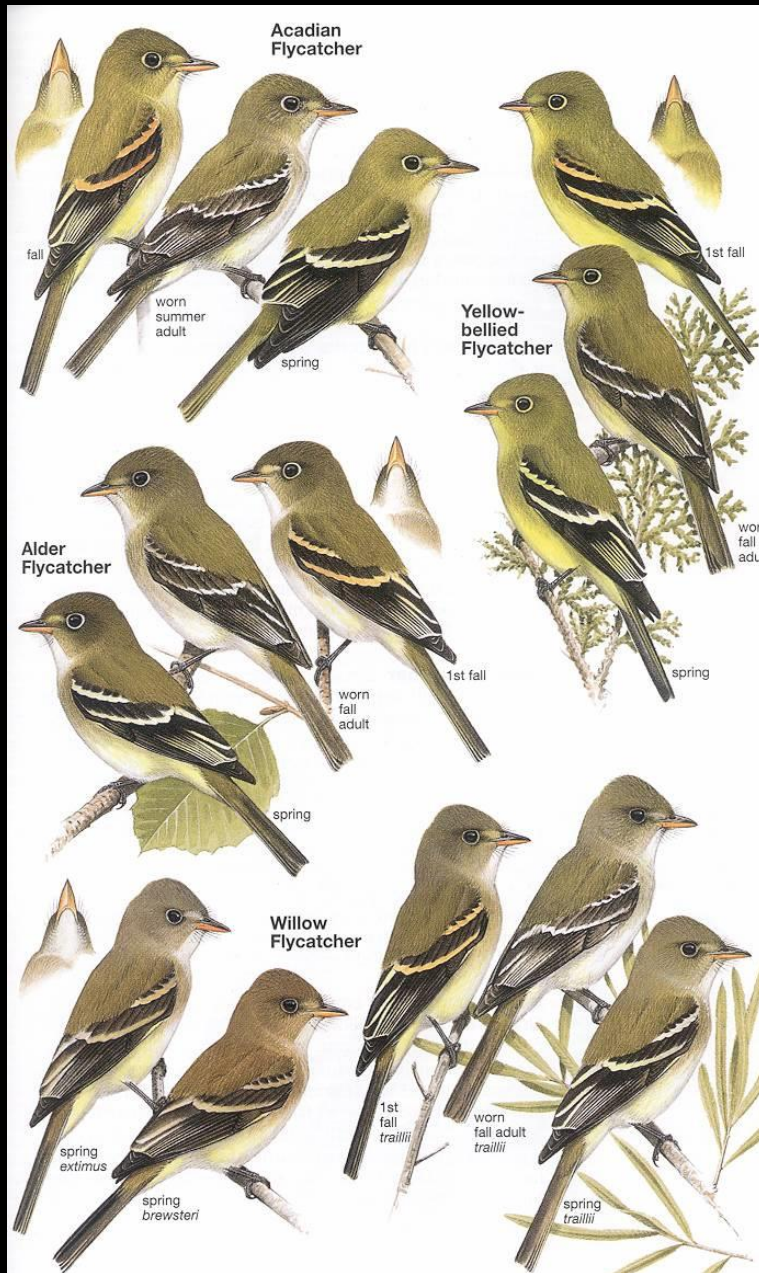


Southwestern Willow Flycatcher Status and Monitoring in the Middle Rio Grande

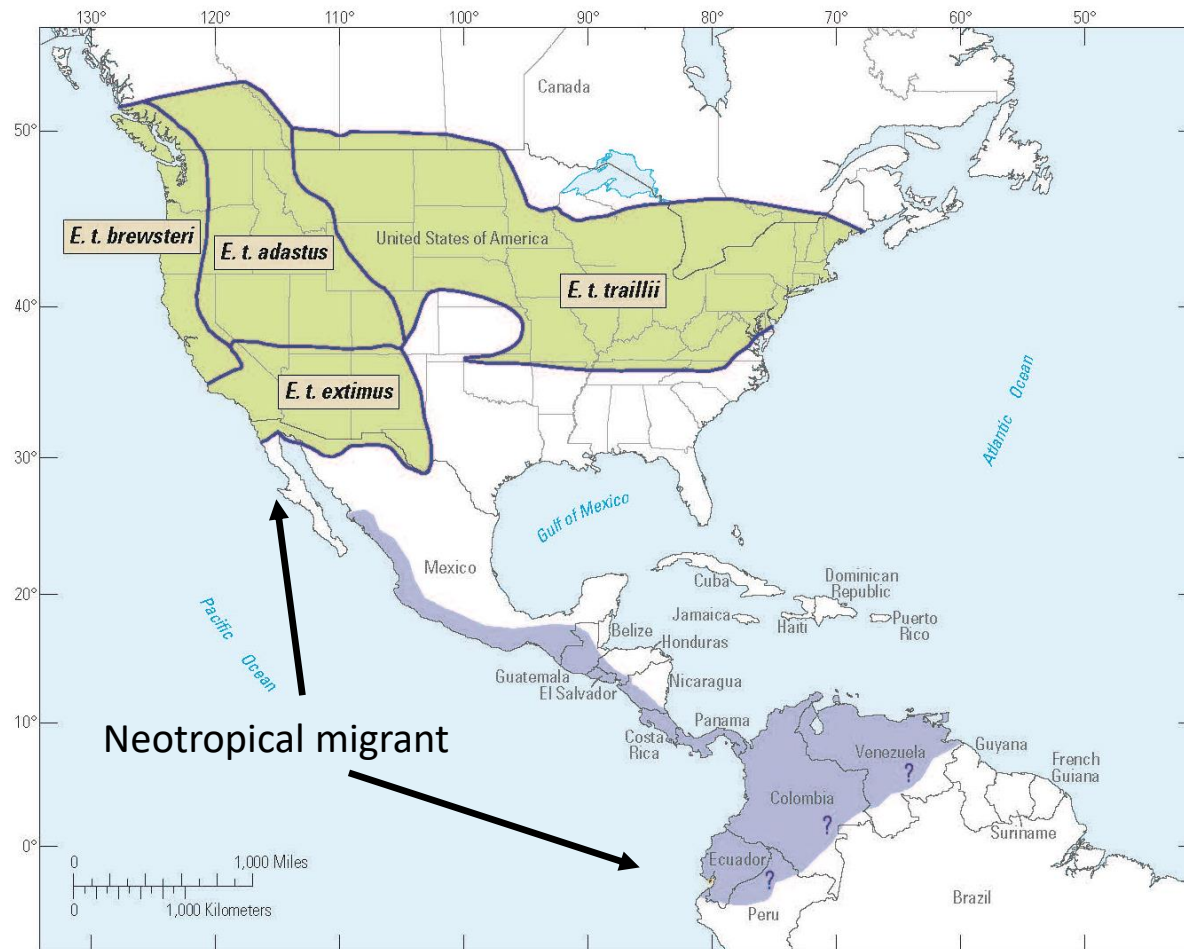




Empidonax flycatchers (15 spp.)

- Small (13 to 15 cm)
- Drab (greenish grey)
- Pale eye ring
- Wing bars

WIFLs say “fitz-bew”



Basemap modified from U.S. Geological Survey and other agency digital data, various scales. Projection Mercator, World Geodetic System 1984 datum.

