

Peregrine Falcon Monitoring in Clark County

2009-2010

2005 NDOW 549P

Background

- ◉ Decline
- ◉ Listing
- ◉ Re-discovery
- ◉ Post-delisting
“Monitoring Plan for the American Peregrine Falcon: A species recovered under the Endangered Species Act” (USFWS 2003)



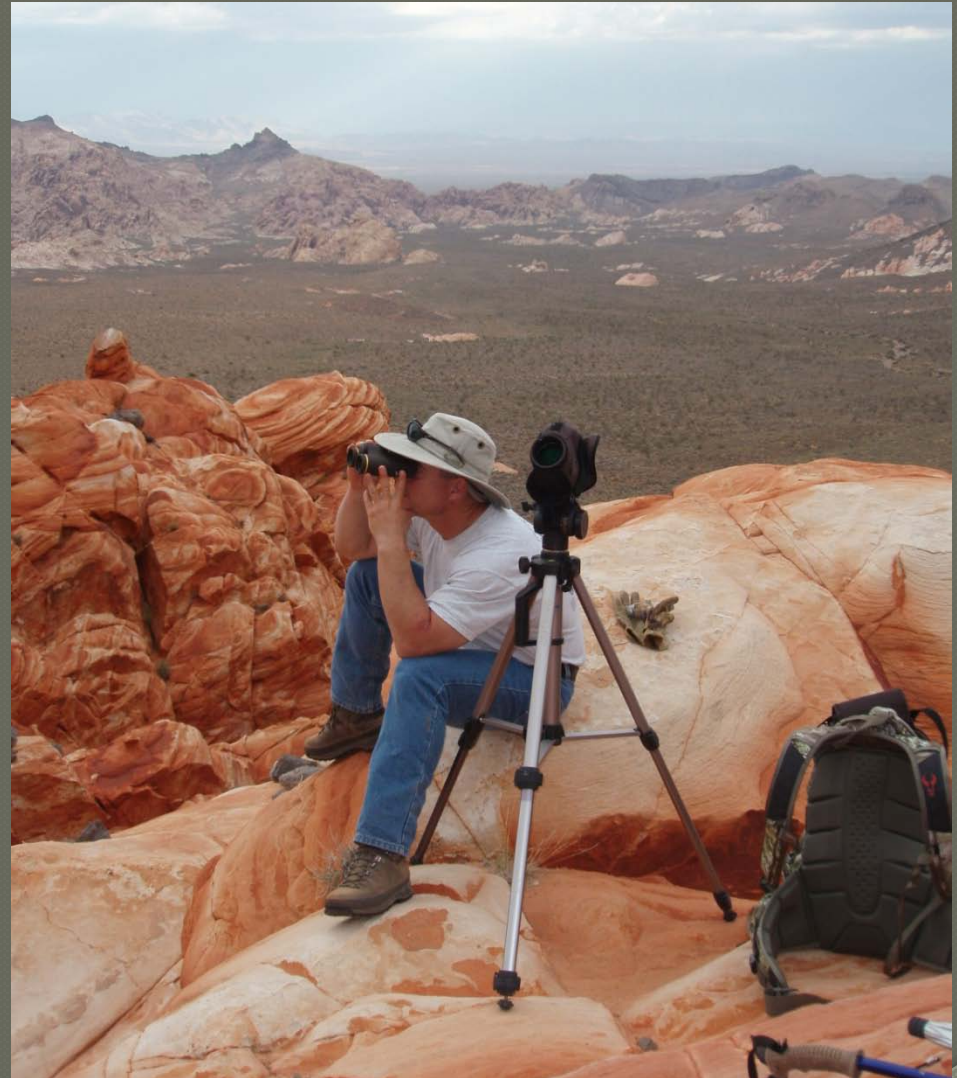
Goals & Objectives

- Territory Occupancy
- Nest Success
- Productivity
- Search /document new territories
 - Call Broadcast
 - Predictive Habitat Suitability Model
- Elucidate status



Historic Monitoring Efforts

- 1985-2004 focused on Lake Mead NRA
- ~2004 NPS began dedicated monitoring
- NDOW shifted focus to other areas (Clark and Lincoln Counties and rest of NV)



