

Osprey Mitigation Strategies to Resolve Conflicts with Public Projects

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Overview

- Why is osprey (*Pandion haliaetus*) management and mitigation an emerging issue in the Tahoe Basin?
- Analysis objectives
- Regulatory background
- Osprey population status and ecology
- Mitigation approaches
- Conclusions
- Questions and discussion



Photo: birdingmain.com

What's the Issue?

- Major public projects identified as regional priorities are in planning or review
- Conflict with unique regulatory requirements for osprey habitat, without adequate mitigation and conservation strategies
- Mitigation or conservation approaches have not been developed or tested in the Basin
- Major issue for project approval and species management
- Agencies seeking resolution

Objectives

- Develop and recommend mitigation and conservation strategies
 - Science-based and biologically relevant
 - Based on local data and expertise
 - Meet regulatory protection requirements
 - Effective; feasible and reasonable
- Approach comprehensively in a conservation planning framework, rather than project-by-project
- Summarize progress and initial recommendations



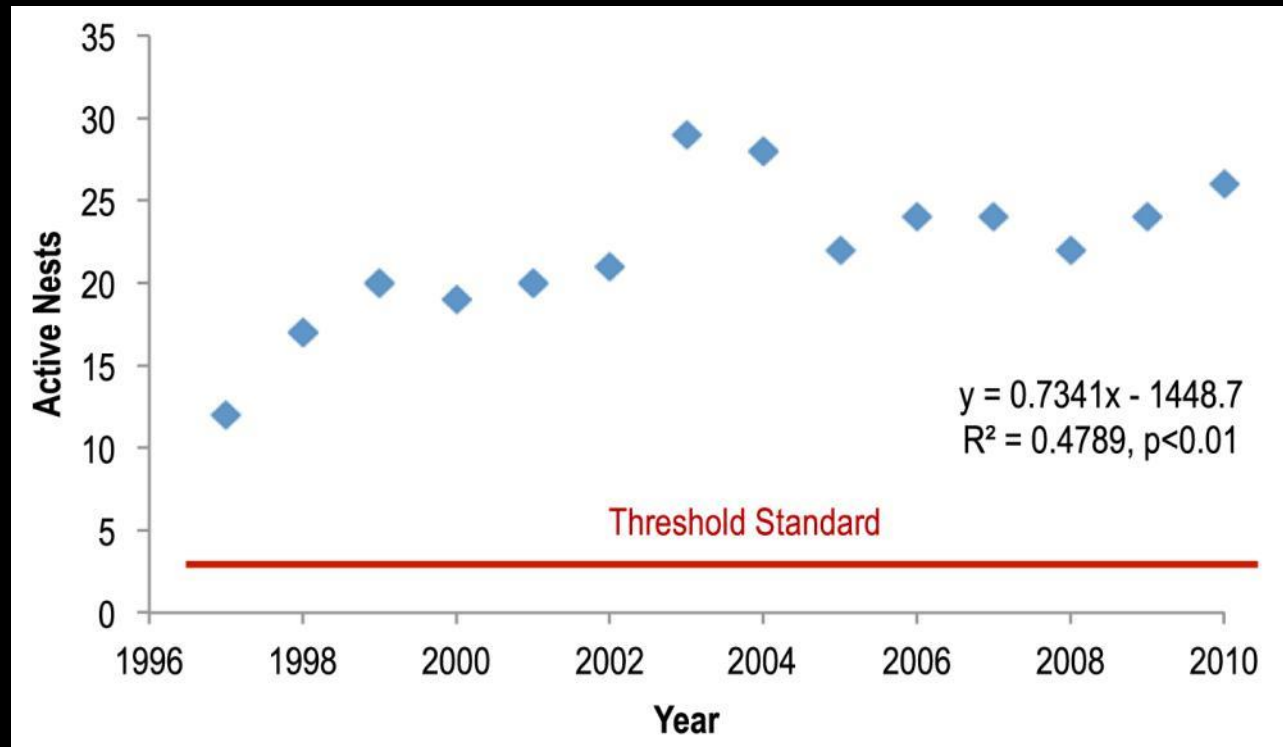
Osprey Regulatory Status

- TRPA special interest/threshold Species
- Nondegradation standard for habitat within 0.25 mile of nest, outside urban areas (TRPA Code)
 - Applies to active nests, and inactive territories where nest tree or structure remains present
- Migratory Bird Treaty Act
- No longer CDFG species of special concern