(Sogge et al. 2010)

EXPLANATION

Approximate range distribution of the Willow Flycatcher (*Empidonax traillii*)—Adapted from Unitt (1987), Browning (1993), and Paxton (2008)



Breeding range, including boundaries of the Willow Flycatcher subspecies

Wintering range—Question marks reflect uncertainty of the location of the eastern boundary of the winter range

Suitable native habitat
(Willow)



"Dense and wet"



Suitable exotic habitat
(Saltcedar)



Threats include:

- Habitat loss and degradation due to:
 - River flow alterations
 - Overgrazing
 - Urbanization
 - Fire
 - Tamarisk beetle
- Depredation (mainly nests)
- Cowbird parasitism



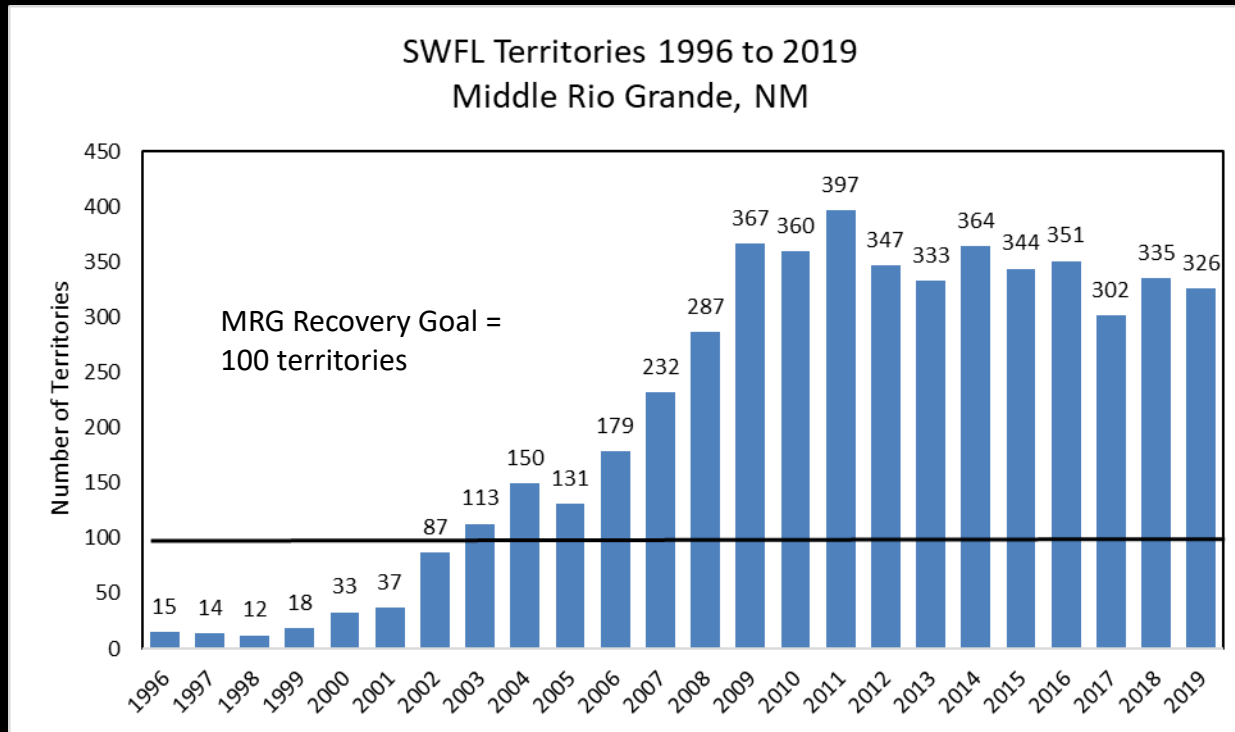
- Reclamation began protocol surveys along the Rio Grande in 1996 to maintain ESA compliance and add to range-wide population data
- Handful of sites originally – 130 river miles today



- Currently, 7 survey reaches
- Belen and Sevilleta/La Joya not surveyed in 2019

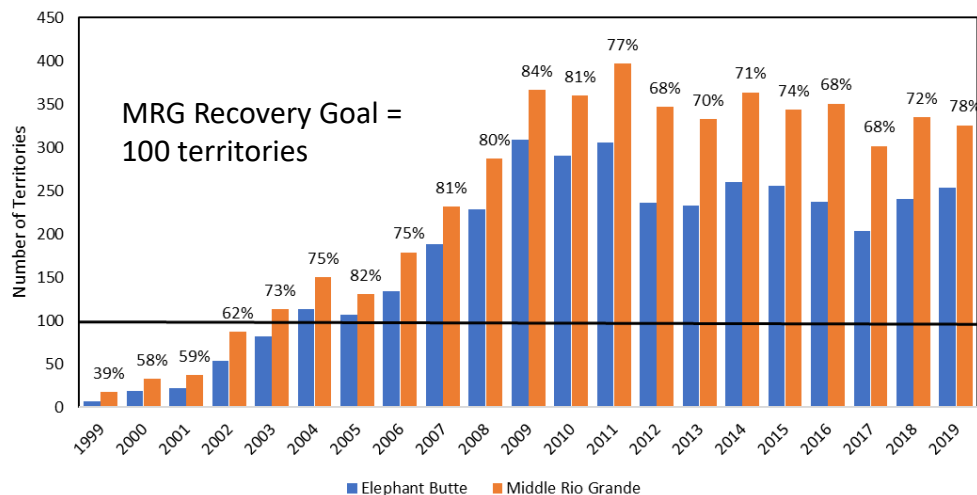


SWFL presence/absence survey results



SWFLs in Elephant Butte Reservoir

SWFL Territories in Elephant Butte Reservoir versus Middle Rio Grande
1999 to 2019