Monitoring/Survey Methods

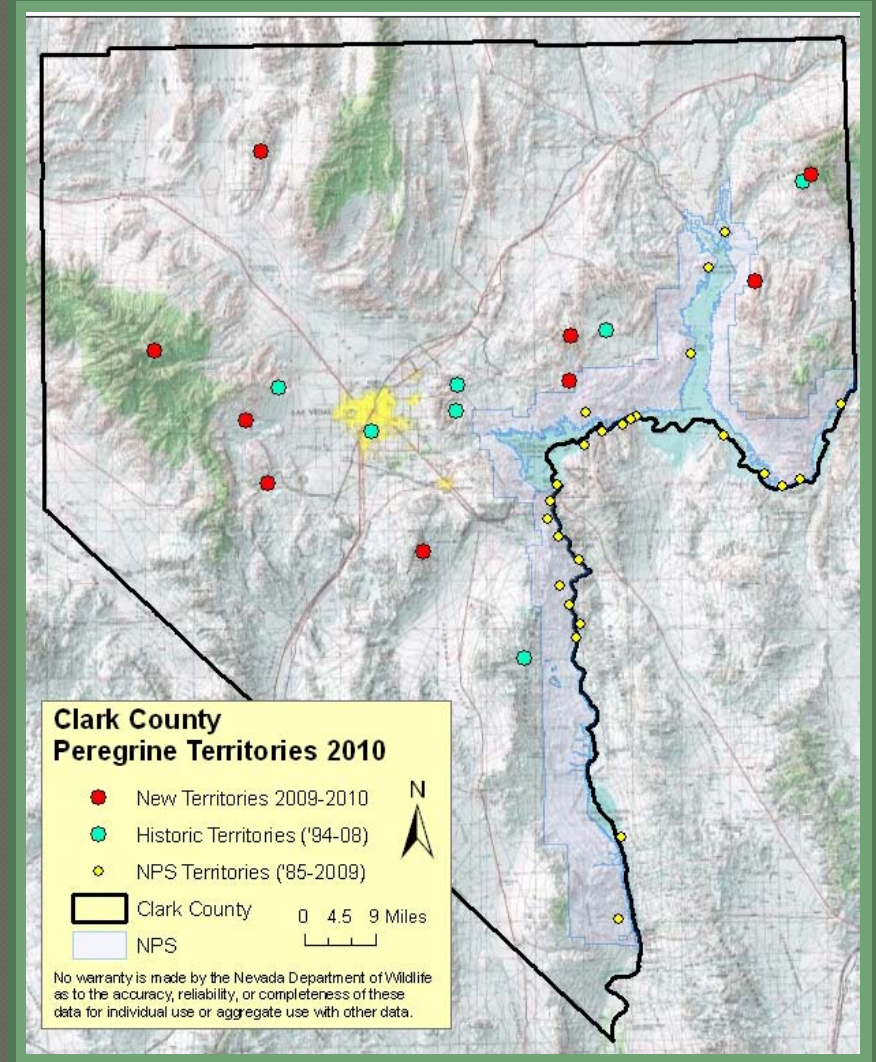
- Historic—Brief visit, occupancy, via boat
- Baited (pigeons)
- Aerial Helicopter
- Current—Passive USFWS protocol
- New Call-Broadcast (UNLV & NPS)
- Predictive Habitat Model/Map



Photos courtesy of DOD

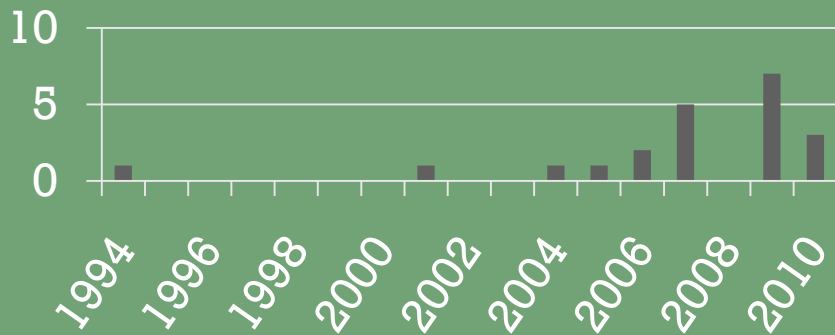
Distribution

- Historic effort focused on Lake Mead/NPS
- 1994-2008 (aqua)
- 2009-2010 (red)
- 8 recently discovered territories to the North in Lincoln Co.

