



- LCR MSCP -



**Southwestern Willow Flycatcher
Demography and Ecology Studies
along the Lower Colorado River and Tributaries
2011**

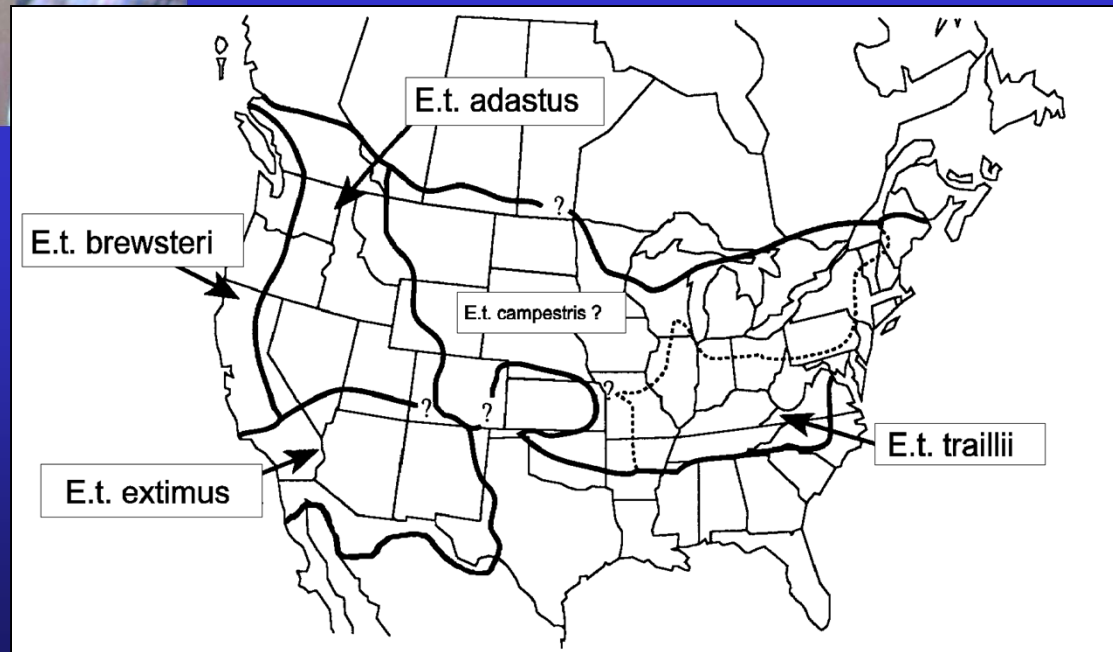


SWCA[®]
ENVIRONMENTAL CONSULTANTS



Empidonax traillii extimus

- One of 4 subspecies; breeding range AZ, NM, adjacent portions of neighboring states
- Neotropical migrant; winters in Central America



Adapted from Unitt (1987), Browning (1993), and Sogge et al. (1997)

Empidonax traillii extimus

- Breeds in dense, wet riparian habitats, both native and tamarisk
- Builds open-cup nests
- Listed as endangered in 1995



Study components

- Broadcast surveys



- Territory/nest monitoring



- Banding/resighting



- Microclimate/vegetation



- Cowbird trapping



Project Area

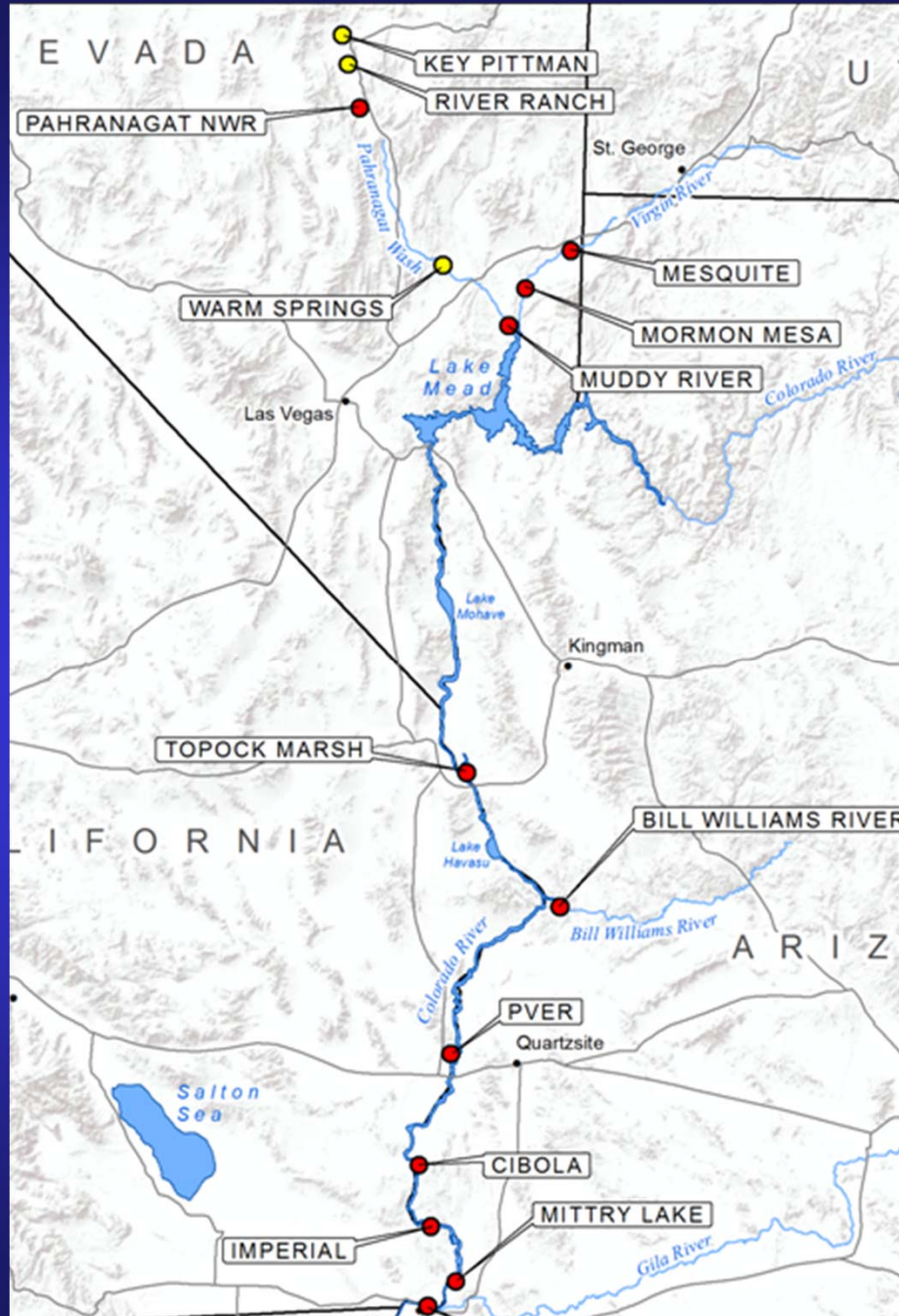


Approx. 100 survey sites
Sites chosen by field recon
via helicopter and on foot
Goal to survey all potential
habitat