Top of EBR Conservation Pool

2002



The Narrows

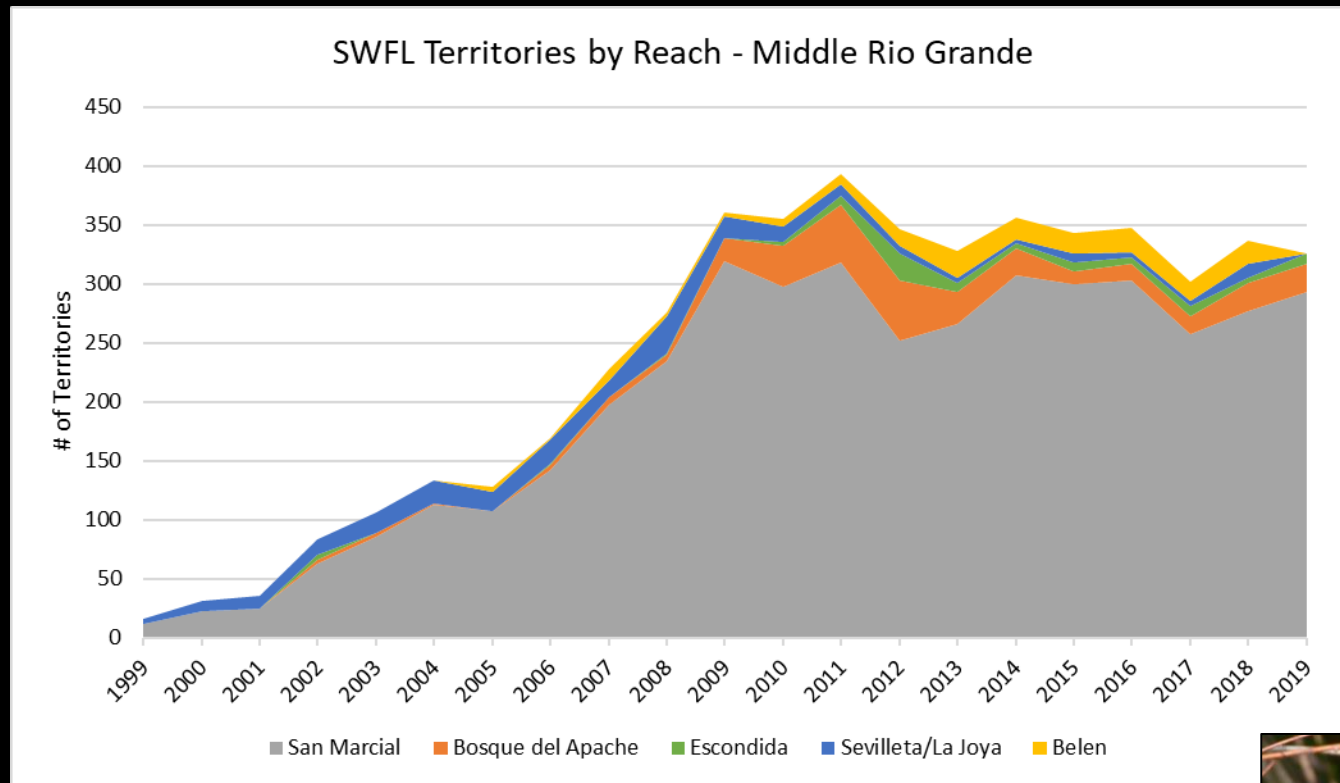
Mitchell Point

North Monticello Point

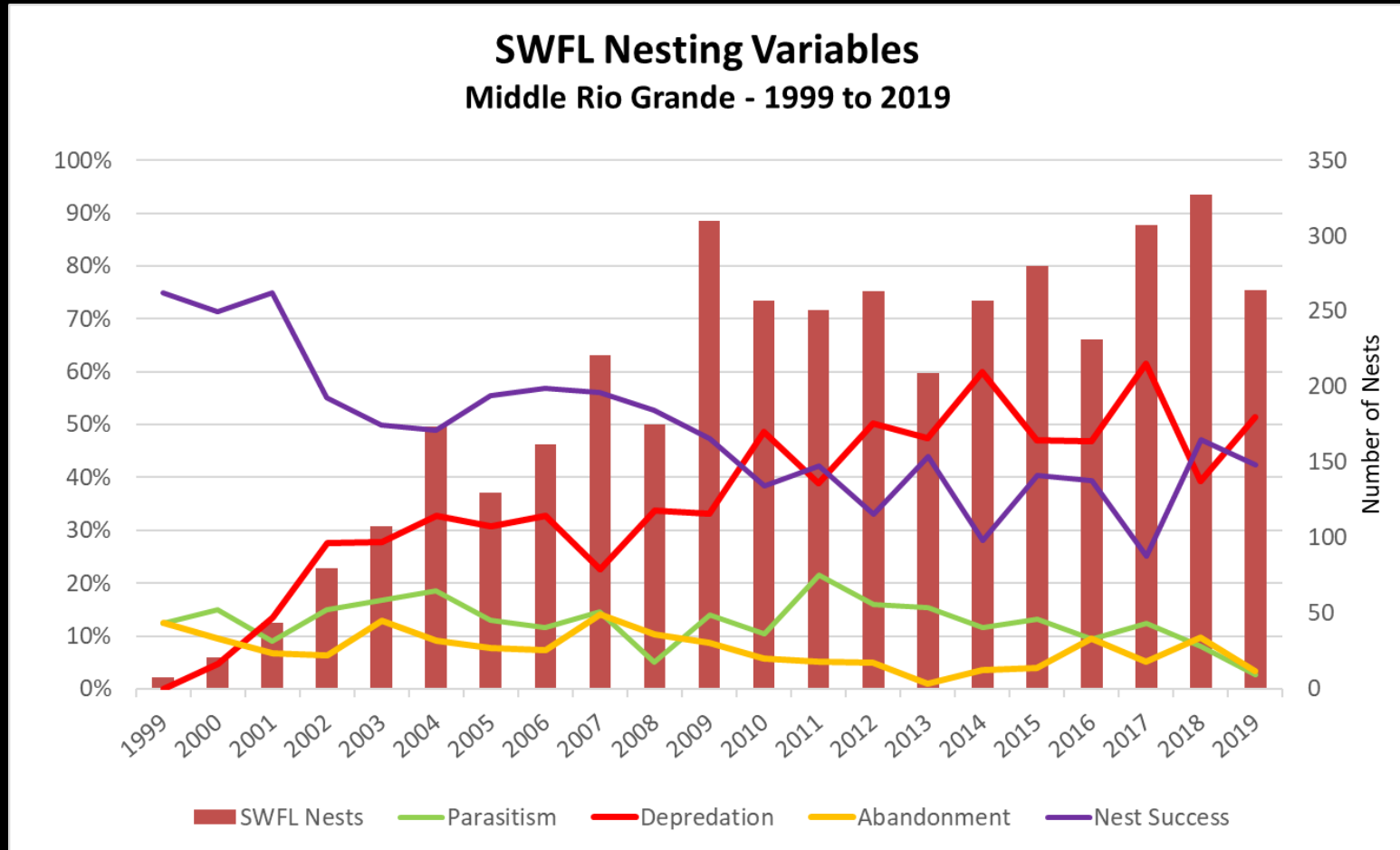
0 0.5 1 2 3 4 Miles

0 0.5 1 2 3 4 5 6 Kilometers

SWFL territories in other reaches

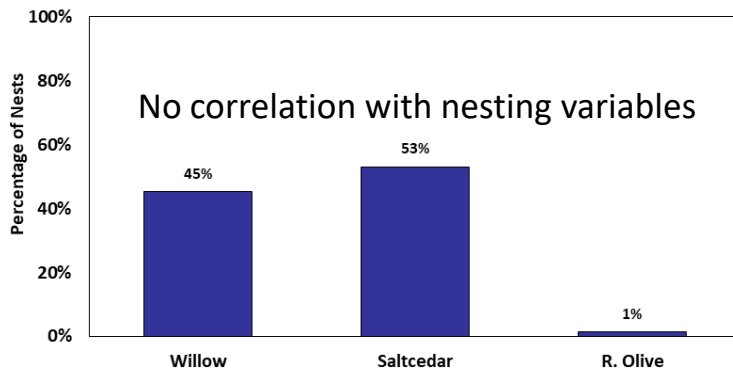


SWFL nest monitoring - Middle Rio Grande - 1999 to 2019 (n=4,079)

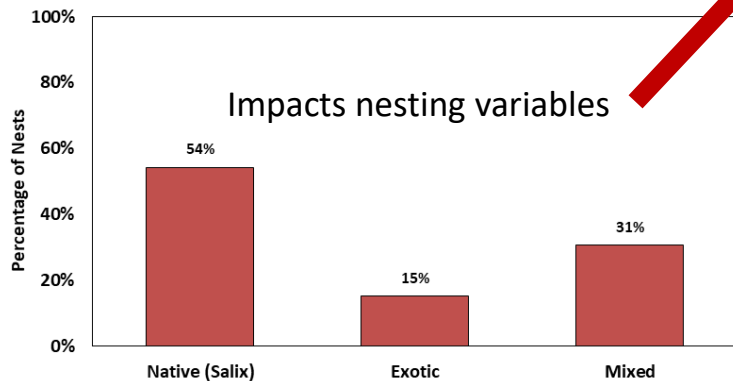


SWFL habitat and nesting variables – Middle Rio Grande - 1999 to 2019 (n=4,079)

