

From release to recruitment: Designing and testing release protocols to maximize population growth



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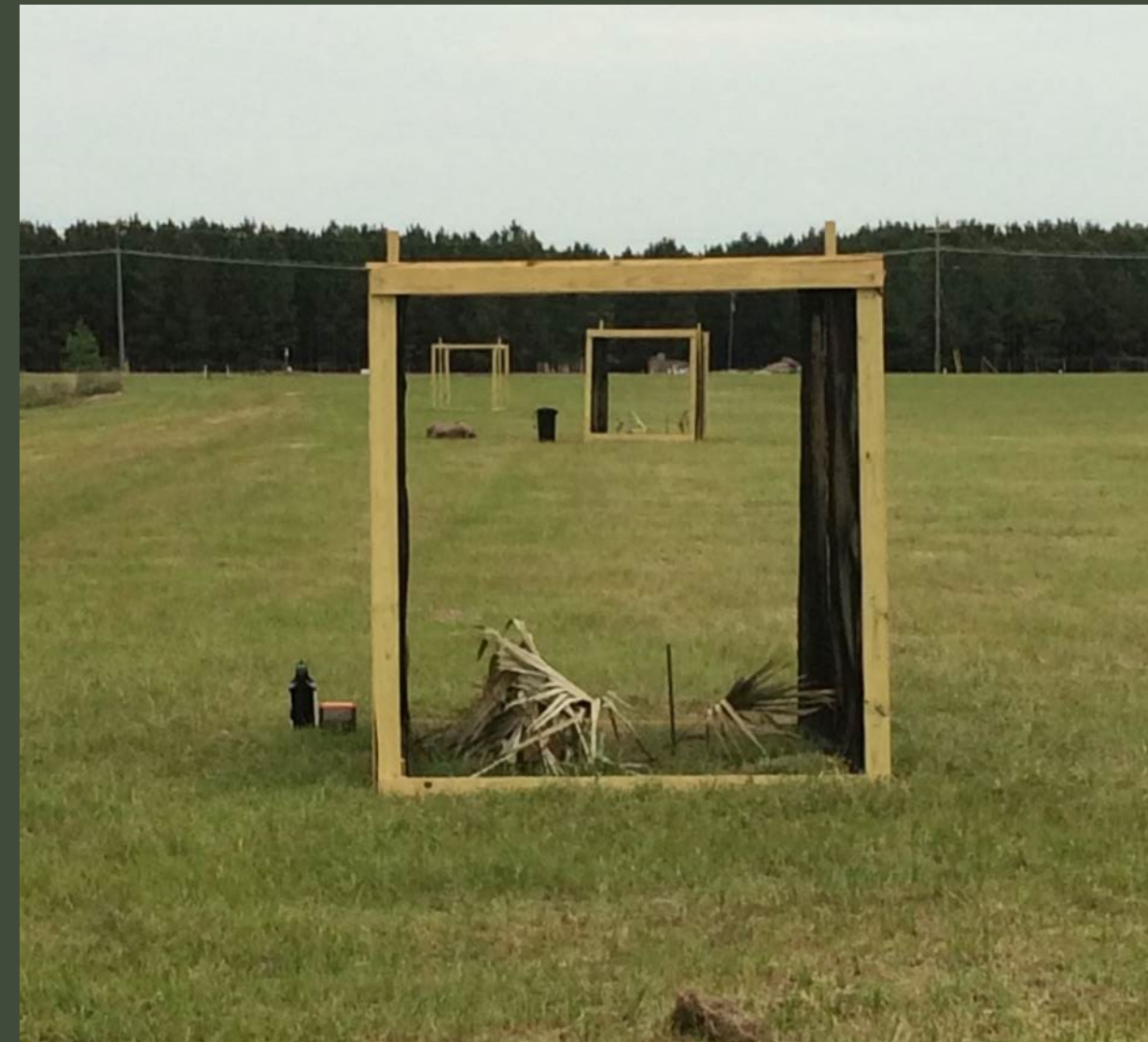
Florida Fish and Wildlife Conservation Commission



GEER 2025

What release methods are suitable?

Eastern Grasshopper Sparrow – the first trials



Photos by Jim Cox

Things we learned from eastern grasshopper sparrows

Young birds benefit from staying in conservation breeding facility until about 40 days old

Parent reared birds seemed to do better

Mitigation for fire ants within the release aviary is important



Photo by Jim Cox



Photos from RSCF and
USFWS report

The unknowns

Would they know how to sparrow?

What age class to release?

How long do they need to be acclimated?

Parent - reared or hand - reared?

Sample size may be small



Hatch - year birds



Second - year birds



Hatch - year birds

Young birds may be more adaptable

Wild HY birds use their first summer to explore outside of natal territory

I'm new here
and I like it!

Flock with us!

I found a cool
spot with lots
of seeds!



Second - year birds

Ensure survival of the first winter

May have higher survival and recruit immediately into population

I've
made it!



Factors considered

Age class

Acclimation period

Radio transmitter

Sex

Body condition

Annual cohort

These factors can be difficult to test before determining ideal conditions for birds in the conservation breeding facility.

FWC photo by
Linda Nong



FWC photo by Juan Oteyza



How to measure success?

