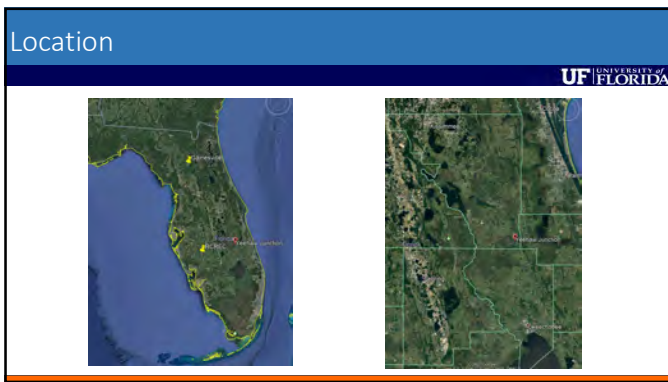
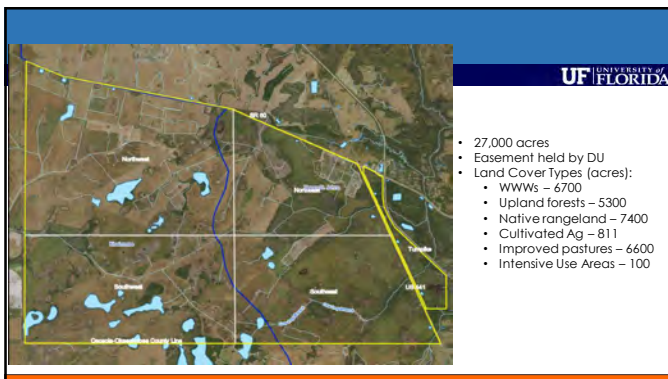


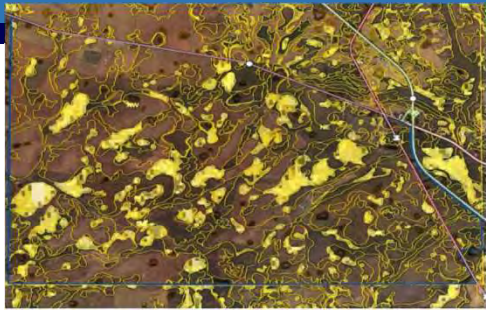
1



2



3



UF UNIVERSITY OF FLORIDA

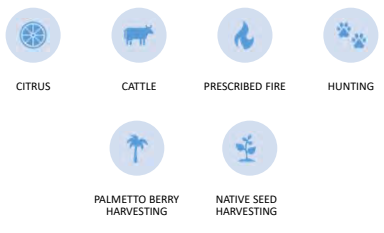
Primary Soil Types

- Smyrna
- Basinger
- Myakka
- Eau Gallie
- Pampano
- Malabar

4

Management Activities

UF UNIVERSITY OF FLORIDA



CITRUS CATTLE PRESCRIBED FIRE HUNTING

PALMETTO BERRY HARVESTING NATIVE SEED HARVESTING

5



UF UNIVERSITY OF FLORIDA

6



7

Upcoming Research

UF UNIVERSITY OF FLORIDA

Baseline assessment hydrology, microbes, soil health, geospatial	Grazing management impacts on bird diversity and abundance	New improved citrus scion/rootstock combinations	Monitor animal diversity in relation to oak activity patterns
Vertebrate surveys through mosquito blood meal-derived DNA	Mapping plant diversity using LIDAR and hyperspectral imaging	Fungal diversity	Development of a bioeconomic model for wildfire risk – forest management

