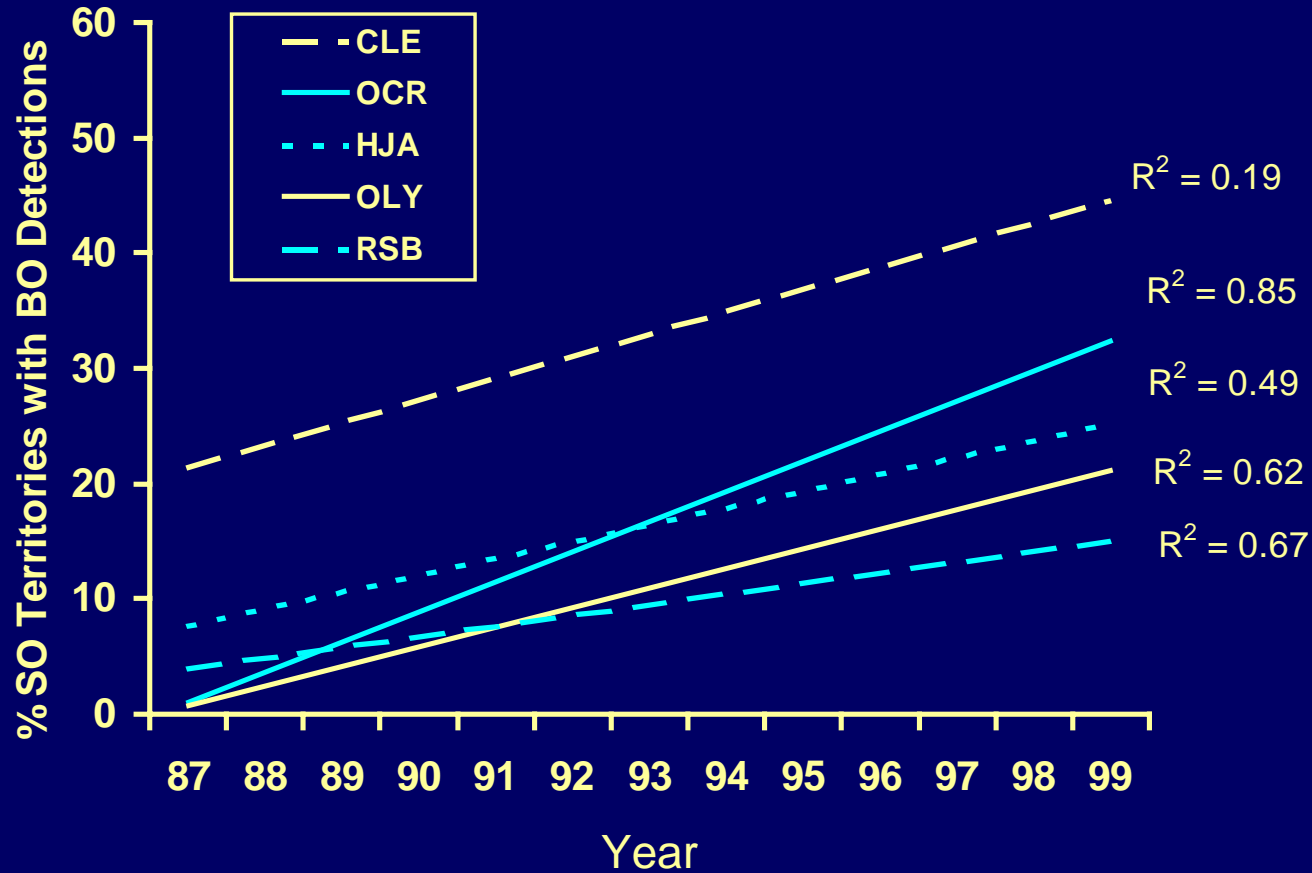
- Data from Demographic Study Areas in Oregon and Washington
- Identify Spotted Owl territories with Barred Owl detections within 2.40-km radius of the Spotted Owl territory center
- Evaluate rate of increase in Barred Owl detections at Spotted Owl territories



Mark and Resight Technique



Spotted Owl Territories with Barred Owl Detections (Detections within 2.40-km of Spotted Owl territory center)