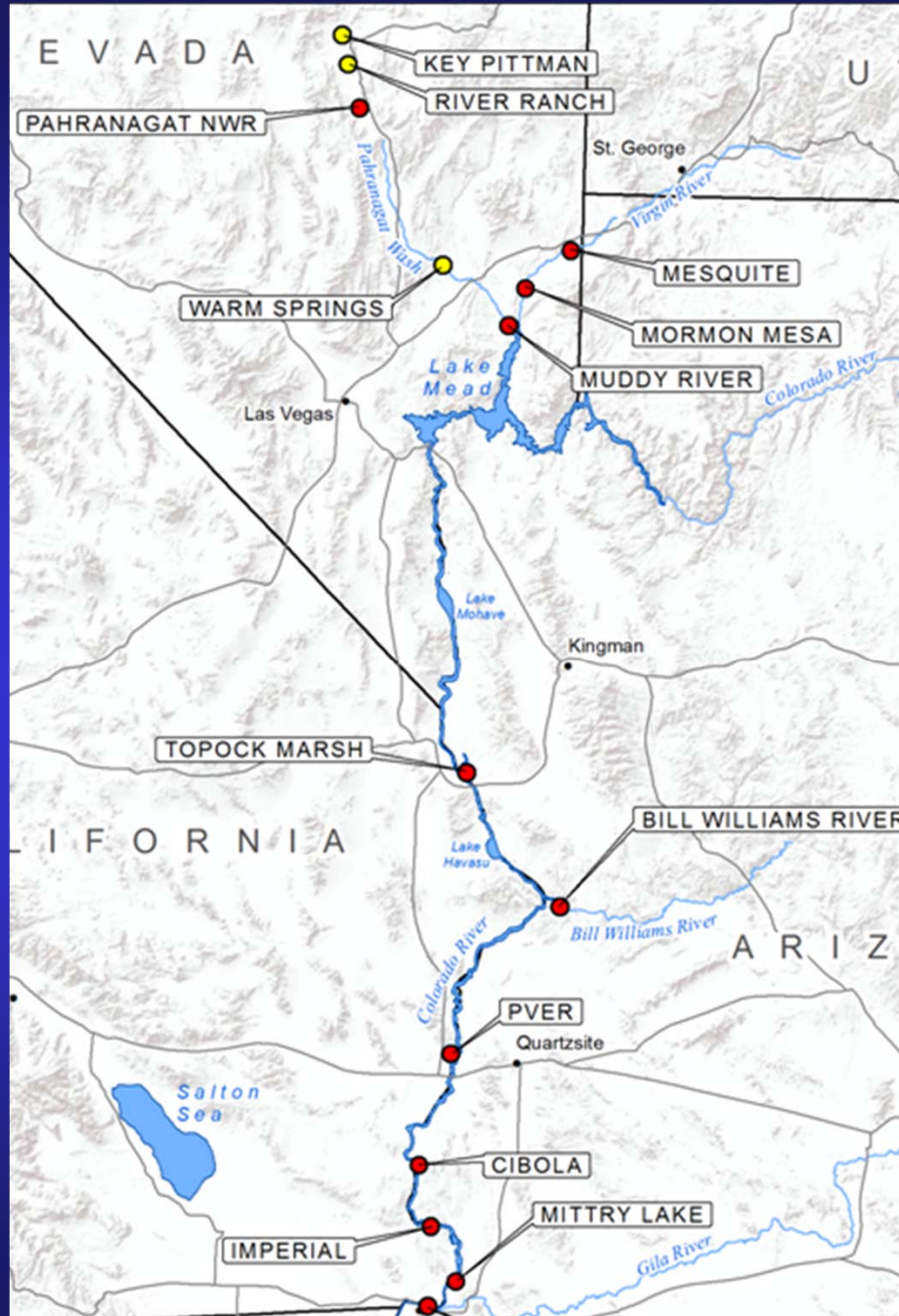
Breeding sites

Pahrnanagat – native



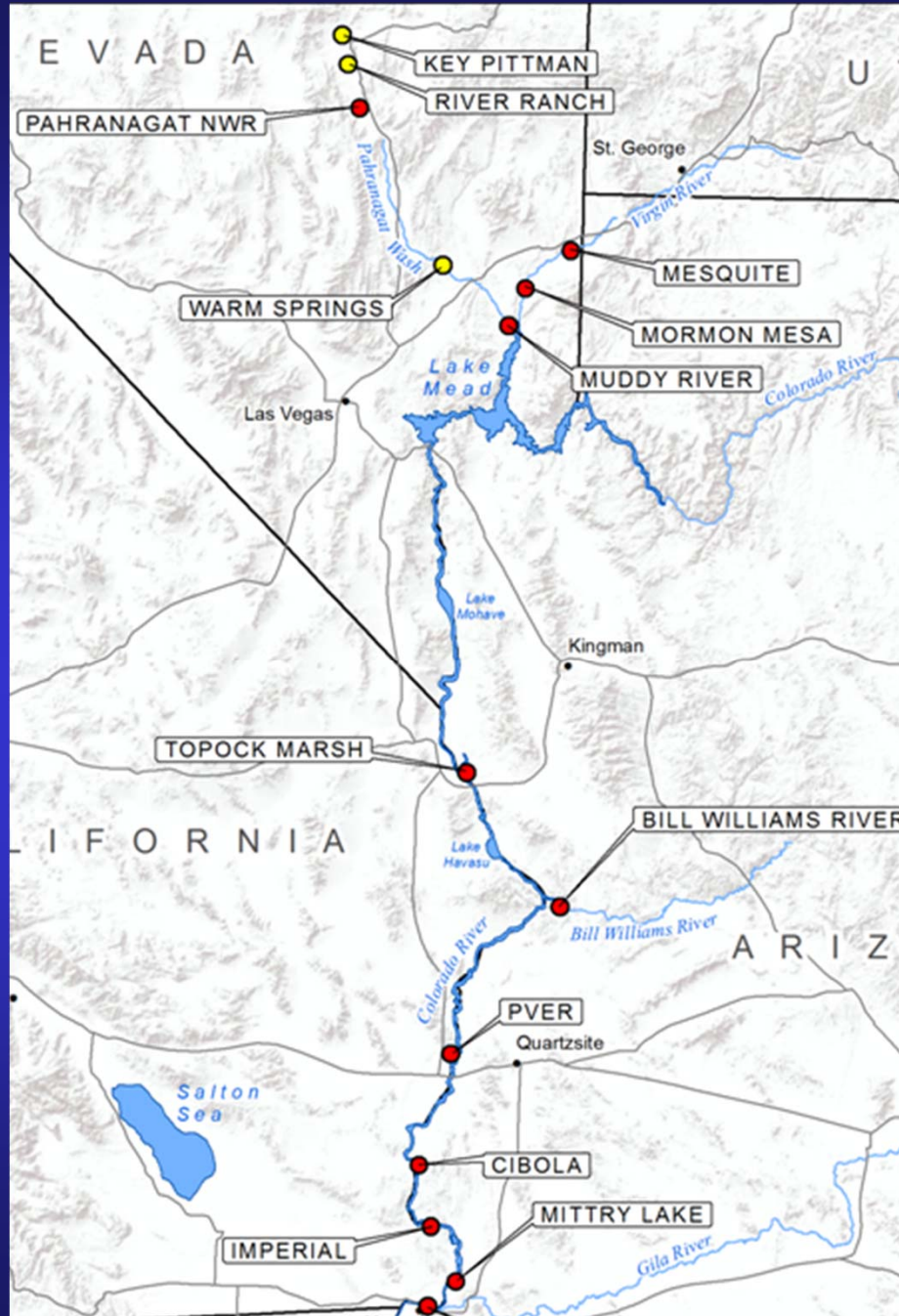
Breeding sites

Mesquite – mixed-native



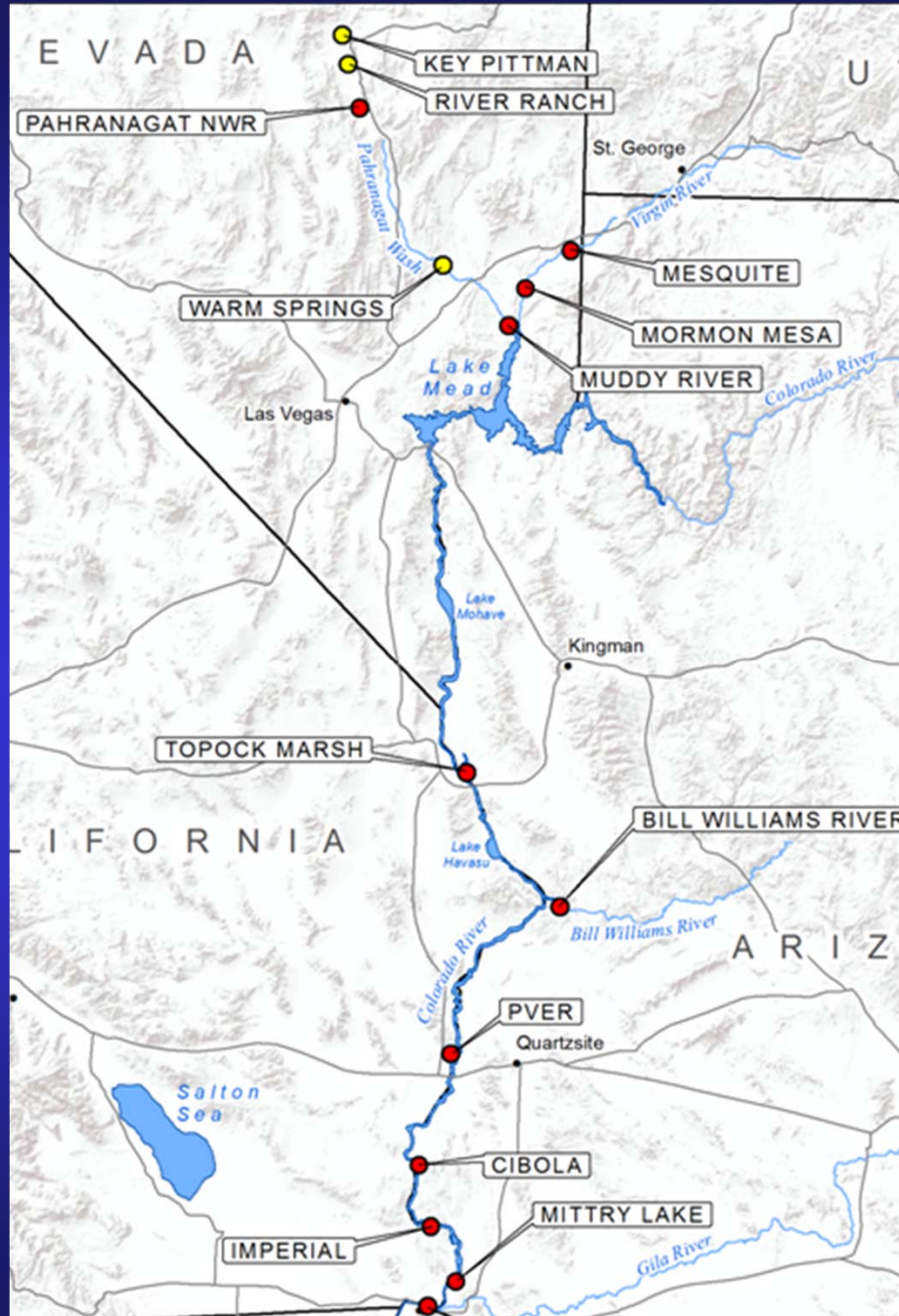
