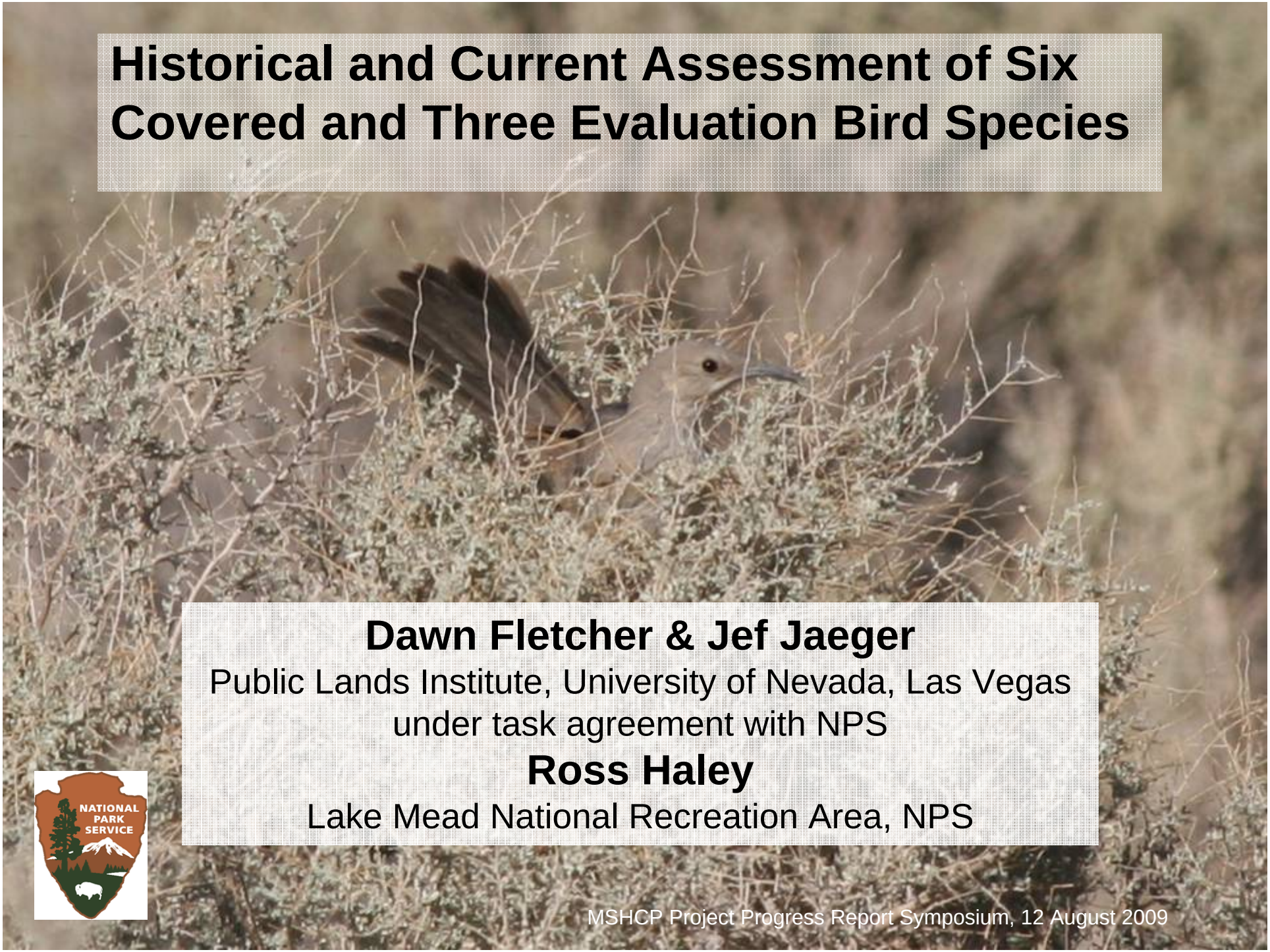
Historical and Current Assessment of Six Covered and Three Evaluation Bird Species



Dawn Fletcher & Jef Jaeger

Public Lands Institute, University of Nevada, Las Vegas

under task agreement with NPS

Ross Haley

Lake Mead National Recreation Area, NPS

MSHCP Project Progress Report Symposium, 12 August 2009

Project Need and Objectives

Needs

- Insufficient information for bird species
- Provide data to assess the status

Two parts to project

1. Intensive area surveys
2. Targeted inventory and historic analysis

Gary Kuiper

Part 1. Intensive Area Surveys

Goals:

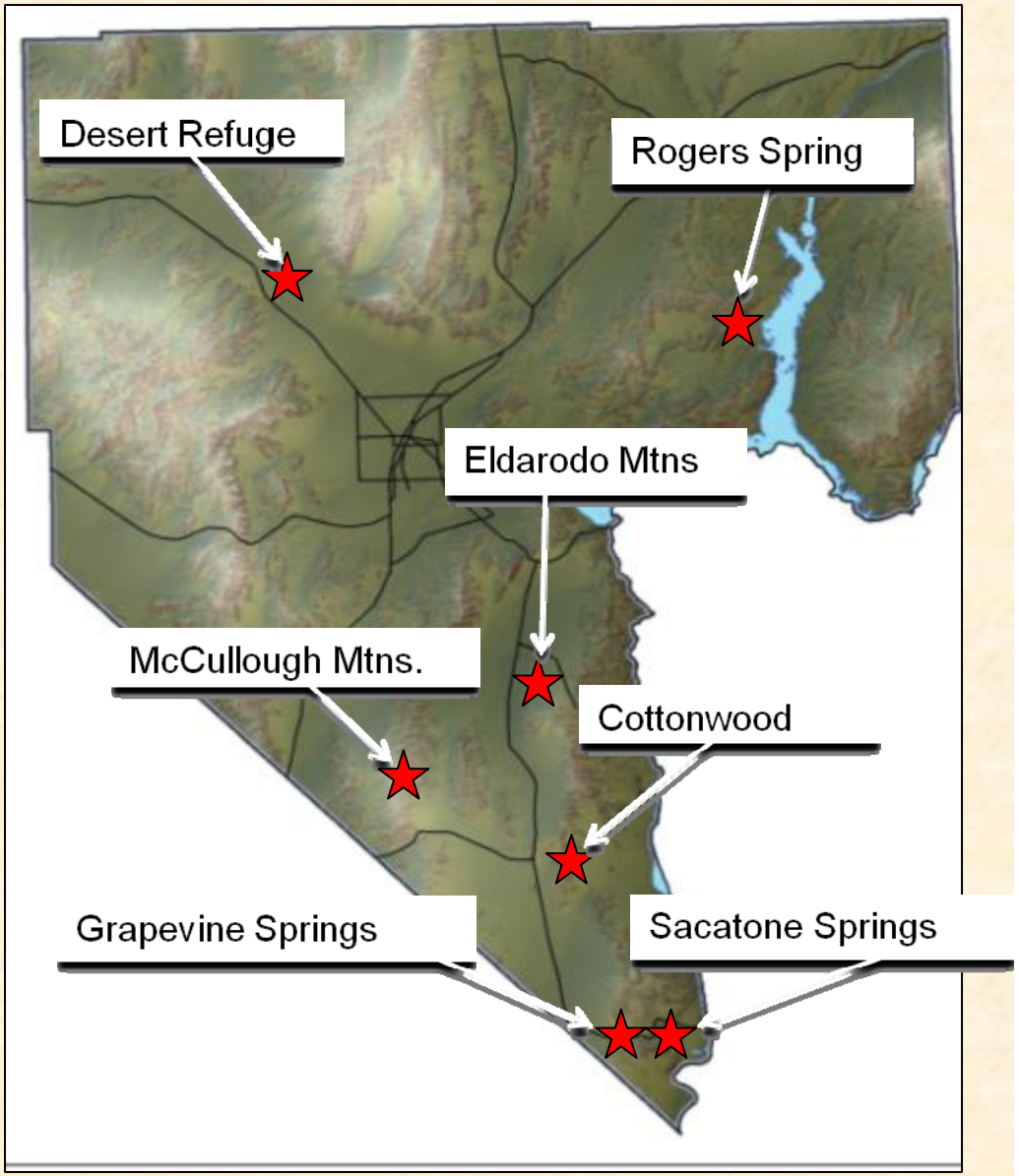
- Assist regional efforts
- Used to generate correction factors for density estimates obtained from point count surveys