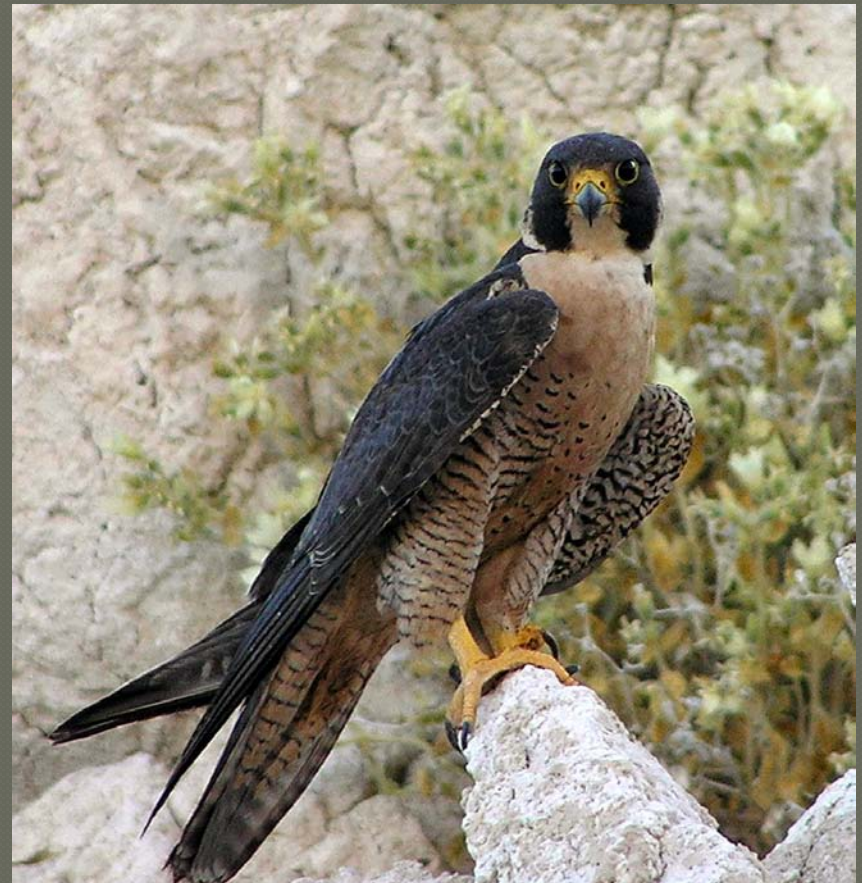
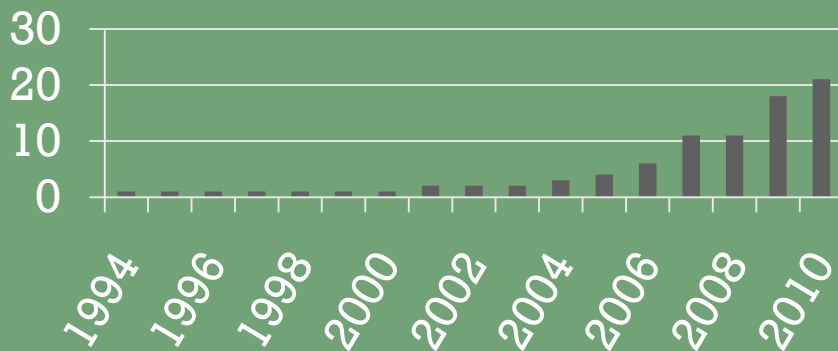


Known Territories/Year

Number of New Sites Discovered/Year*



Cumulative Number of Sites Known/Year*



Monitoring Effort

2009

- 13 sites checked/monitored
- 47 visits/surveys
- 105 hrs of observations
- 2,932 miles driven
- 86.3 hrs driving
- 98 miles hiked

2010

- 15 sites checked/monitored
- 36 visits/surveys
- 62 hrs of observations
- 2,011 miles driven
- 59.5 hrs driving
- 88 miles hiked



Recent Results

	2006	2007	2008	2009	2010
# Sites	6	7	7	13	15
Occupied Sites	6	7	5	10	11
Successful Sites	3	5	n/a	5	11
Total Succ. Young	6	5	n/a	11	19
Occupancy Rate	100%	100%	71%	77%	73%
Success Rate	50%	71%	n/a	50%	100%
Productivity Successful Yng/Occupied	1.00	0.71	n/a	1.10	1.72
Succ. Yng/Succ. Terr.	2.0	2.25	n/a	2.2	2.1



Only Clark County Sites, exclusive of NPS. Limited follow-up surveys in 2007 due to time constraints.