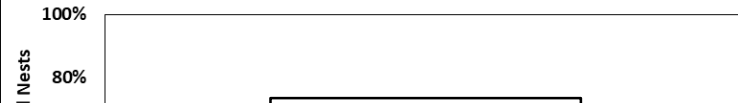
SWFL Nesting Substrate



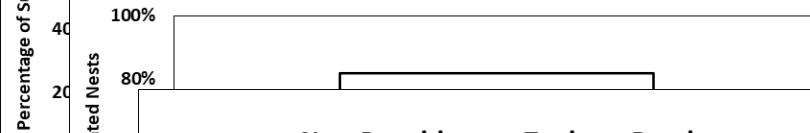
Dominant Vegetation of SWFL Territories



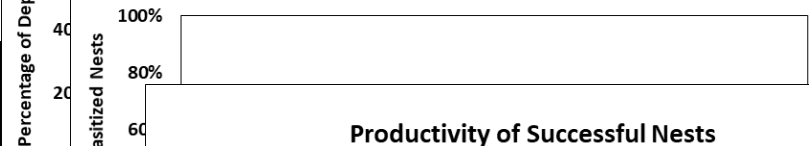
Nest Success vs. Territory Dominance



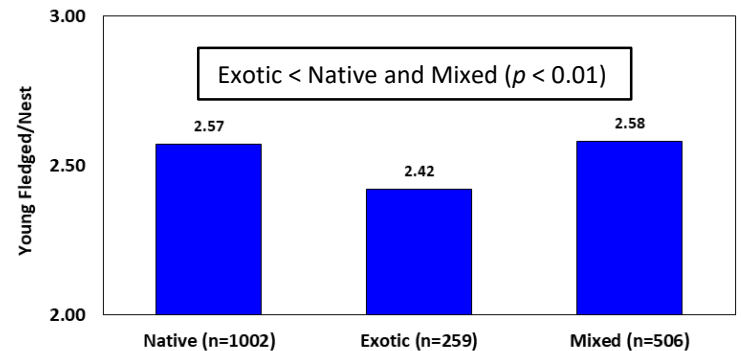
Nest Depredation vs. Territory Dominance



Nest Parasitism vs. Territory Dominance



Productivity of Successful Nests Based on Territory Dominance

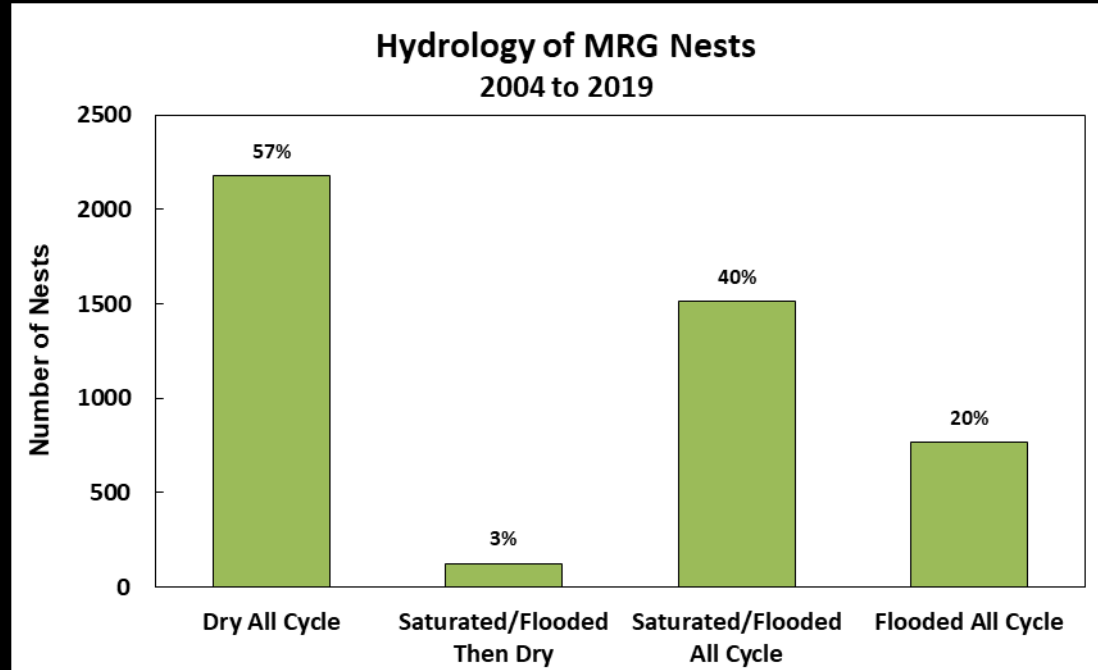


Began recording detailed hydrology data for MRG nests in 2004 (n=3,818)

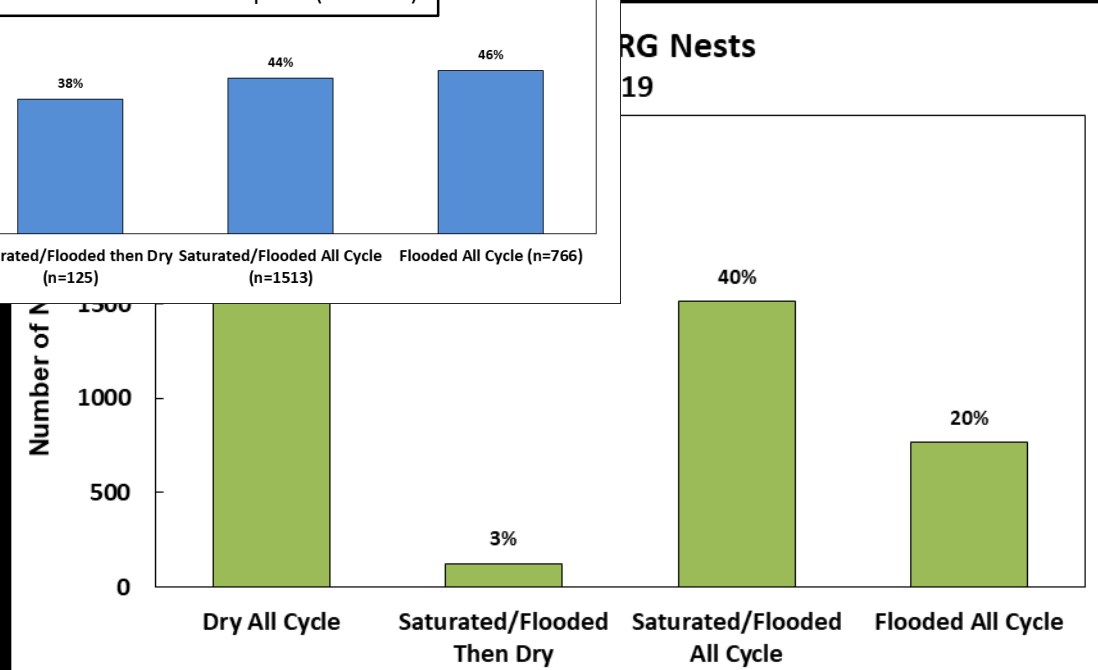
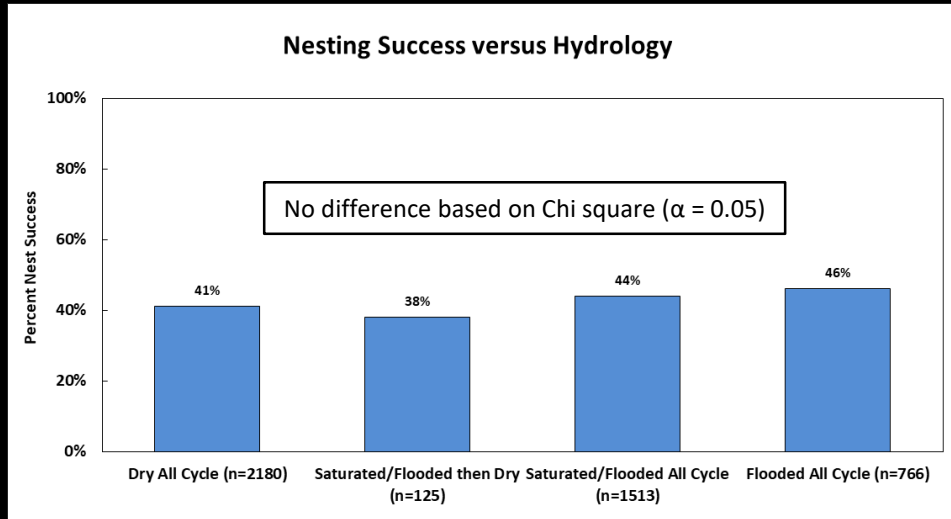
- Distance to water
- Hydrology at nest
 - Dry all cycle
 - Saturated or flooded then dry
 - Saturated or flooded all cycle
 - Flooded all cycle (subset of SFAC)



