

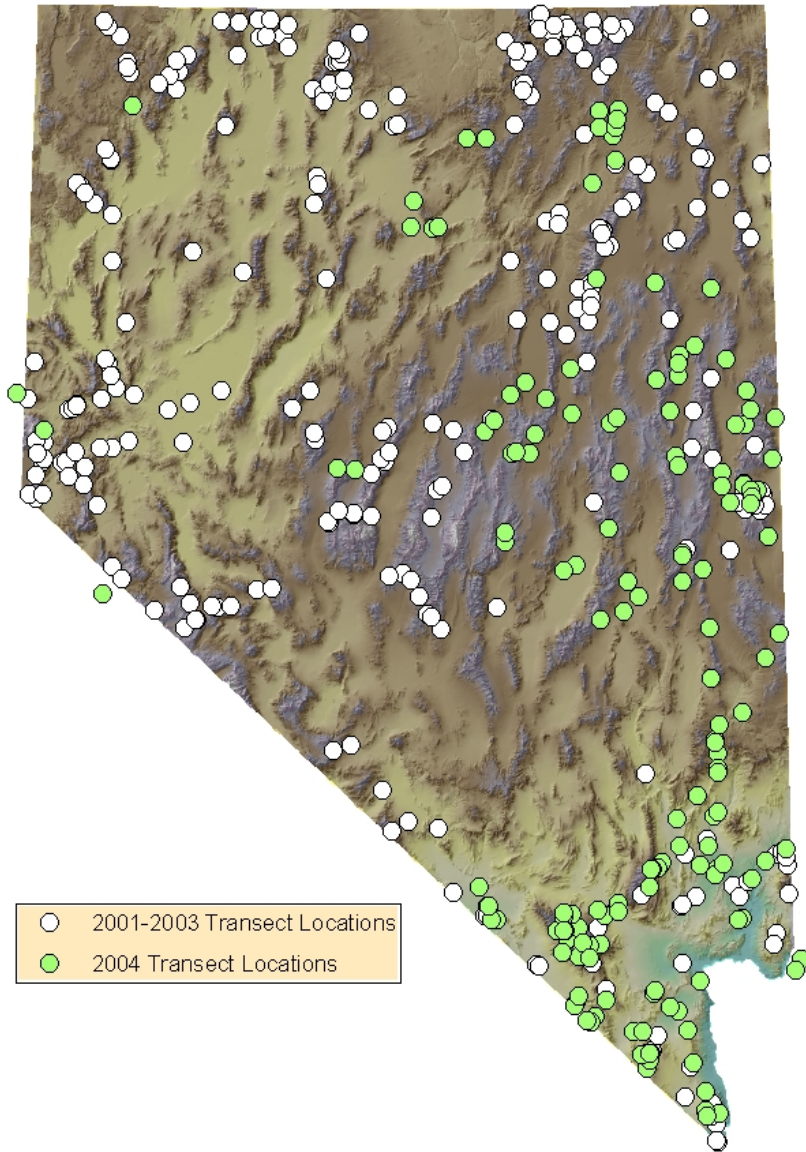
System-Wide and Restoration Monitoring of Riparian Birds