Objective:

- To obtain information on the density and breeding status of all bird species present on plots

Intensive Area Survey Sites 2008 and 2009

- Two Catclaw/Mojave Mixed scrub sites (Cottonwood and Eldarodo Mtns on BLM lands)
- One Salt Desert Scrub site (just outside Desert Wildlife Refuge on BLM lands)
- One Pinyon-Juniper site (McCullough Mountains on BLM lands)
- Three Riparian/Spring sites (on NPS lands)

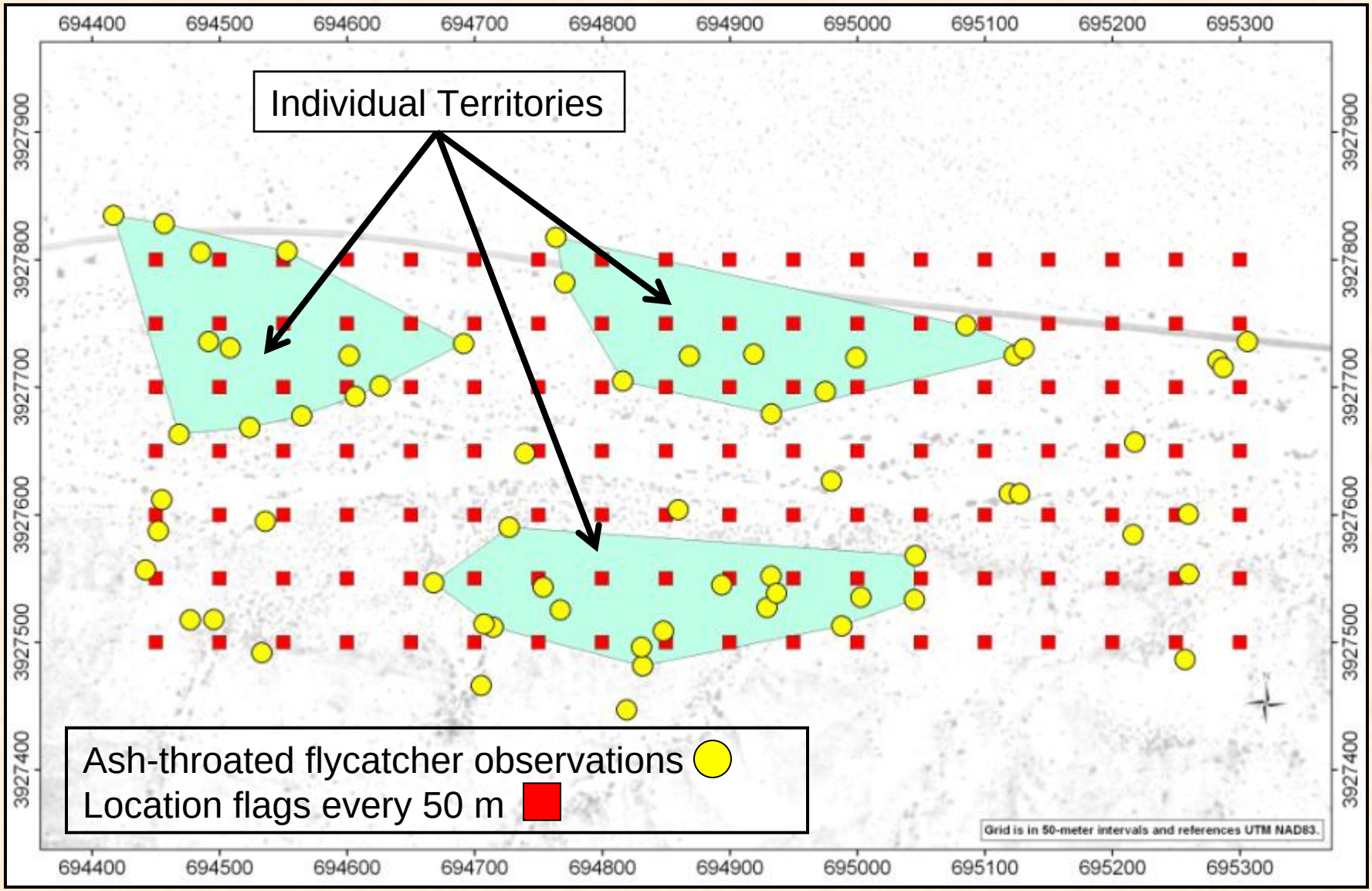


Intensive Area Survey Methods

- Data collection using standard protocols
- Sites vary in size from 17 to 41 ha, and are set up in a grid
- A site is surveyed in one long morning
- Each site surveyed 10 times during breeding season
- Follow up point counts performed by GBBO staff
- Habitat assessments performed at each site (Line transect method)


Urban 2005

Example of Resulting Ash-throated flycatcher Territory Map at Cottonwood



Summary of 2009 Results

Intensive Survey Site	Site Area (Hectares)	Total Observations	Number of Species	Number Territories
Grapevine Springs	18.3	550	30	28.1
Cottonwood	25.5	653	26	24
Eldarodo Mtns.	17	585	31	25.2
Desert Wildlife Refuge	41	192	18	6.2

(Provisional data)

Part 2. Targeted Inventory and Historic Analysis

Goal: To evaluate historic distributions of nine bird species within Clark County


Robert Schnase

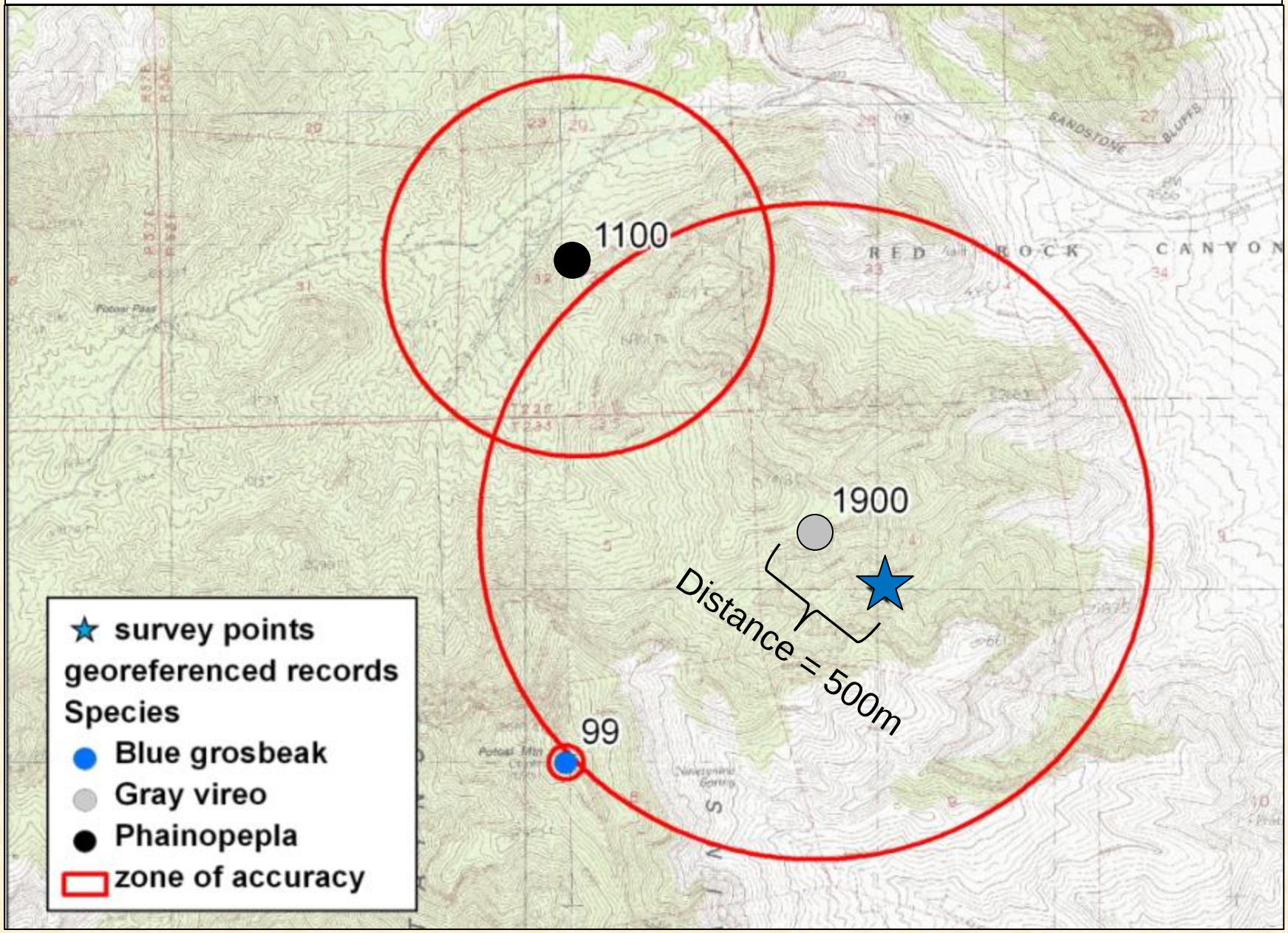
Objectives:

- Gather and review historical (pre-1994) observations
- Evaluate historical observations for use in targeted surveys
- Conduct targeted surveys at historical sites

Gather and Review Historical Observations
(Mining Historical Observations)

- Researched taxonomic history using ITIS
- Reviewed ~ 75 different museums, databases, agencies records, and publications for each species
- Filtered results for eligible records only, and removed duplicate locations

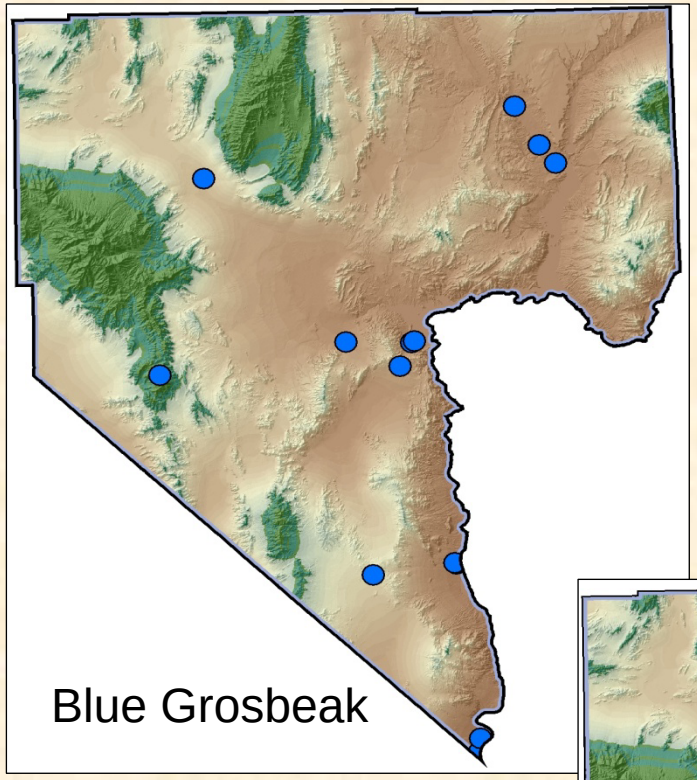
Georeferencing and Error Estimates

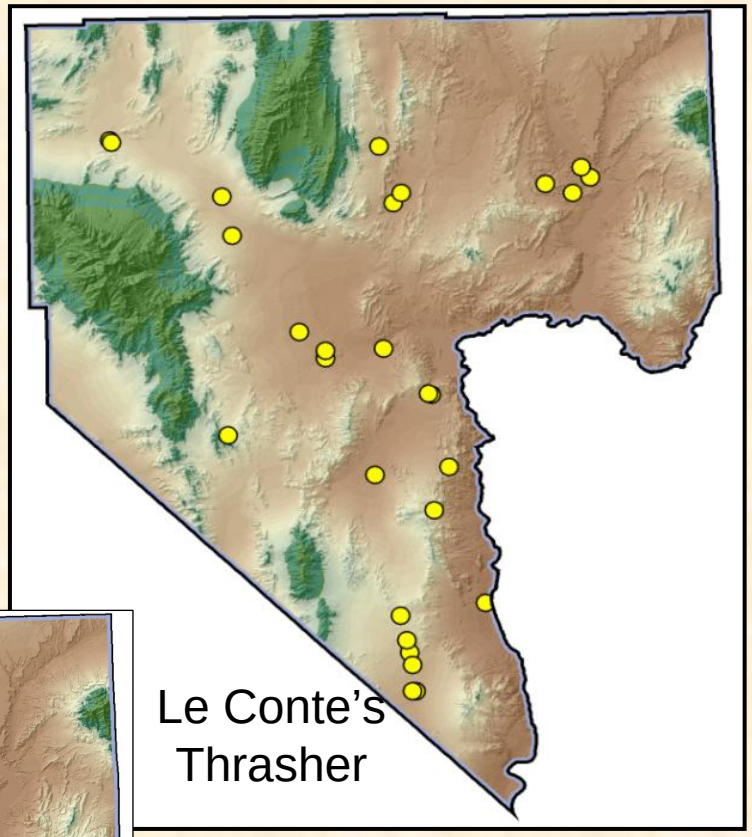


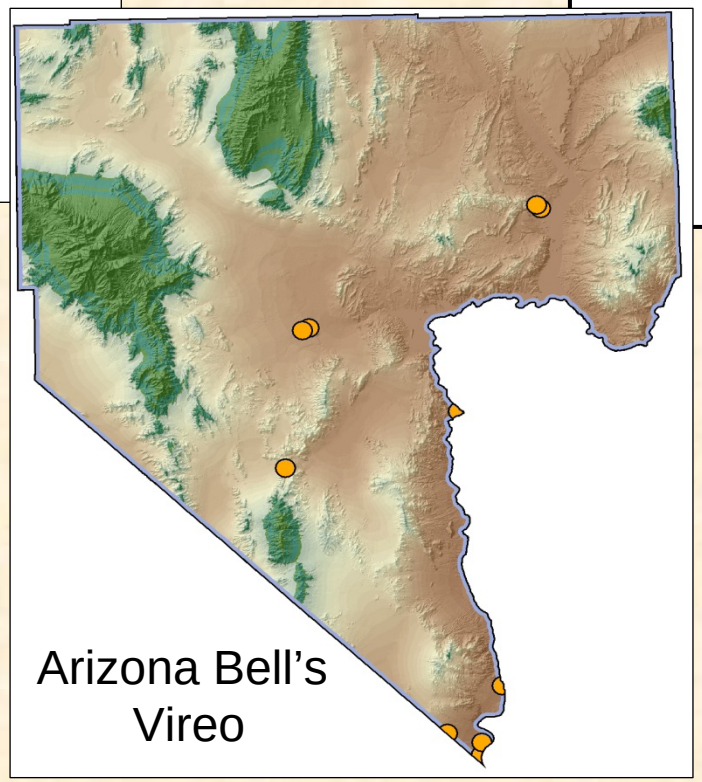
Total Numbers of Useful Historical Observations in Clark County to Date (pre-1994)

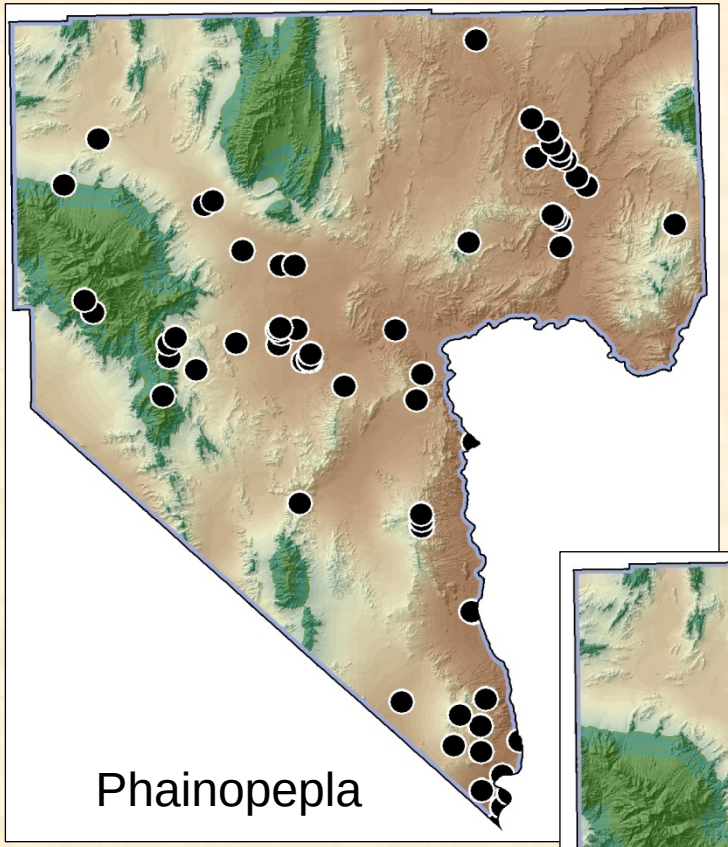
- Arizona Bell's Vireo: 10
- Blue Grosbeak: 14
- Bendire's Thrasher: 6
- Le Conte's Thrasher: 25
- Gray Vireo: 14
- Phainopepla: 70
- Summer Tanager: 10
- Vermillion Flycatcher: 16
- SW Willow Flycatcher: 10