Hydrology at the nest (n=3,818)

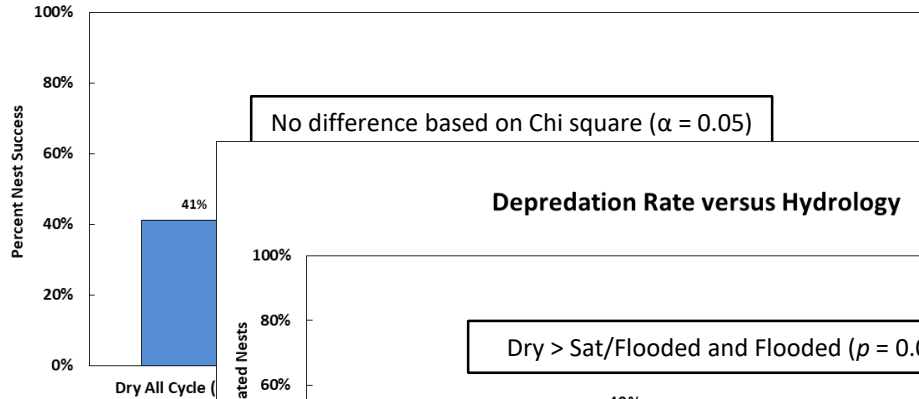


Hydrology at the nest (n=3,818)

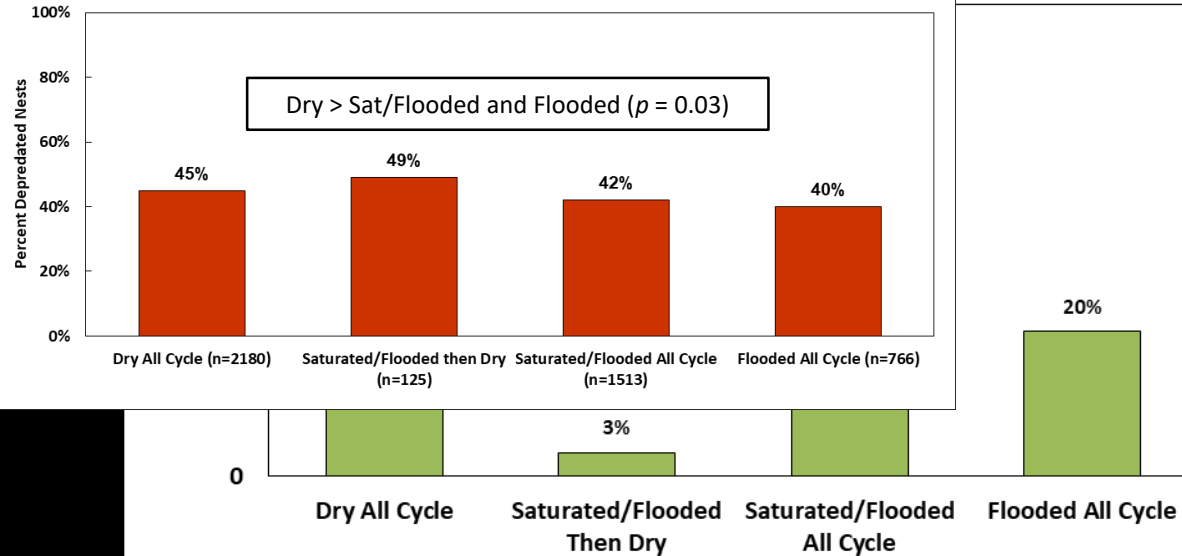


Hydrology at the nest (n=3,818)

Nesting Success versus Hydrology

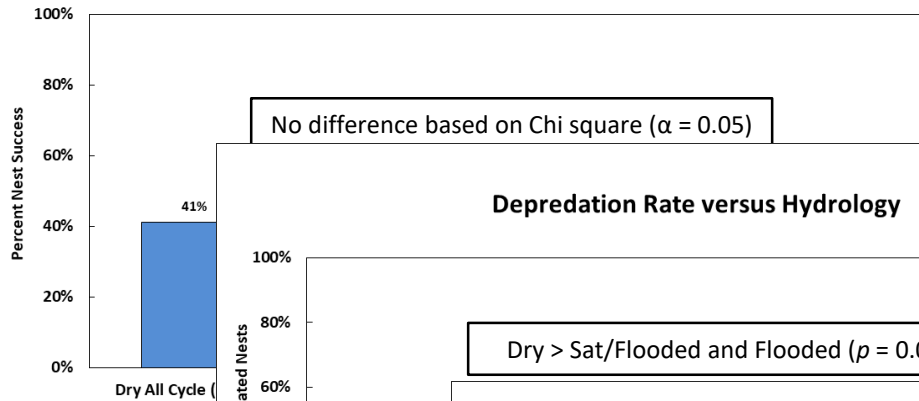


Depredation Rate versus Hydrology

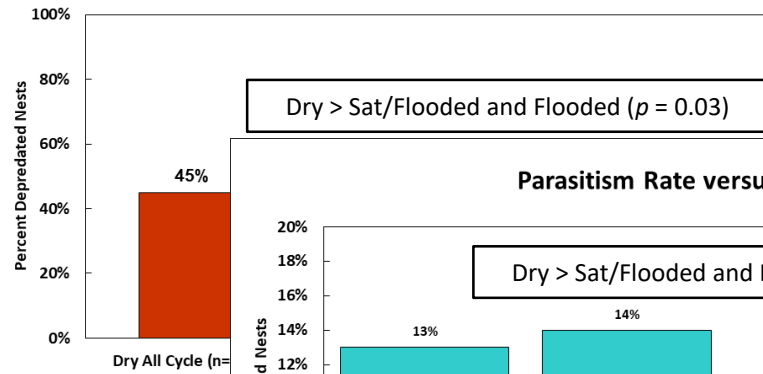


Hydrology at the nest (n=3,818)