Lack of similar programs to use as a model



Photo Lucy Garrett
Mauritius Fody Annual
Report 2009

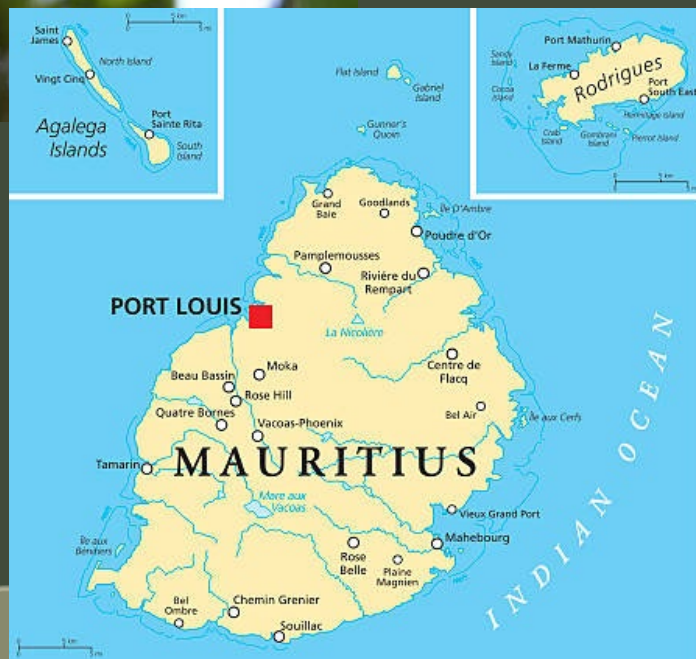


Photo Paul Keene/ British Birds



Photo Cris Sellares/ British Birds



Photo J. Crowley/C



Photo JA Kay/Audubon



Other examples

Metric	Common name	Scientific	
1st month survival	Cirl bunting	<i>Emberiza</i>	
	Puaiohi	<i>Myadest</i>	
	'Oma 'o	<i>Myadest</i>	
Survival to 1st breeding season	Cirl bunting	<i>Emberiza cirius</i>	28%
	Mangrove finch	<i>Camarhynchus helibates</i>	26% ¹
	Mauritius fody	<i>Fouda rubra</i>	52% ²
Recruitment rate (proportion of released birds that bred)	Mangrove finch	<i>Camarhynchus helibates</i>	5%
	Canadian loggerhead shrike	<i>Lanius lodovicianus</i>	3%
	Helmeted honeyeater	<i>Lichenostomus melanops cassidix</i>	23%
	Puaiohi	<i>Myadestes palmeri</i>	9%
	Mauritius fody	<i>Fouda rubra</i>	43% ²

¹Reported as "long-term post release" rather than survival to breeding.

²Releases occurred on a predator-free island

REVIEW

Optimizing avian translocation success: A systematic review of the effect of release age on survival, dispersal, and productivity

Karl E. Miller¹ | Erin L. Hewett Ragheb¹ | Craig A. Layman²

Conservation Science and Practice

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Editor-in-Chief: Carolina Murcia
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Florida Grasshopper Sparrow 5-Year Strategic Vision

— a recovery implementation strategy

Established Goals

Released birds exhibit reproductive behaviors comparable to wild birds

Minimum recruitment rate of at least 15%

Included timebound check points





The vision standardized
a g r e e d u p o n p r o c e d u r e s f o r
r e l e a s e s