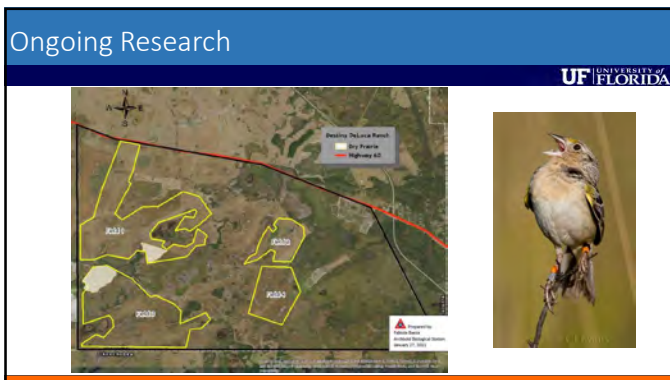
8



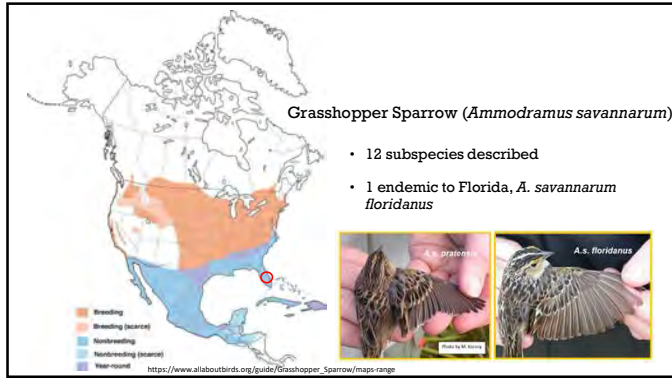
9



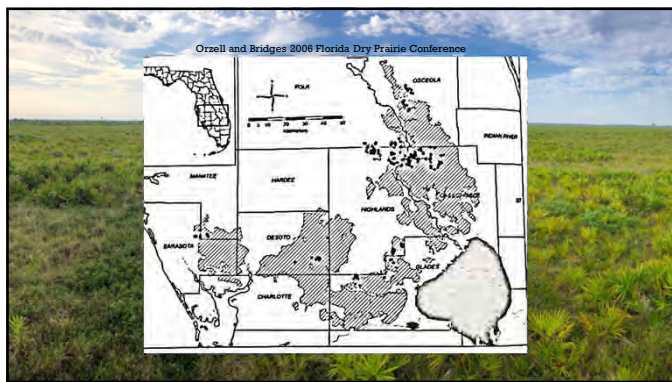
10



11



1



2



3

Monitoring FGSPs began in 1991-1998

- By 1998 most known populations appeared at their maximum, ~ 320-350 singing males. Point counts being conducted at all sites.
- Occurred in 3 properties at 6 distinct sites
- Formation of the Florida Grasshopper Sparrow Working Group
- Studies suggest that dispersal is frequent enough that these populations comprise a metapopulation (Tucker et al 2010).
- Genetic studies suggest little range-wide genetic structure (Delany et al 2000; Bulgin et al 2003, Mylecraine et al 2008).
- Suggests the potential for demographic and genetic rescue

4

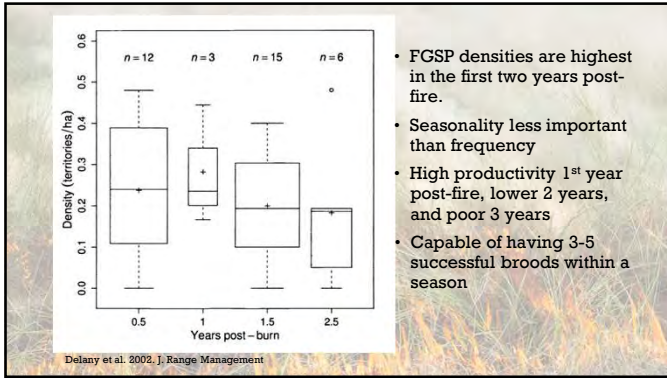


5

Florida Grasshopper Sparrow *Ammodramus savannarum floridanus*

- > Non-migratory Florida residents
- > Inhabit Florida dry prairie habitats
- > Feed on insects and seeds
- > Lifespan: average = 2-3 years
maximum = 6-7 years

6

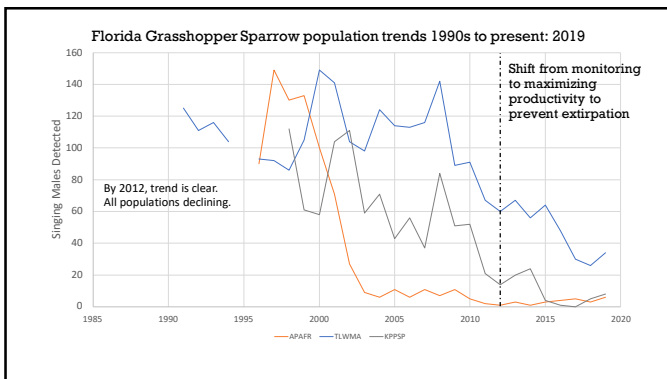


- FGSP densities are highest in the first two years post-fire.
- Seasonality less important than frequency
- High productivity 1st year post-fire, lower 2 years, and poor 3 years
- Capable of having 3-5 successful broods within a season