Breeding sites

Mormon Mesa – mixed-exotic



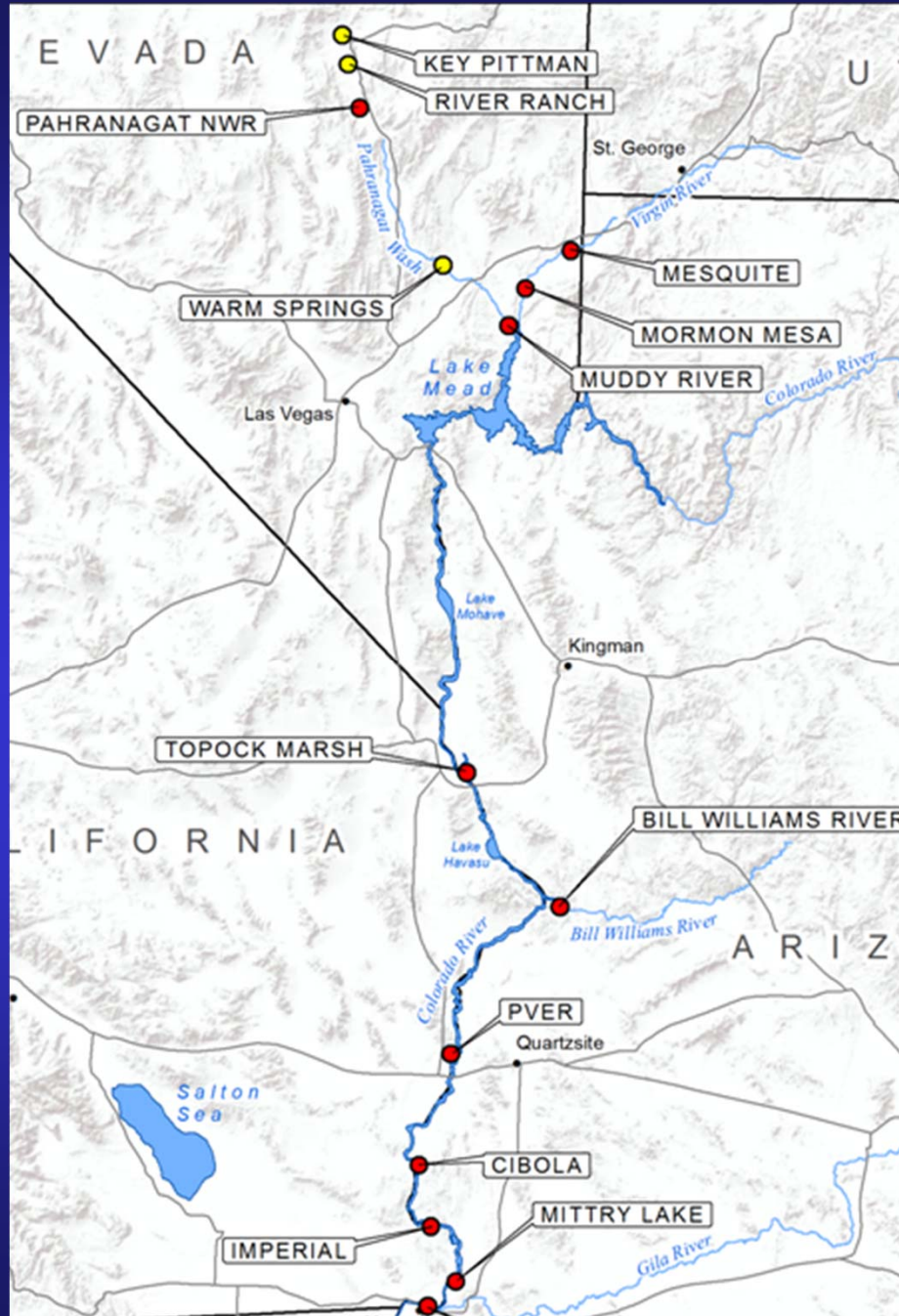
Breeding sites

Muddy River – mixed-exotic



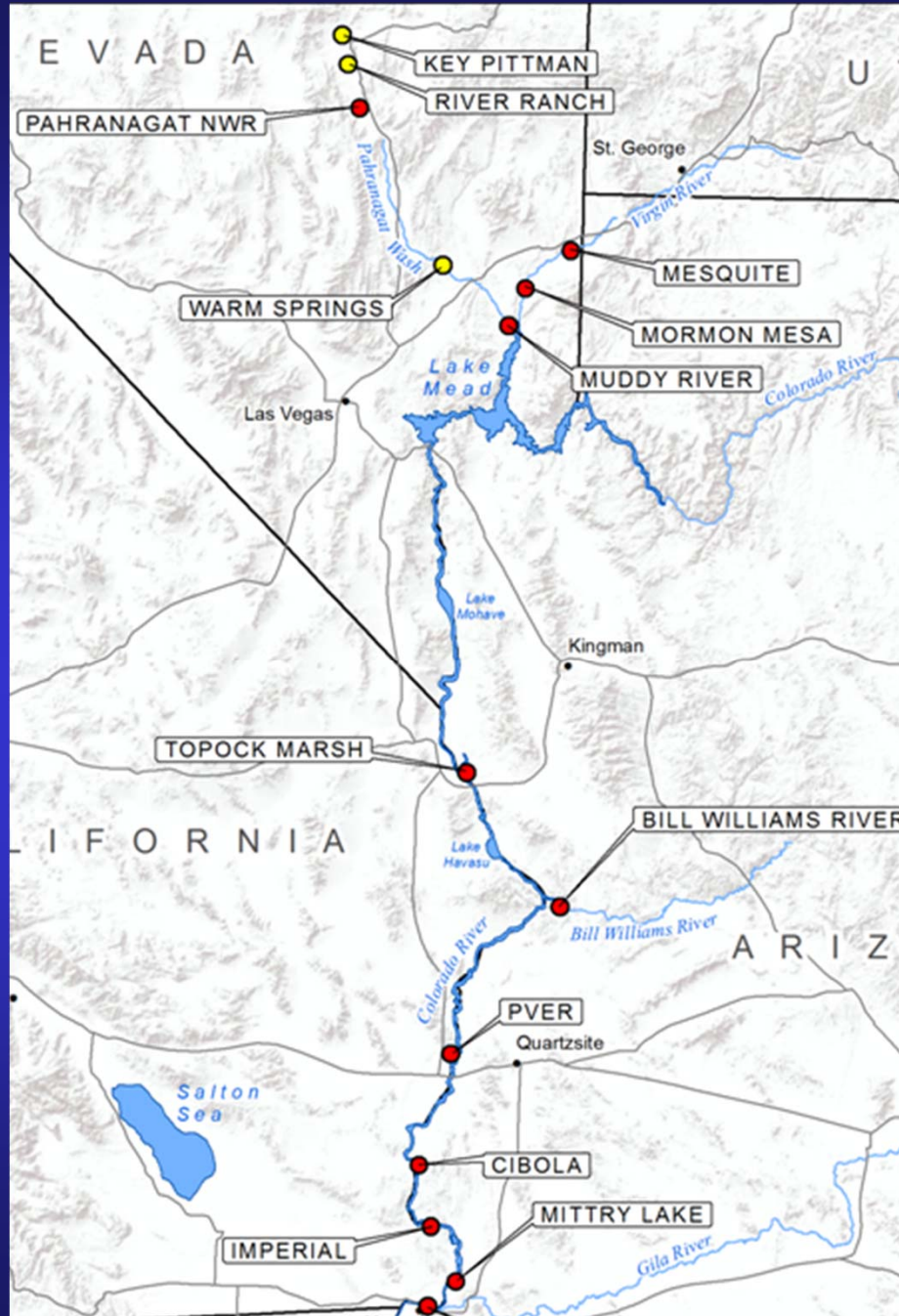
Breeding sites

Topock – exotic