Osprey Population Status – Tahoe Basin

- Monitored by NDOW, TRPA, USFS, CDPR
- Distributed along lake shorelines and nearby uplands; disturbed and undisturbed settings
- Significant population increase
 - 1997-2011: number of nests ranged from 13 (1997) to 28 (2005, 2011)
 - In attainment with TRPA threshold (4 nests)
 - Consistent with broader trend in California and rangewide

Osprey Population Trend (1997-2010)



Graph and analysis from *TRPA 2011 Threshold Evaluation* (TRPA 2012a)

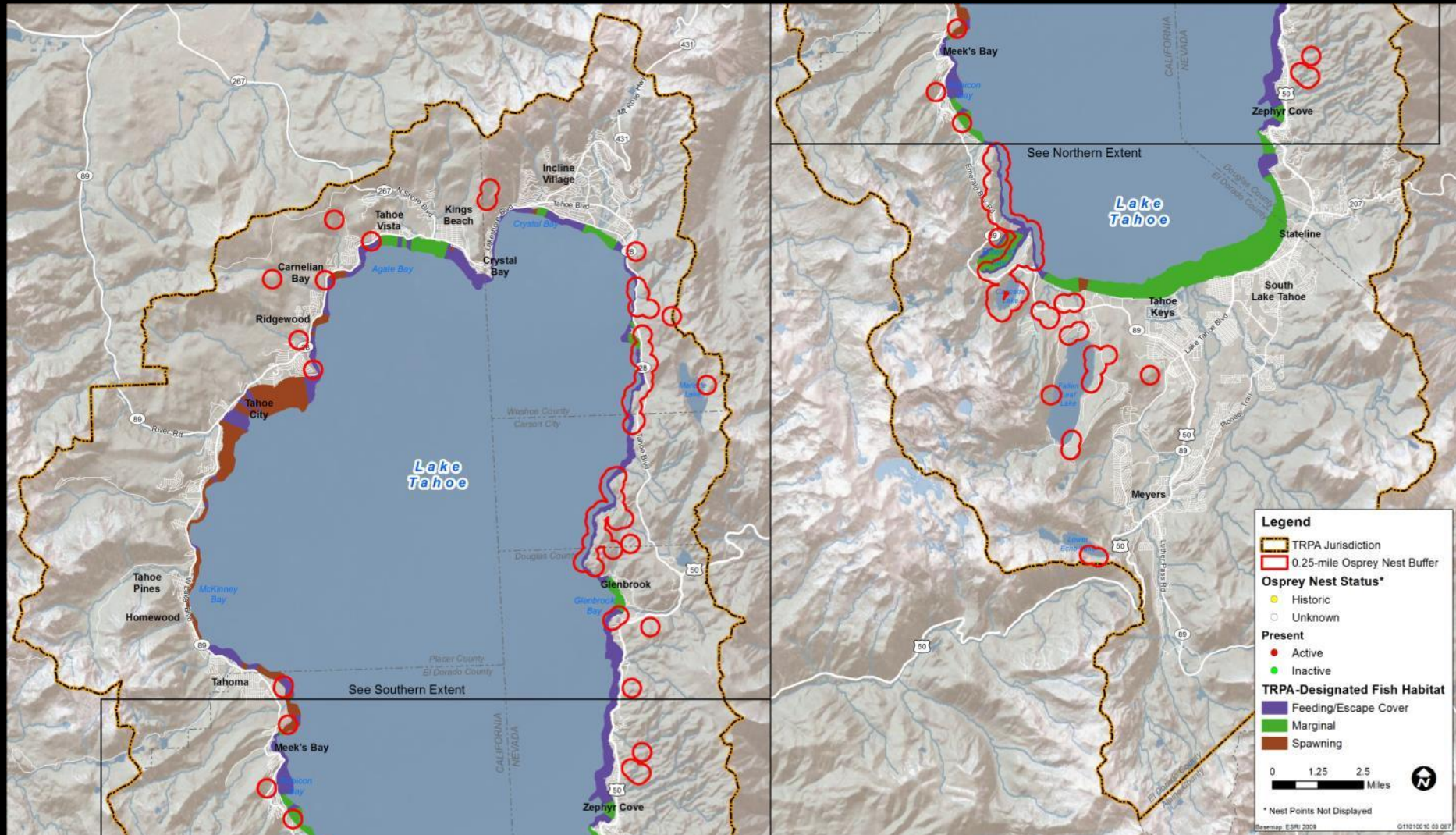
Osprey Ecology – Tahoe Basin

- Nest site: tops of snags, broken-top trees
- Forage on fish in lakes
- Nest distance to lake
 - Average: 256 m
 - Max.: 2.5 km (1.5 mi.)
 - 50% of nests within 50 m
 - 90% within 700 m (0.4 mi.)

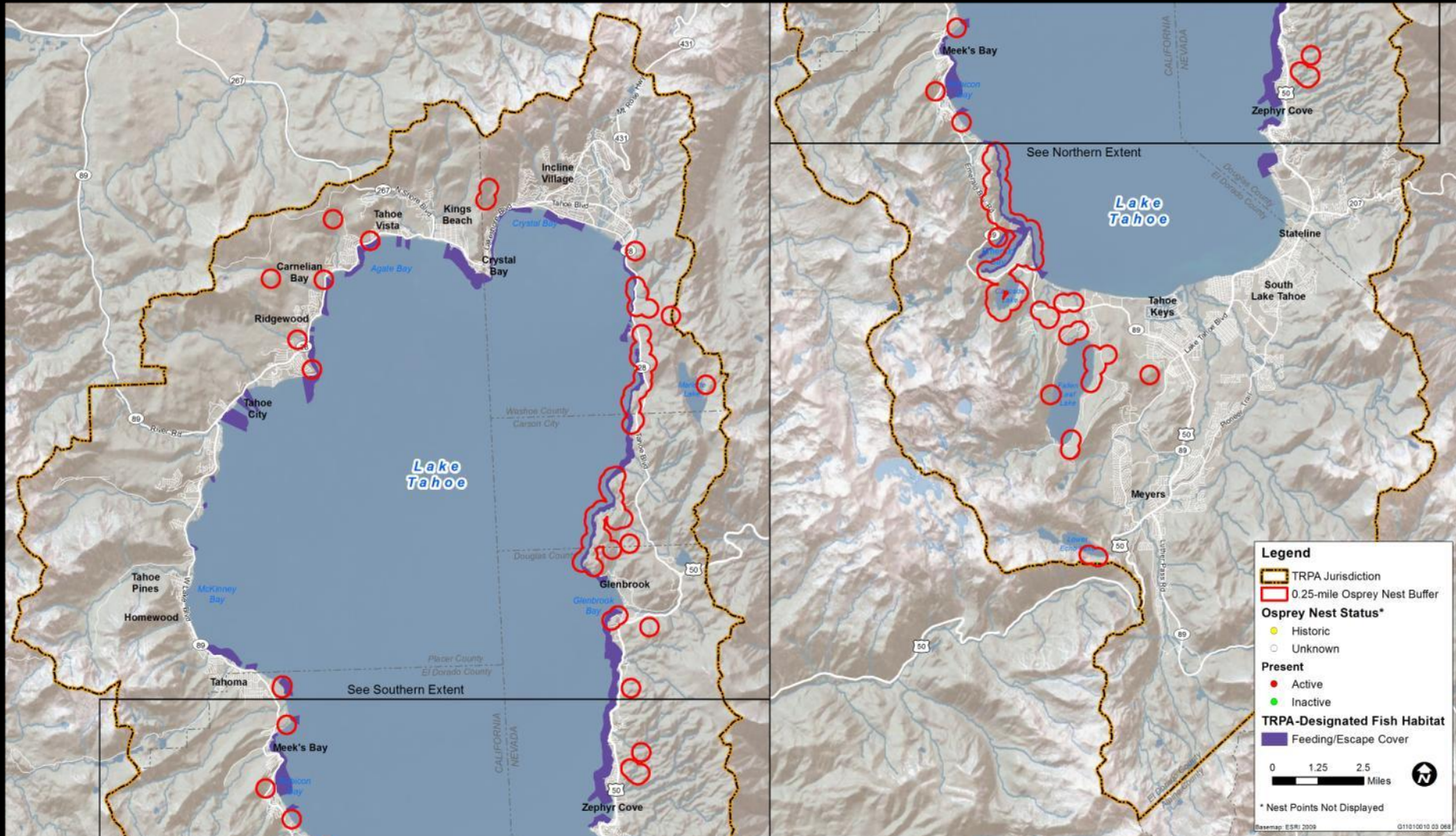


- Nest density strongly affected by nest site availability and prey abundance
- Distribution correlates with regional development patterns and fish habitat types

