

Bald Eagle Monitoring



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task agreement with NPS

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Lake Mead National Recreation Area, National Park Service



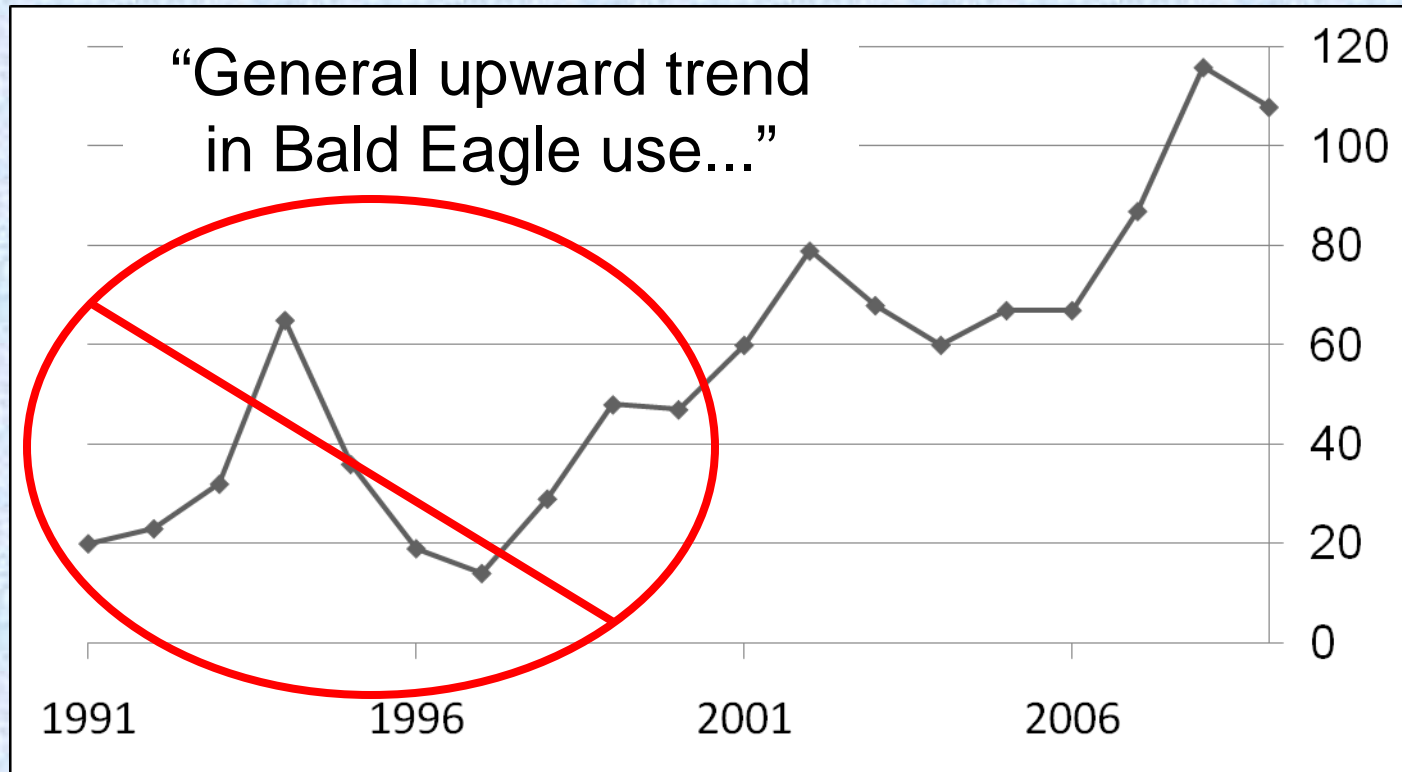
MSHCP Project Progress Report Symposium, 12 August 2009

Background of the Bald Eagle Winter Count

- Winter counts have been conducted (in some form) at LMNRA since 1981
- Part of a national effort to document trends and identify important wintering areas
- Important team building exercise between resource management, law enforcement, and partner agency personnel
- Important public outreach, generally resulting in several newspaper articles and occasional TV and radio spots



Number of Bald Eagles seen during winter counts on Lakes Mead and Mohave

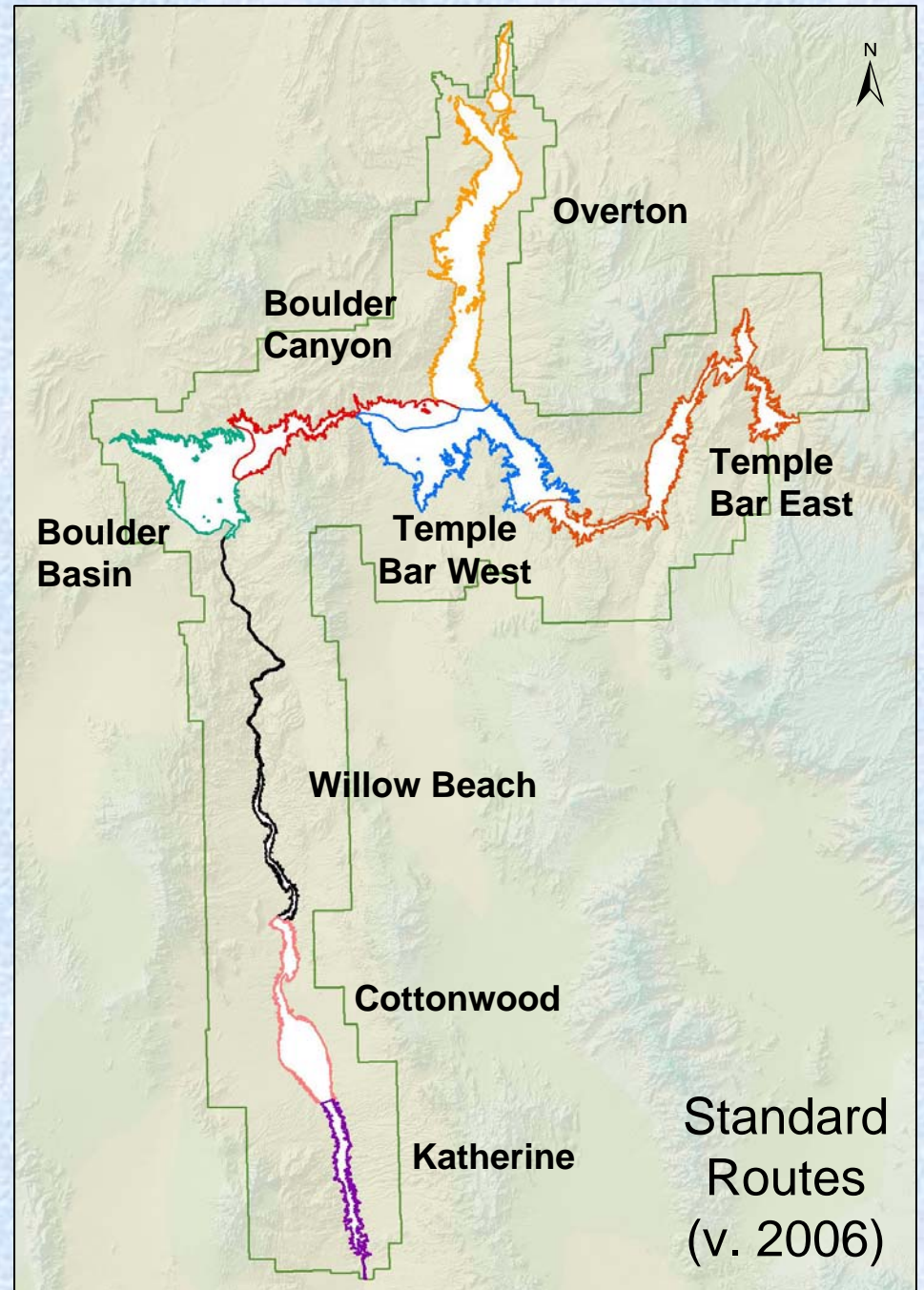


Importantly:

- Methodology and level of effort have varied significantly

Standardizing Protocol

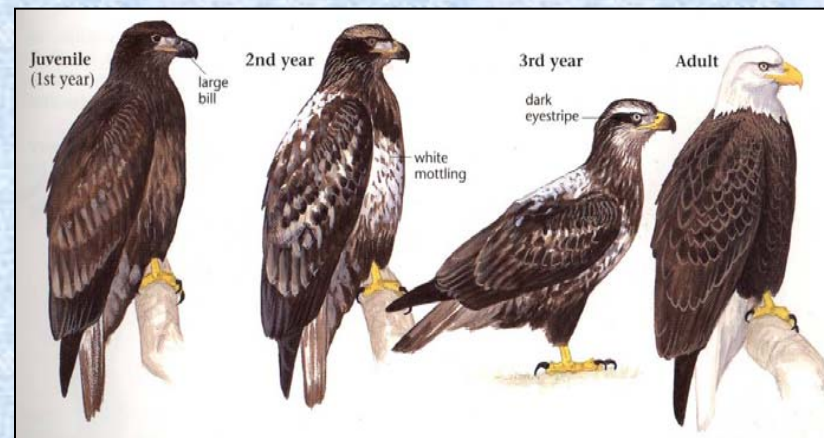
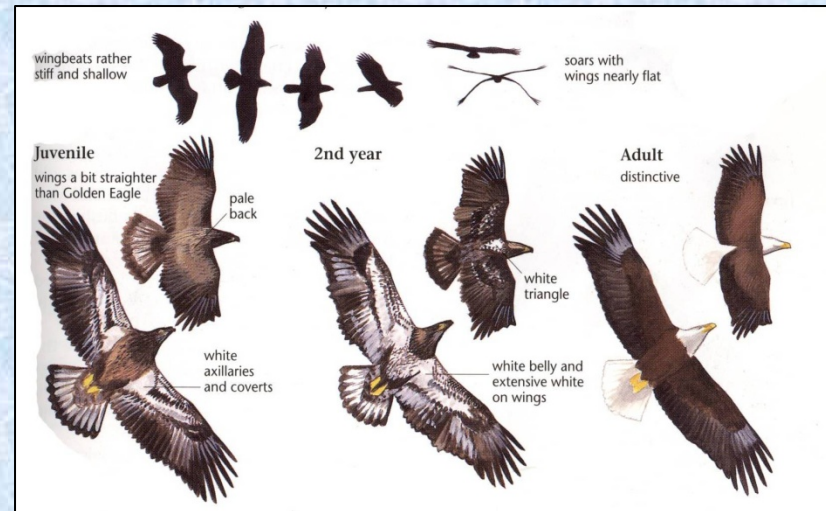
- Survey routes standardized in 2000
- Established multiple boat crews, intended to cover all shorelines in a single day
- Identification guides provided ~ 2001



Standard Operating Procedures

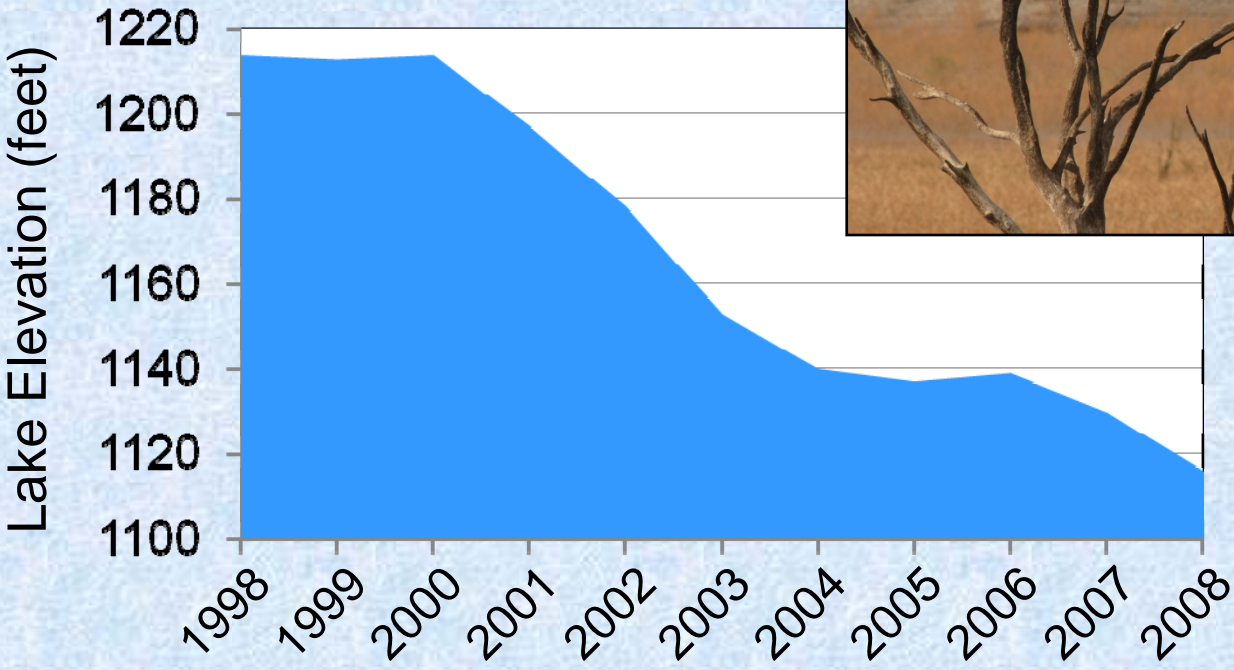
Developed and implemented, 2007– 2009

- ✓ Crew training
- ✓ 15 MPH maximum boat speed
- ✓ GPS tracking
- ✓ Improved data recording
- ✓ Slight modifications to Overton and Boulder Canyon routes



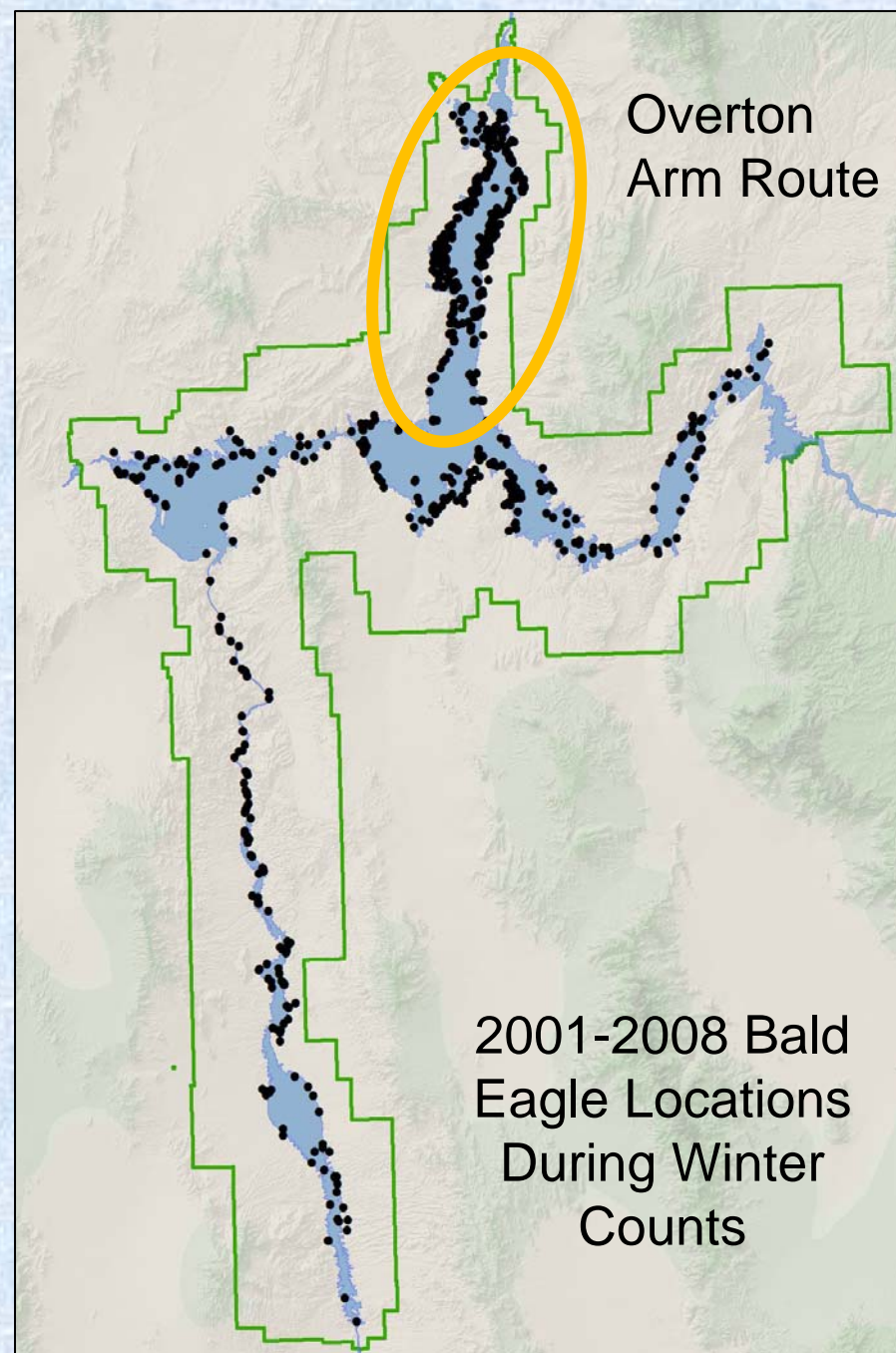
Copyrighted figures from Sibley 2000

Water level changes on Lake Mead have greatly affected total survey area and survey times, as well as shoreline conditions