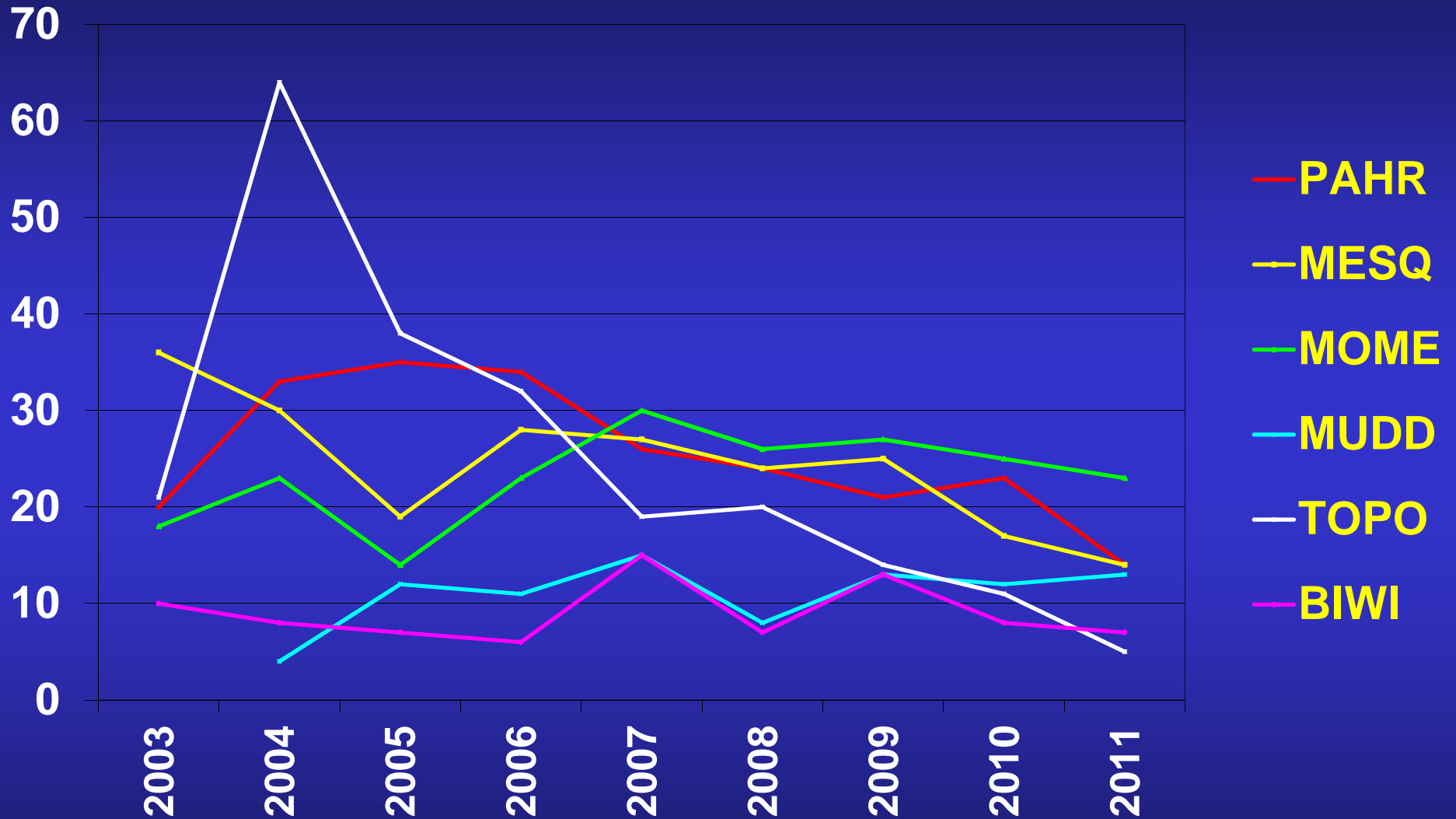


Breeding sites

Bill Williams – mixed-native



Resident Adult Flycatchers

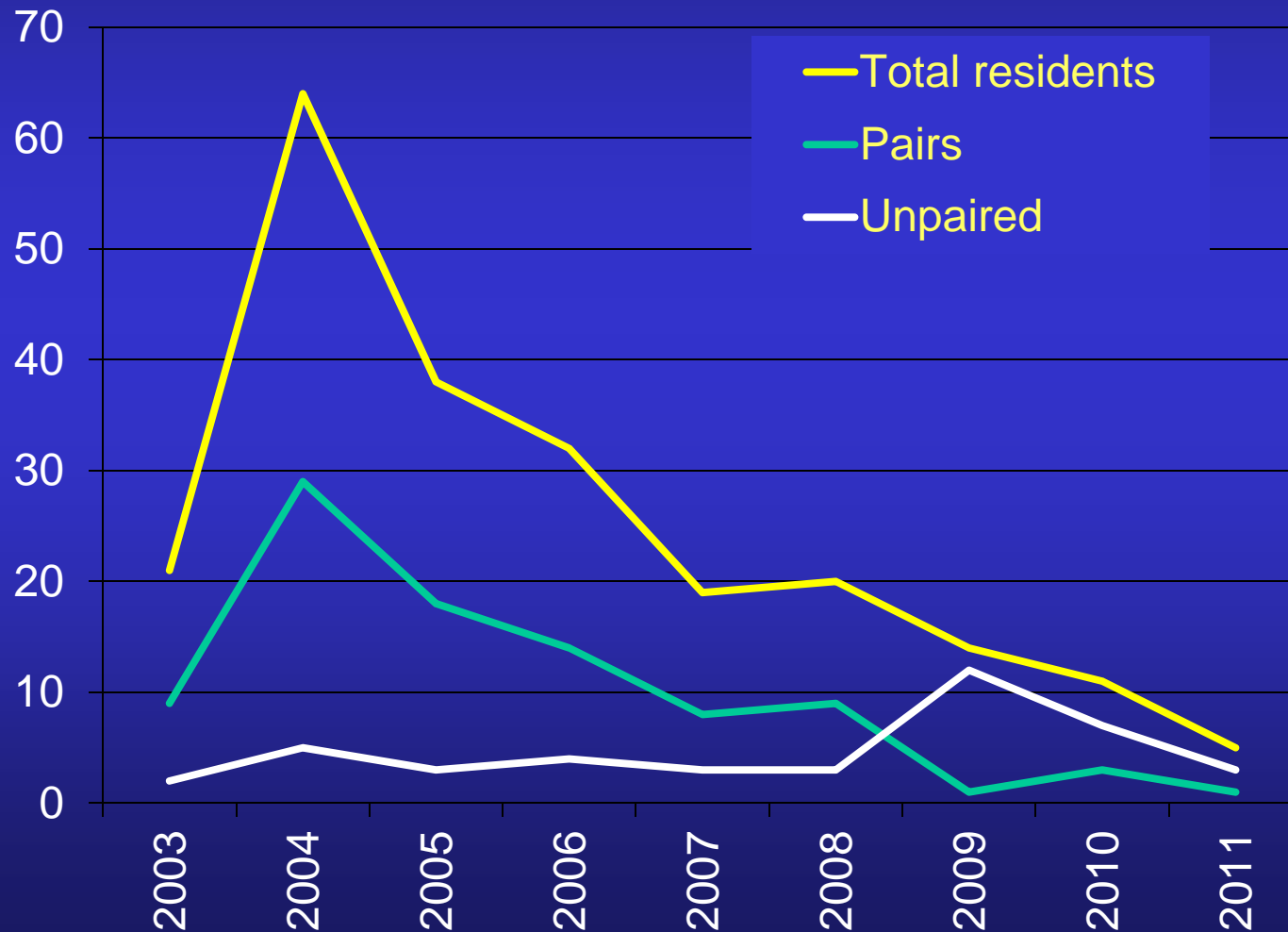


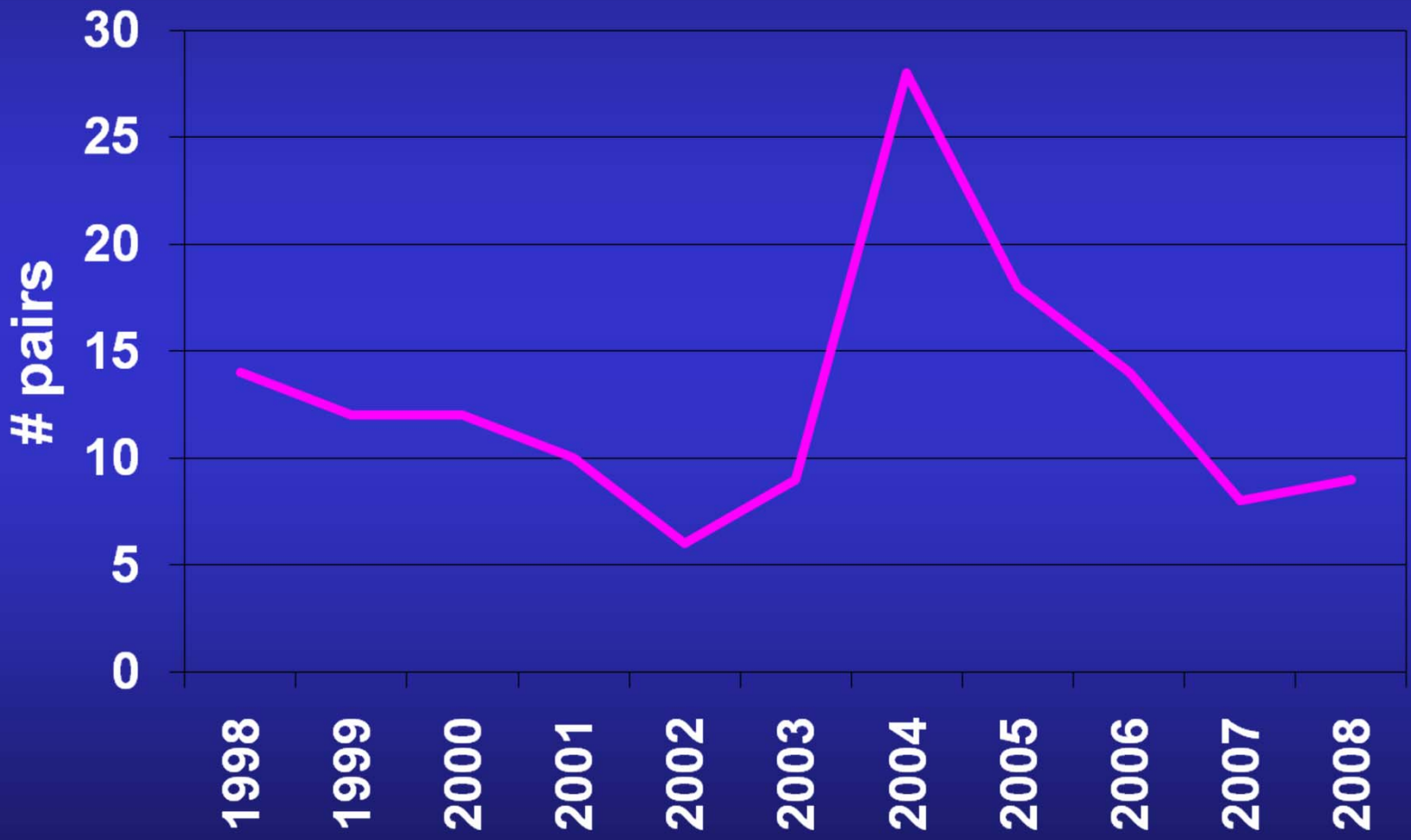