Nest Distribution and Fish Habitat



Nest Distribution and Prime Fish Habitat



Sensitivity to Disturbance

- Highly variable
- Generally, adaptable and can habituate to human disturbance; nest in a variety of settings, on natural and human-made nest sites
- Depends on region, scale, type/context of disturbance (e.g., pedestrian vs. vehicle), regularity, specific pair
- Most sensitive during incubation to early nestling stages (April to mid-June/July)
- Can cause nest abandonment, mortality of embryos and nestlings

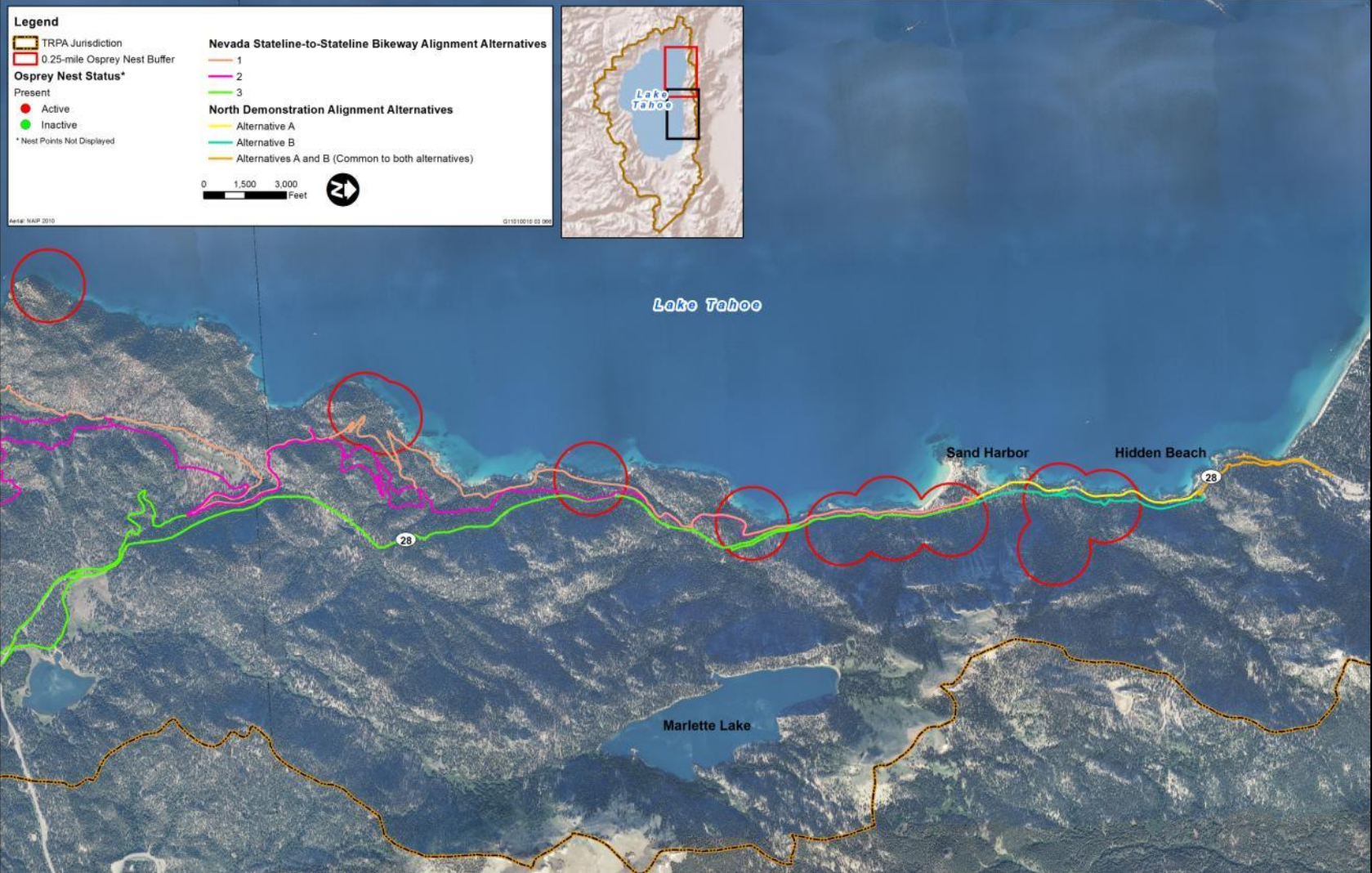


Tahoe Projects with Potential Effects on Osprey

- Nevada Stateline-to-Stateline Bikeway (Crystal Bay to Round Hill Pines)
- Lake Tahoe Waterborne Transit
- West Shore Trail Improvements - SR 28/89 to Emerald Bay
- North Tahoe Bike Trail
- East Shore Transit Facilities
- Fuels/vegetation management projects



Example: Stateline-to-Stateline Bikeway



Nest data source: TRPA 2012b

Types of Project Impacts

- Recreation/disturbance in closer contact during sensitive nesting period
- Noise and visual disturbances
- Possible displacement of pairs; nest failure
- Reduced access to high-quality foraging habitat
- Population-level effects uncertain, but may not be substantial
- Physical habitat degradation
 - Main impact prohibited by TRPA Code
- Context important: existing disturbance levels

Mitigation Concepts

- Develop early in planning process
- Best available data and science
- Avoidance and minimization
 - Best practices: re-siting and avoiding critical conflicts
 - Visual or topographic screening
 - LOPs (construction); seasonal closures (long-term rec. use)