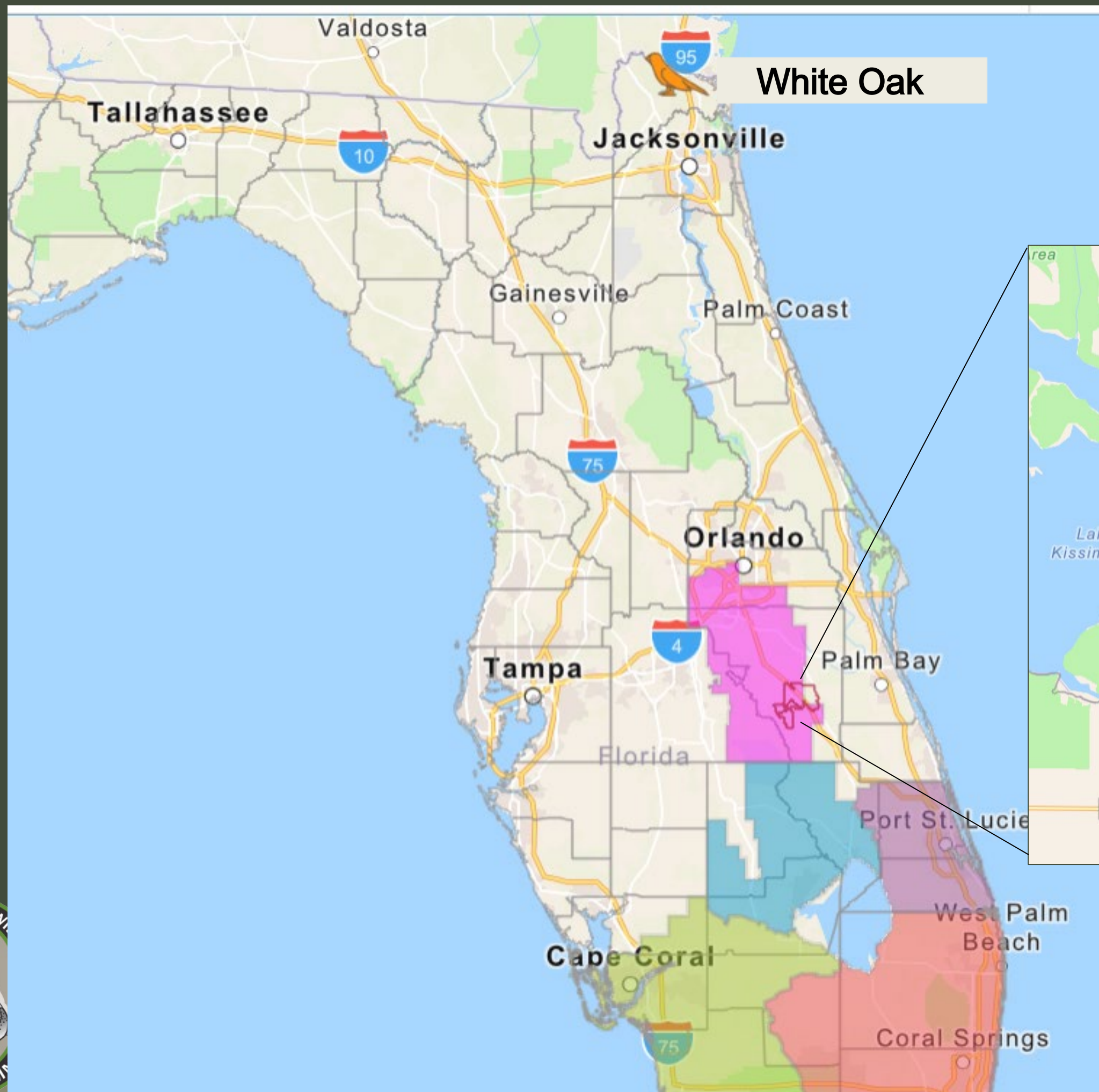


Photos by White Oak



FWC Photo





White Oak



The first 30 days

Will the sparrows know how to sparrow?