Lessons from the Truckee River

Elisabeth M. Ammon
Great Basin Bird Observatory



NBC Transect Locations

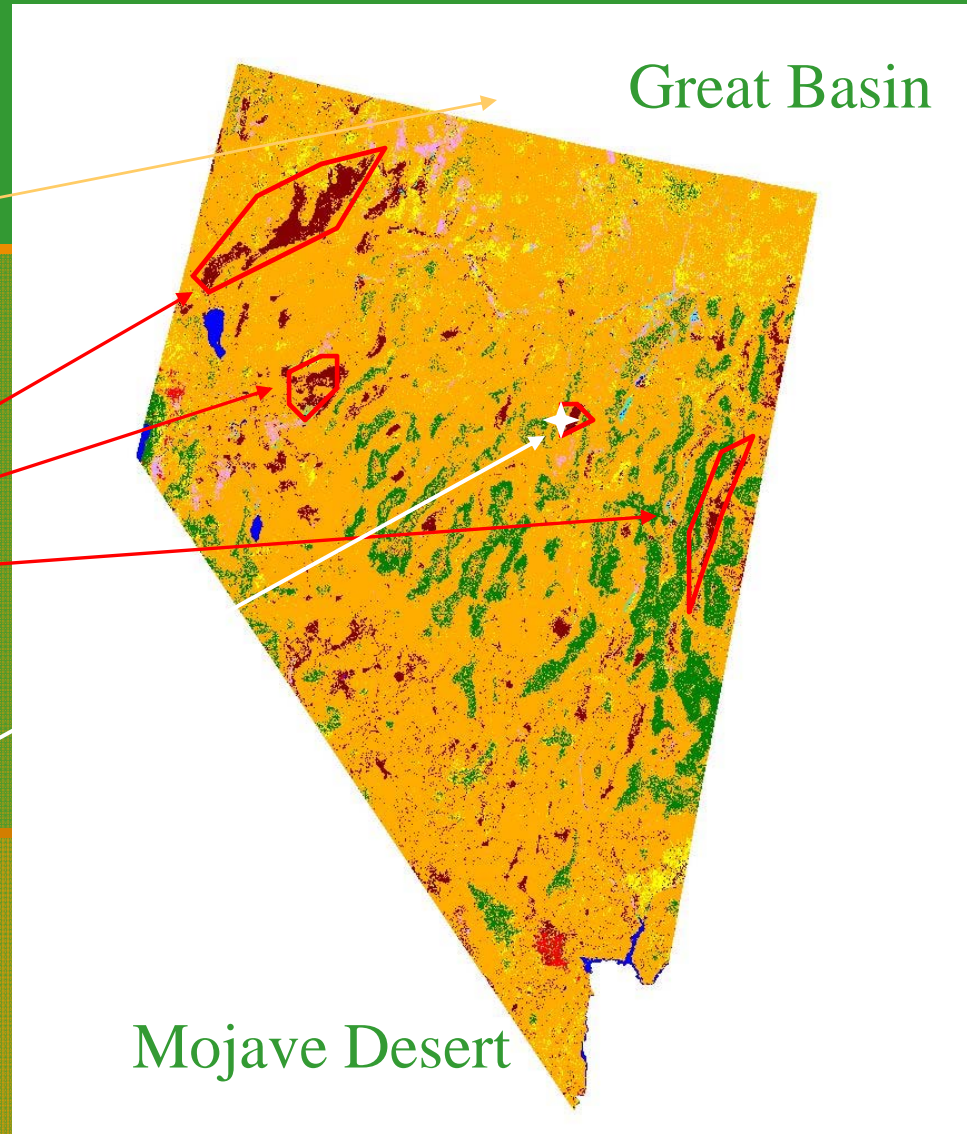


Nevada Bird Count

Regional Level:
long-term monitoring
data networking

Habitat Level:
recognition of "hot-spots"
habitat management

Project Level:
project planning
project evaluation



Applications of the Nevada Bird Count Framework to Riparian Restoration Planning and Monitoring