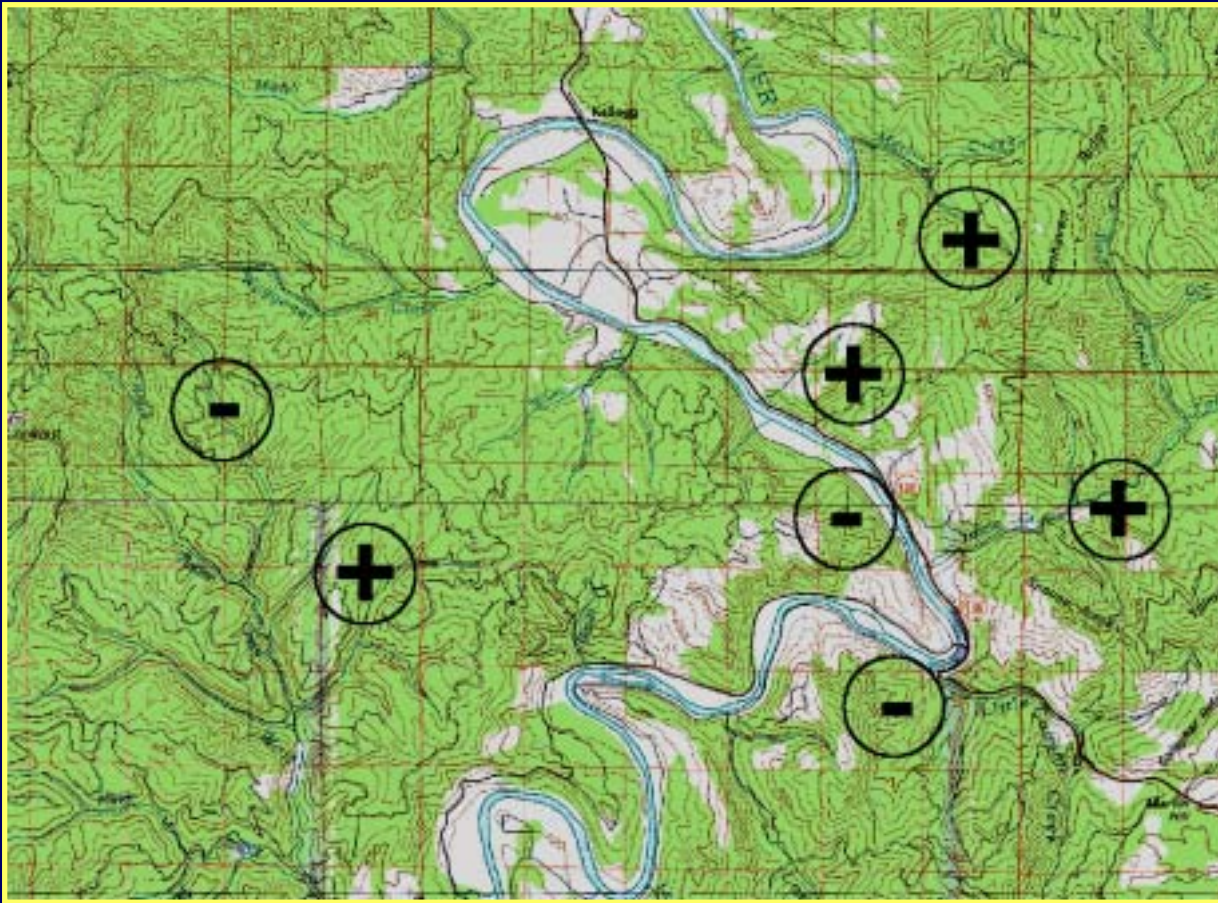


3) *Spotted Owl Occupancy Performance*

- Compare Spotted Owl occupancy at territories before and after Barred Owl detection
- Compare Spotted Owl occupancy at territories with Barred Owls to territories without Barred Owls
- Analysis performed at two distances from Spotted Owl territory center (within 0.80 km “core” and within a 0.81-2.40 km “ring”)

