



Results of Golden Eagle (*Aquila chrysaetos*) Nest Surveys in Arizona's Portion of BCR 33



KENNETH V. JACOBSON, Arizona Game and Fish Department-WMNG, 5000 West Carefree Highway, Phoenix, AZ 85086 USA.

Regulatory Environment

The Bald and Golden Eagle Protection Act has been revised to authorize permits for the "incidental" take of bald and golden eagles, where take is associated with otherwise lawful activities. Permit thresholds for golden eagles will be set at the Bird Conservation Regions level, but will not exceed one percent of the annual productivity.

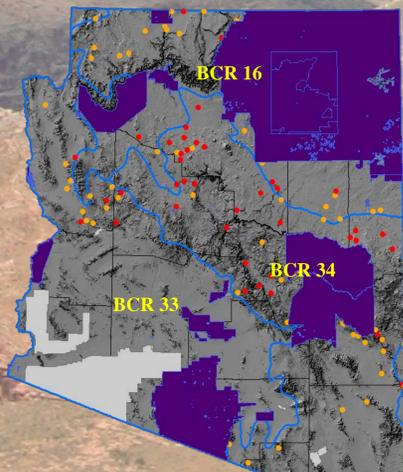
Per the Bald and Golden Eagle Protection Act, federal and local permitting agencies will have to assess the effects of proposed projects on the local golden eagle population within approximately 10-miles as well as the project's affect on the regional population within 140 miles. Baseline nest location, occupancy, and productivity data are now essential for state and federal agencies to evaluate these effects and help project proponents maintain compliance with federal law.

Known Historical Distribution In Arizona

In Arizona, little was known about golden eagle distribution or population status. Surveys were conducted in the 1970s, but fell far short of being comprehensive or statewide. With the exception of a 2006 ground based effort to assess occupancy status of known golden eagle breeding areas, the Arizona Game and Fish Department (AGFD) mainly collected opportunistic data on breeding golden eagles. As of 2010, the AGFD's Heritage Database Management System (HDMS) had 133 documented golden eagle breeding areas (BAs) on record. Ninety-one of these breeding areas were classified as "Historic" or not documented as being occupied for over 10 years. Within Arizona's portion of Bird Conservation Region (BCR) 33, HDMS held records for 17 breeding areas, of which 14 were classified as "historic" (Figure 1).

Figure 1. Known Golden Eagle Breeding Areas Pre-2011-2012 Nest Surveys

(Red=Recently Occupied Breeding Areas; Yellow=Historic Breeding Areas; Purple=Tribal Lands; Light Gray=Military Lands)



Initial Attempt to Fill the Information Gap

In 2006, the AGFD attempted to assess the golden eagle population by examining, from the ground, 85 historic nest locations recorded in the HDMS. Only 14 were found to be occupied. Since many of the nest sites had not been visited since the 1970s, we are unsure if pairs moved their nest location since originally documented or if the pairs have abandoned the area altogether. The 2006 effort and results made it clear that any revived ground surveys would be time/cost inefficient, and a helicopter nest survey would be needed to establish a new baseline of nest locations statewide.



Photo by Ron Austing

Engaging State Partnerships

With an ever increasing demand for current golden eagle information and limited available resources. The AGFD formed the Southwestern Golden Eagle Management Committee (SWGEMC) for state, federal, private, and Tribal entities to collaboratively address statewide golden eagle conservation and management issues. The inaugural meeting was held in July 2010 with 16 partner agencies. The SWGEMC meets annually in January and July to review action item progress, survey results, proposed budgets, identify funding opportunities, and plan future survey efforts. Through this collaborative approach, the AGFD was able to partner with the Bureau of Land Management to fund initial helicopter based golden eagle nest surveys during the 2011 and 2012 breeding seasons (200+ hours of helicopter time). This initial survey has facilitated the expansion of golden eagle management in Arizona into a multi-agency funded effort to finish the statewide nest inventory and begin helicopter and ground based occupancy surveys.