 - Limitations to avoidance: physical site constraints, scenic impacts, other sensitive species (e.g., Northern Goshawk) and resources (e.g., wetlands/SEZs).
- Compensatory mitigation
 - Conservation actions to compensate for permanent habitat loss/degradation
 - Clear objectives and performance standards

Compensatory Mitigation Opportunities

- Goal: No net degradation of population and habitat; no adverse effect on TRPA threshold attainment
 - No standard measures in Tahoe Basin; few projects have needed them
 - Potential options:
 - Enhance nesting habitat, esp. in/near historic territories
 - Reduce/manage disturbances near active, inactive, and historic nest sites
- ➡ Habitat Management Plan

Habitat Enhancement

- Creating nest structures
 - Management tool for recovering populations in other locations
 - Very high success rate
 - Cost-effective; plans available
 - Scenic impacts, but could modify existing trees
 - *Are nest sites limiting?
 - Could be useful for displaced and returning pairs/juveniles
 - Focus efforts on historic territories and nearby areas



Photo: WI DNR



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Habitat Enhancement

- Retention and recruitment of large snags over time
- Reduce disturbance levels near active, inactive, and historic nests
 - Trail closures and reroutes within buffer zones
 - Seasonal during sensitive periods, or permanent where there's opportunity and need
 - Need a thorough evaluation of opportunities and feasibility

Road and Trail Density within Osprey Buffer Zones

Nest Type	Number of Nests	Roads (mi.)	Trails (mi.)	Total
Present (2011)				
Active	28	8.9	7.9	16.8
Inactive	30	8.3	6.8	15.1
Historic	106	27.8	17.2	45
Total	164	45	31.9	76.9