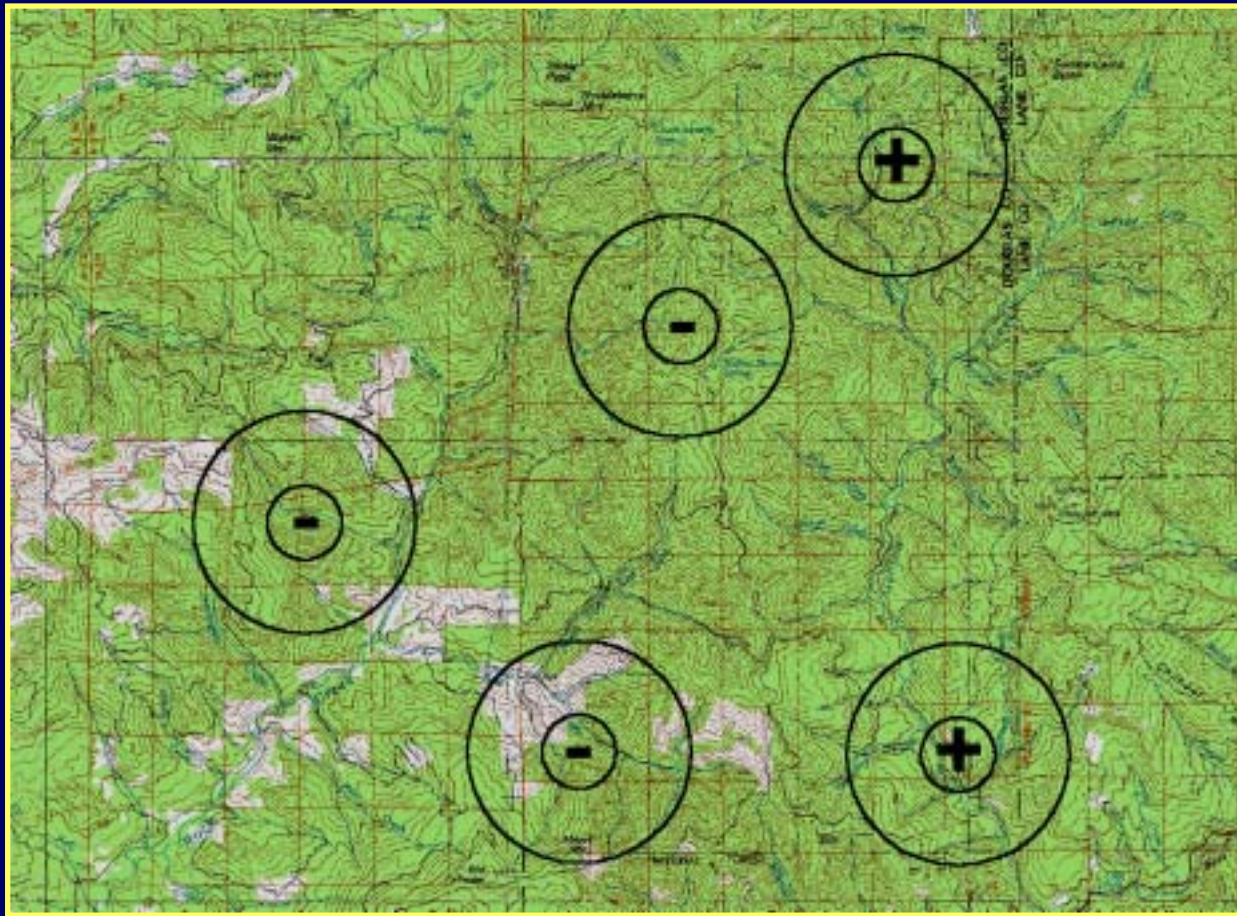
Spotted Owl Territory Core

Barred Owl-present (+) and Barred Owl-absent (-)



Spotted Owl Territory Ring

Barred Owl-present (+) and Barred Owl-absent (-)



Spotted Owl Occupancy Performance Results



After Barred Owl detection in “core”,
Spotted Owl occupancy:

- declined significantly at Barred Owl-present territories
- declined significantly relative to Barred Owl-absent territories

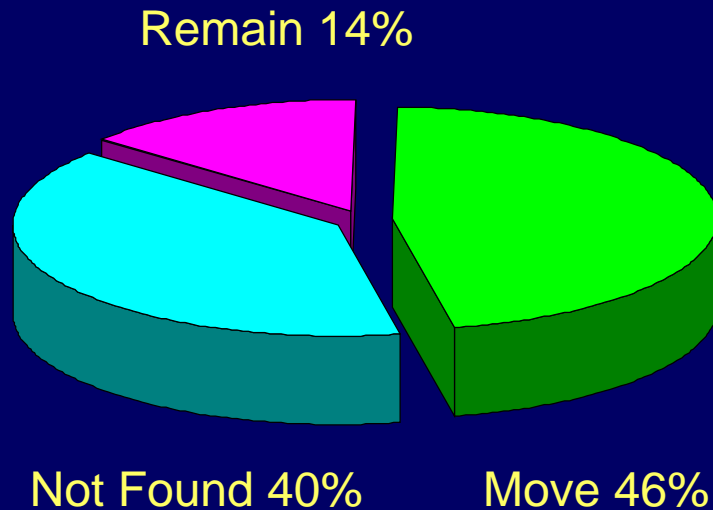
After Barred Owl detection in “ring”,
Spotted Owl occupancy:

- declined slightly at Barred Owl-present territories
- was similar to occupancy declines at Barred Owl-absent territories

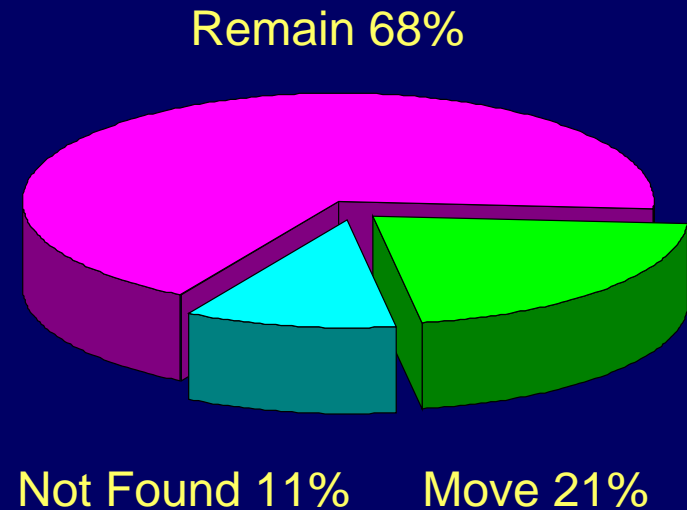
4) *Fate of Spotted Owls after Barred Owl detection*