USFWS

Occ Threshold: 71%, Target: 84%

Nest Success Threshold: 55%, Target 68%

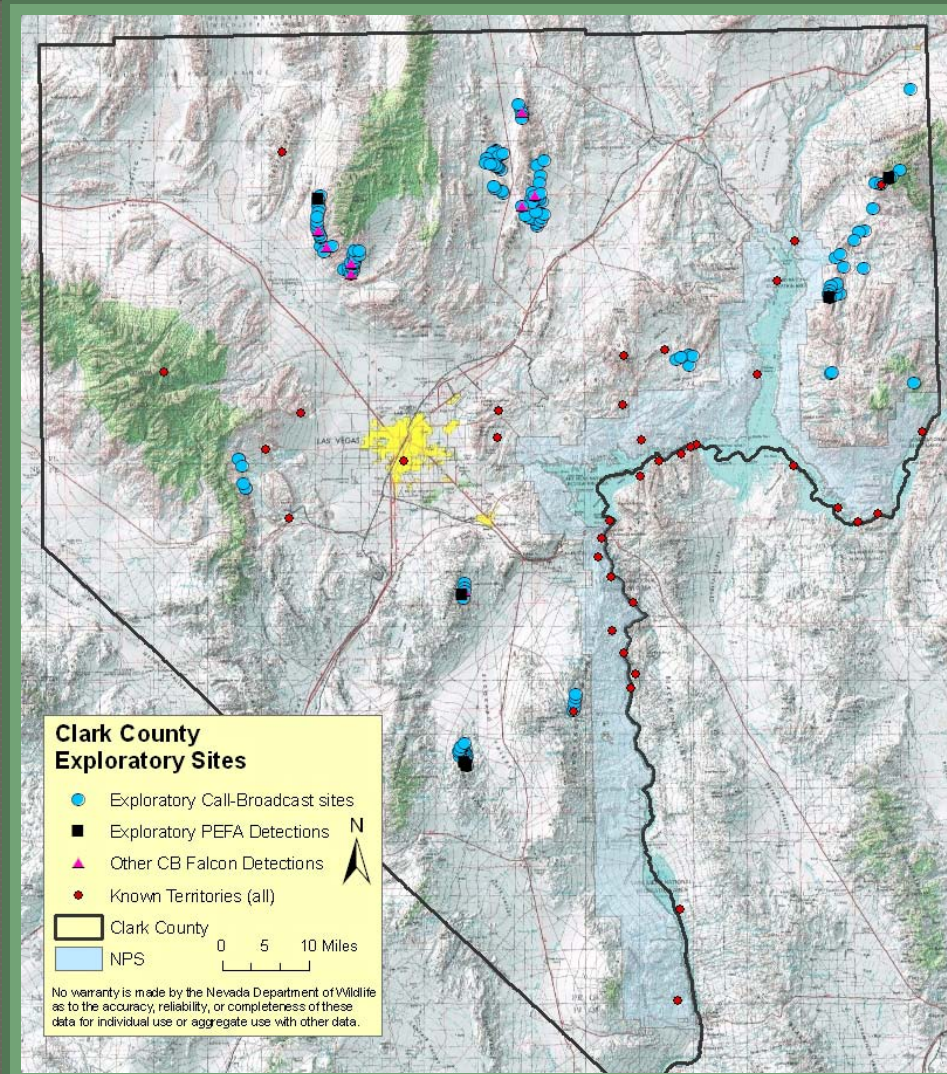
Productivity Threshold: 1.0 young/territory

Call-Broadcast 2010 Exploratory Effort

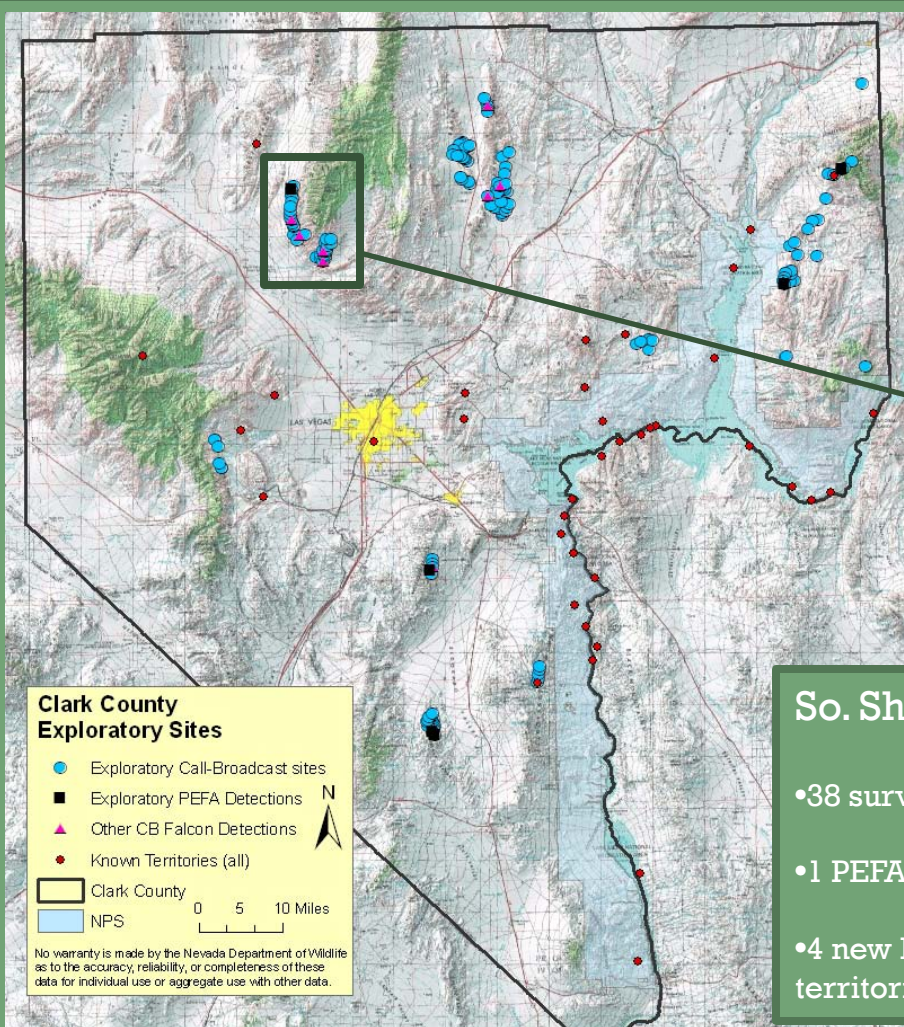
- 145 CB Spot Surveys
- 6 Peregrine detections
 - 3 confirmed new territories
 - 3 single PEFA detections
- 7 new Prairie Falcon territories
- ~151 mi HIKED
 - 78 mi personally
 - +2 volunteers