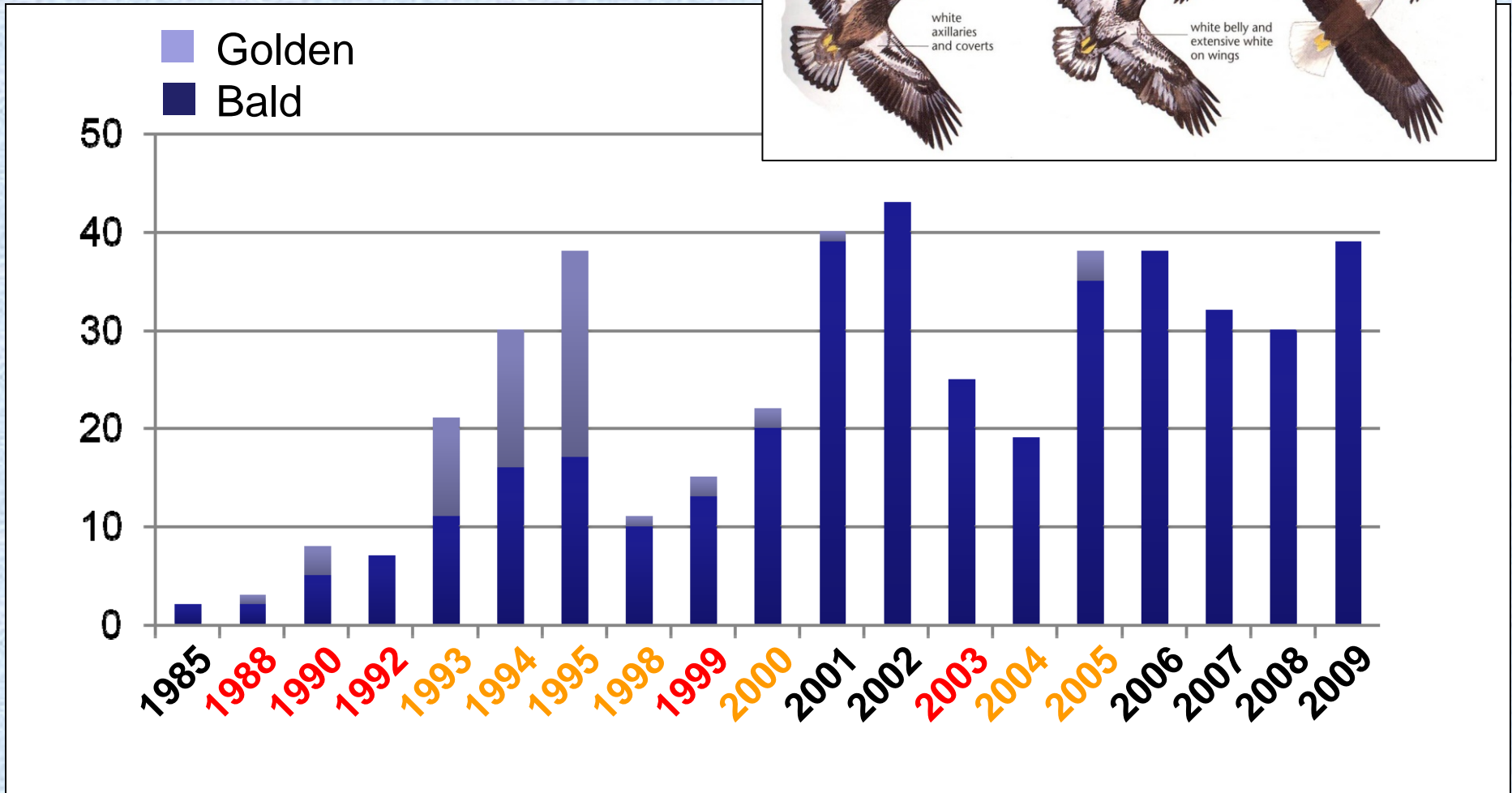


Lake Mead January Water Levels

What do we know about the Bald Eagles at Lakes Mead and Mohave?

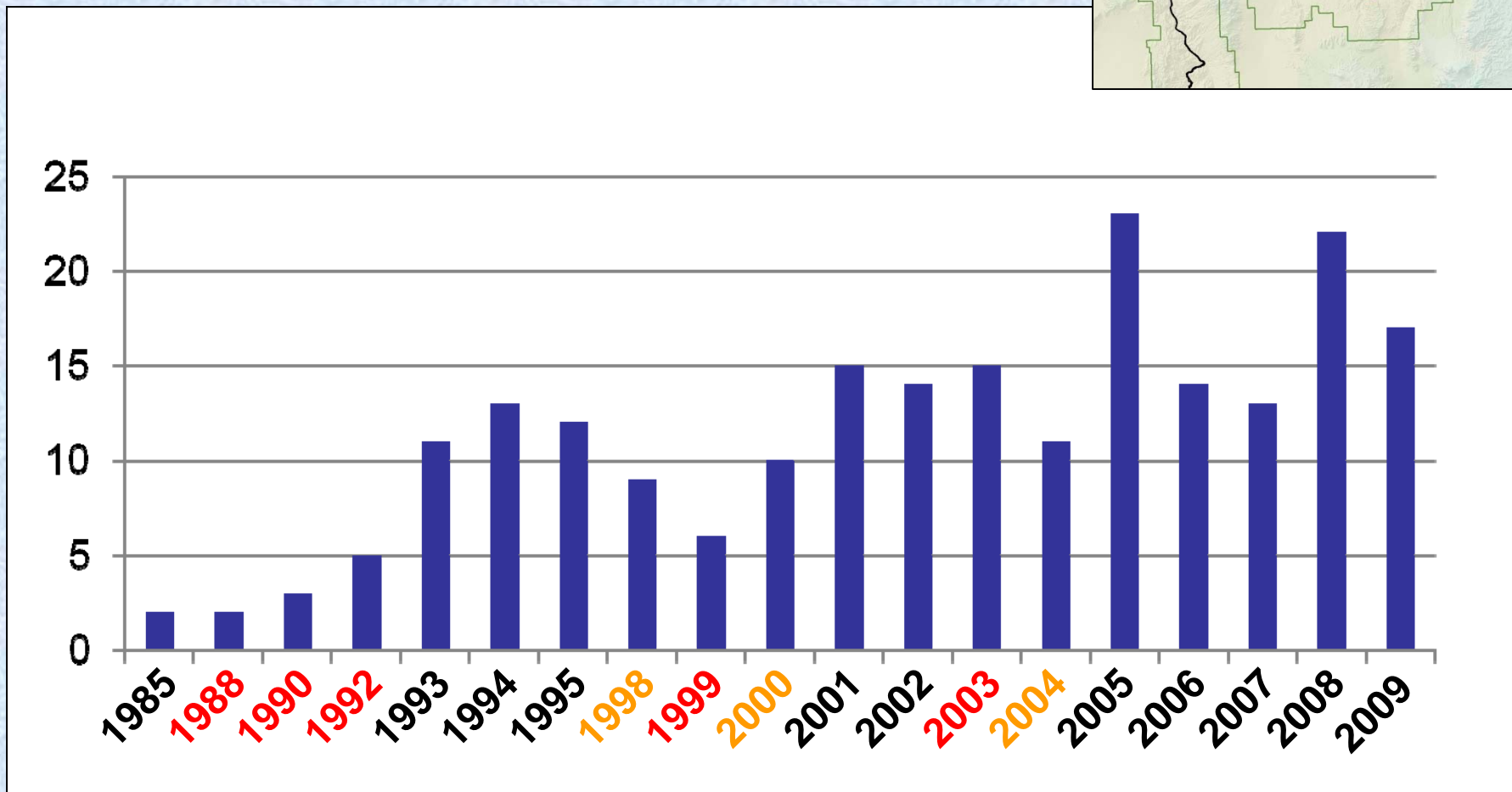
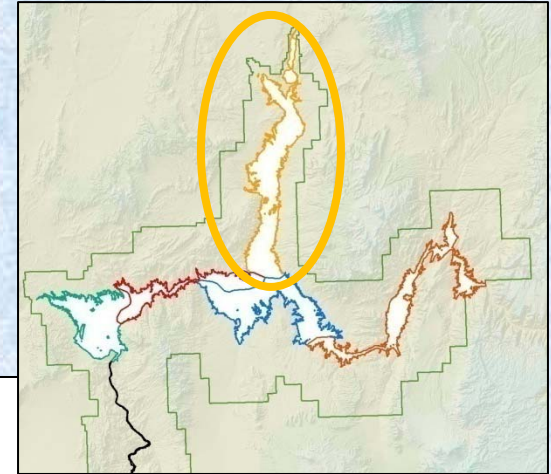