17 HY birds

11 SY birds

FWC photo by Juan Oteyza



Birds behaved normally 30 days post release

Transmitters did not impact recruitment



Hatch - year

n = 181

Settlement 25%

Recruitment 18%



L. Nong

Second - year

n = 84

Settlement 13%

Recruitment 5%



S. Overchaisier



2019 and 2020 cohorts pooled

Hatch - year

n = 181

Settlement 25%

Recruitment 18%



L. Nong

Second - year

n = 84

Settlement 13%

Recruitment 5%

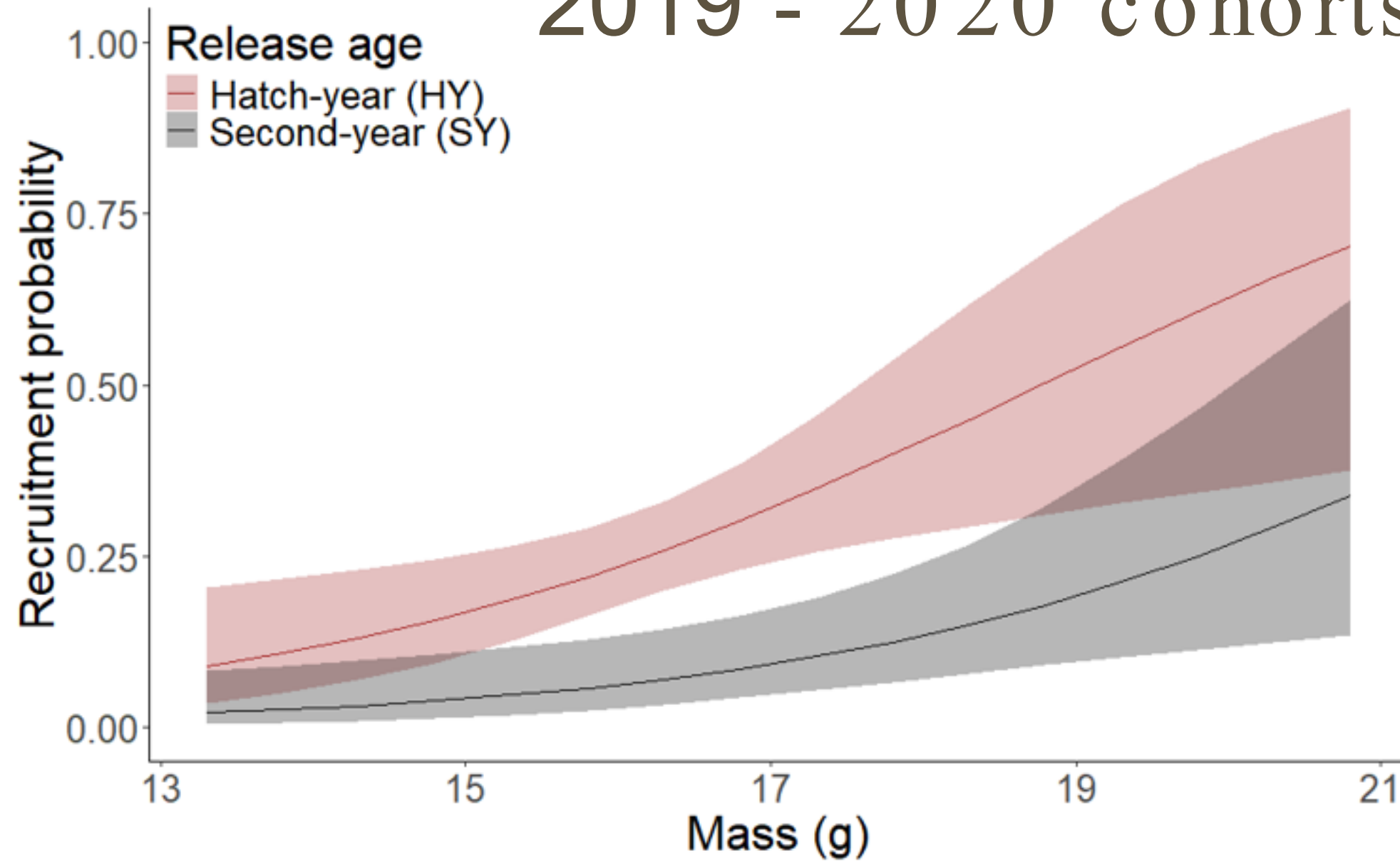


S. Overcha sier



2019 and 2020 cohorts pooled

2019 - 2020 cohorts



Heavier birds
are more likely
to recruit



Released Hatch - year

Settlement 25%

Recruitment 18%

How do they compare to
wild bird recruitment?