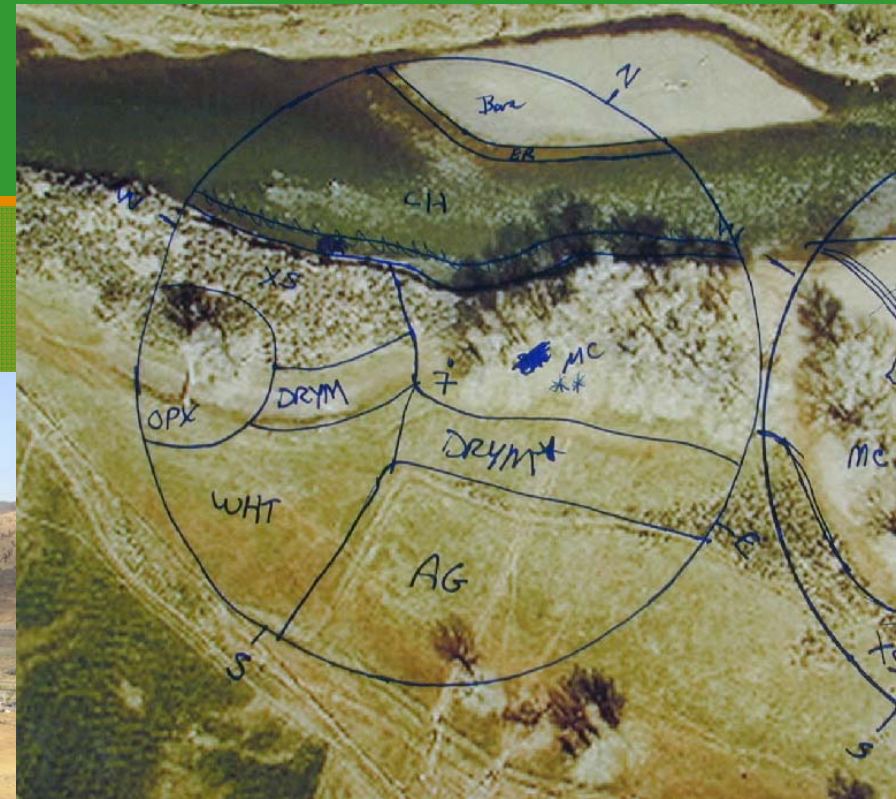
Example: Lower Truckee River



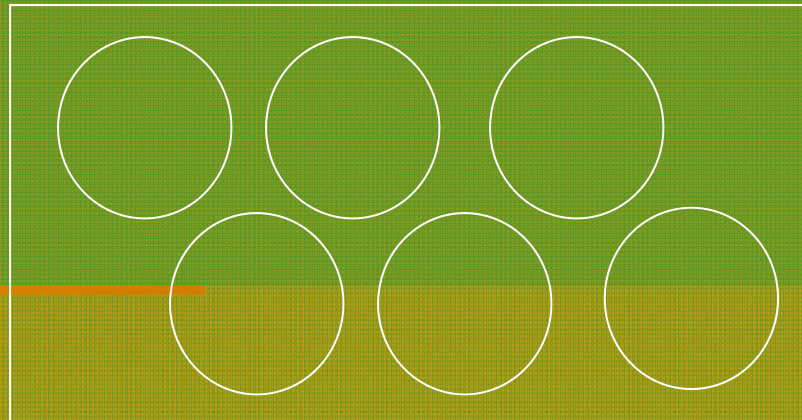
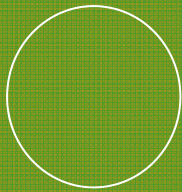
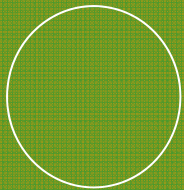
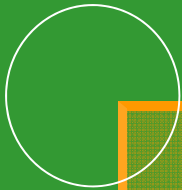
Sampling Approaches: System-Wide

Point Counts

Intensive Area Searches/ Spot Mapping



Double-Sampling Using Point Counts And Intensive Area Searches



To correct for detectability biases of rapid surveys (e.g., season, observer, vocalizations, behaviors)