No resident willow flycatchers recorded south of Bill Williams

Topock Marsh

Lowest number of resident flycatchers recorded to date

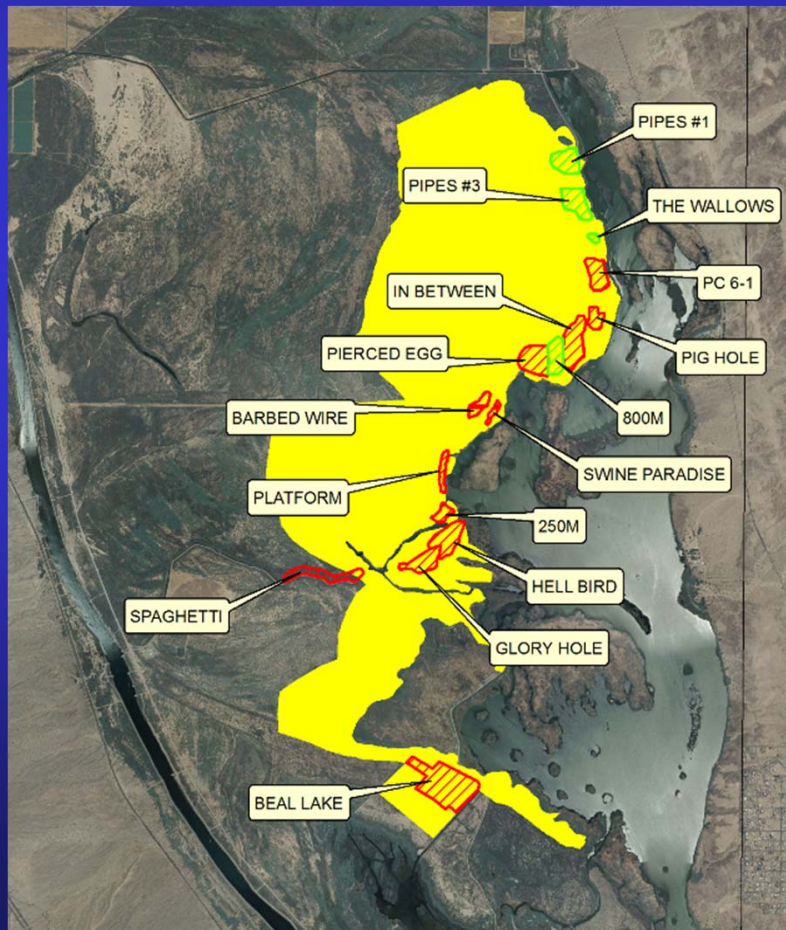
- 1 pair with a failed nesting attempt, 3 unpaired males