2019 and 2020 cohorts pooled

Released Hatch - year

Settlement 25%

Recruitment 18%



Wild Independent

Survival 23%

Recruitment 19%



2019 and 2020 cohorts pooled



Adaptive Management

2021 changed release strategy

Avon Park Air Force Range added in 2021

Birds were extirpated from this site

Playback attempted to promote settlement

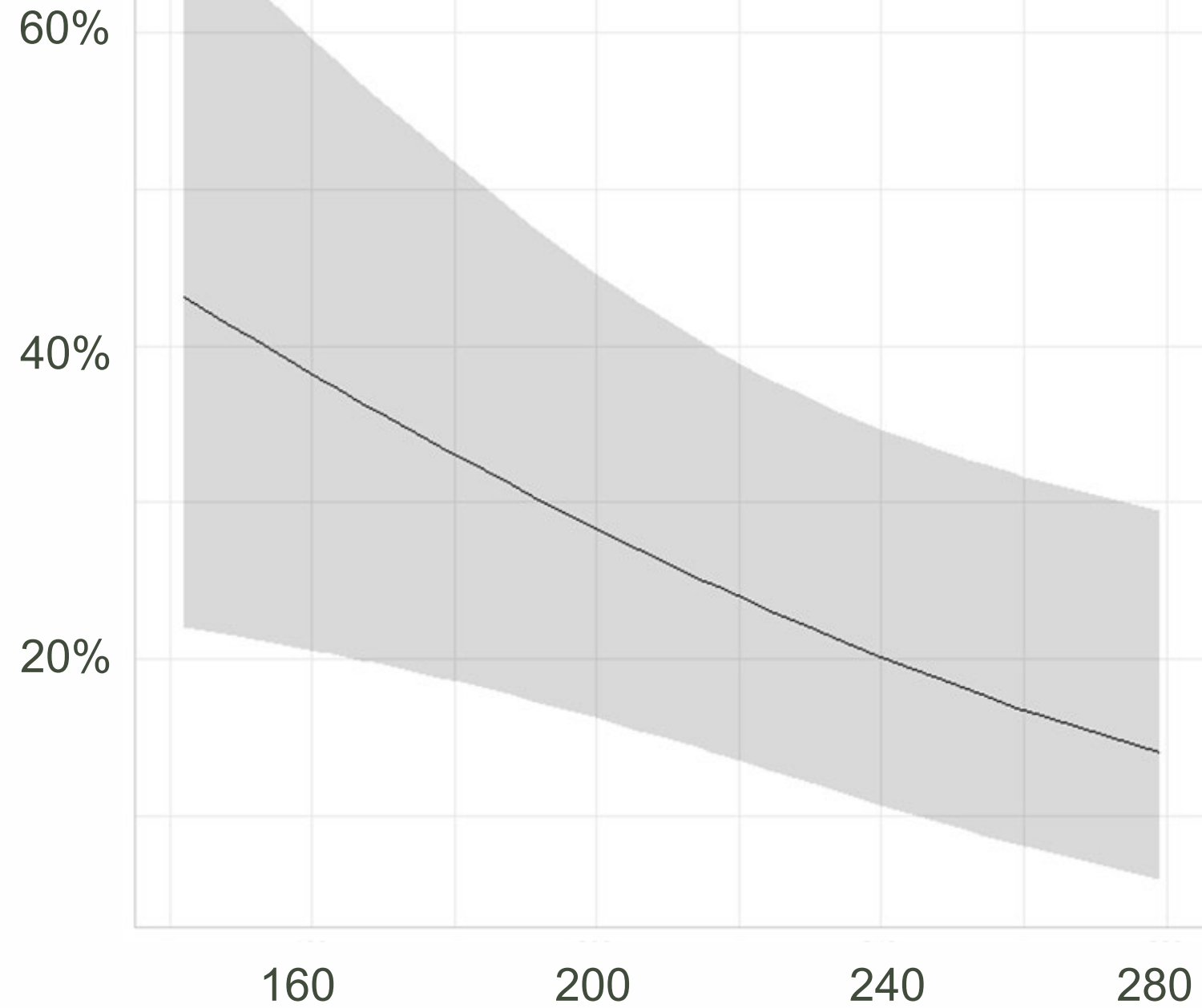