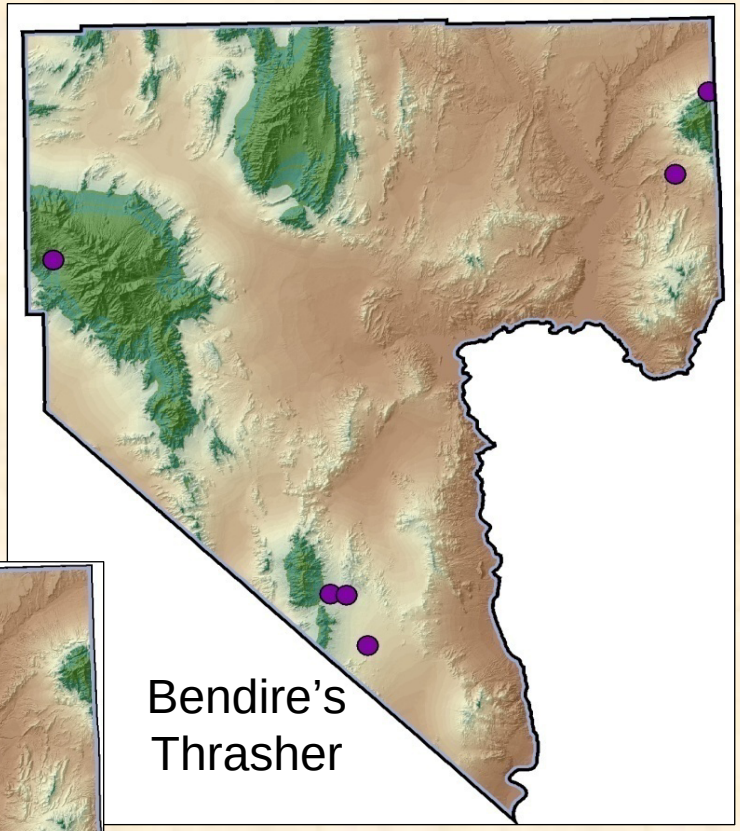
*A total of 215 records in Clark County were found, but 40 of these records had an accuracy error buffer > than 5 km