Topock Marsh

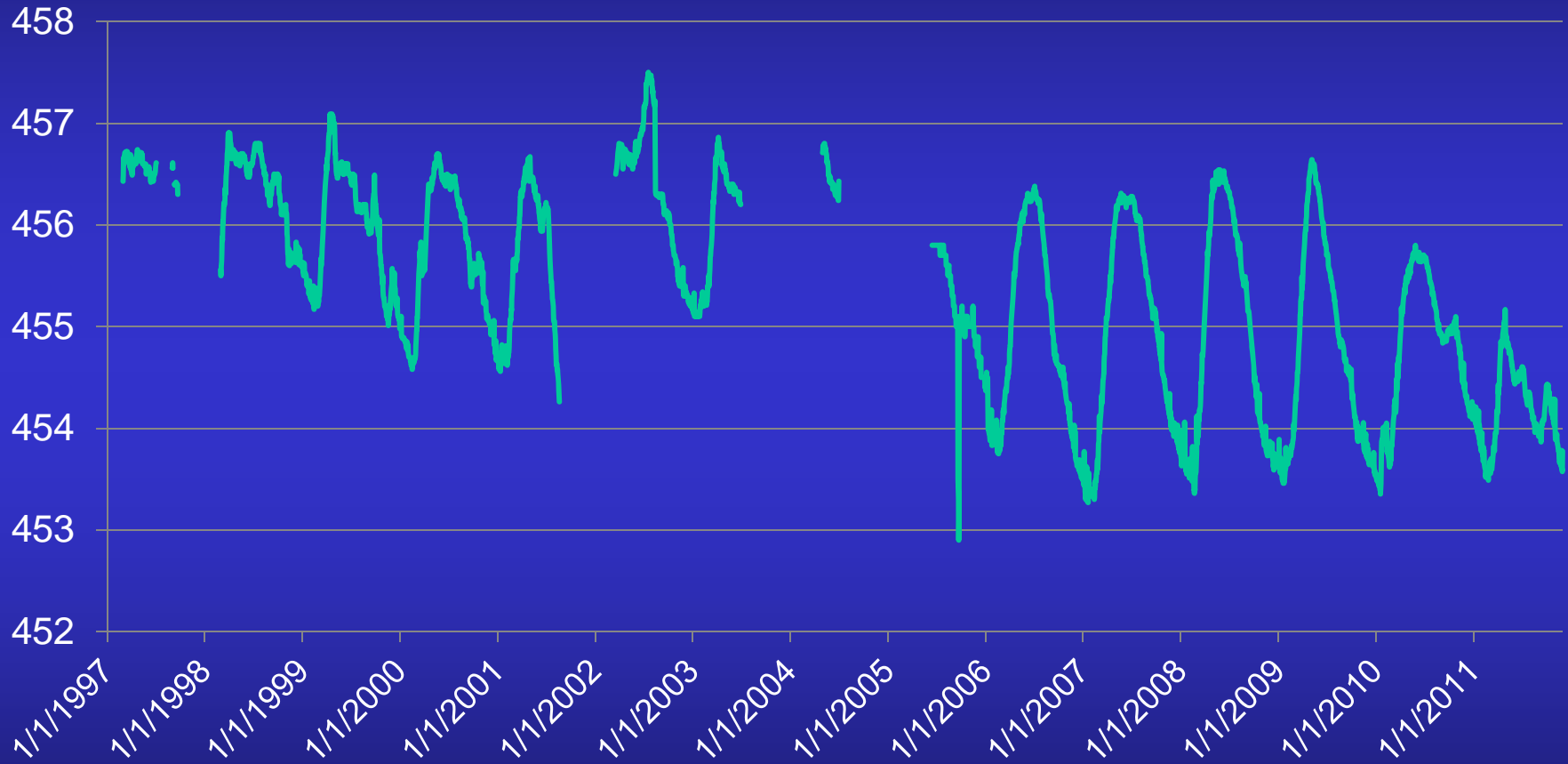
- Focus on 800M and In Between
- # residents declined; stable in other parts of Topock
- No obvious change in vegetation



Topock Marsh

- Surface water: annual variation but no obvious decline 2003-2008
- Marsh elevation data show lower, shorter peaks and lower lows after 2004
- Plan: pump water into 800M and In Between during flycatcher breeding season in 2011
 - Monitor hydrology, vegetation, and microclimate the year before pumping (baseline conditions)
 - Repeat monitoring during pumping to assess effects
 - Monitor flycatchers

Topock Marsh



Topock Marsh - monitoring

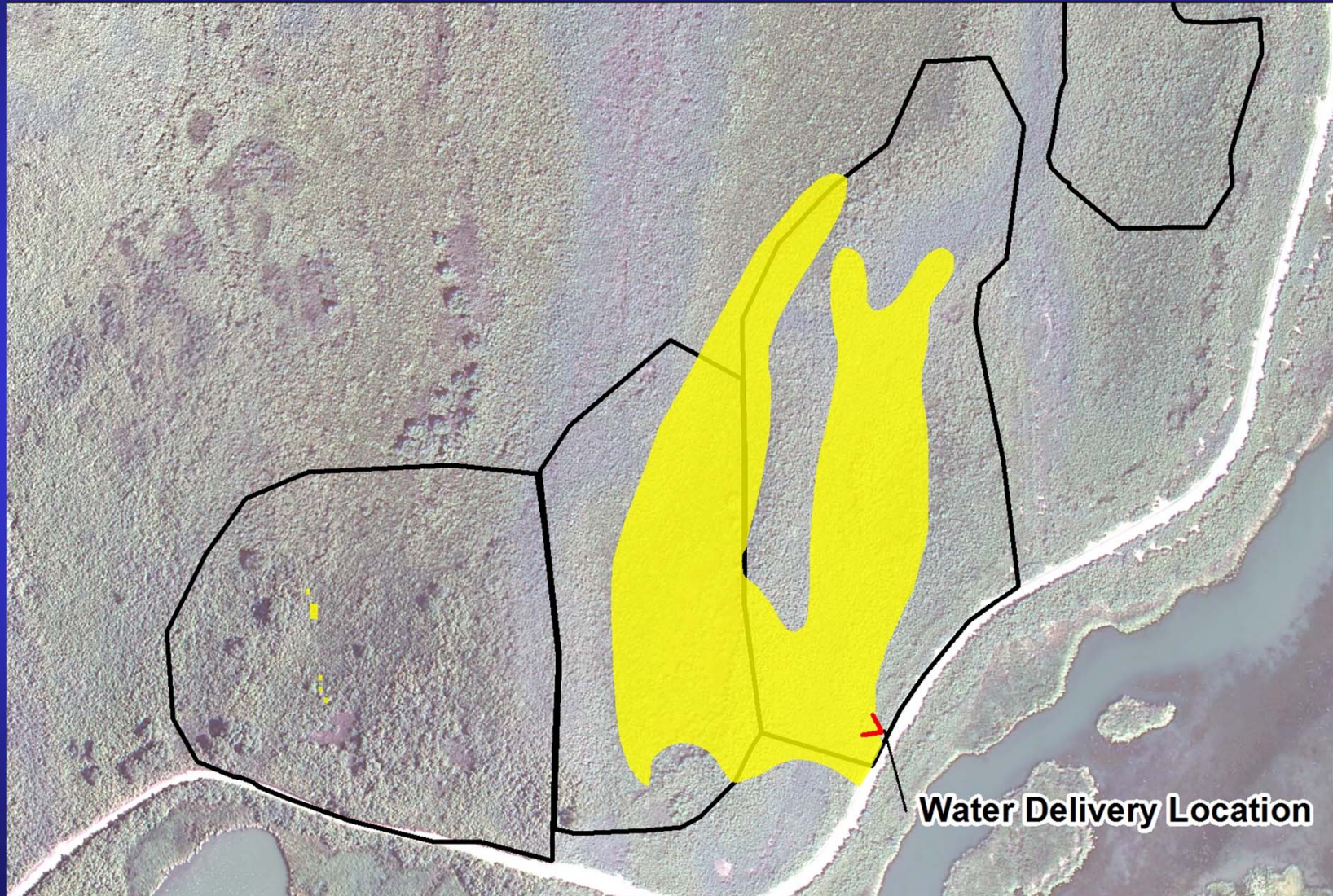
- Surface water
 - map surface water weekly March through July within In Between, 800M, and adjacent Pierced Egg
- Temperature and humidity
 - 32 HOBO loggers deployed throughout target area
 - data recorded every 15 minutes March through July
 - same locations used in 2010 and 2011
- Soil moisture
 - recorded bi-weekly beneath each HOBO
- Vegetation
 - veg plot at end of the season at each HOBO

Topock Marsh Water Delivery 2011

- Hydraulic pump with a 24 in diameter pipe
- Capable of moving approx 11,000 gallons per minute
- Once a week, 1 March through early July

