Wild Turkey Population Dynamics and Brood Survival

Coauthors and Partners

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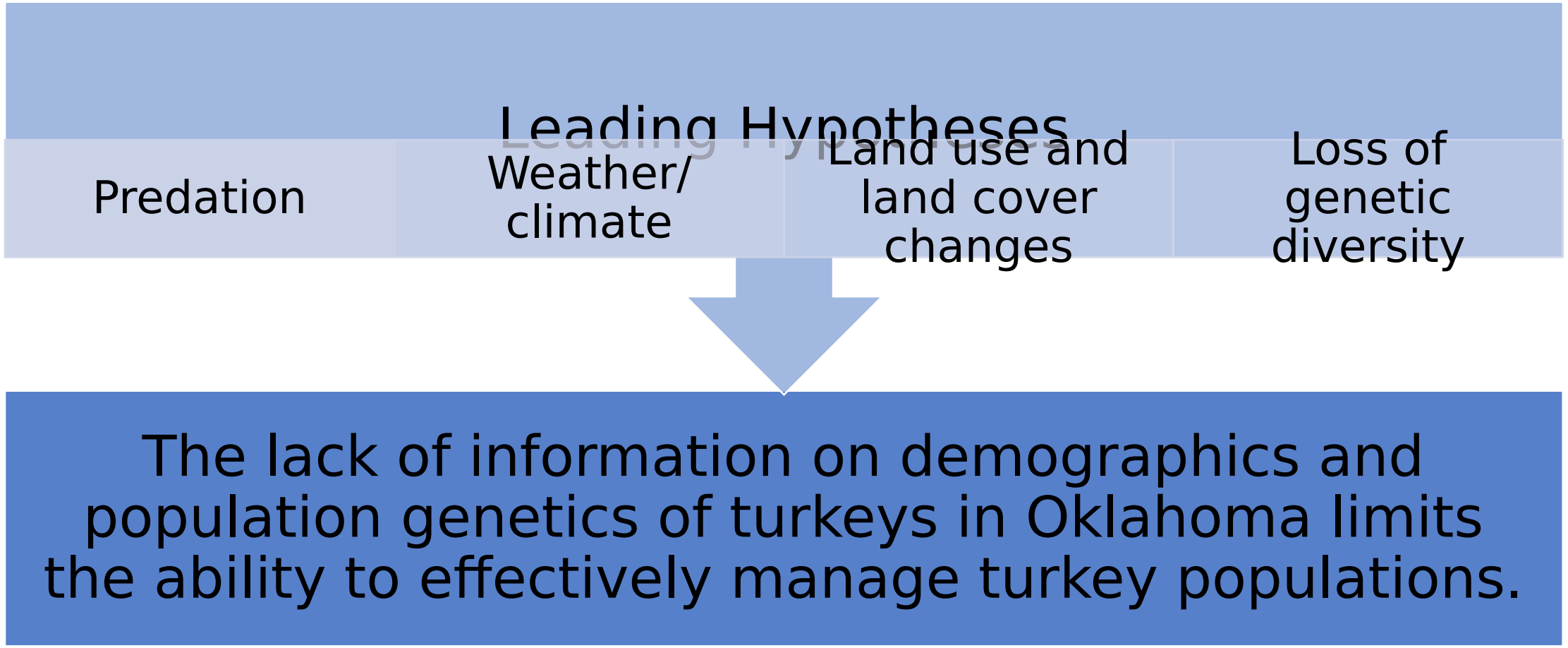
Project Overview