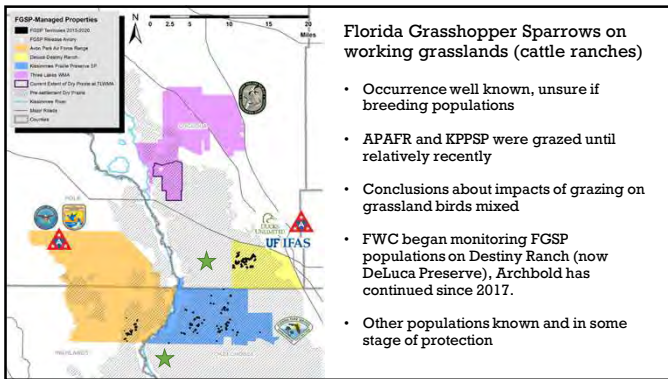
7



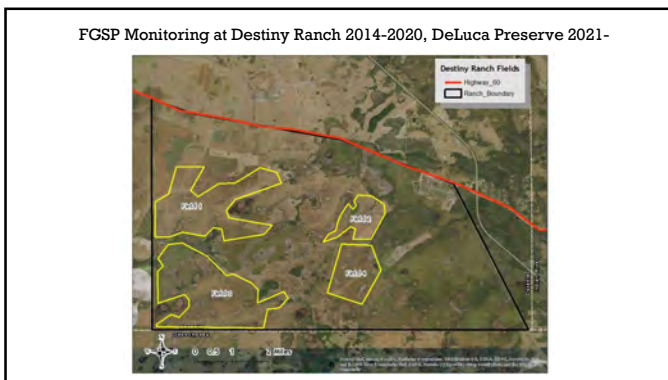
8



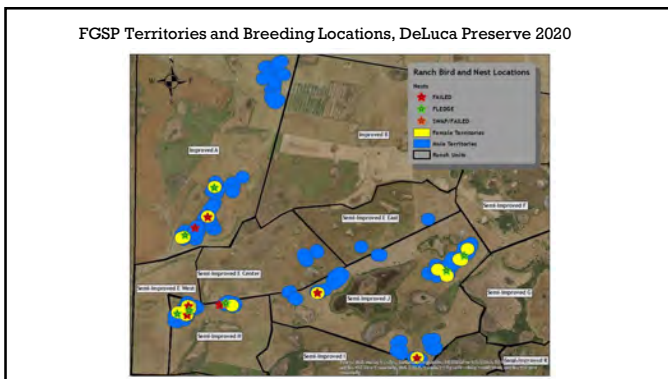
9



10



11



12

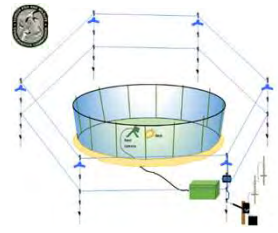


13



14


Novel methods developed by FWC at TLWMA to increase nest success



Predator Exclusion Fences

- Installed around every found nest
- Removed at fledging
- Nest cameras used to monitor
- Electric fences installed in cattle pastures or when needed