Mobile aviary photo by Avon Park Air Force Range



2019 - 2023 cohorts

Recruitment Probability



Ordinal Days

Factors for released hatch - year birds

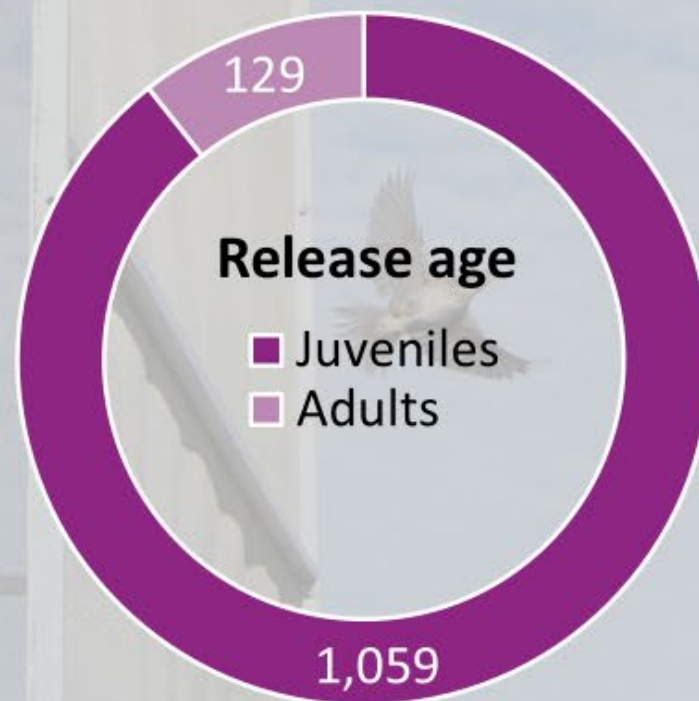
$n = 321$ HY

Birds released earlier in the season have higher probability of recruiting

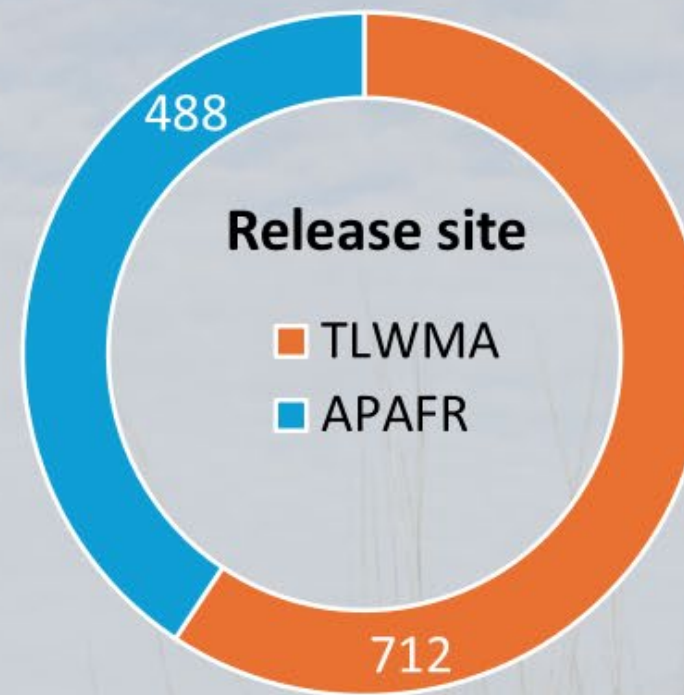


Release Numbers

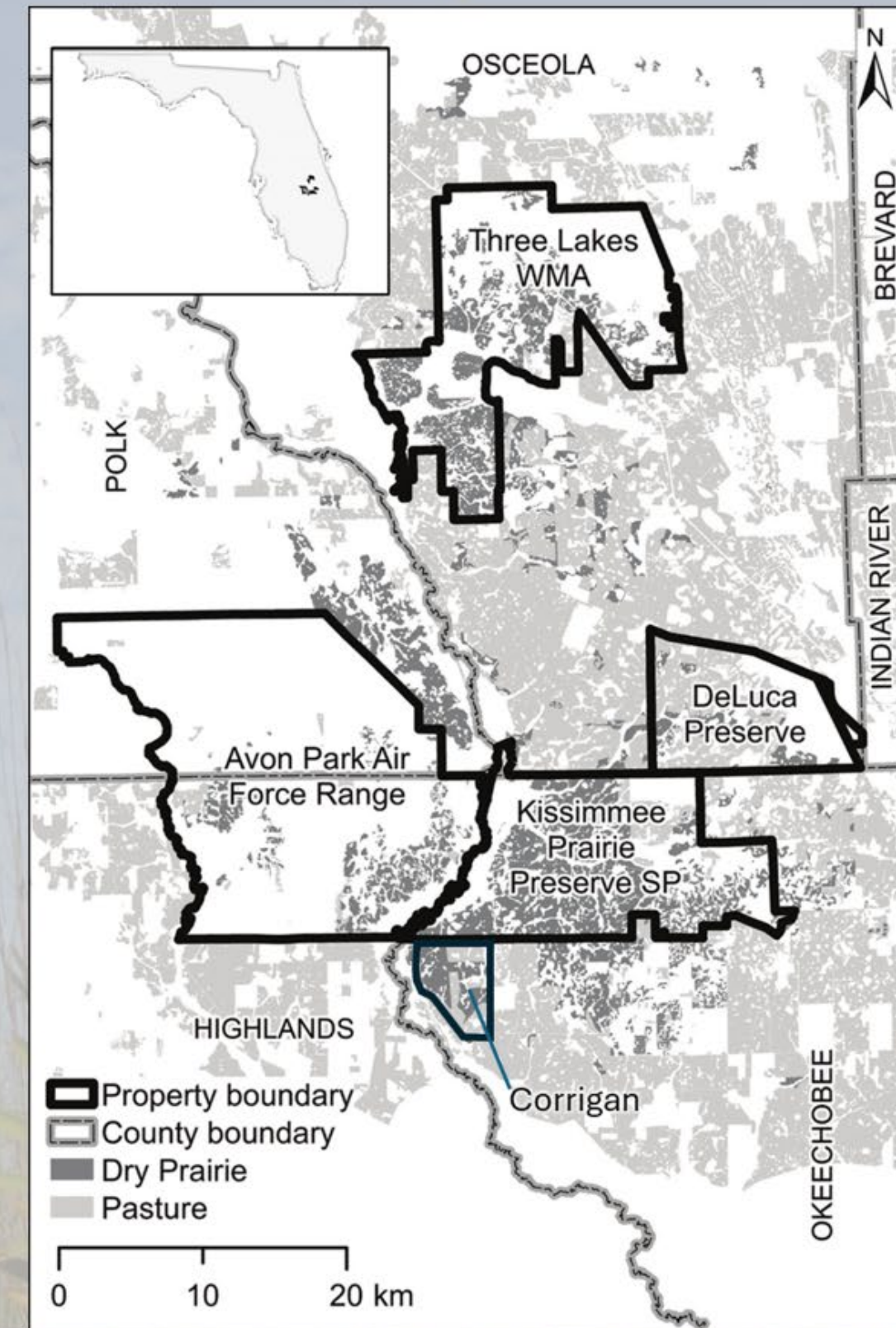
1,207 Sparrows Released
(2019-2024)