Winter Counts on Overton Arm

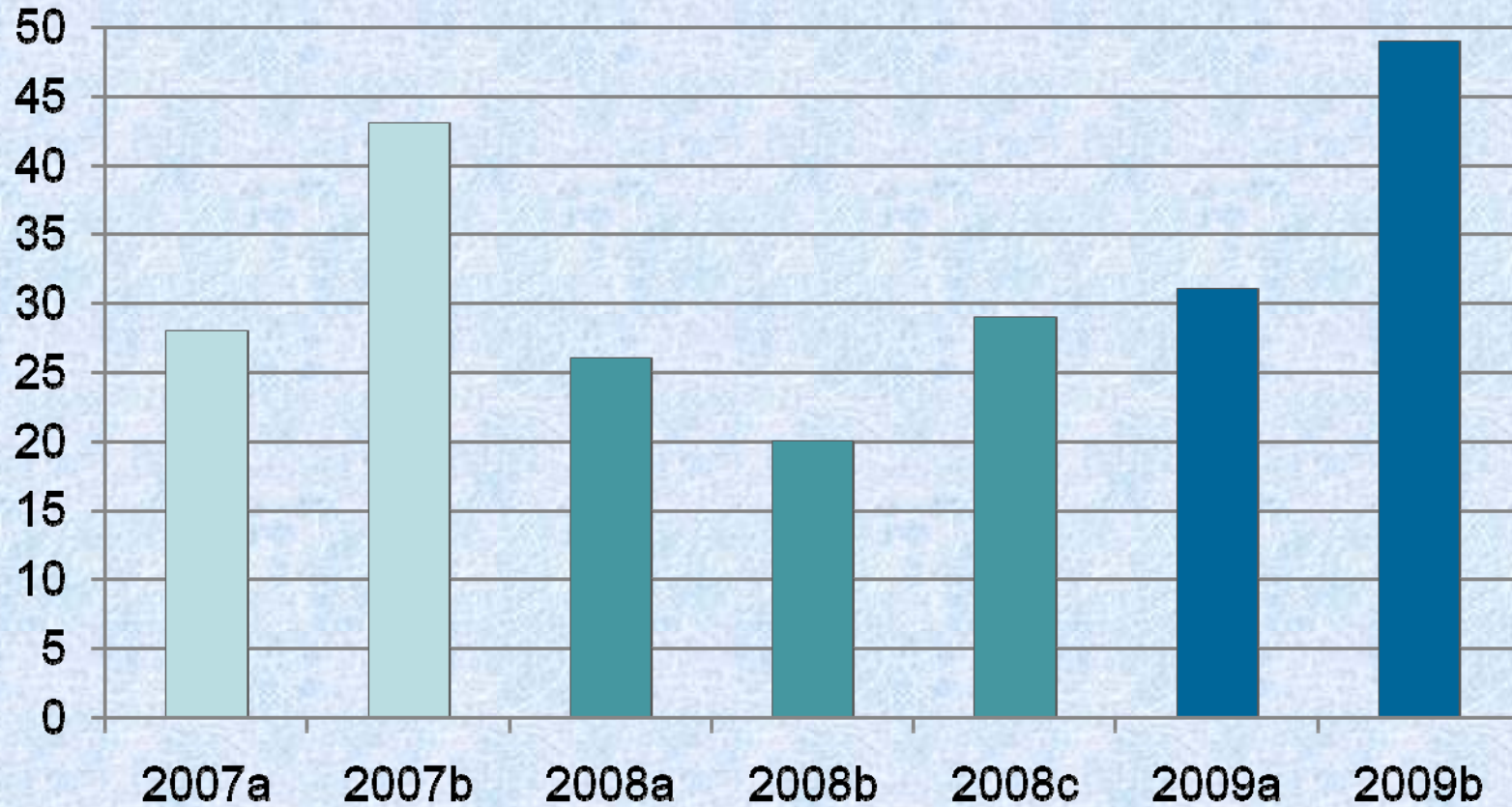


Adult Bald Eagles are difficult to misidentify

Adult Bald Eagles Observed on Winter Counts of Overton Arm Route

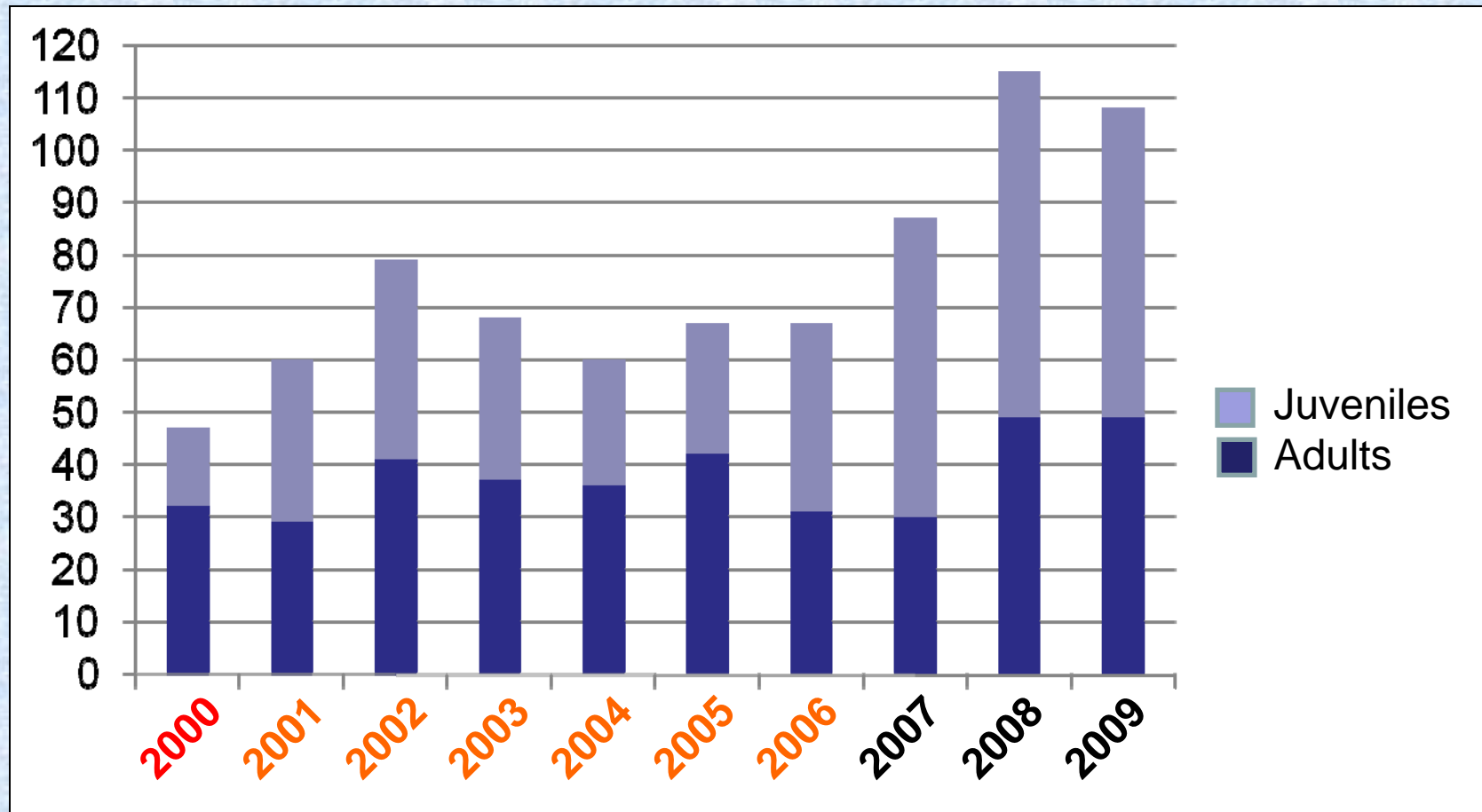


Repeated Winter Counts of Bald Eagles on Overton Arm Route



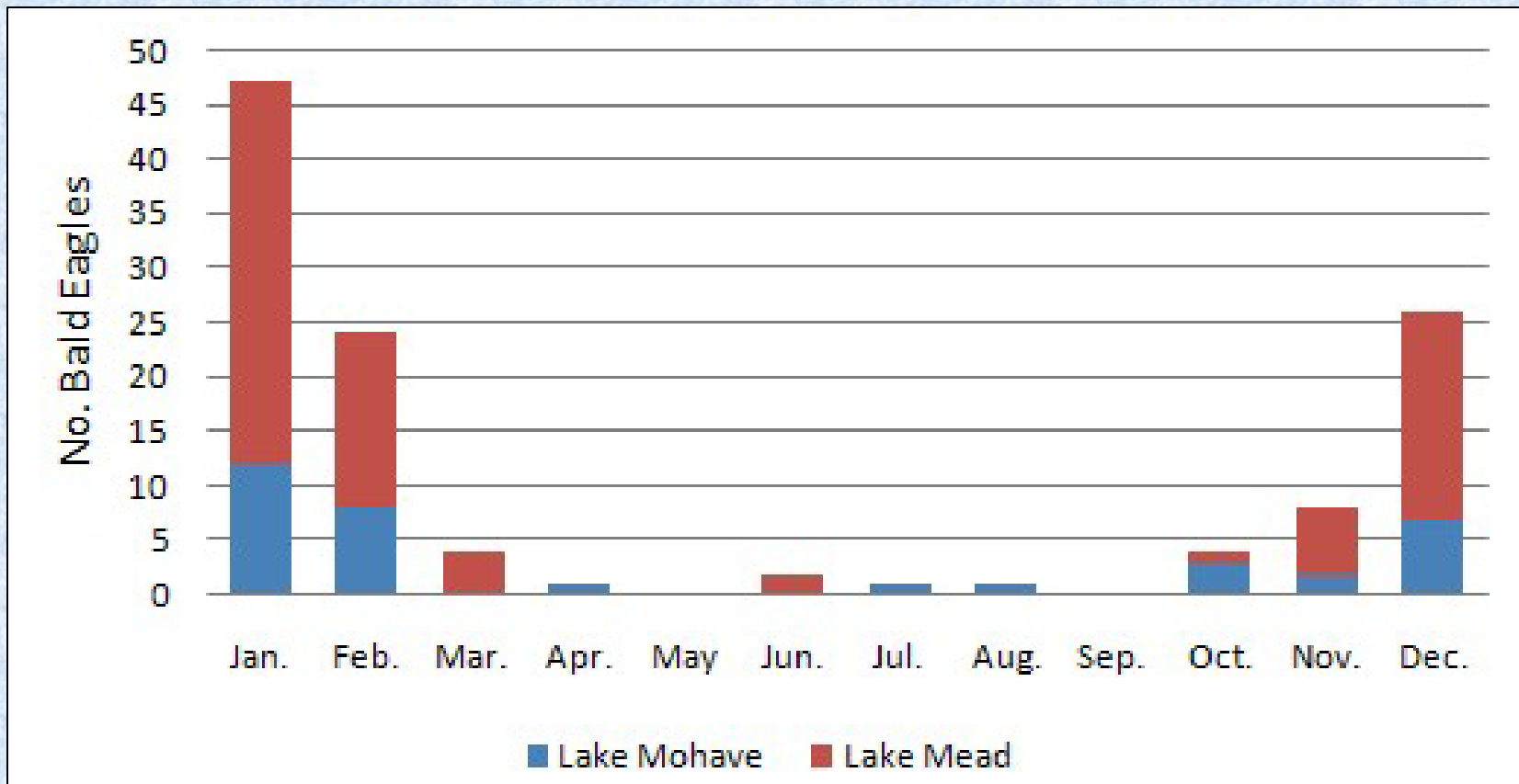