Map of Exploratory Areas

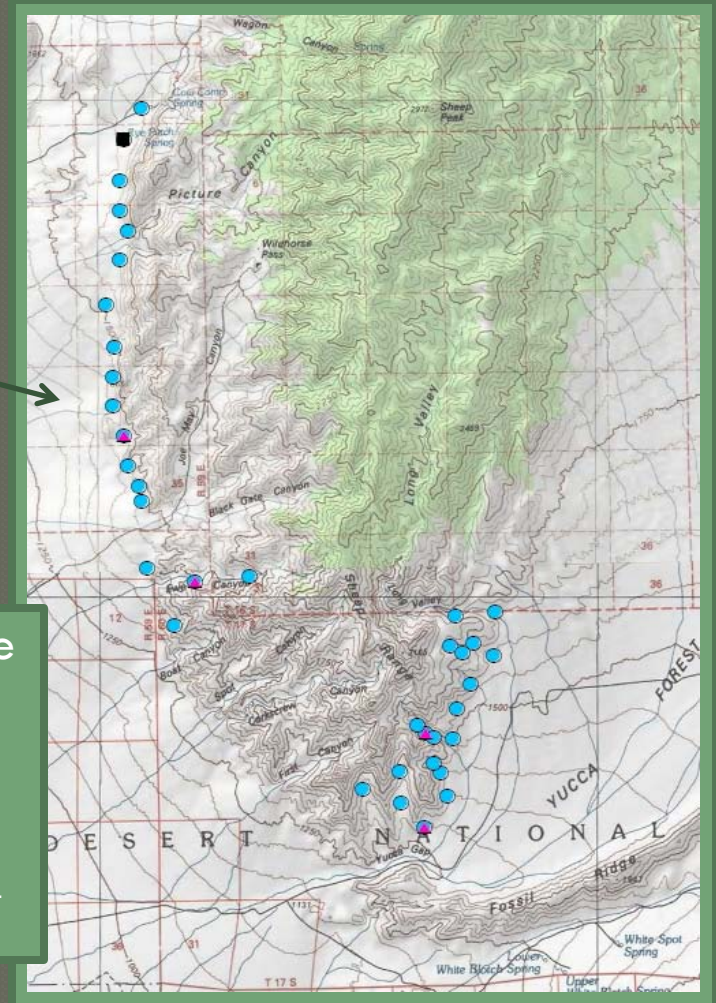


Exploratory Areas



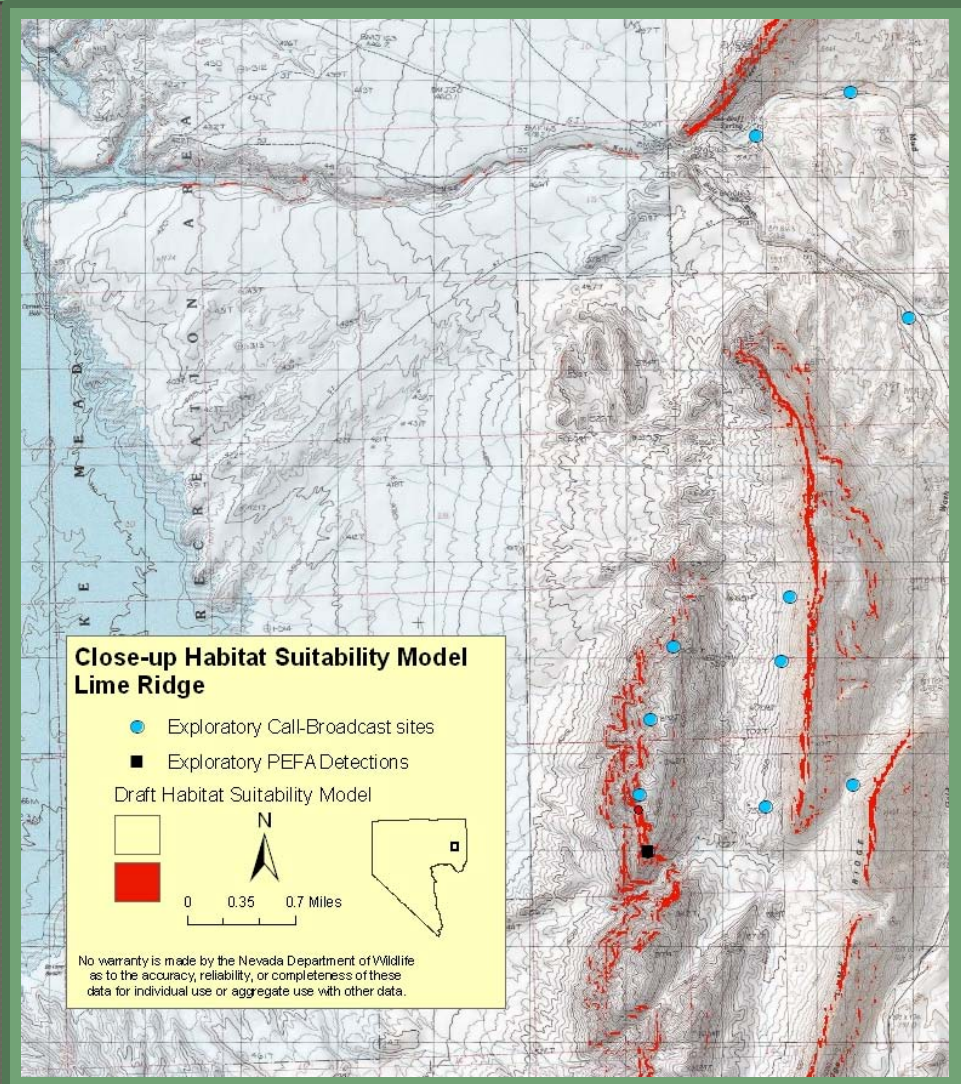
So. Sheep Range

- 38 survey points