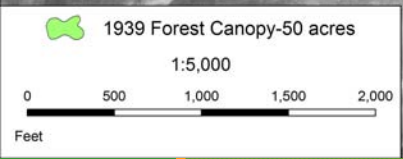


Lower Truckee River: Changes in Forest Acreage

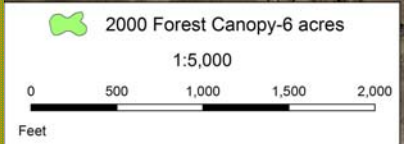
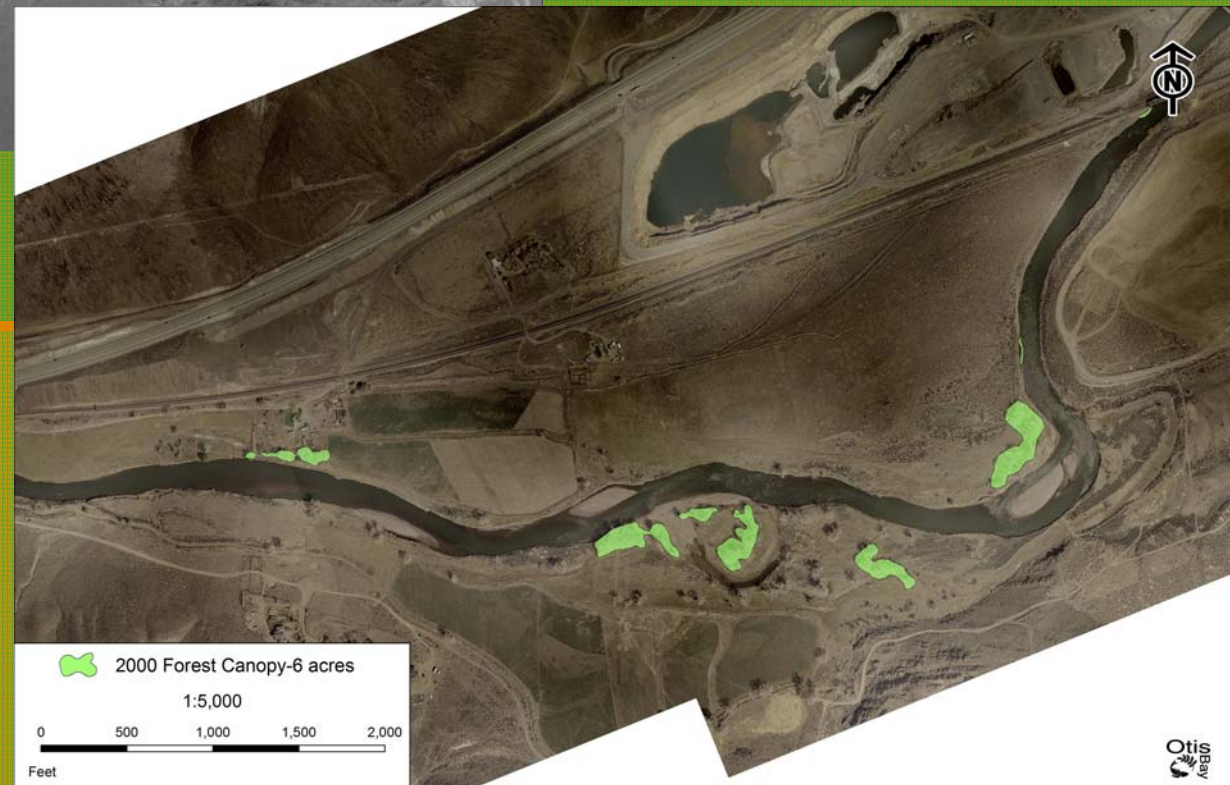
| | 1939 | 2000 | Total |
|---------------------|------|------|------------|
| McCarran Ranch | 48.9 | 6.0 | - 42.9 |
| % Change | | | 88% |
| Lower Truckee River | 2097 | 630 | - 467 |
| % Change | | | 70% |



1939



2000



Courtesy of
Otis Bay Inc.

Lower Truckee River: Changes in Bird Species Richness

| | 1868 | 1972-1976 | 2001 |
|---------------------------------|-------------|------------|------------|
| Species Richness | 107 | 65 | 80 |
| % of Baseline (Ridgway 1877) | 100% | 61% | 75% |