Survey conducted of the same route, under good conditions, using equivalent crews, and within the appropriate time frame for the winter count each year.

Summary of Winter Counts on Lakes Mead and Mohave



- Eagles are present in large numbers in recent years
- High percentage of juveniles

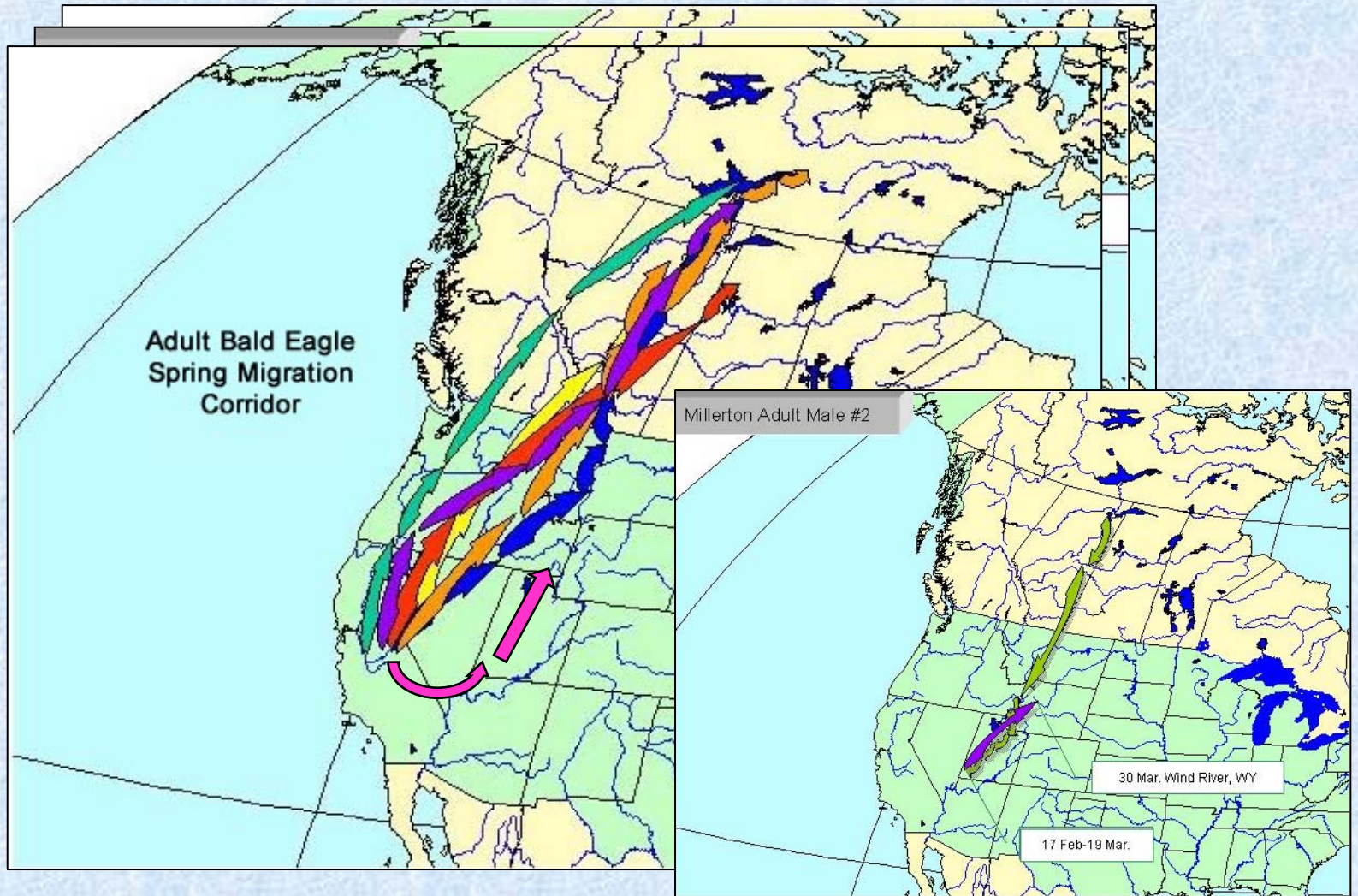
Total Numbers of Bald Eagles Seen During Monthly Aquatic Bird Surveys* (2004 – 2008)