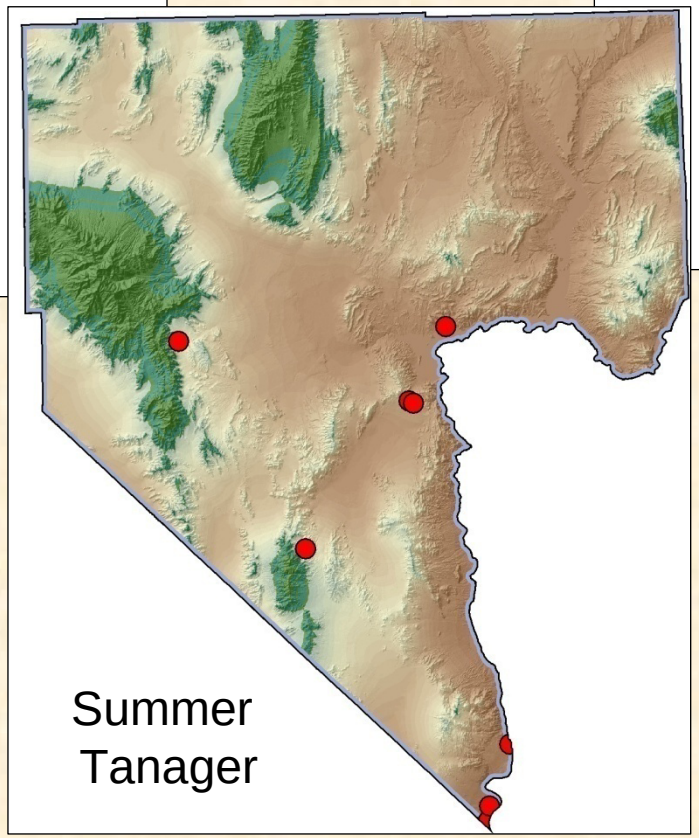

Blue Grosbeak

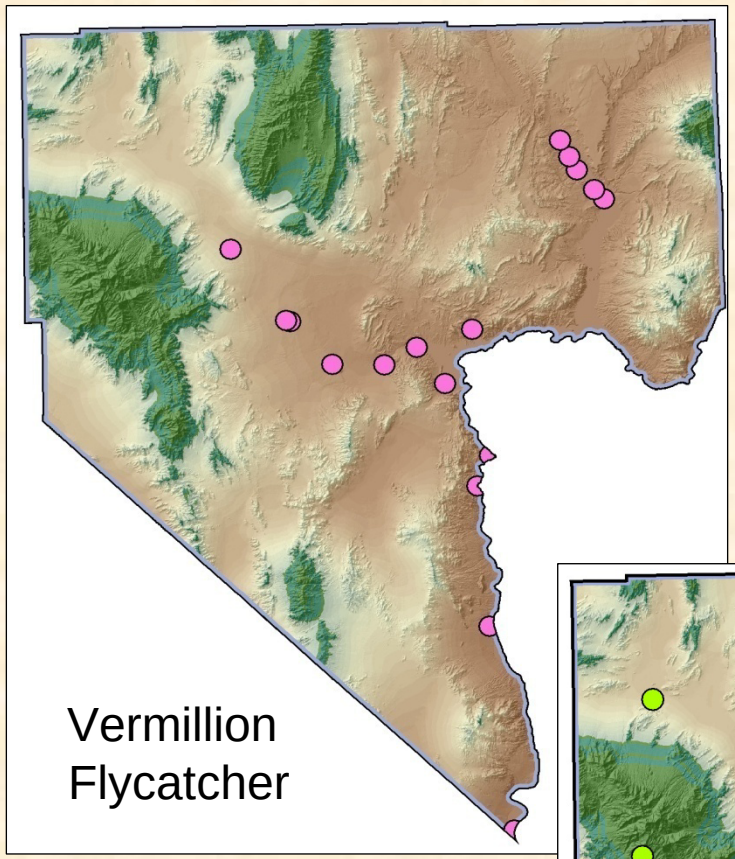

Le Conte's
Thrasher

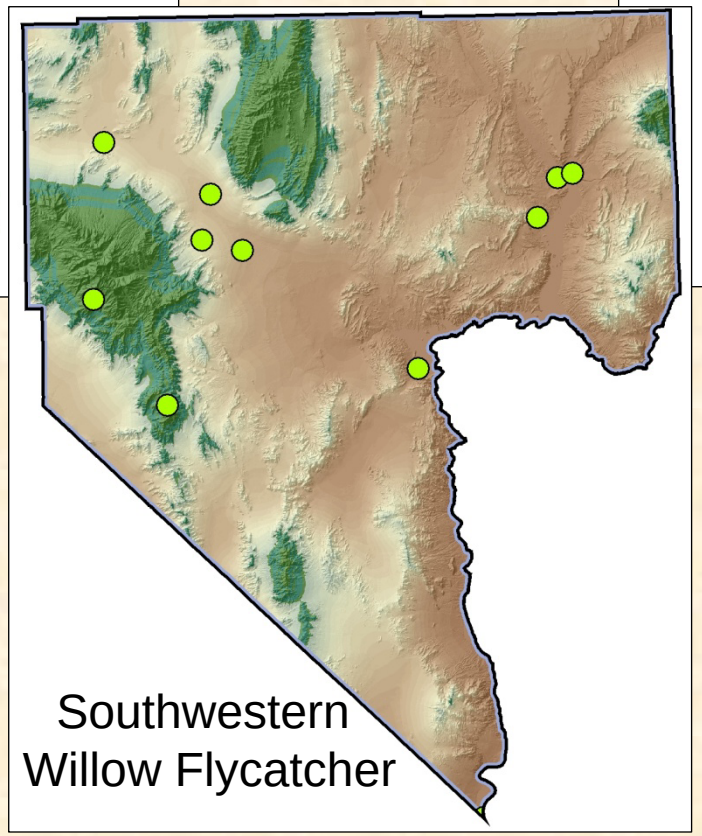

Arizona Bell's
Vireo

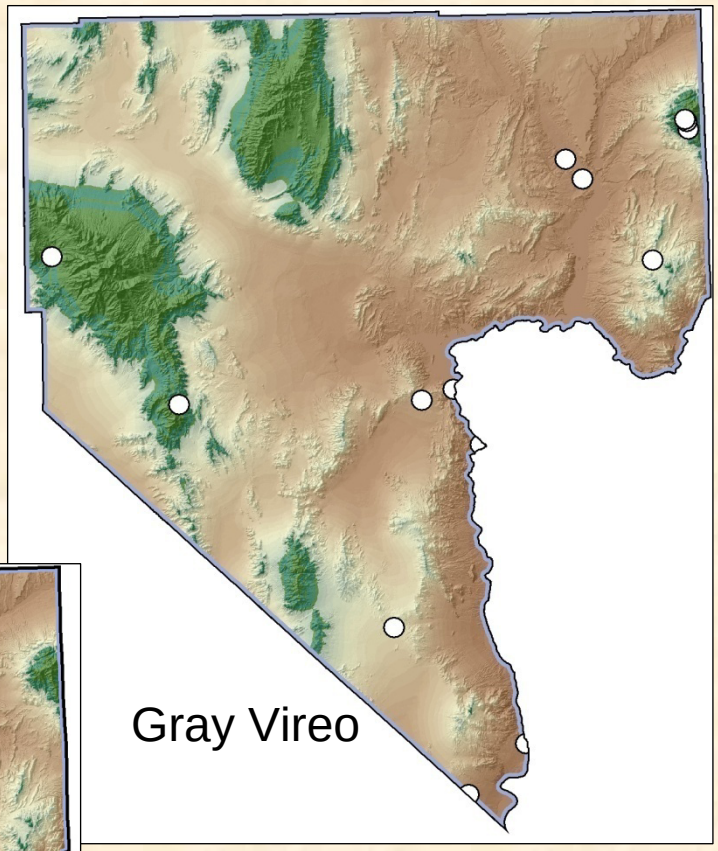

Phainopepla


Bendire's
Thrasher


Summer
Tanager

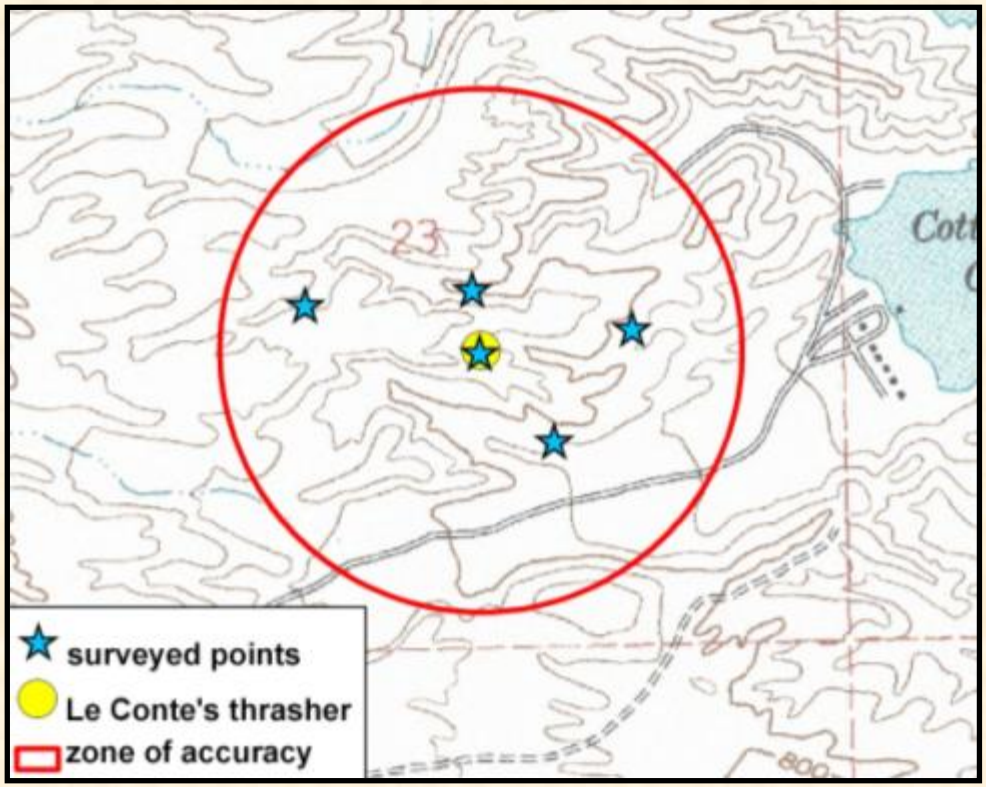

Vermillion
Flycatcher


Southwestern
Willow Flycatcher


Gray Vireo

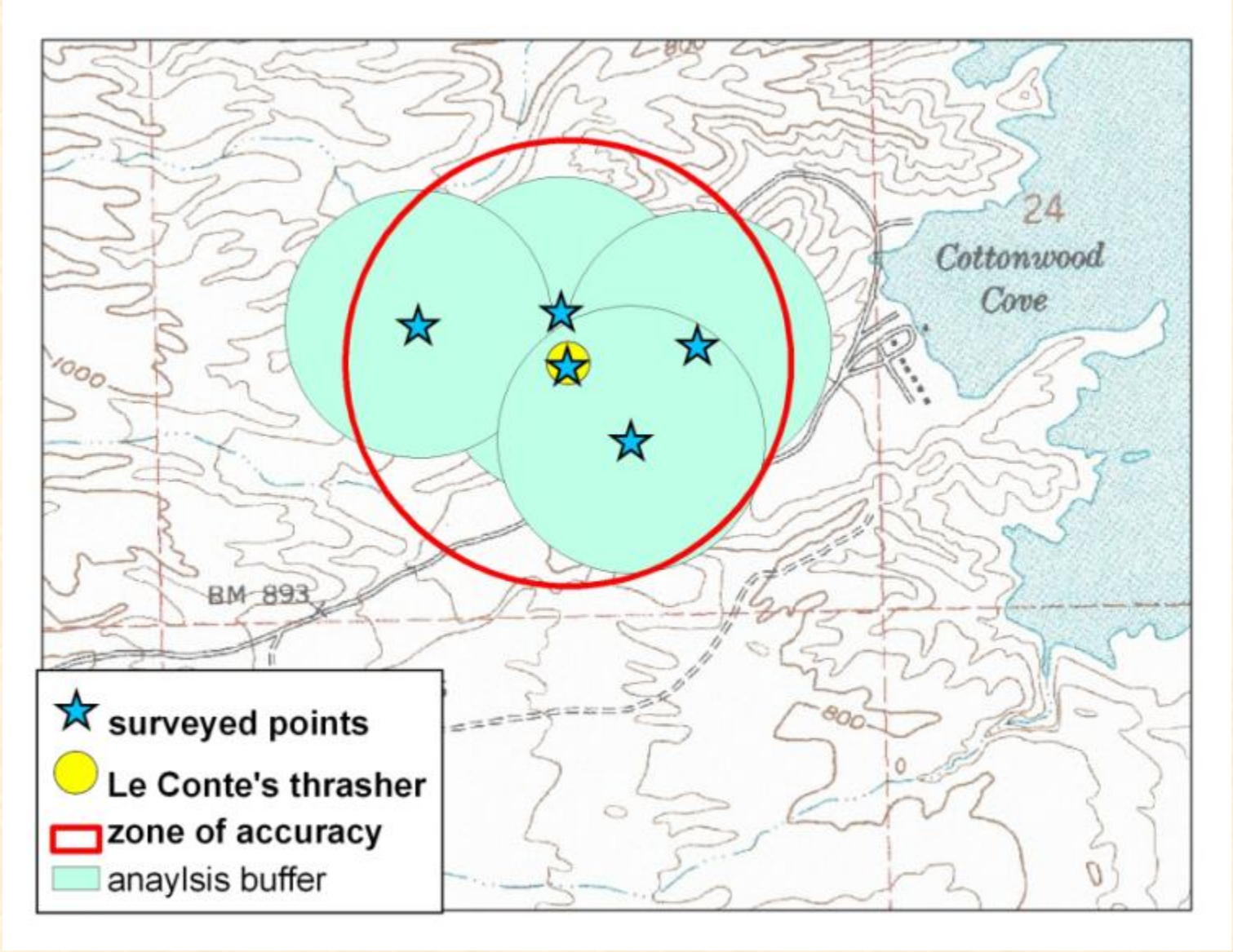
Data Collection at Geo-referenced Points