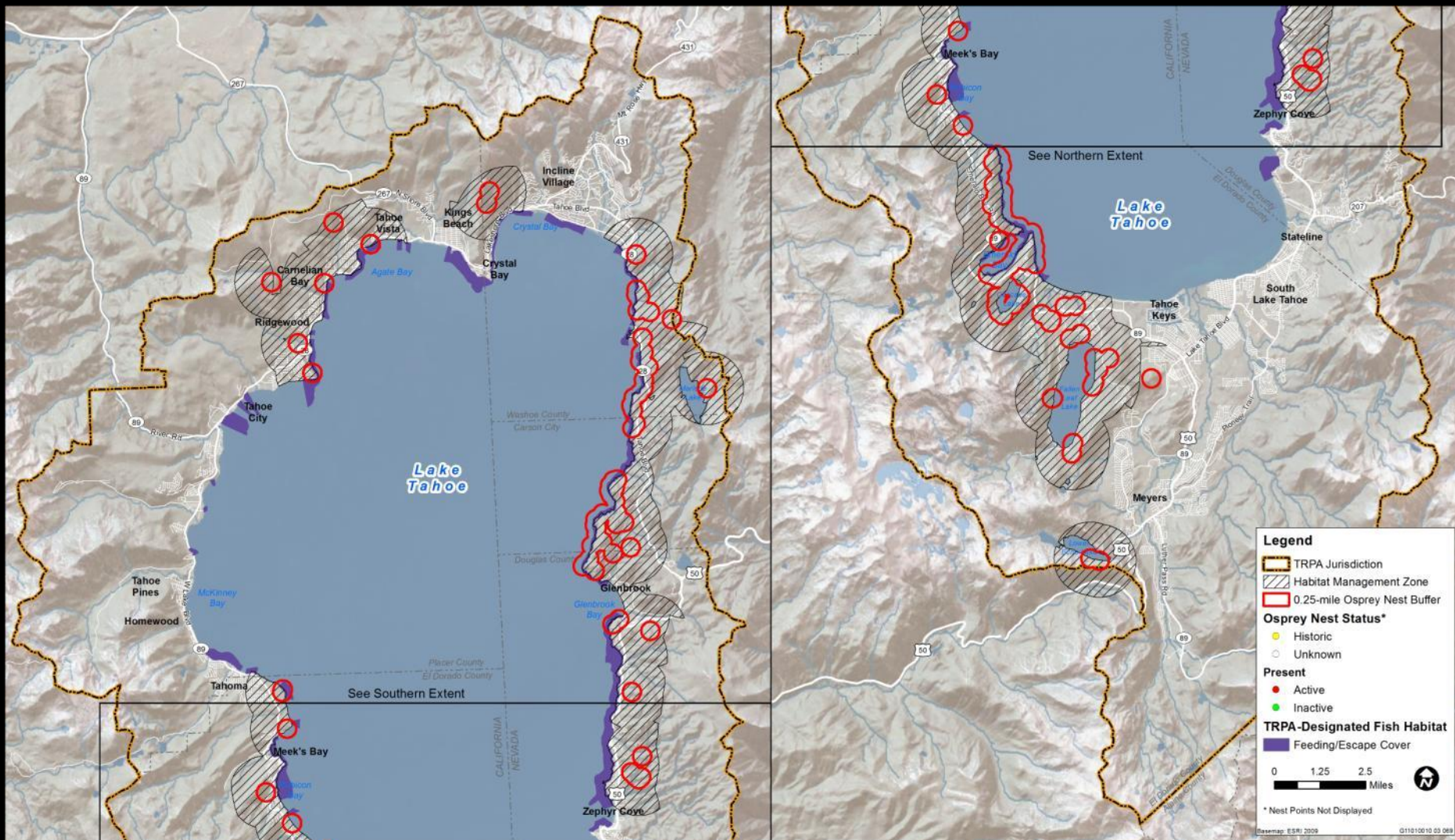
Nest and road data source: TRPA 2012b



Habitat Management Plan

- Evaluate and mitigate biological impacts comprehensively
 - Plan for multiple future projects
 - Maintain or enhance osprey habitat and population Basinwide; meet TRPA's future attainment goals
- Designation of long-term conservation areas
- Conservation goals, objectives, performance criteria
- Conservation strategy and enhancement plan
- Monitoring and adaptive management; opportunity for experiments

Osprey Habitat Management Zones



Conclusions

- Osprey population in the Tahoe Basin has increased and appears stable
- Despite population status, local regulations strictly prohibit habitat degradation as a result of projects
- Mitigation and conservation opportunities exist
 - Reduce/manage disturbances near active, inactive, and historic nest sites
 - Enhance and manage nesting habitat in suitable areas where it may be limited (e.g., historic territories near good foraging habitat)
 - Long-term management plan that addresses multiple future projects and Basinwide conservation goals

Next Steps

- Detailed analysis of opportunities based on trail/road status and ownership; site-specific habitat evaluation
- Analyze patterns of nest success and site fidelity
- Seek additional input and collaboration with cooperating agencies and experts
- Develop specific mitigation and management plan

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Questions and Discussion