- Present in large numbers between December and February
- Lakes Mead and Mohave are likely part of winter range

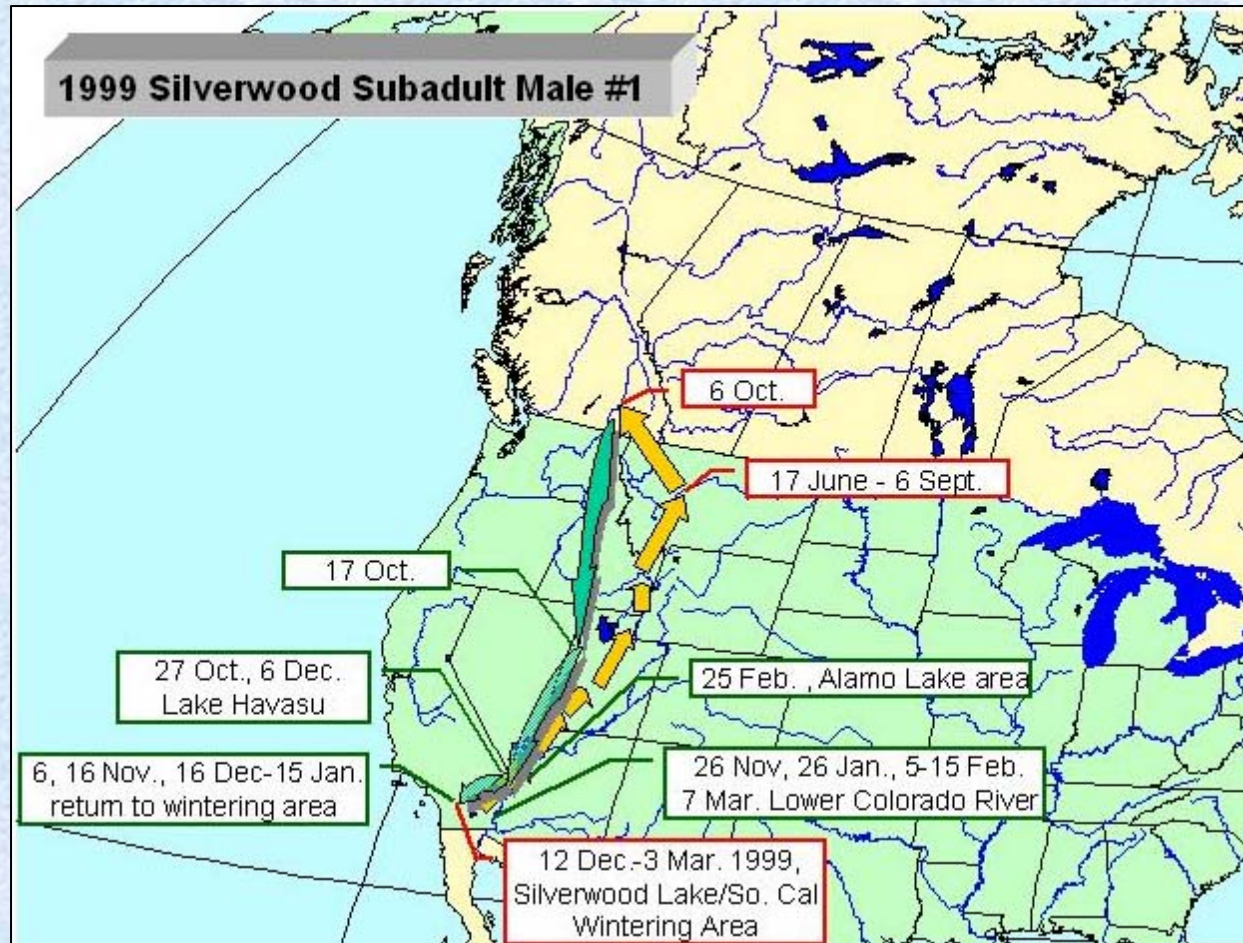
These data are not part of the MSHCP project

Birds Captured at Millerton Lake



Santa Cruz Predatory Bird Research Group at Long Marine Lab, UCSC

Birds Captured at Silverwood Lake

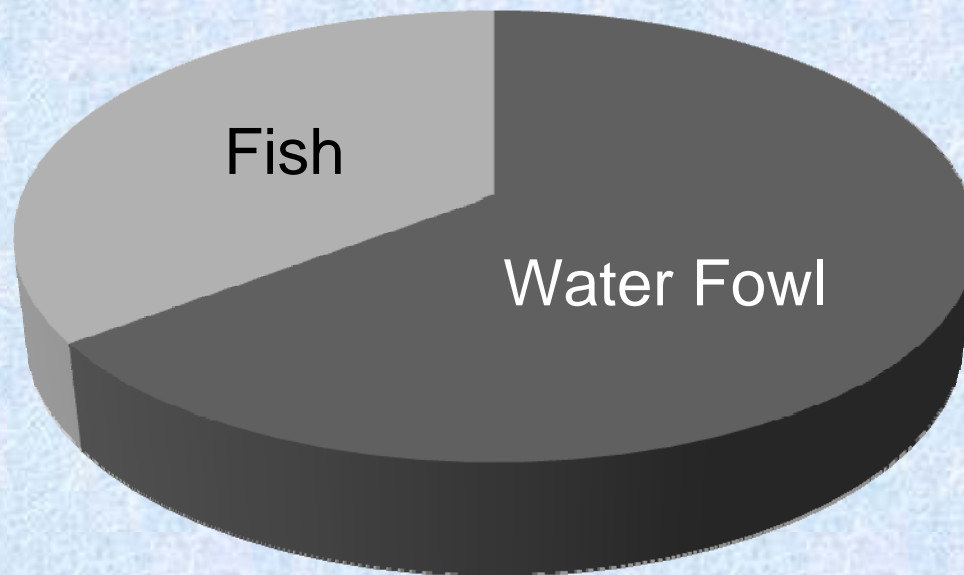


Santa Cruz Predatory Bird Research Group at Long Marine Lab, UCSC

- An abundance of aquatic birds may be an important resource (drawing eagles to the region)