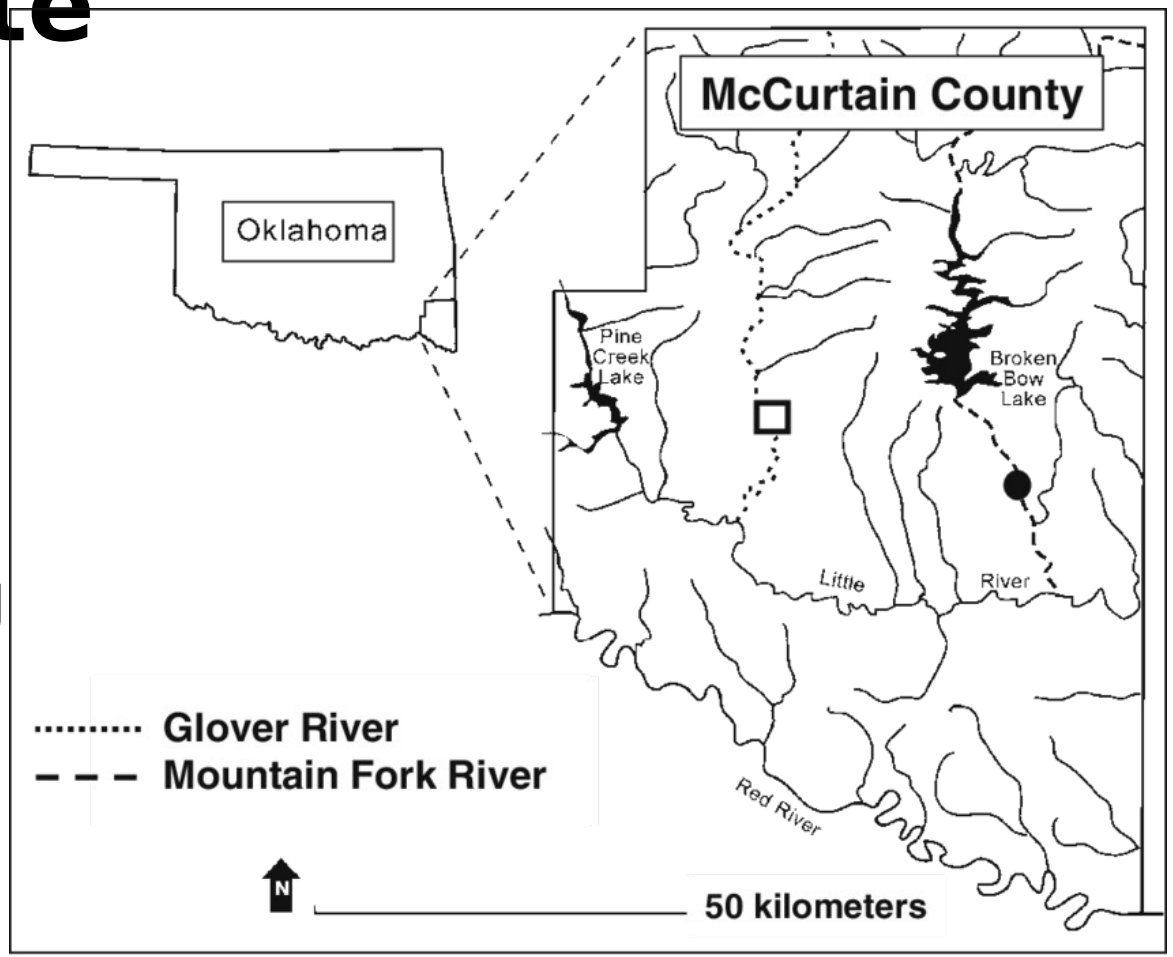


Objectives

- Quantify vital rates (hen survival, nest success, poult survival)
- Identify cause-specific mortality/failure
- Assess landscape variables that might explain survival/mortality
- Quantify mammalian nest predator density/activity
- Assess genetic variation and gene flow (potential metapopulation dynamics)

Southeastern Study Site

- Ouachita Mountains and South-Central Plain ecoregions
- Recreational activity, cattle grazing, and logging, including large commercial pine plantations
- Working on USFS, Three Rivers WMA, Weyerhaeuser Co., and private land