- 1 PEFA detection
- 4 new Prairie Falcon territories



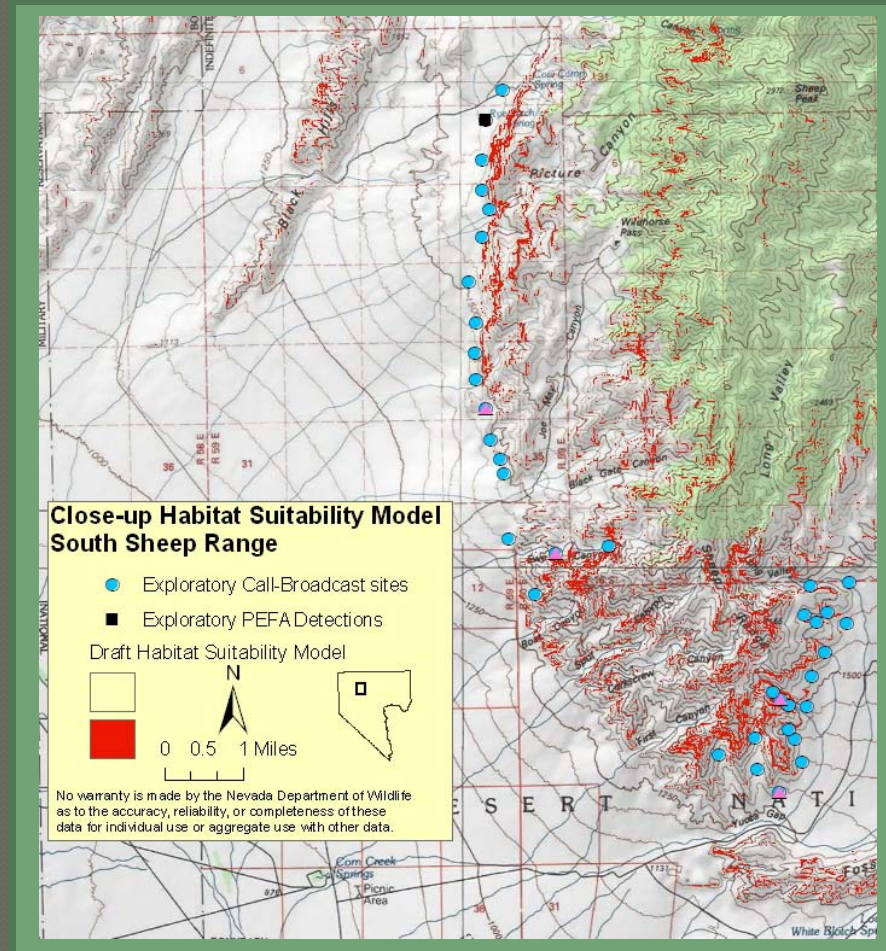
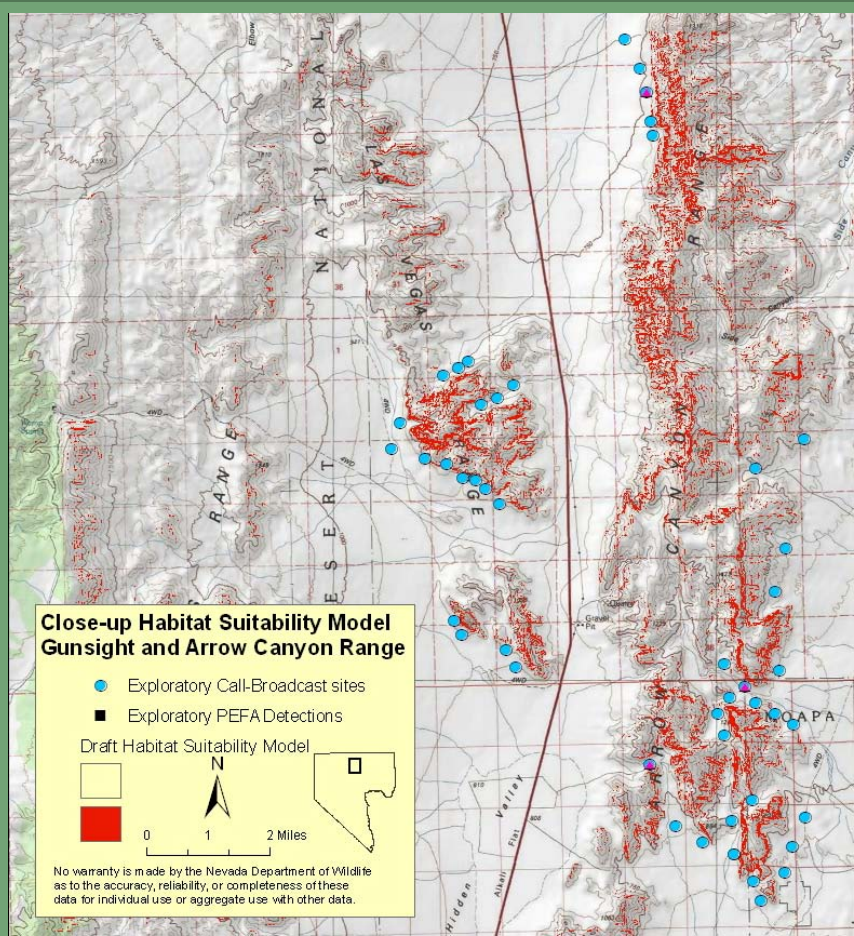
Predictive Habitat Suitability Model