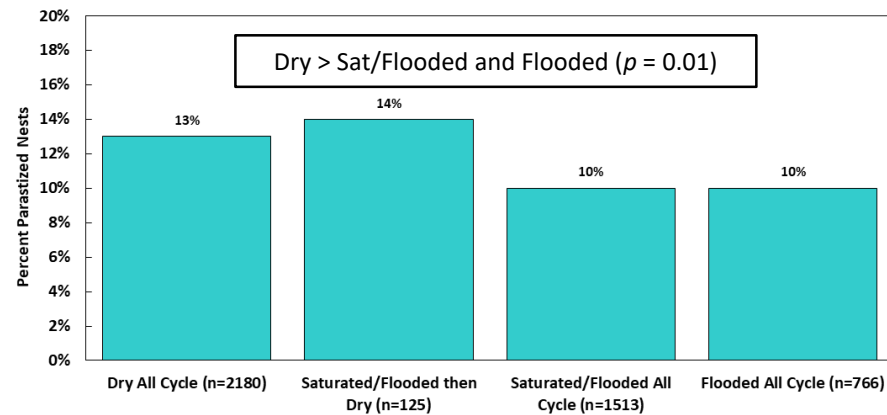
Nesting Success versus Hydrology



Depredation Rate versus Hydrology

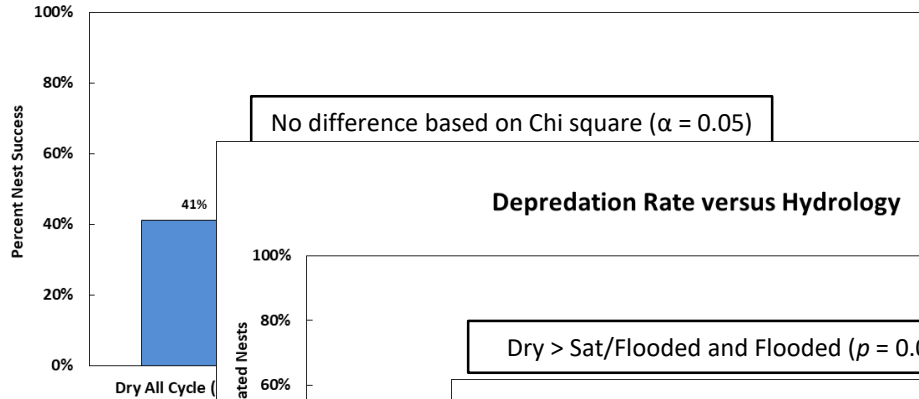


Parasitism Rate versus Hydrology

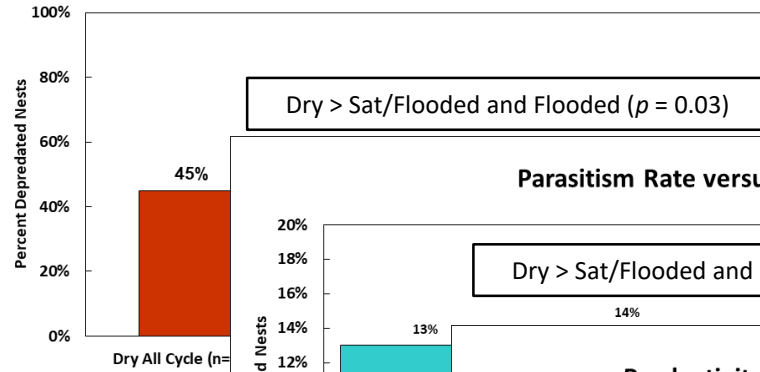


Hydrology at the nest (n=3,818)

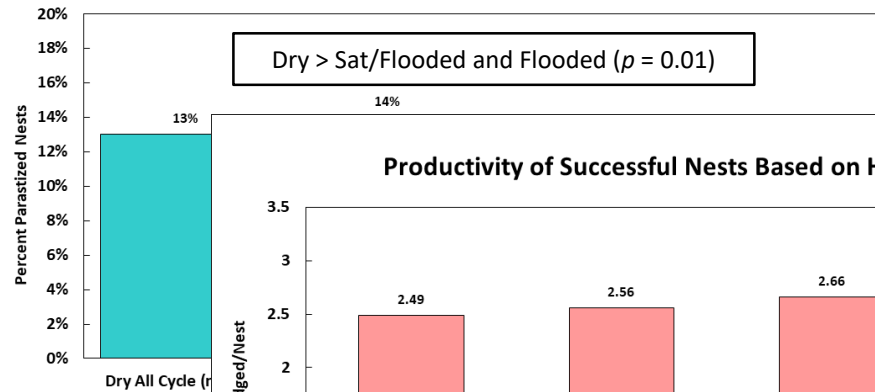
Nesting Success versus Hydrology



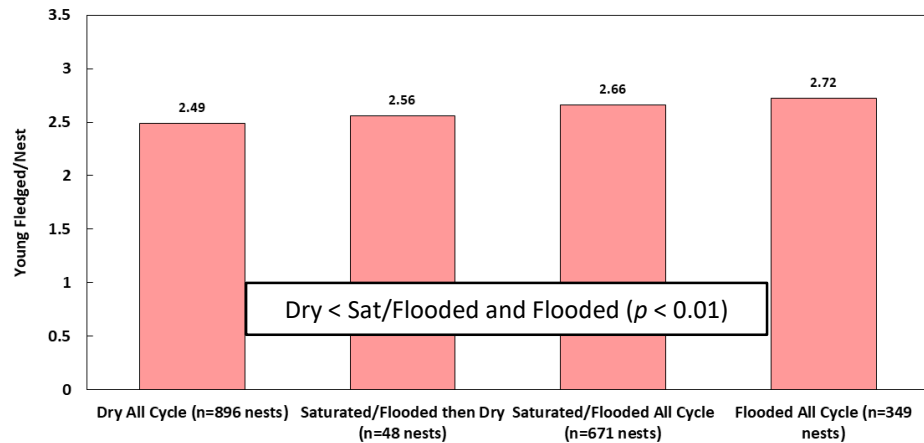
Depredation Rate versus Hydrology



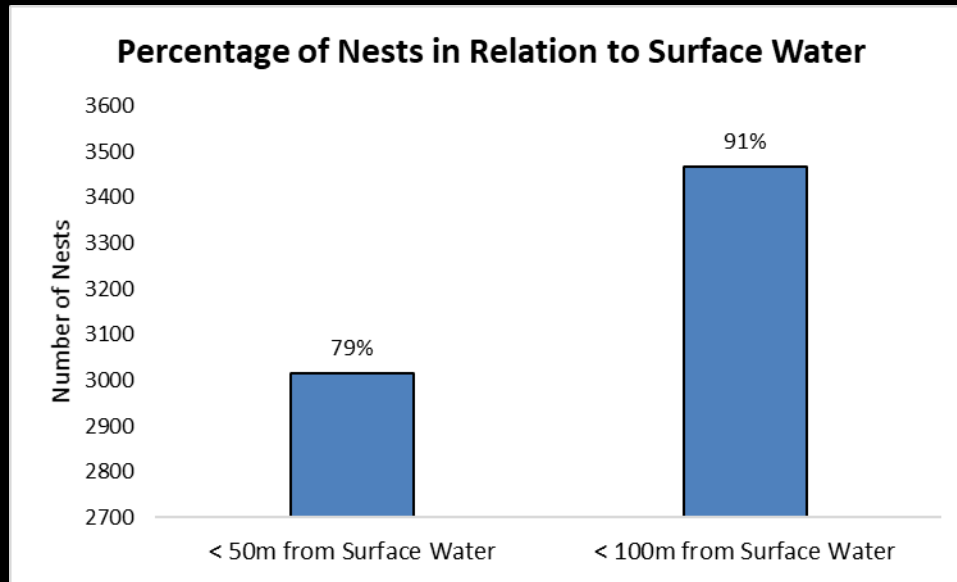
Parasitism Rate versus Hydrology



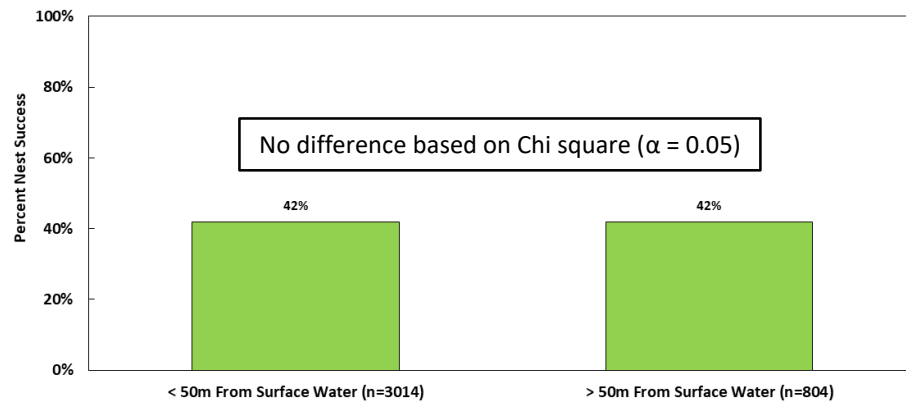
Productivity of Successful Nests Based on Hydrology