- Time constrained approach for surveying (~ 1 hour)
- Surveys conducted in suitable habitat within error buffer



- Calls of target species played twice for 30 seconds with 1 minute break between
- Call-broadcast performed every 150 to 300 m approximately
- About 5 call attempts per site
- Revisit sites to assess detectability

Estimating Area Covered By Targeted Surveys



Habitat Condition Assessment

Data collected in three main categories:

1. Vegetation/habitat categories, and presence of dominant plant species
2. Presence of species-specific indicators
3. Qualitative indicators of human disturbance

Examples of photo references at each site

Record ID:____Date:_____Observers:_____ Observation Point #___**Ref. UTM:** _____E **UTM:** _____N ☐ Macro or ☐ Micro assessment

Major habitat type in survey area (indicate primary (1) and secondary (2, if present) on lines provided):

___ Riparian Native (mostly willows, cottonwoods)
___ Riparian Non-native (mostly tamarisk)
___ Salt Desert Scrub (cattle saltbush, four-wing saltbush)
___Mesquite Bosque (mesquite dominated)
___ Creosote Bur Sage
___Mojave Mixed Scrub (creosote with cholla species or Mojave yucca)
___ Catclaw Wash (Catclaw dominated)
___ Joshua Tree Woodland (Joshua trees in large numbers)
___ Blackbrush (blackbrush dominated)
___ Pinyon-Juniper Woodland, note if almost only junipers:
___ Ponderosa Pine
___ Other, describe

List five most dominant plant species:

1)_____ 2)_____ 3)_____ 4)_____ 5)_____

Wash with larger/denser vegetation… Yes or No
Large Mojave yucca…….. Yes or No
Joshua trees……... Yes or No
Pinyon or Juniper trees…… Yes or No …… **Juniper berries present**.....Yes or No
Mesquite/Acacia trees…….. Yes or No
Mistletoe…… Yes or No……. **Mistletoe berries present**.....Yes or No
Cottonwoods or Large Willows…….. Yes or No
Other trees……. Yes or No……. **Identify:** _____ Distance: _____m
Snags (dead trees, standing stumps)….. Yes or No
Cattle/Four-wing saltbush…… Yes or No
Large Cholla…… Yes or No
Spring or Other Water……. Yes or No……. **Distance** from survey area**:** _____m
Survey area "recently" burned…… Yes or No

Surface constituents (rank by dominance, with "1" being most prevalent; leave blank those that are not common):

___ **Litter** (organic material on surface)
___ **Pebbles** (surface covered by 4-64 mm particles)
___ **Clay or Dry Mud**
___ **Cobbles** (larger particles 64-256 mm on surface)
___ **Silt** (very fine grained soil)
___ **Rock** (large rocks/boulders on surface)
___ **Sand** (grained, loose sandy soil)
___ **Pavement** (firmly packed or continuous cover)

•No or Light disturbance, ☐ Limited disturbance (4x4 dirt road, historical structure, etc)
•Moderate disturbance (maintained dirt road, heavy power lines, etc, but mostly natural)
•Disturbed (major dirt road, minor paved road, minor human development, but still many natural features)
•Heavily Disturbed

Power line or utility corridor within survey area..... Yes or No
Recent evidence of exotic ungulates (tracks, scat of horses, cows)……. Yes or No
4x4 Road or OHV track within survey area..... Yes or No
Major Dirt Road within survey area..... Yes or No
Paved road within survey area.....Yes or No
Homes, buildings, or construction within or near survey area.....Yes or No…. **Distance:** _____m
Other evidence of disturbance that could affect target species, please describe:

Reference photo of each site…..Yes or No (make sure to label photo with date, Record ID, and reference)

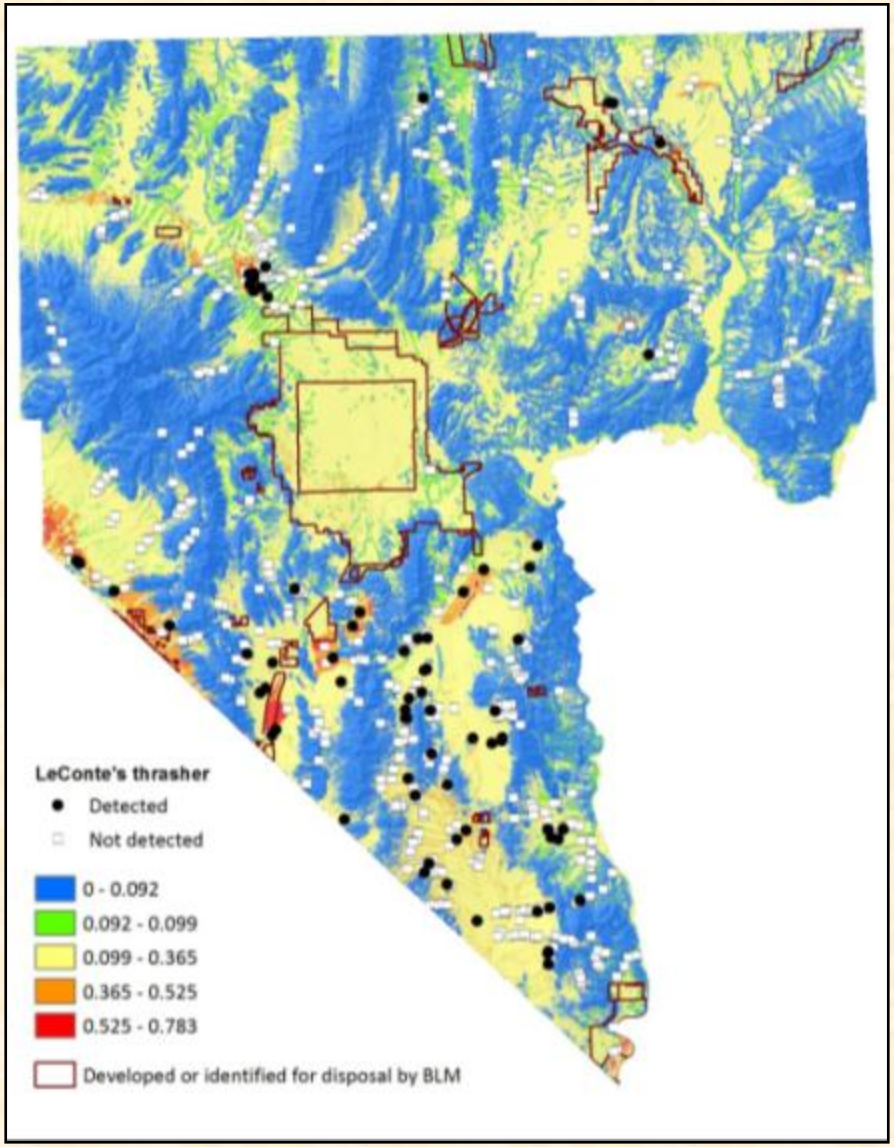
Historic Observations
Preliminary Results To Date

Species	Sites Surveyed	Species Present
Bell's Vireo	1	0
Bendire's Thrasher	3	0
Blue Grosbeak	5	3
Gray Vireo	1	1
Le Conte's Thrasher	14	5
Phainopepla	7	2
SW Willow Flycatcher	1	0
Summer Tanager	2	0
Vermillion Flycatcher	7	0
Totals	41	11