Hewitt-Ragheb et al 2017, 2019

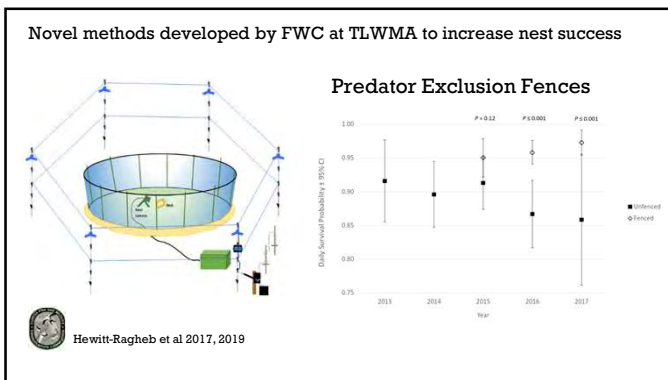


Dustin Angell

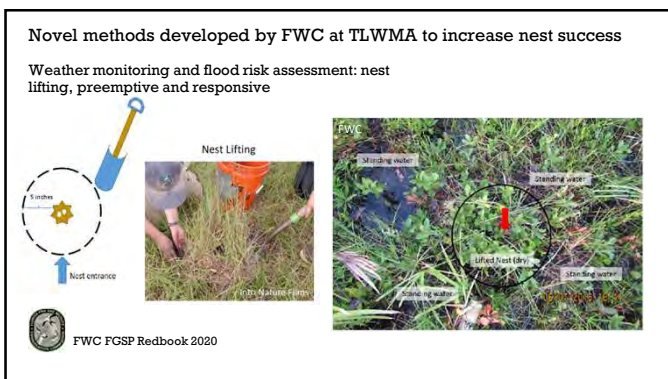
15



16



17

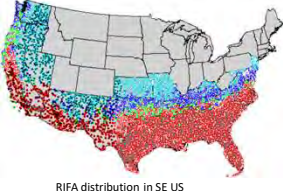


18

Novel methods implemented by FWC

Red Imported Fire Ant (RIFA) predation on nests

- Varies by site, but at some sites, predation on nests is very high
- Not excluded by predator fences
- Employ a hot water treatment developed by Josh King at UCF.
- Treat all RIFA mounds within 25-30 m of each active nest, treat just prior to hatching, retreat if necessary
- Treatment greatly increases nest success at sites with RIFA



RIFA distribution in SE US

19

Novel methods implemented by FWC

Red Imported Fire Ant (RIFA) predation on nests


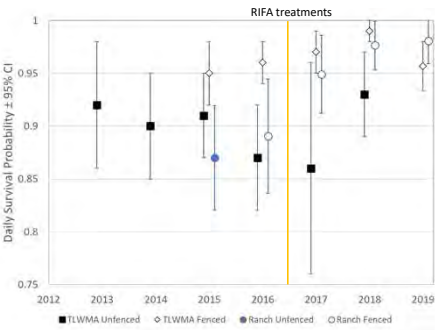


Photo by Josh King UCF Photo by Nicole Rita Photo by James Tucker

20

FGSP Nest Productivity on Working Grasslands

- Fencing is not effective alone, must include RIFA treatments
- Productivity is equivalent to prairie sites using same conservation tools
- Survival is equivalent
- Immigration is greater



RIFA treatments

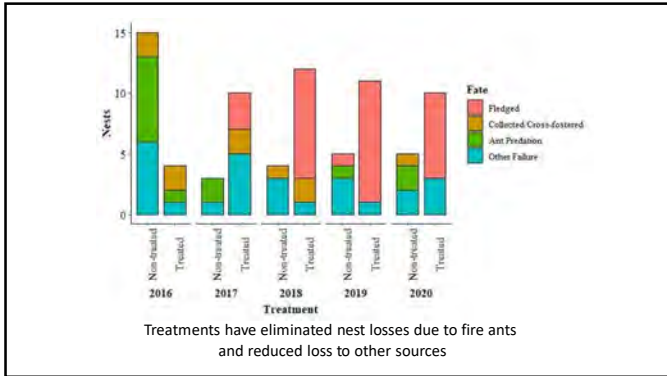
Daily Survival Probability ± 95% CI

2012 2013 2014 2015 2016 2017 2018 2019

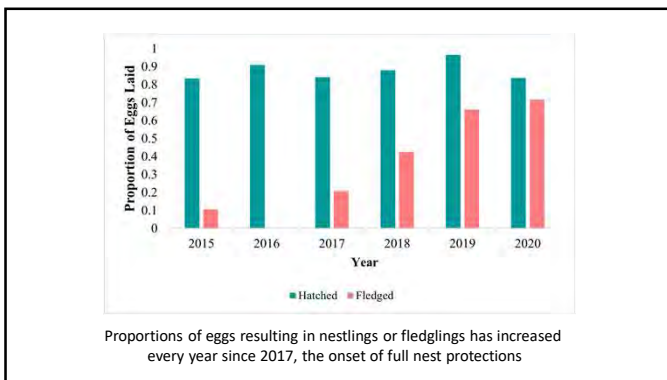
■ TLWMA Unfenced ◇ TLWMA Fenced ● Ranch Unfenced ○ Ranch Fenced