Observations of prey attempts by Bald Eagles at Lakes Mead and Mohave

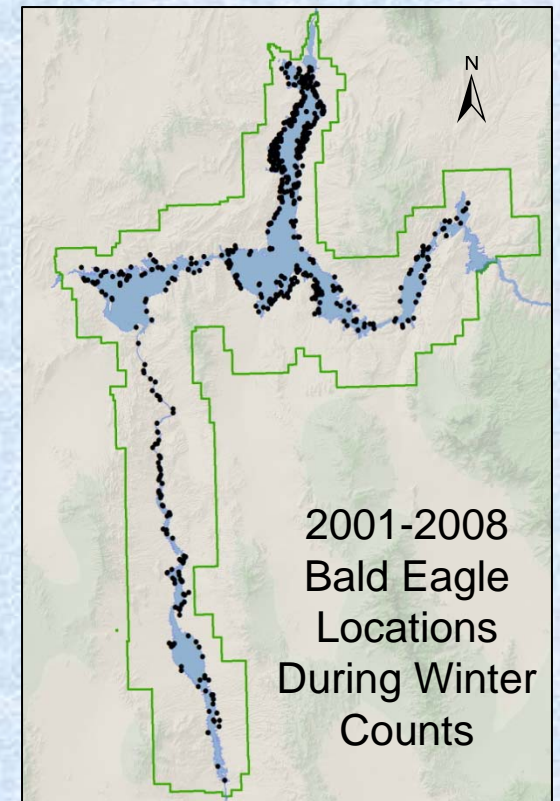


These data are not part of the MSHCP project

Modeling Bald Eagle Habitat Use

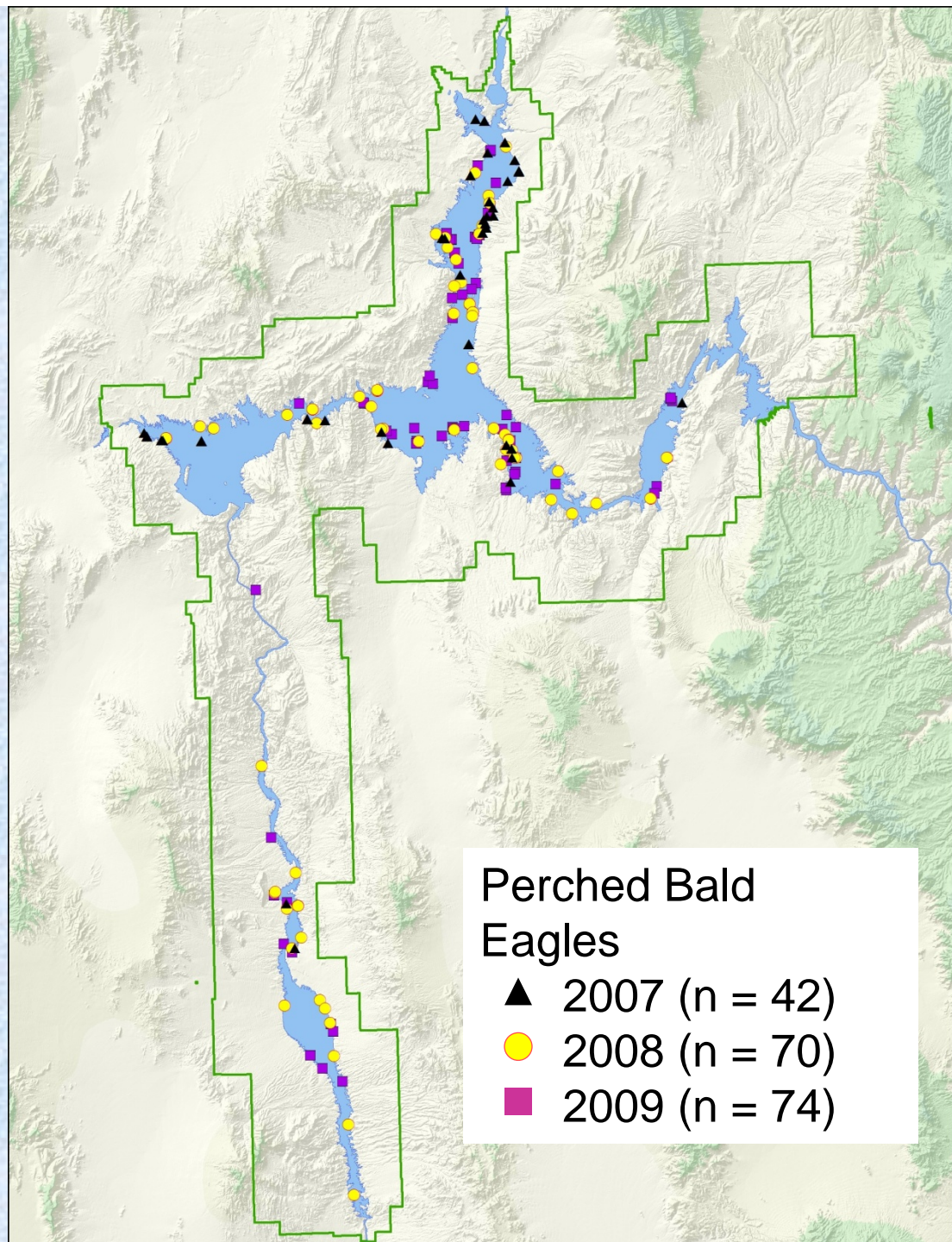
Objective: Develop habitat use and habitat suitability maps

- Limit our modeling to more recent data (2007–2008)
- Distributions in 2007 and 2008 were not the same
- Distributions of perched and flying eagles marginally different
- Distributions of immature and adult eagles were the same