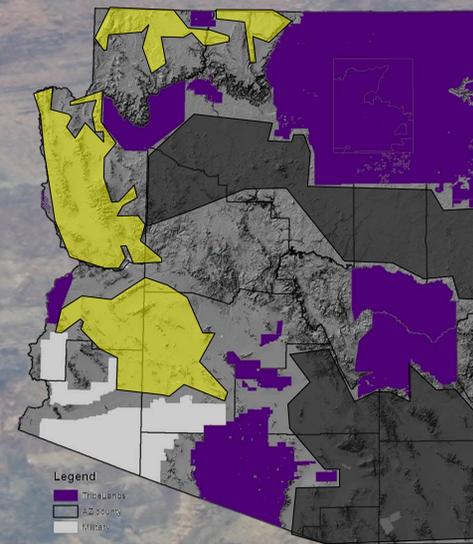


Statewide Golden Eagle Nest Surveys

The 2011-2012 nest survey involved a total of 42 flight days with 219 hours of flight time to survey areas in Arizona primarily within 10 miles of proposed wind energy sites. Tribal (purple) and military (light gray) lands were excluded from this initial survey effort (Figure 2). In addition, the Tonto National Forest located in the central portion of the state was not surveyed due to limited funds and the absence of proposed wind facilities. Funding has been secured to conduct golden eagle nest surveys on Tonto National Forest and Department of Defense lands in 2013. Tribal partners are either conducting their own surveys or plan to partner in the statewide effort pending funding.

Figure 2. 2011-2012 Golden Eagle Nest Survey Areas

(Yellow=2011 survey area; Dark Grey=2012 survey area; Purple=Tribal Lands; Light Gray=Military Lands)



2011-2012 Golden Eagle Nest Survey Results

Statewide:

- 9 of 34 known breeding areas occupied (26.5%); (Figure 3)
- 8 of 48 historical breeding areas occupied (16.7%)
- 64 newly discovered and occupied breeding areas
- 35 new areas with eagle size nests and 1 adult
- 270 potential breeding areas with one or more eagle sized nests of varying condition (Figure 4).

Within BCR 33:

- 2 of 3 known breeding areas occupied (66.7%)
- 2 of 14 historical breeding areas occupied (14.3%)
- 23 newly discovered and occupied breeding areas
- 14 new areas with eagle sized nests and 1 adult
- 113 potential breeding areas with one or more eagle sized nests of varying condition.

Figure 3. Known and Historic Golden Eagle Breeding Areas Post 2011-2012 nest surveys

(Red=Recently Occupied Breeding Areas; Yellow=Historic Breeding Areas; Purple=Tribal Lands; Light Gray=Military Lands)

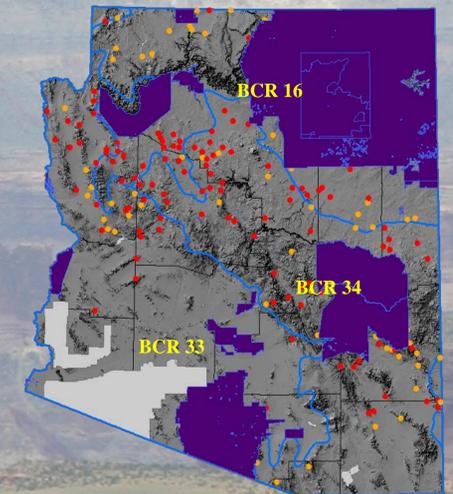
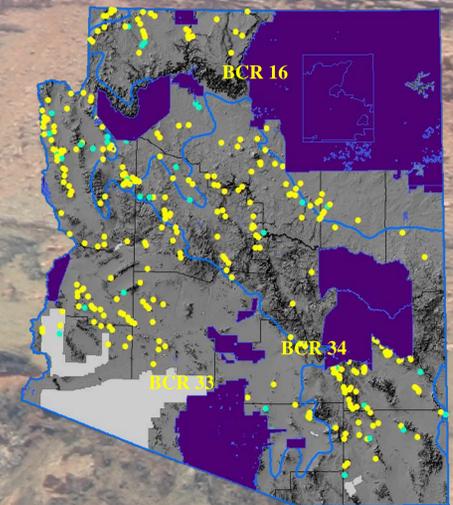


Figure 4. Potential Golden Eagle Breeding Areas Documented during the 2011-2012 nest surveys

(Yellow=One or more large eagle sized nests; Blue=Eagle sized nests with 1 adult in area; Purple=Tribal Lands; Light Gray=Military Lands)



Direction of Future Efforts

- Finalize Statewide Nest Surveys
- Conduct Occupancy Assessments on all Historic and Potential breeding areas
- Develop a Statewide Productivity Monitoring Plan.

Additional SWGEMC Products

- Standard Terminology Document
- Statewide Standard Survey Protocol
- Roadside Carcass Removal Mitigation Strategy
- Golden Eagle Buffer Zone Strategy (pending).