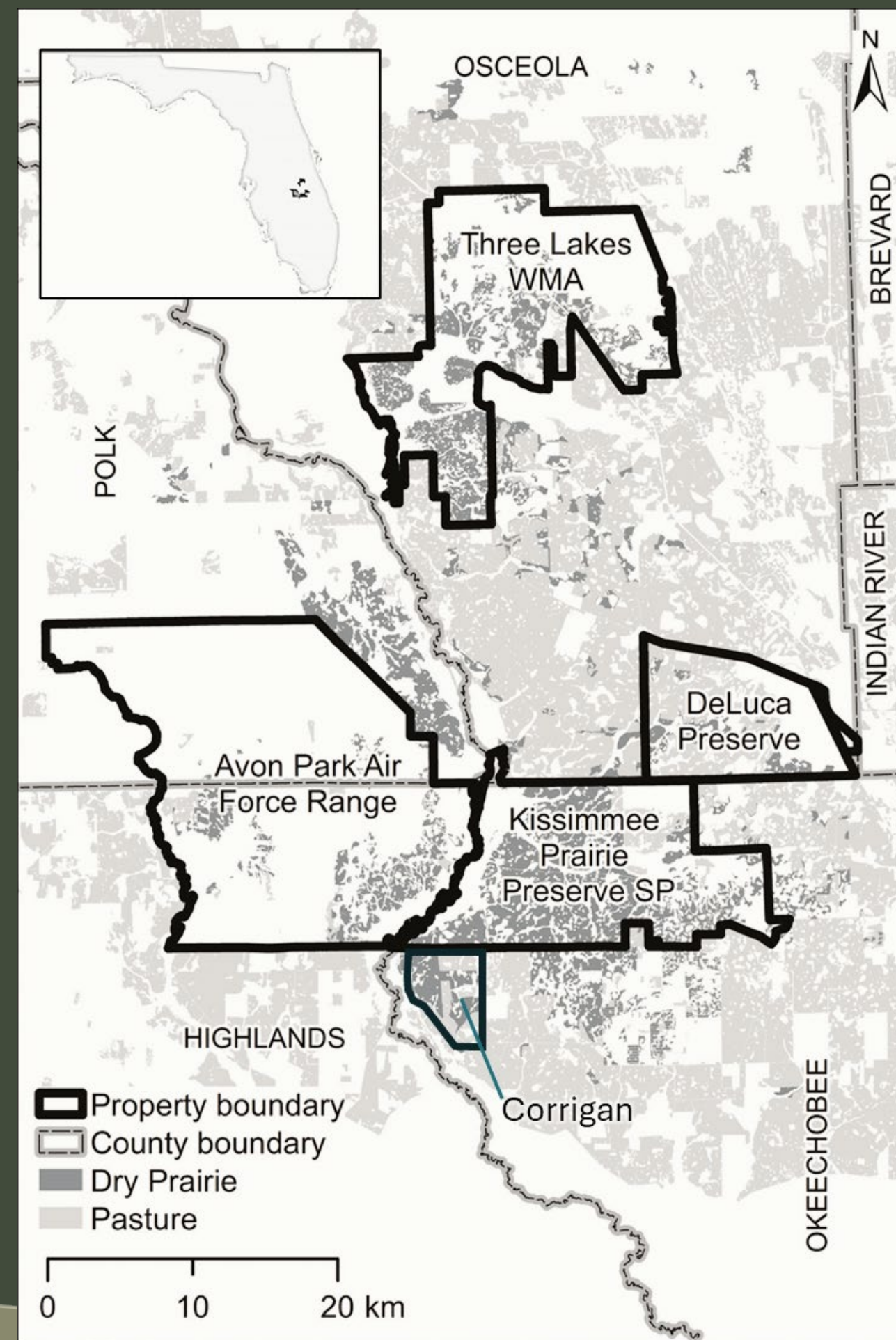
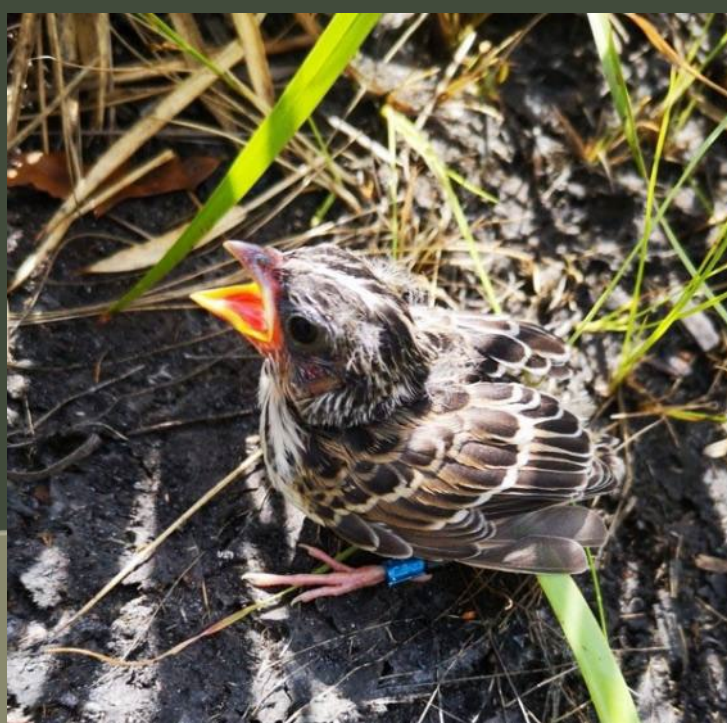
Two Release Sites*