Data Used For Preliminary Habitat Modeling

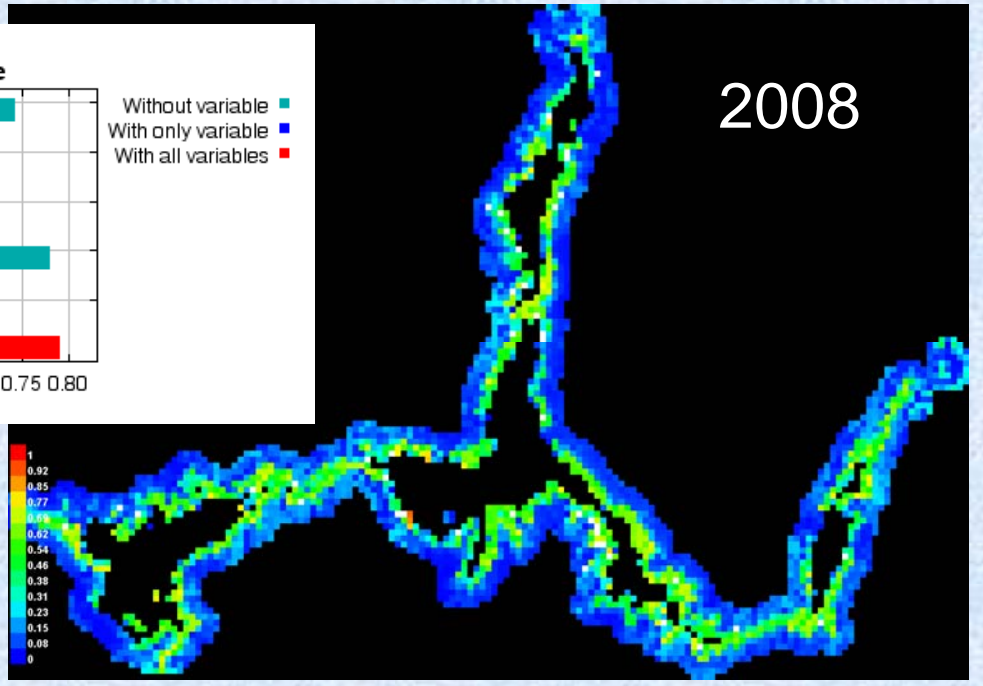
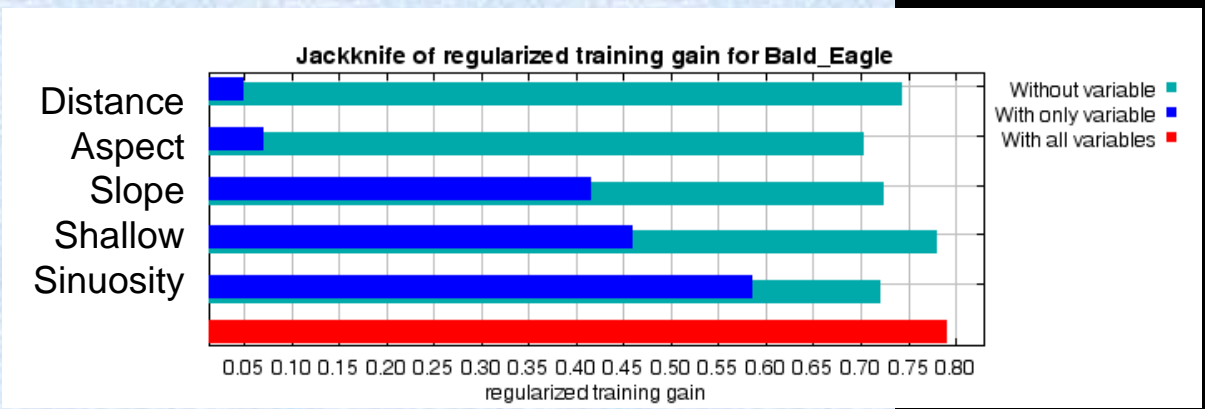
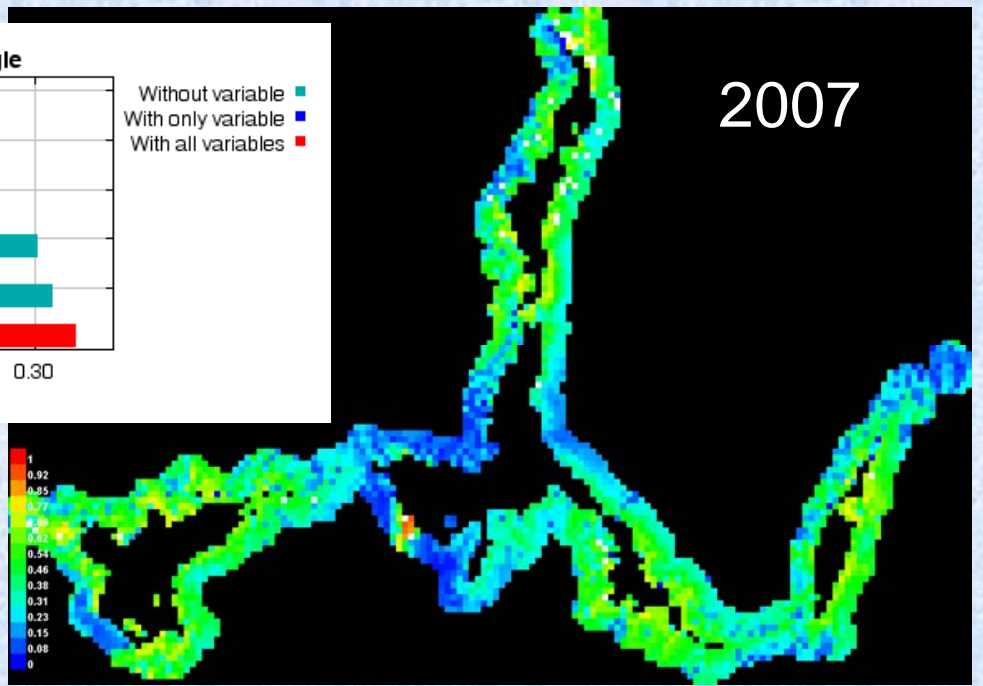
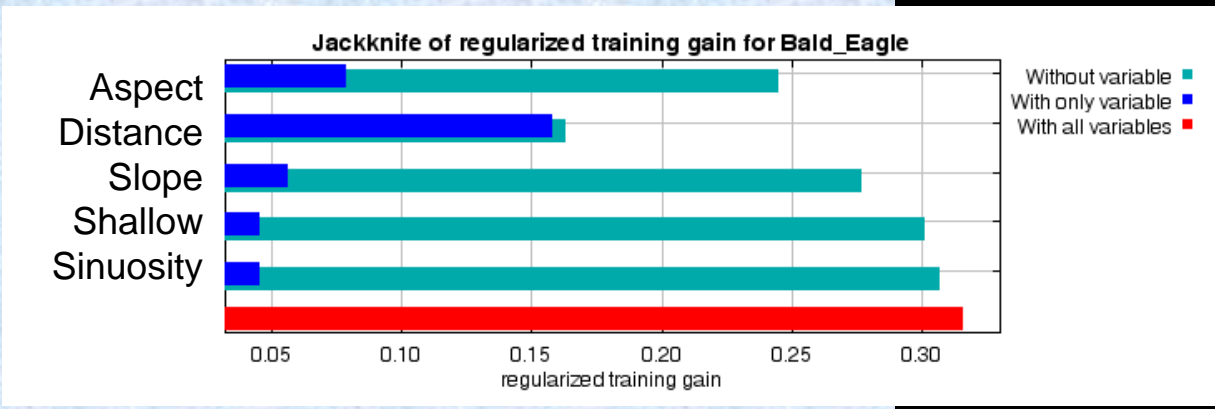
- Years separately
- Perched eagles only
- Age classes together
- Still need to evaluate 2009 data



Habitat Variables Used in Preliminary Maxent Modeling



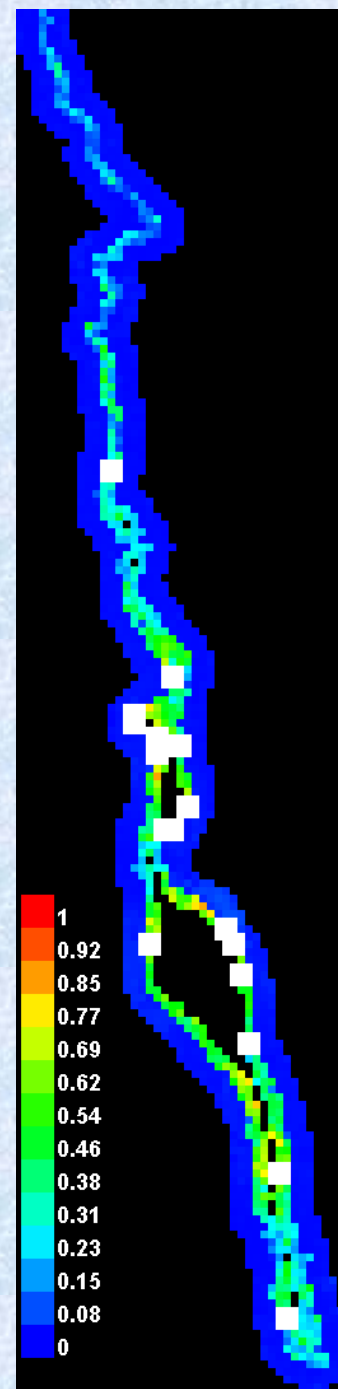
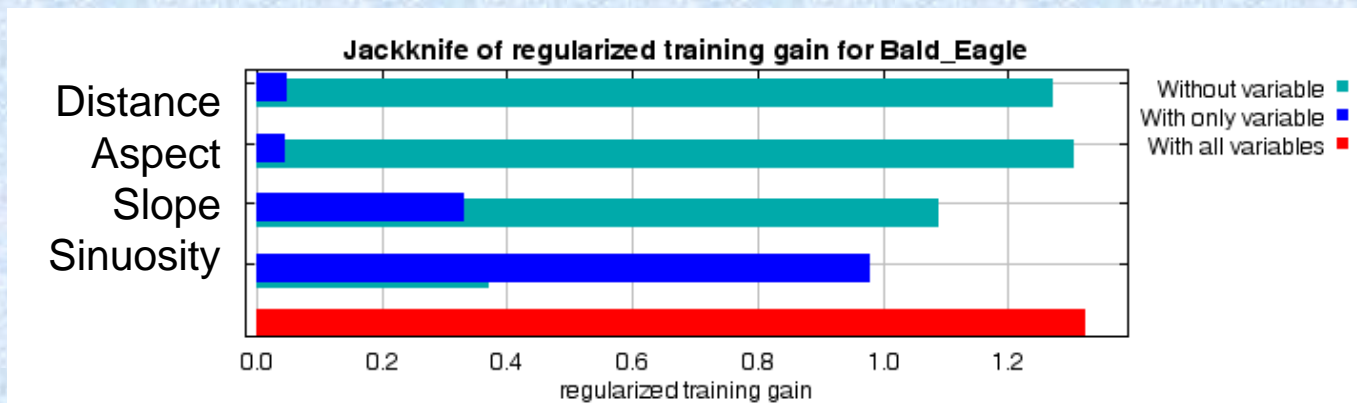
- Food availability
 - Sinuosity of shoreline
 - Percentage of shallow water
- Perch availability
 - Maximum slope
 - Majority aspect
- Human activity
 - Distance to developed area



Warmer colors in models implies more suitable habitat

Lake Mohave

2007 and 2008 data combined



Digital bathymetry is not readily available for Mohave

Project Status:

- All milestones and deliverables completed to date...
- Field efforts completed with the successful 2009 winter count...

Further Efforts:

- Write the final report of winter count efforts...
- Also provide a final version of the standard protocol for the winter count developed over the last several years...
- Complete final modeling efforts, including 2009 data...

Acknowledgments



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Cooperating agency: Public Lands Institute, University of Nevada, Las Vegas

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