- Developed by UNLV (and others)
- Draft model using Maxent (v. 3.2.19, Phillips et al, 2006)
- Based on slope, distance to water, & solar radiation
- Directed exploratory survey efforts



Habitat Suitability Model

More Examples



Conceptual Model

Draft

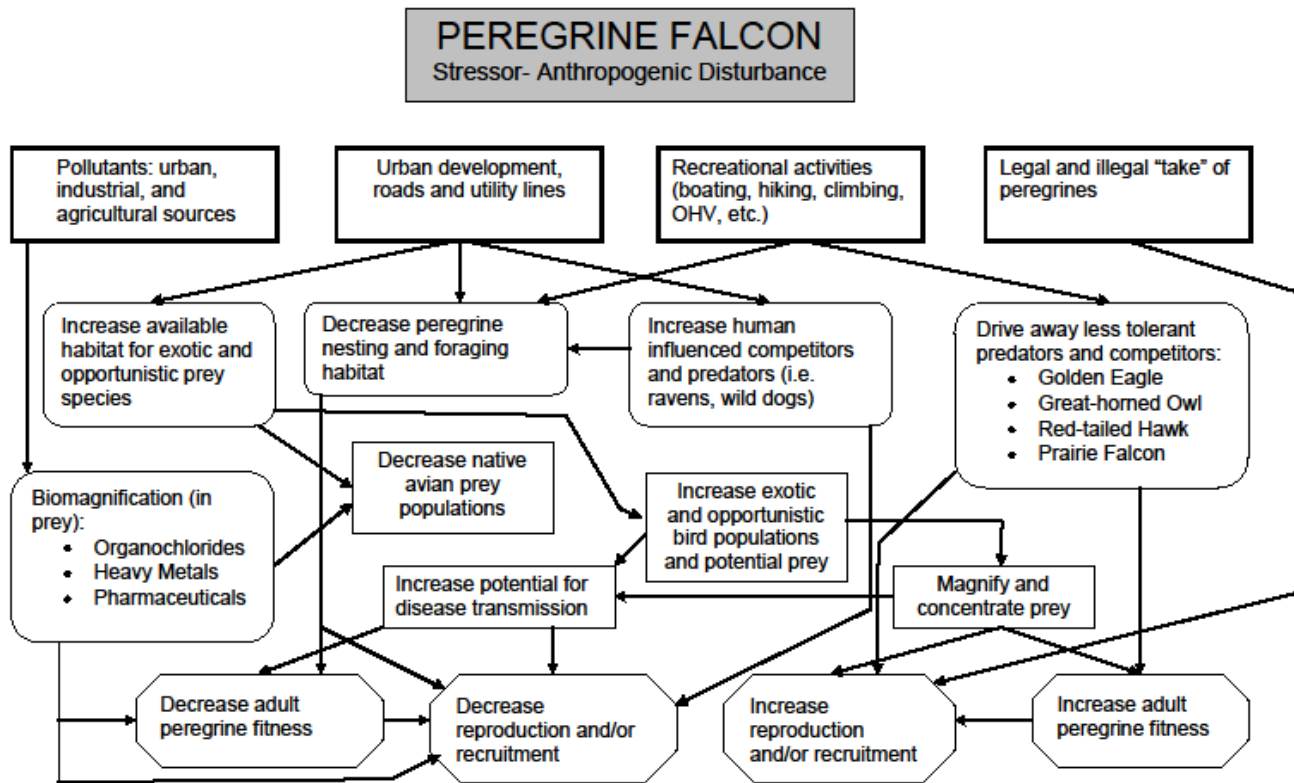


Figure 2. Conceptual model illustrating the effects of anthropogenic disturbance on peregrine falcon (*Falco peregrinus*) habitat and reproductive output. (Adapted from Barnes J.G., S. Crowe and J.R. Jaeger – Public Land Institute UNLV – Project # 2005-NPS-609C-P)