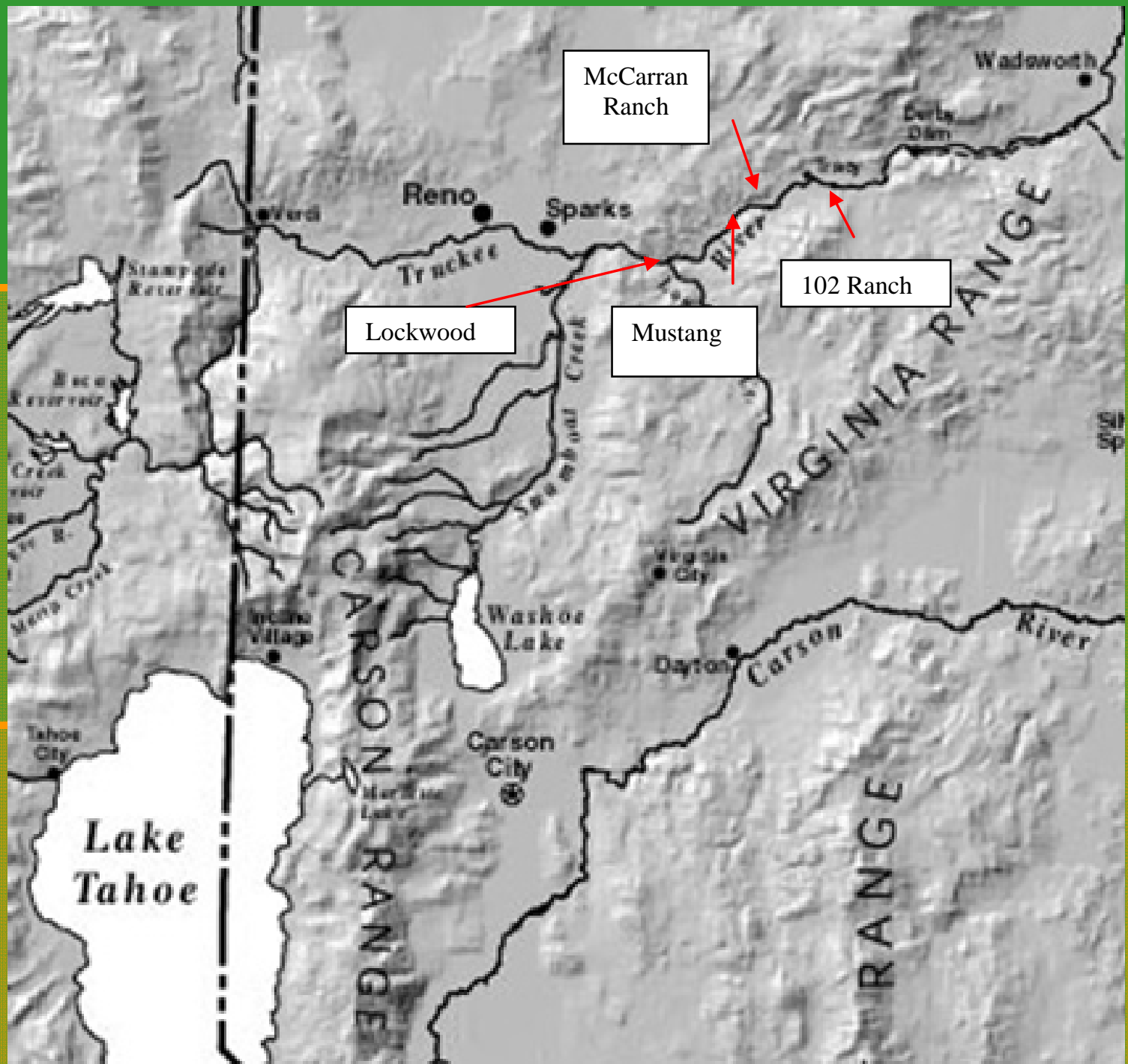
Yellow Warbler



| | Primary Habitat Type Present at Transect | No. Transects with Sightings | Nevada Bird Count Sightings per 40 ha | |
|--------------------|--|------------------------------|---------------------------------------|-------------------------|
| | | | average | 95% confidence interval |
| Great Basin | Agriculture | 1 | 15.9 | n/a |
| | Aspen | 19 | 6.6 | 3.3 - 9.8 |
| | Coniferous Forest | 2 | 5.3 | -5.1 - 15.6 |
| | Lowland Riparian | 47 | 9.9 | 6.5 - 13.3 |
| | Montane Riparian | 52 | 8.4 | 6.0 - 10.8 |
| | Montane Sagebrush | 2 | 2.2 | -18.0 - 22.5 |
| | Montane Shrub | 4 | 4.9 | -0.4 - 11.3 |
| | Mountain Mahogany | 4 | 1.9 | -0.1 - 3.9 |
| | Pinyon-Juniper | 2 | 1.9 | -7.0 - 10.7 |
| | Sagebrush | 1 | 3.8 | n/a |
| | Wetland | 2 | 0.5 | -0.8 - 1.9 |
| Mojave | Agriculture | 3 | 2.7 | -5.3 - 10.7 |
| | Lowland Riparian | 23 | 5.9 | 3.3 - 8.6 |
| | Mesquite-Catclaw | 4 | 1.1 | 0.1 - 2.1 |
| | Pinyon-Juniper | 1 | 1.3 | n/a |
| | Wetland | 1 | 0.6 | n/a |