*plus 8 releases
at DeLuca



Monitoring – a critical component

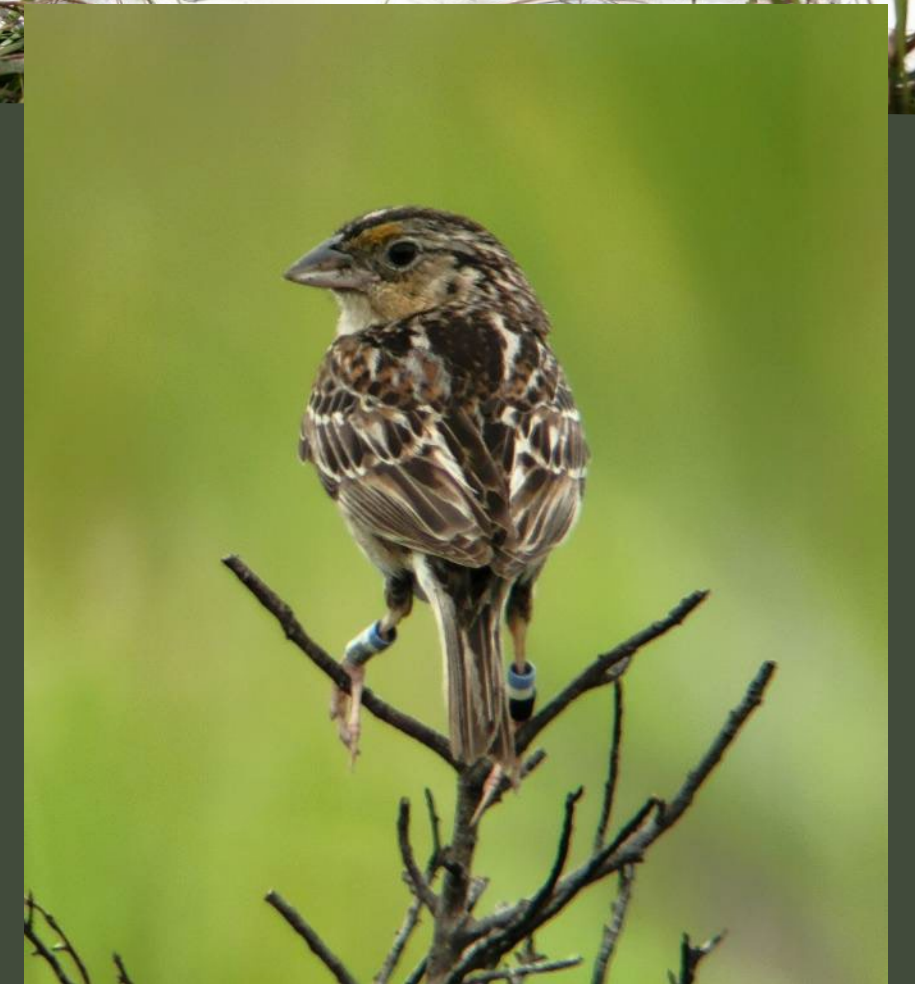


Map adapted from Hewett Ragheb et al. 2022

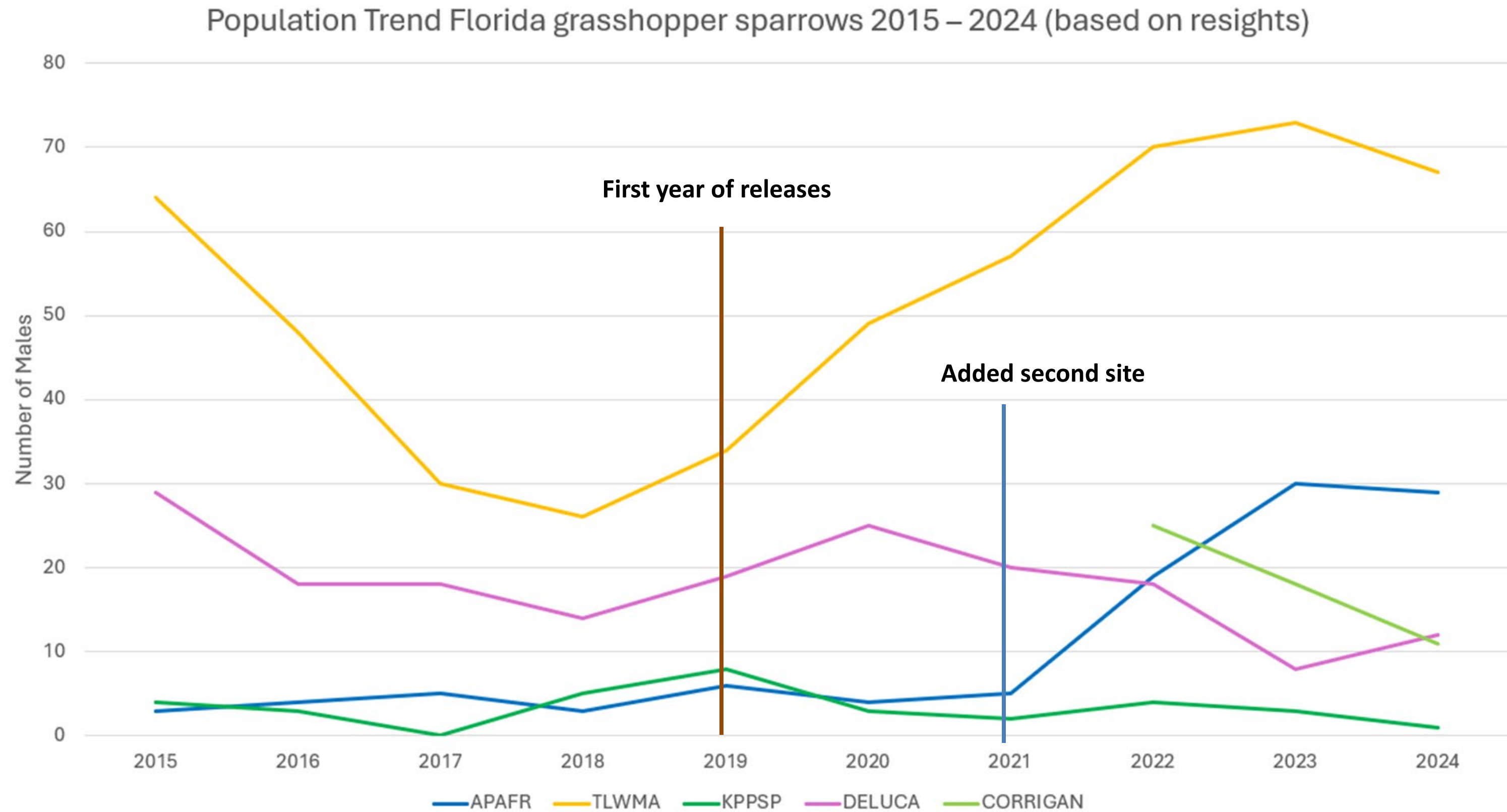
Demographic Impacts

Released birds are breeding, and their offspring are breeding

A population decline was offset by the release program



Population trend (number of males)



The Future

If we stopped releases, the population would continue declining

We can continue improving release methods, but need landscape -level solutions



Thank you!