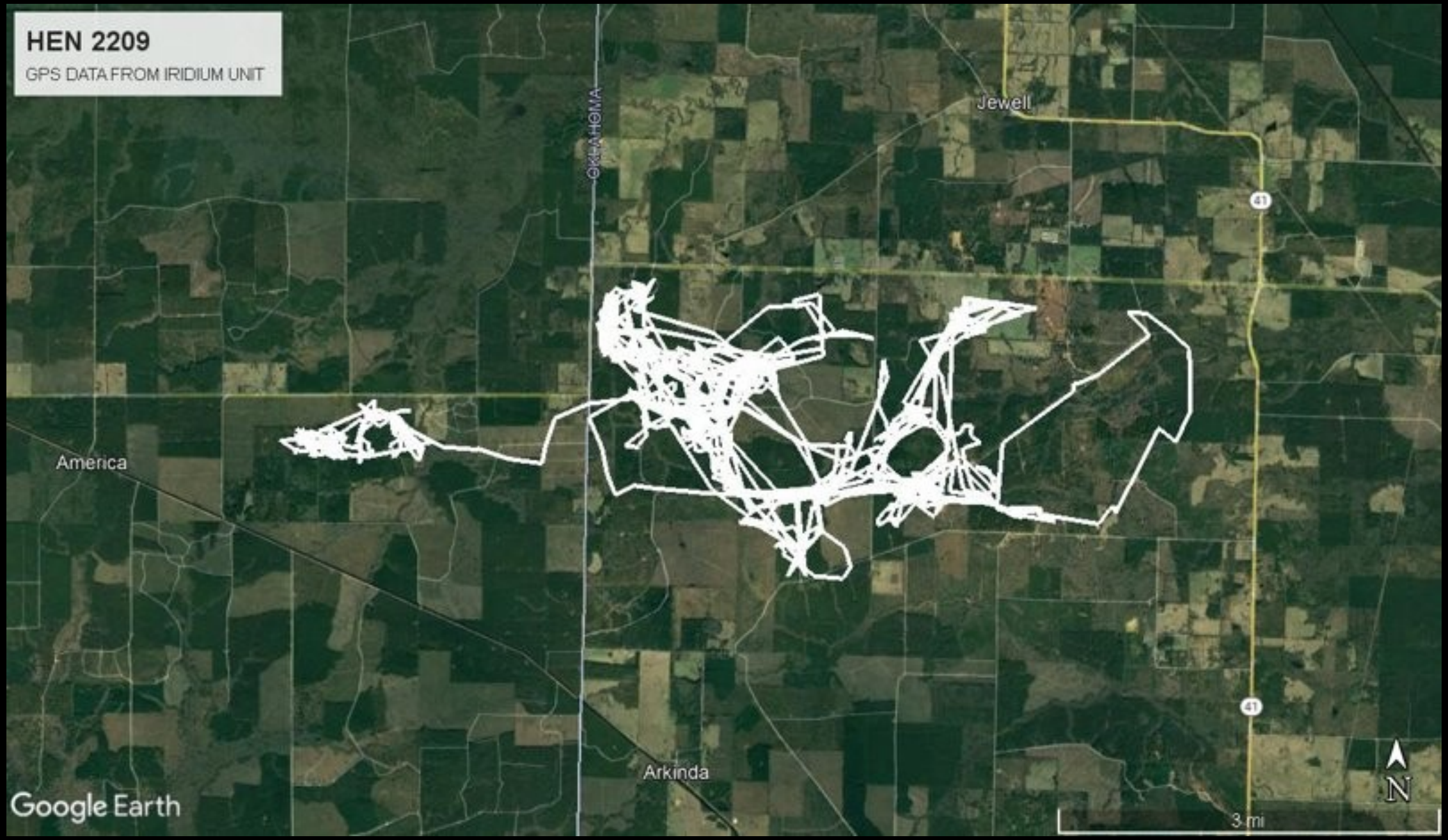
Southwestern Study Site

- Southwestern Tablelands and Central Great Plains ecoregions
- Cattle grazing and ranching, agriculture
- Working on private lands

Adult Capture via Rocket Nets (in SE)

Adult Capture via Walk-in Traps (in SW)

Nest Monitoring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Poult Capture

Hen Data: SE Study Site

	2022	2023
# Captured	28	33
(Adults)	(18)	(13)
(Juveniles)	(10)	(20)
# Entering Nesting Season	25	39 (8 from ’22 and 31 from ’23)
# Known Alive Today	---	11

All data are preliminary until published.