R. Bowman, R. Windsor, F. Baeza-Tarin, Archibald, unpubl. data
Hewitt-Ragheb et al 2019; J. Oweyza and K. Miller, FWC, unpubl. data

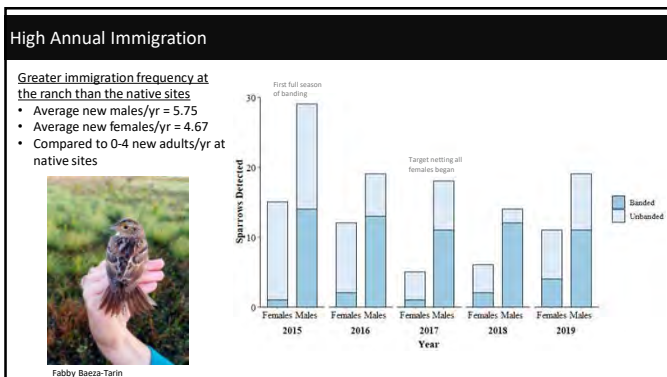
21



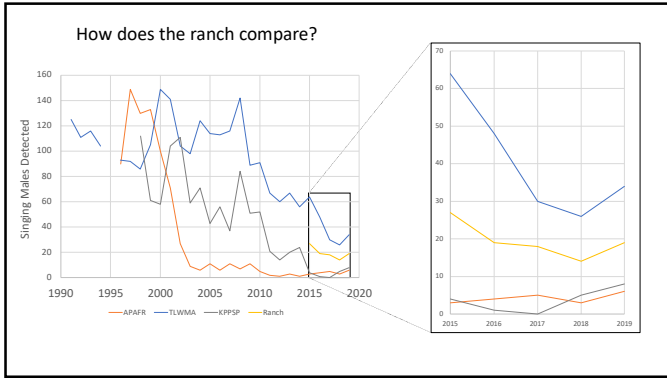
22



23



24



25

A Shift in Paradigm

Conclusions

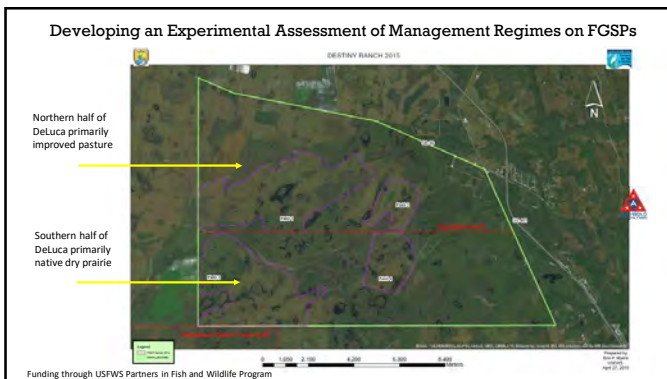
- Sparrows may be able to exist in a broader range of habitat conditions
- Likely more sparrows on other ranches
- Sparrows can be productive on ranches
 - Dependent on fencing and fire ant treatments

A Shift in Focus

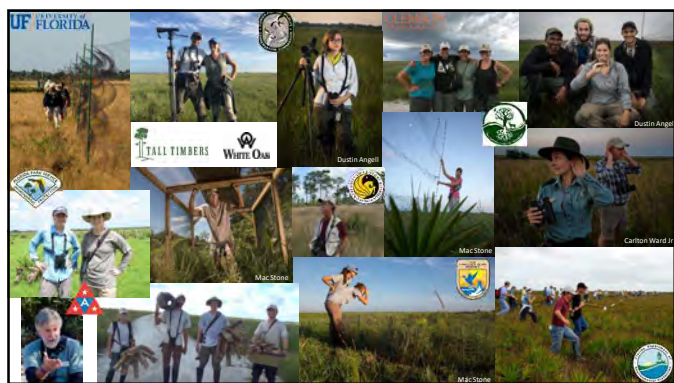
- What will it take to make sparrows productive on other ranches?

Becky Windsor

26



27



31