Sampling Approaches: Restoration Sites

- Intensive Area Surveys and Spot Mapping of Territories



McCarran Ranch

102 Ranch

Mustang

Lockwood

Lake Tahoe

CARSON RANGE

VIRGINIA RANGE

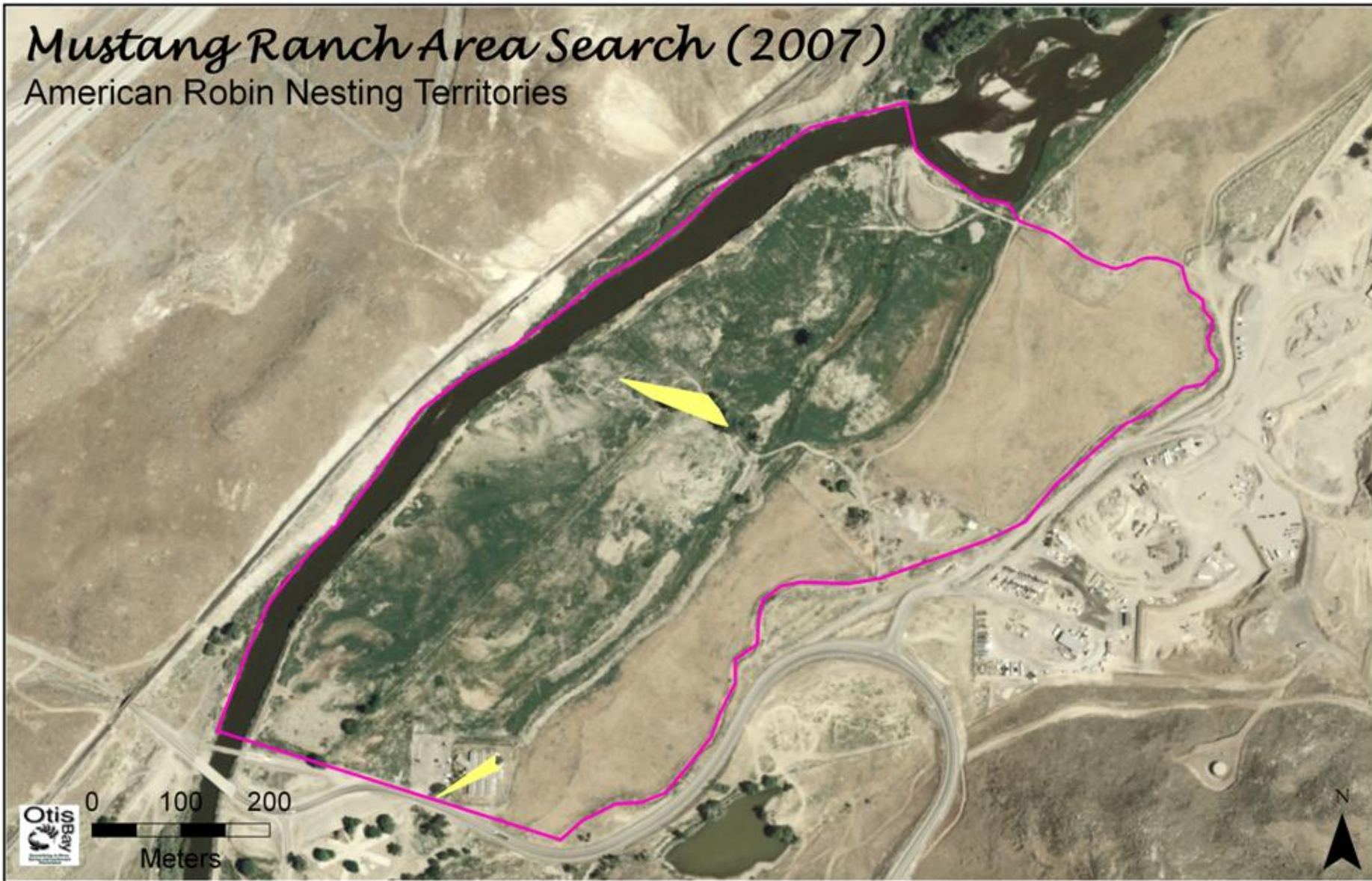
RANGE

Mustang Ranch



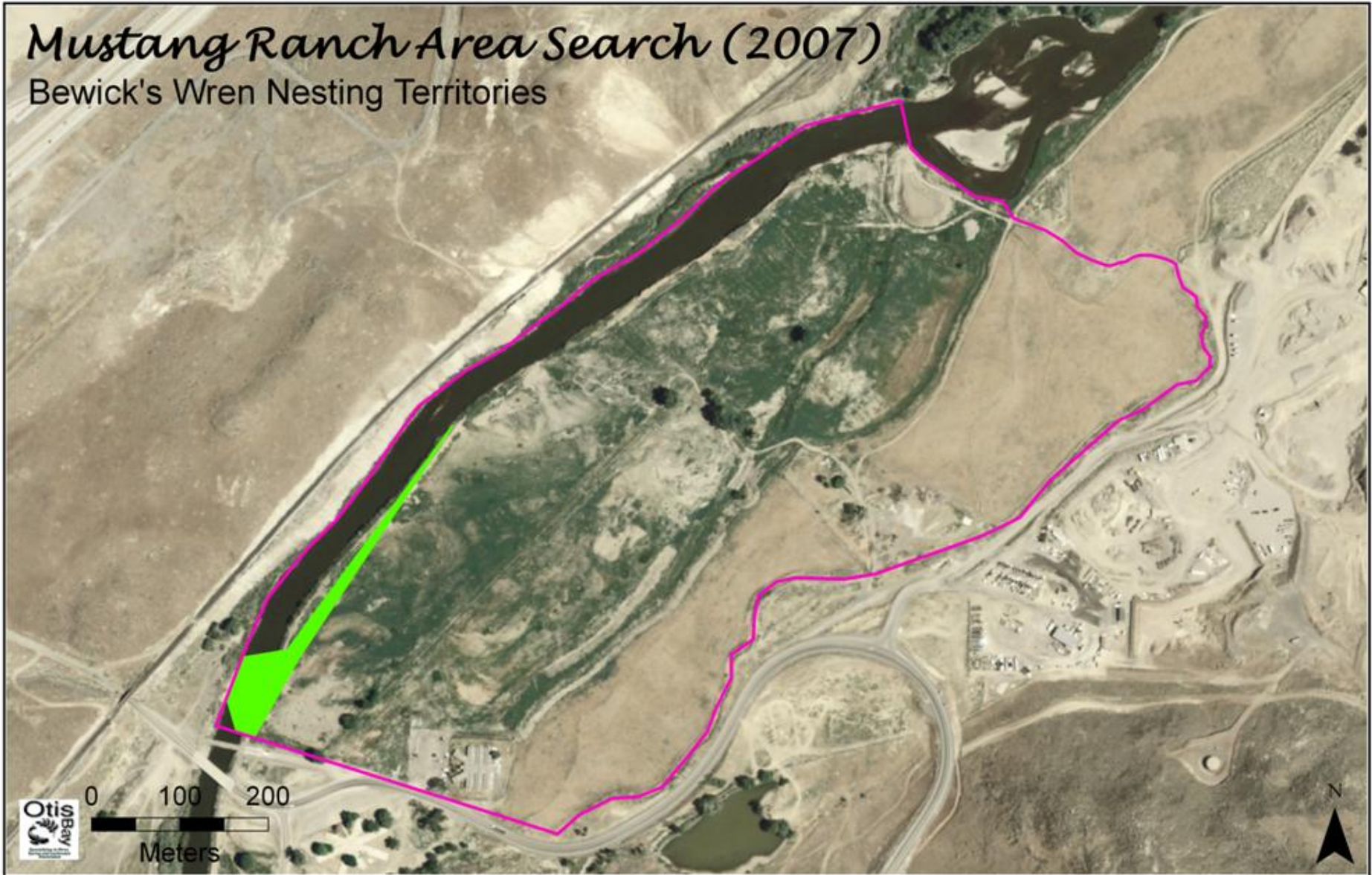
Mustang Ranch Area Search (2007)