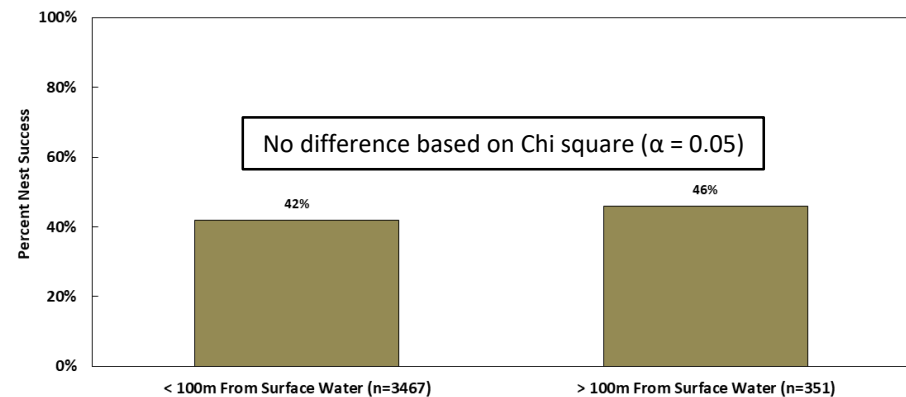
Distance to water (+/- 50m, +/- 100m - n=3,818)



Nest Success versus Distance to Surface Water
Distance < or > 50 Meters

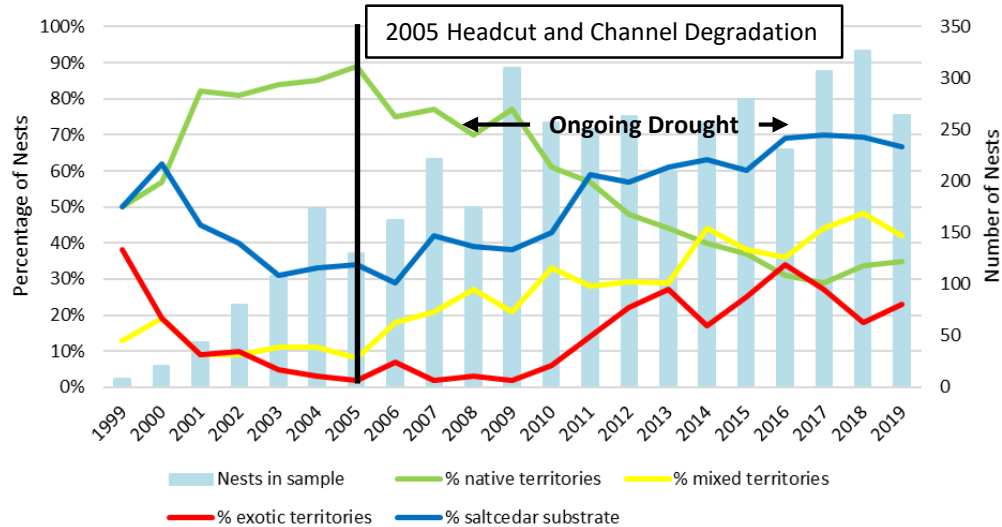


Nest Success versus Distance to Surface Water
Distance < or > 100 Meters

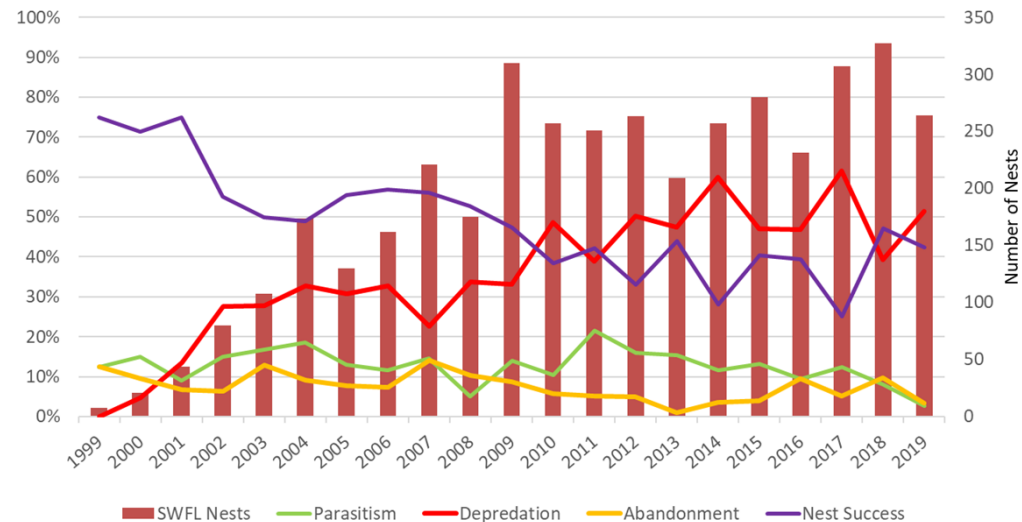


Conversion from willow to saltcedar-dominated habitat

Habitat Associations and Nest Substrate of Breeding SWFLs within the Middle Rio Grande - 1999 to 2019



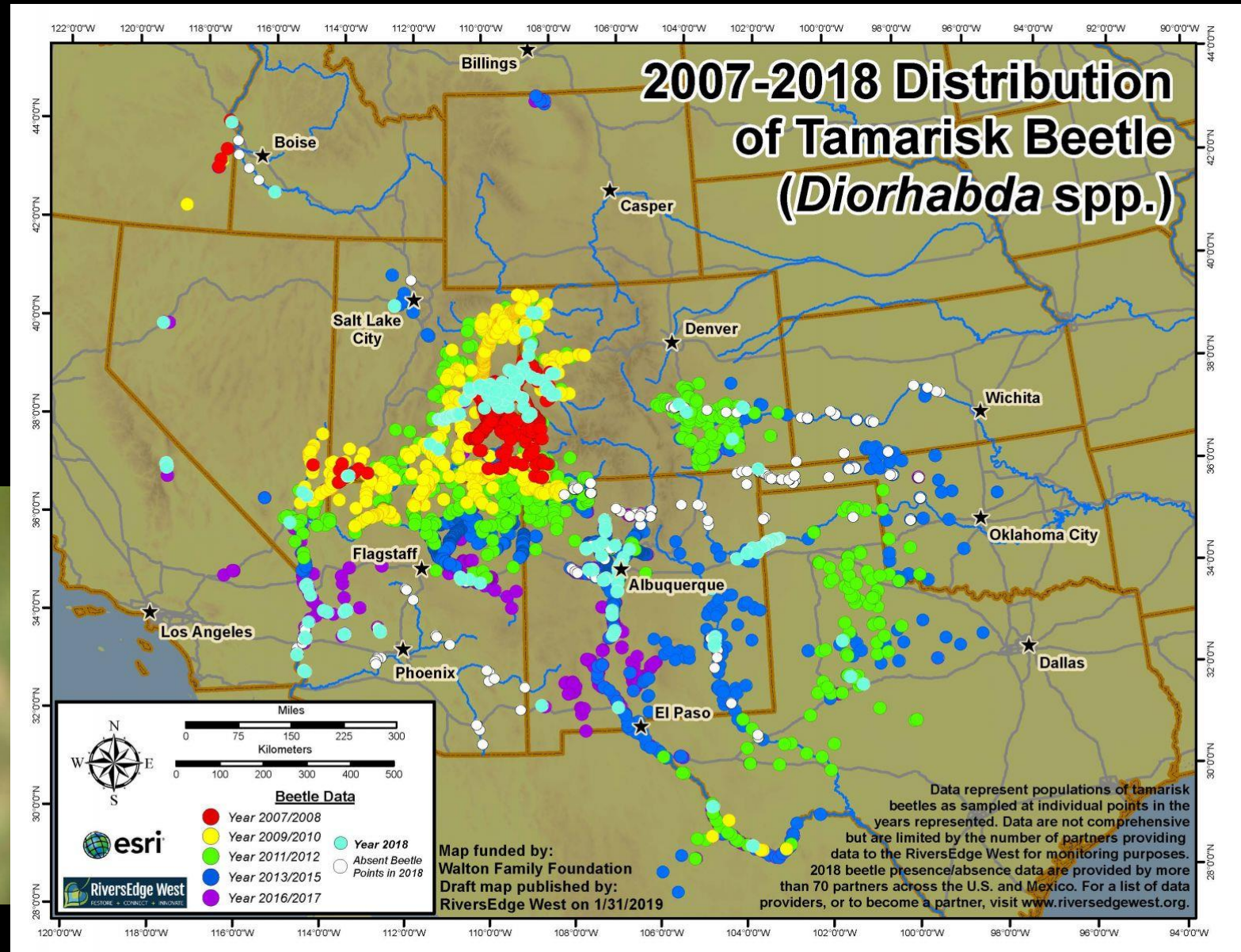
SWFL Nesting Variables Middle Rio Grande - 1999 to 2019