Milestones and Deliverables

2005-NDOW-549-P

- M1—Contract Award/Mobilization ✓
- M2—Begin Peregrine Monitoring ✓
- M3—Project Kick-off Meeting ✓
- D1—Work Plan ✓
- D2—Data Management Plan ✓
- D3—Biennium Project Summary ✓
- D4—Receipt submittal n/a
- D5—Written and Oral Reports n/a
- D6—Quarterly Progress Report ✓
- D7—Quarterly Progress Report ✓
- D8—Quarterly Progress Report ✓
- D9—Annual Project Data ✓
- D10—Annual Project Presentation ✓
- D11—Quarterly Progress Report
- M4—Begin 2010 PEFA monitoring ✓
- D12—Quarterly Progress Report ✓
- D13—Quarterly Progress Report
- D14—Draft Final Project-started
- D15—Final Project Data-started
- D16—Quarterly Progress Report
- D17—Final Project Report
- D18—Final Biennium Project Summary
- D19—Final Project Review Summary

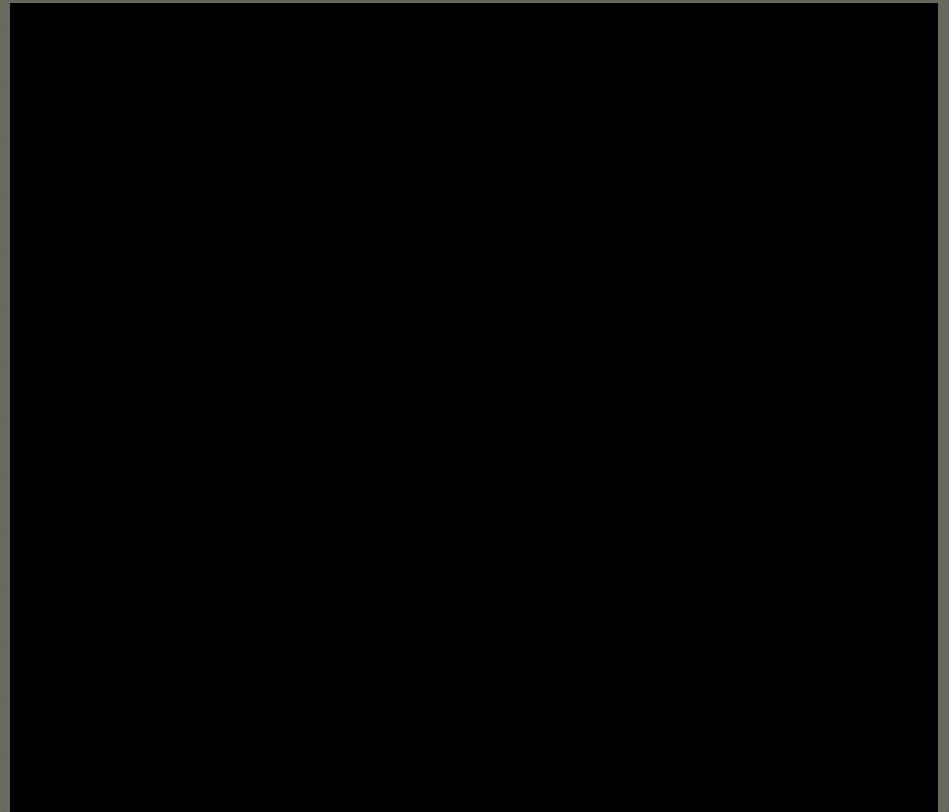
2005-NDOW-609D-P

- M1—Contract Award/Mobilization ✓
- D1—Data Management Plan ✓
- D2—Receipt Submittal n/a
- D3—Written and Oral Reports n/a
- D4—Annual Project Data ✓
- D5—Final Project Data –started
- D6—Final Conceptual Model-started
- D7—Final Habitat Suitability Model-started
- D8—Final Habitat Suitability Map-started
- D9—Final Project Review Summary



Future Efforts & Challenges

- Continue to search for new territories
- Continue to monitor a sub-set of known sites
- USFWS Post-delisting monitoring thru 2015
- Challenges
 - Extremely time consuming
 - Huge geographic area
 - State-wide potential



Thanks



- **Joe Barnes**
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Questions?