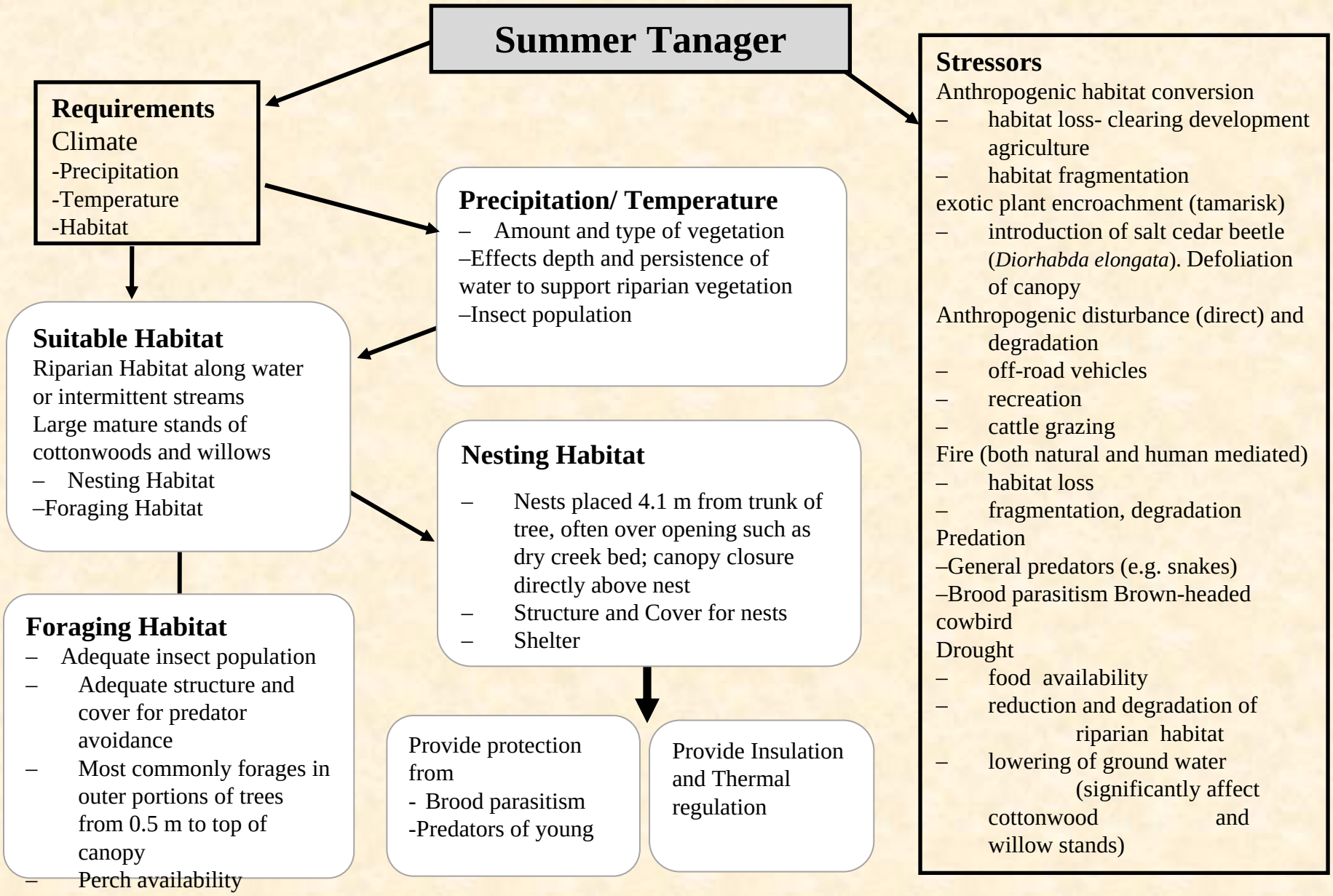
Conceptual and Habitat Models for Six Covered and Three Evaluation Bird Species (Project 609A)

Project Objectives

- Develop conceptual models for each species
- Use existing occurrence records for each species, and important environmental variables (accessible as spatial data layers)
- Develop models and predicative maps of habitat suitability