Tamarisk beetle



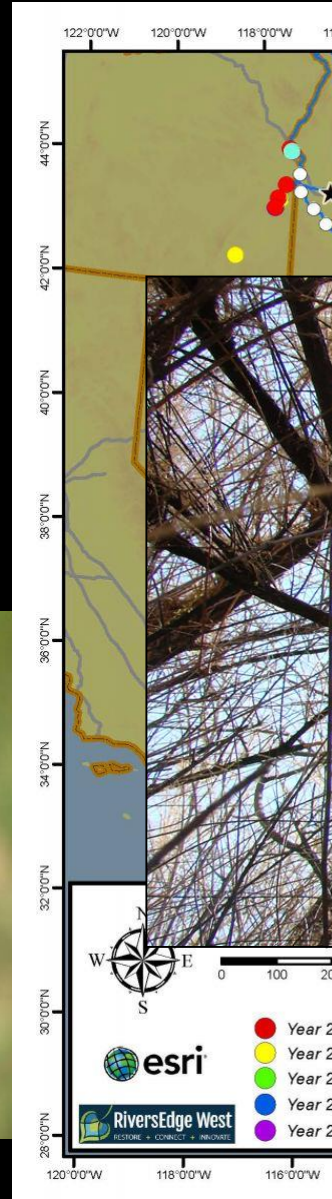
Tamarisk beetle



Tamarisk beetle



Tamarisk beetle



RECLAMATION

Managing Water in the West

Photographic Monitoring of Defoliation by the Tamarisk Beetle Middle Rio Grande from Belen to Elephant Butte Reservoir, New Mexico



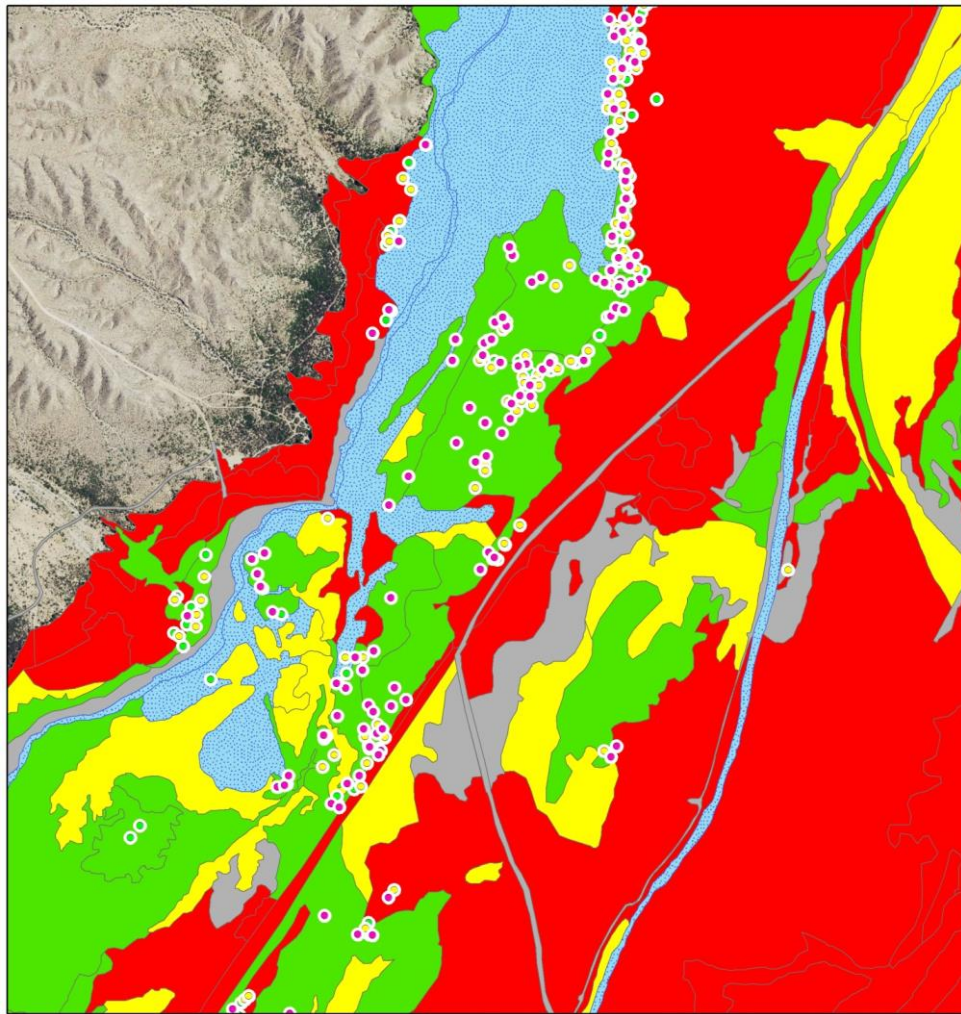
U.S. Department of the Interior
Bureau of Reclamation
Fisheries and Wildlife Resources Group
Denver, Colorado

August 2019



SWFL Habitat Suitability Mapping – Middle Rio Grande

- Conducted in 1998, 2004, 2008, 2012, 2016, and 2020

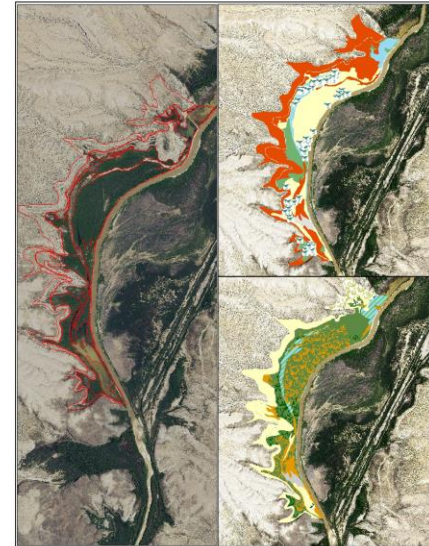


RECLAMATION

Managing Water in the West

Southwestern Willow Flycatcher Habitat Suitability 2016

Middle Rio Grande, New Mexico



U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Fisheries and Wildlife Resources Group
Denver, Colorado

December 2017

So, what to do?

- Continue surveys and nest monitoring
- Continue mapping periodically to detect changes to habitat availability
- Habitat restoration
 - Not all saltcedar is bad
 - Water is key
 - Have a plan
 - Monitor