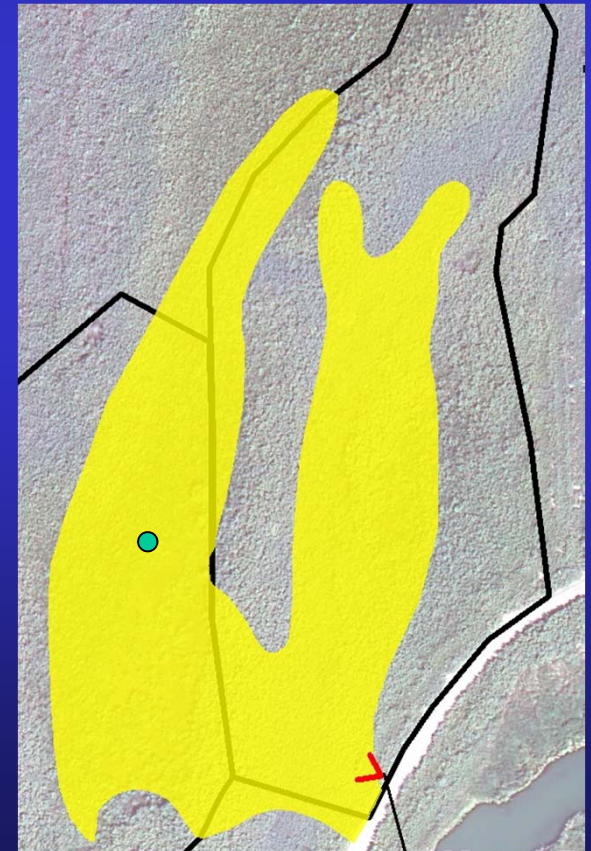
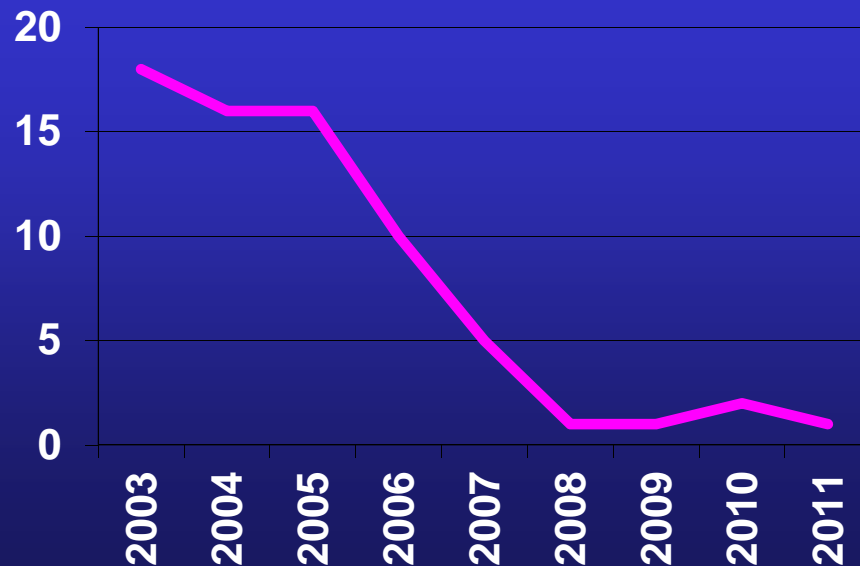


Topock Marsh Water Delivery



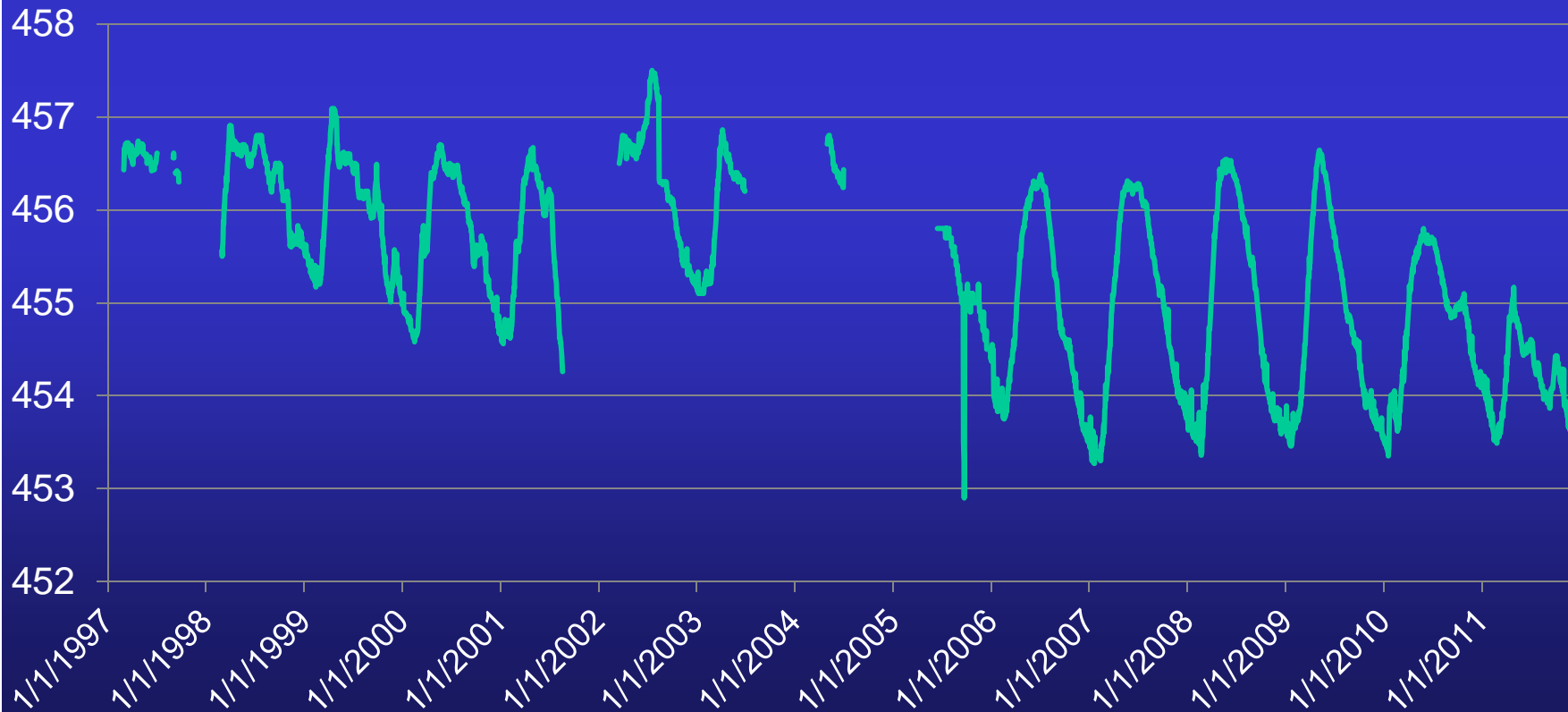
Water Delivery Effects

- Effect on habitat
 - Increase in extent and duration of surface water
 - Increased humidity within flooded area
 - No clear effect on temperature
 - No change in vegetation detected
- Effect on flycatchers
 - No increase in # resident adults



Water Delivery Effects

- Apparent improvement in habitat (surface water, humidity) but no response from flycatchers. Why?
 - Population declining over many years; no extra birds?
 - Other habitat features lacking?
 - Confounded with overall low marsh level

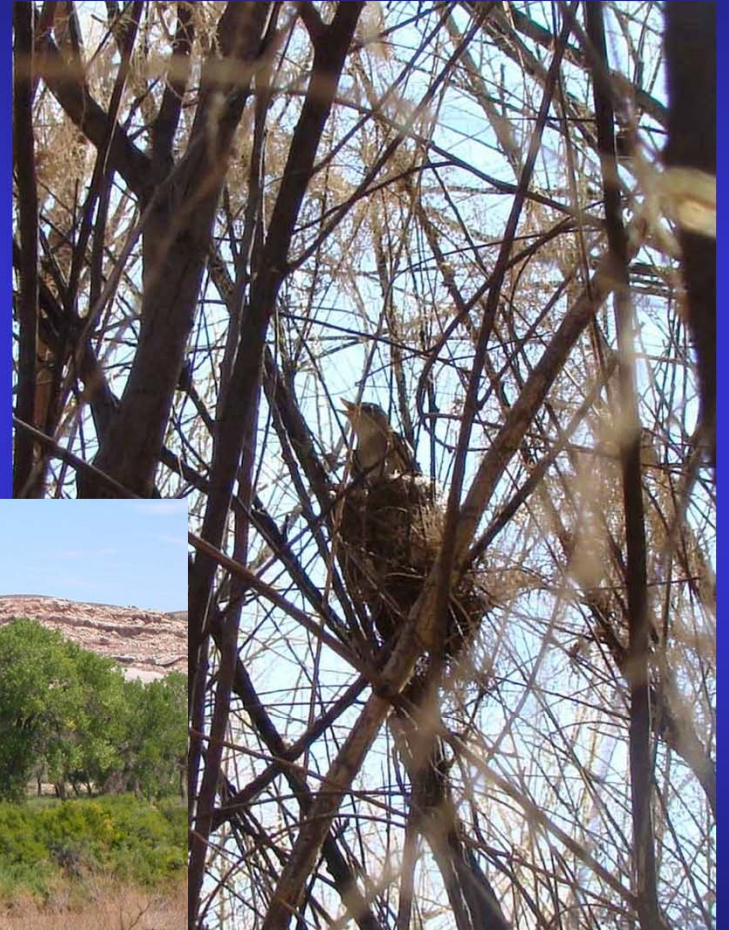


Tamarisk Beetle Background

- *Diorhabda* spp., identified as a potential biocontrol agent for invasive *Tamarix* species in the 1980s
- Released in 2001
- Has adapted to local climate and increased its range
- Now covers parts of Utah, Colorado, Nevada, Arizona, Texas, and New Mexico
- Works by defoliating, sometimes multiple times per growing season
- Currently unclear how effective the beetle will be at reducing *Tamarix* populations