American Robin Nesting Territories



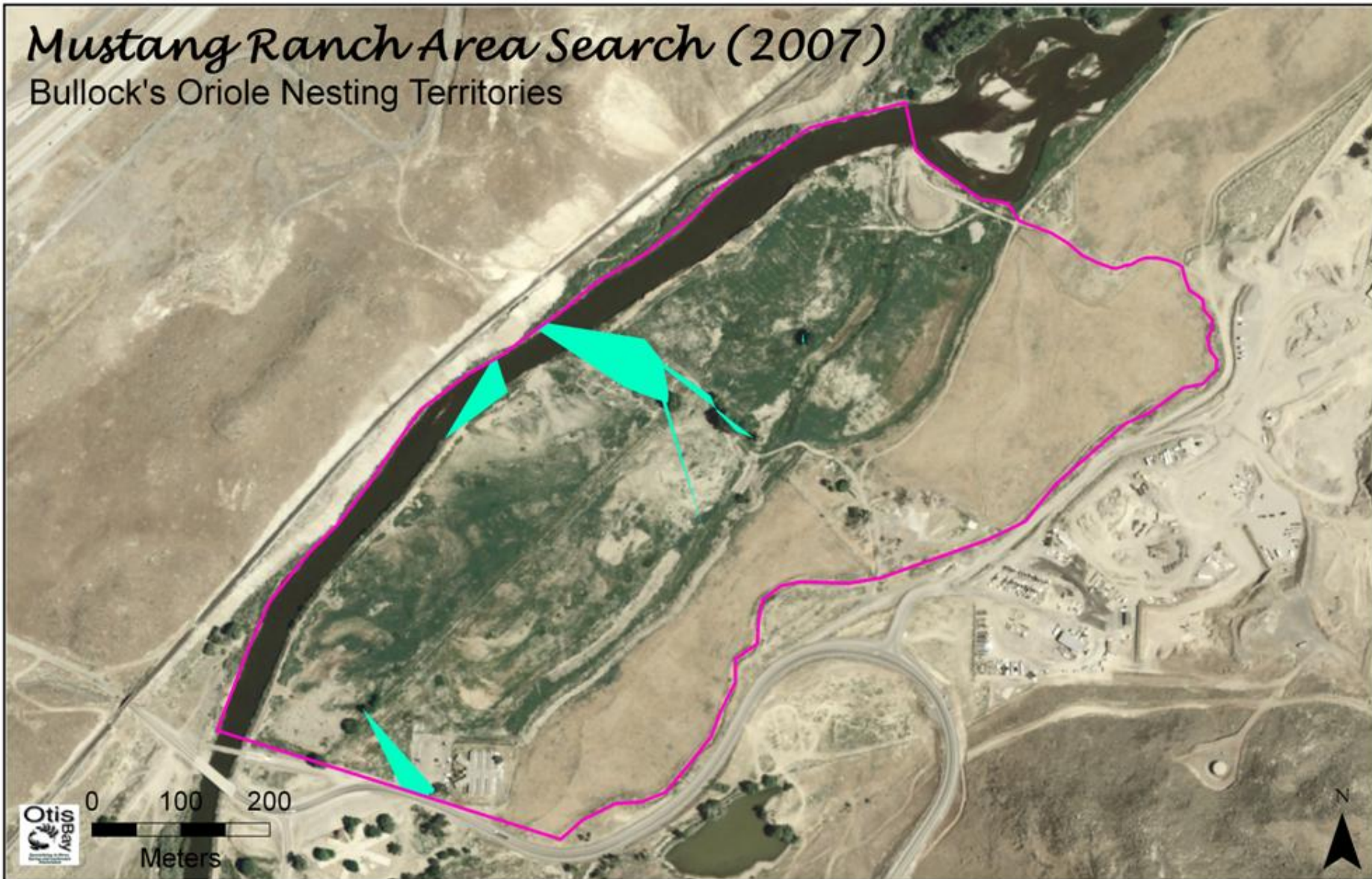
Mustang Ranch Area Search (2007)

Bewick's Wren Nesting Territories



Mustang Ranch Area Search (2007)

Bullock's Oriole Nesting Territories



Restoration Construction: McCarran Ranch, 2007



McCarran Ranch after one growing season





Area Searches/ Spot Mapping as a Restoration Monitoring Tool

- Actual densities and territory sizes
- Nest success
- Detailed habitat relationships
- Public education

Acknowledgments

- Partners of the Nevada Bird Count
- Otis Bay Inc.
- Pyramid Lake Paiute Tribe
- The Nature Conservancy
- US Fish and Wildlife Service
- Bureau of Reclamation
- And many others