- Data from Roseburg Demography Study Area
- Compute relative percentages of Spotted Owls that remained at their territories, moved or were not found (either gone or not detected) after Barred Owl detection
- Compare Spotted Owl fate at Barred Owl-present territories to Barred Owl-absent territories at two distances from the Spotted Owl territory center

Spotted Owl Fate after Barred Owl Detection (Detection within 0.80-km of Spotted Owl territory center)



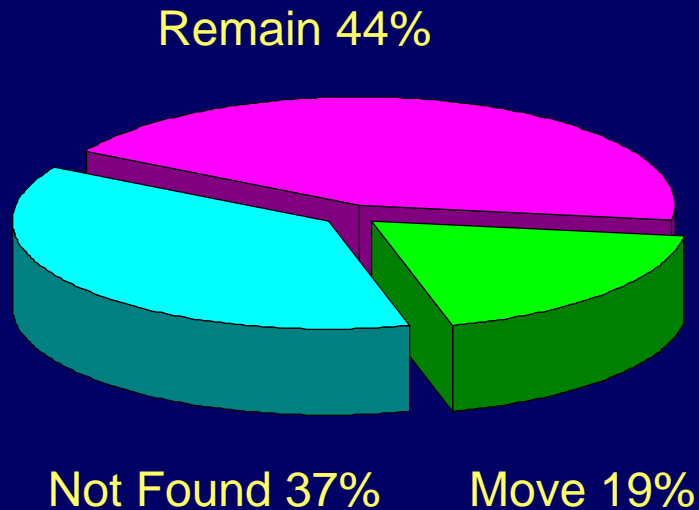
Barred Owl-present



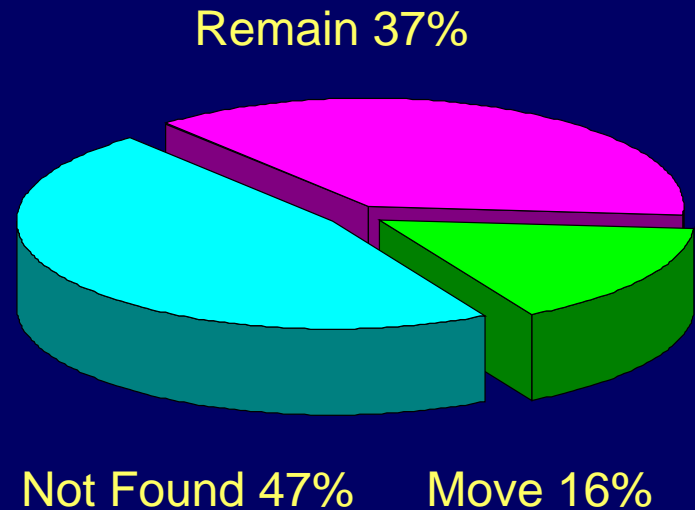
Barred Owl-absent

Data from Roseburg Demography Study Area (n=28)

Spotted Owl Fate after Barred Owl Detection (Detection 0.81-2.40-km from Spotted Owl territory center)



Barred Owl-present



Barred Owl-absent

Data from Roseburg Demography Study Area (n=32)

*5) Hybridization between Spotted Owls and
Barred Owls*



Hybrid Observations in Oregon and Washington (1974 – 99)

OWL STATUS	# Territories	# Juveniles
SPOTTED and BARRED	6	9 F1
HYBRID and BARRED	10	15 F2
HYBRID and SPOTTED	6	1 F2
HYBRID and BOTH	1	0
HYBRID and UNKNOWN SPP.	1	0
HYBRID SINGLE	3	0
HYBRID JUVENILE ONLY	0	1 F1

Hamer et al. (1994) - 3 adult and 1 juvenile hybrid by July 1992

Is the Barred Owl displacing the Northern Spotted Owl?



Conclusions

- Barred Owls are increasing rapidly in Oregon; hybridization reports are rare but increasing
- Spotted Owl occupancy declines significantly after Barred Owl detection within 0.80 km of the territory center relative to territories without Barred Owls
- Movement or disappearance of Spotted Owls when Barred Owls are detected within 0.80 km of the territory center is greater relative to territories without Barred Owls (Roseburg).