Potential Impacts

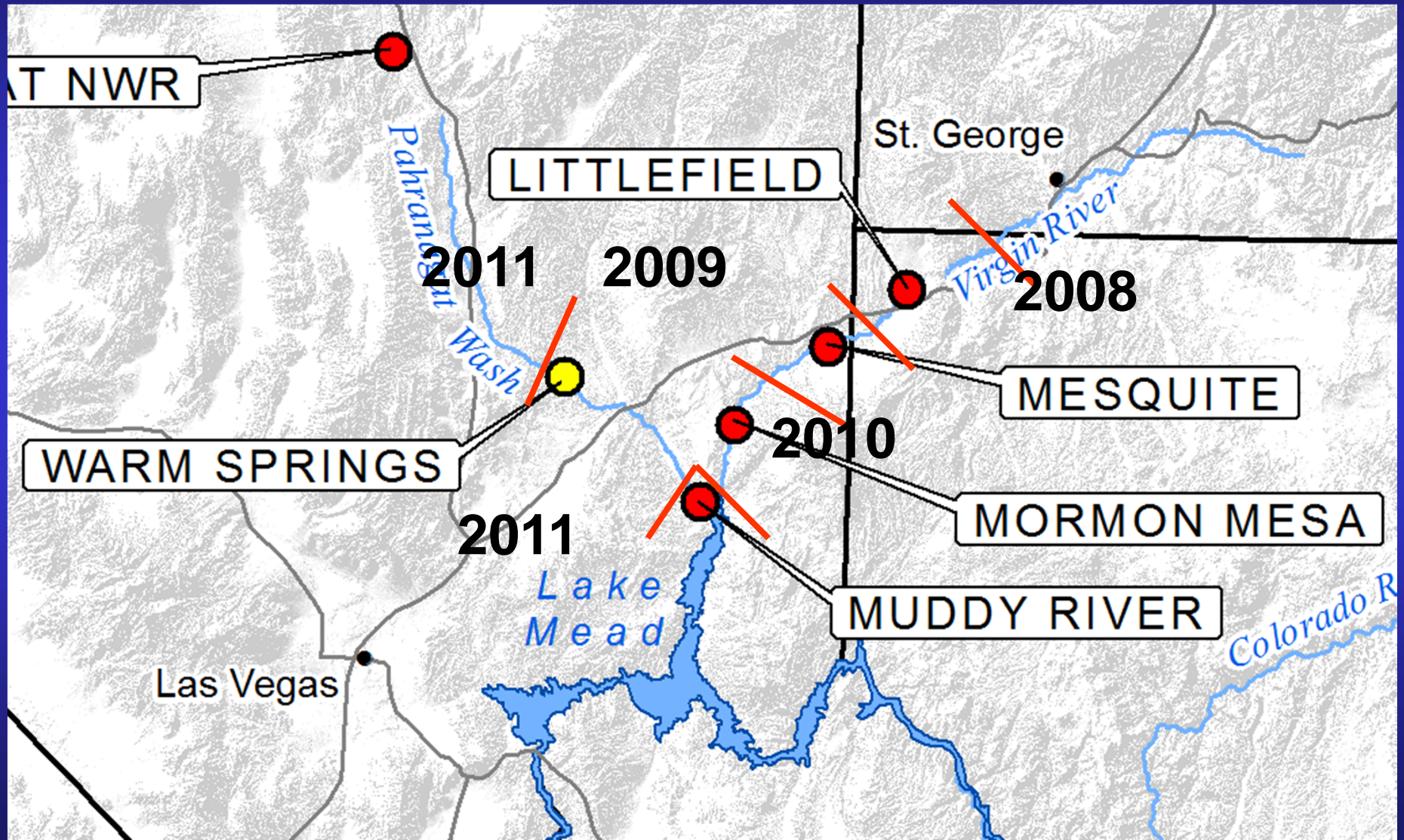


Tamarisk Beetle Update

- Defoliation in Mesquite in mid-June
- Mormon Mesa defoliated in late July
- Reached the Virgin/Muddy River delta by mid-August
- 2 mile stretch of Muddy River **NOT** defoliated in 2011; surrounds Overton WMA



Tamarisk Beetle Range 2008 – 2011











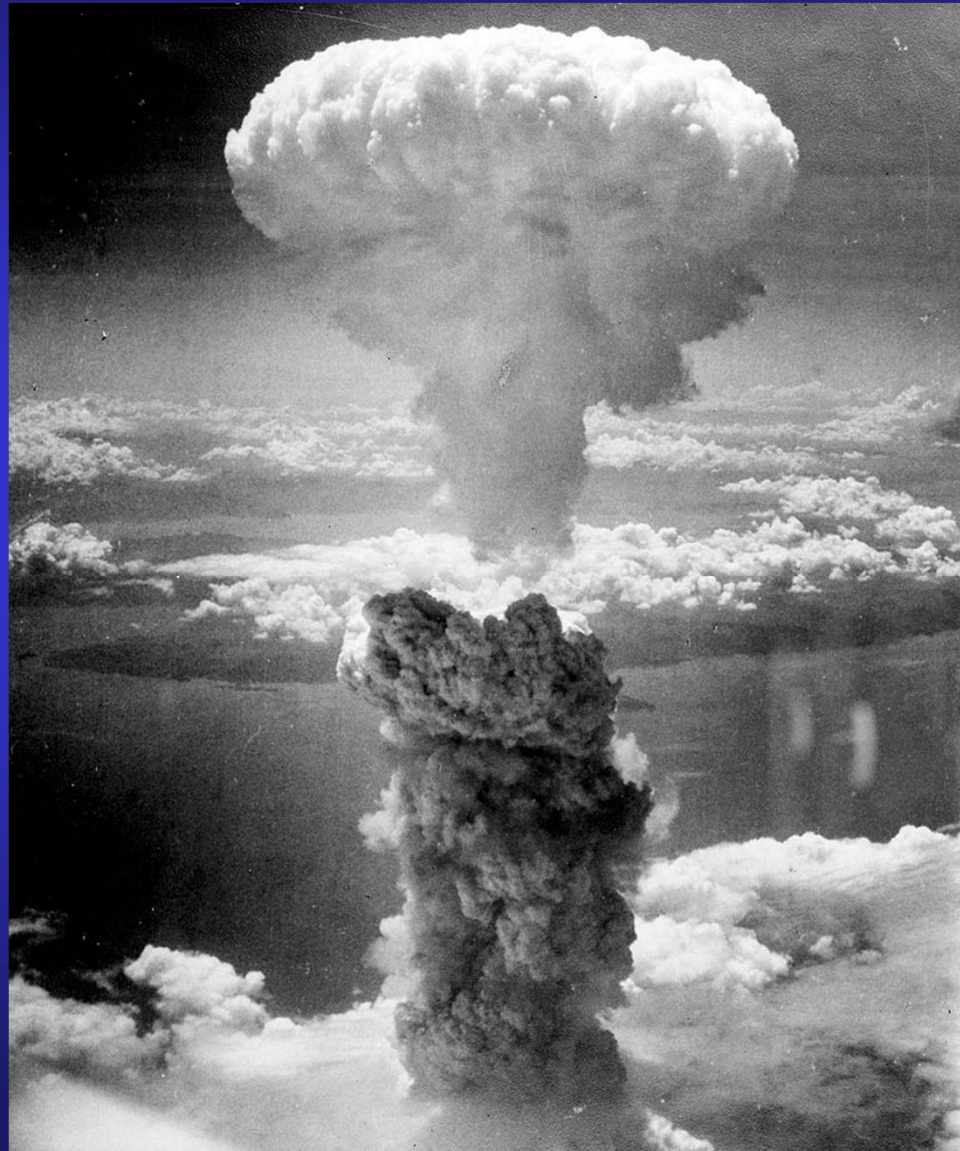








2012 Predictions



Acknowledgements

- Bureau of Reclamation – Chris Dodge and Theresa Olson
- USFWS Regions 8, 2, and 6
- Federal Bird Banding Laboratory
- Arizona Game and Fish Dept.
- Nevada Department of Wildlife
- California Dept. of Fish and Game
- Utah Division of Wildlife Resources
- Bureau of Land Management
- Refuges:
 - Pahrnagat NWR
 - Havasu NWR
 - Bill Williams River NWR
 - Cibola NWR
 - Imperial NWR
- Key Pittman WMA
- Overton WMA
- Southern Nevada Water Authority
- Private landowners

Special thanks to our field crews.