Draft Conceptual Models Developed for the 9 Species

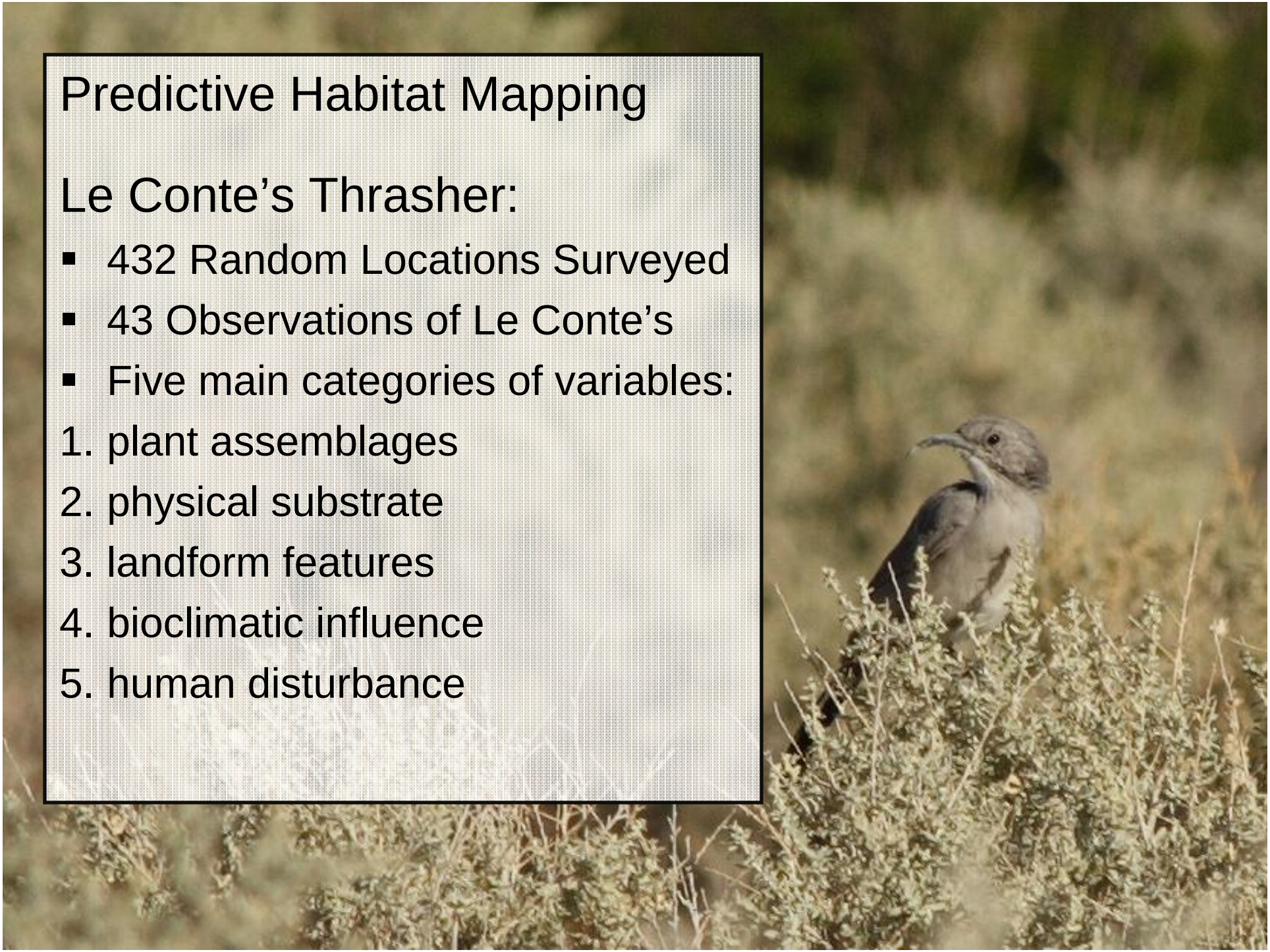


Predictive Habitat Mapping

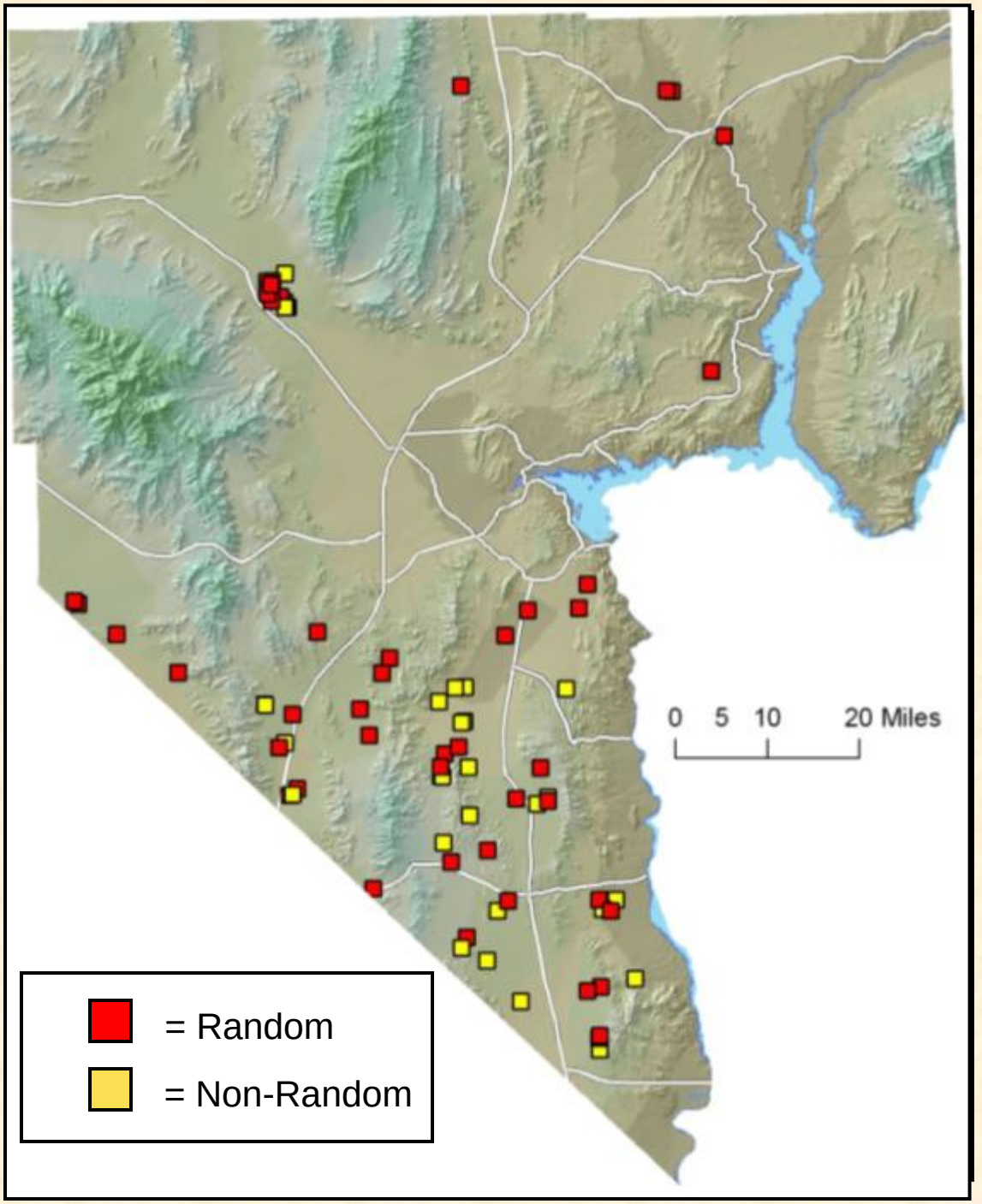
Le Conte's Thrasher:

- 432 Random Locations Surveyed
- 43 Observations of Le Conte's
- Five main categories of variables:

1. plant assemblages
2. physical substrate
3. landform features
4. bioclimatic influence
5. human disturbance



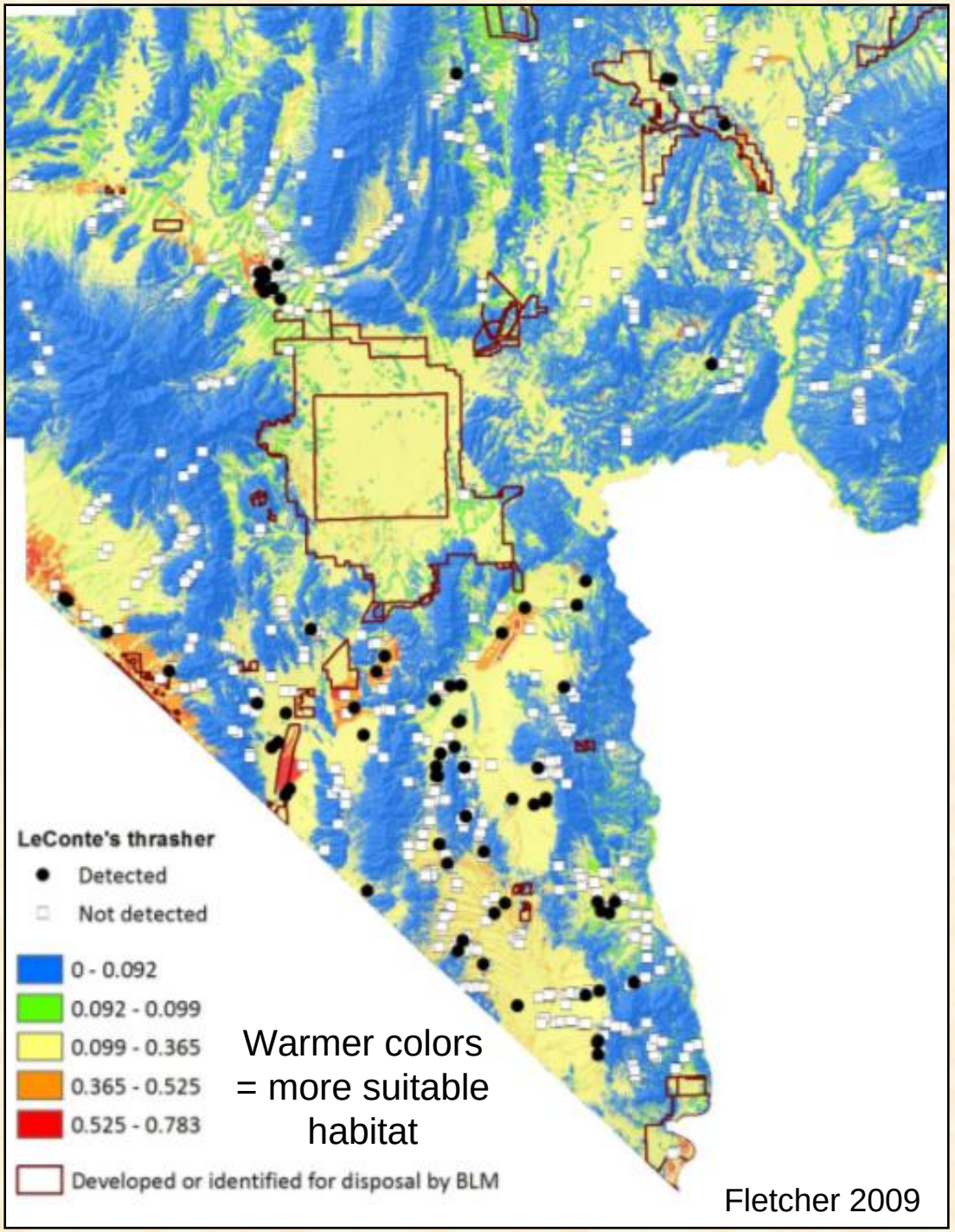
Sites within Clark County surveyed for thrasher species



Predictive Habitat Map for Le Conte's Thrasher

Important variables:

- Little topographic relief (slopes < 5 degrees)
- Affinity for saltbush species
- Identified 4,000 out of 20,638 km^2 as potential habitat



Acknowledgments

Agency Cooperators: Public Lands Institute UNLV, Great Basin Bird Observatory, USDA Natural Resources Conservation Service, Bureau of Land Management, and Clark County

Science and Technical Advisors: Elisabeth Ammon, Joe Hutcheson, John Klicka, Doug Merkler, Brett Riddle, Mark Sappington, Daniel Thompson, and Cheryl Vanier

Field and Technical Assistance: Jen Ballard, Joe Barnes, Erinn Birmingham, Dorothy Crowe, Ashley Fisher, Calias Fossier, Morgan Raskin, and Mitch Urban