Hen Data: SE Study Site

	2022	2023
# Mortalities	15	17
Total Predation	12	10
(Canid)	(1)	(3)
(Felid)	(2)	(0)
(Unknown Predator)	(9)	(7)
Capture Myopathy	1	6
Unknown	0	1

All data are preliminary until published.

Nest Data: SE Study Site

	2022	2023
# First Nest Incubations	7	18
# Second Nest Incubations	2	4
Date of First Incubation Init.	4/19	4/16
Date of Last Incubation Init.	6/16	6/9
# Successful First Nests	0	2
# Successful Second Nests	2	1

All data are preliminary until published.

Nest Loss Data: SE Study Site

	2022	2023
Depredation of Nest	2	14
Abandonment	1	1
Hen Depredated on Nest	1	3
Unknown	3	4

All data are preliminary until published.

Poult Data: SE Study Site

	Hatch 1 (2022)	Hatch 2 (2022)
Hatch Date	5/20	6/7
# Poults in Brood	6	3
# Tagged in Brood	3	3
Fate Date	6/8	6/9
Fate Cause	Hen depredated, poults lost	Snake, failure to thrive, unk.

All data are preliminary until published.

Poult Data: SE Study Site

	Hatch 1 (2023)	Hatch 2 (2023)	Hatch 3 (2023)
Hatch Date	5/18	5/19	6/19
# Poults in Brood	1	9	9
# Tagged in Brood	0	4	5
Fate Date	5/19	5/20	6/20
Fate Cause	Unknown	Hen depredated, poults lost	Predation

All data are preliminary until published.

Hen Data: SW Study Site

	2023
# Captured	31
(Adults)	(26)
(Juveniles)	(5)
# Entering Nesting Season	29
# Known Alive Today	12

All data are preliminary until published.

Hen Data: SW Study Site

	2023
# Mortalities	15
Total Predation	9
(Canid)	(0)
(Felid)	(1)
(Unknown Predator)	(8)
Unknown	6

All data are preliminary until published.

Nest Data: SW Study Site

	2023
# First Nest Incubations	21
# Second Nest Incubations	8
Date of First Incubation Init.	4/20
Date of Last Incubation Init.	7/10
# Successful First Nests	2
# Successful Second	0

All data are preliminary until published.

Nest Loss Data: SW Study Site

	2023
Depredation of Nest	3
Flooded	1
Hen Depredated on Nest	2
Unknown	22

All data are preliminary until published.

Poult Data: SW Study Site

	Hatch 1	Hatch 2
Hatch Date	5/27	6/4
# Poults in Brood	8 (1 dead in nest)	1
# Tagged in Brood	6	1
Fates	5 dead	Dead (6/6)
Fate Cause	Unknown	Hen killed by predator

All data are preliminary until published.

(Back-of-the-Napkin) Summary Data

SW Study Site

- Hen Survival: 48%

SE Study Site

- Hen Survival: 28-46%

All data are preliminary until published.

(Back-of-the-Napkin) Summary Data

SW Study Site

- Hen Survival: 48%
- Predation: 60% of hen mort

SE Study Site

- Hen Survival: 28-46%
- Predation: 58-80% of hen mort

All data are preliminary until published.

(Back-of-the-Napkin) Summary Data

SW Study Site

- Hen Survival: 48%
- Predation: 60% of hen mort
- % Initializing Incubation: 74%

SE Study Site

- Hen Survival: 28-46%
- Predation: 58-80% of hen mort
- % Initializing Incubation: 28-46%

All data are preliminary until published.

(Back-of-the-Napkin) Summary Data

SW Study Site

- Hen Survival: 48%
- Predation: 60% of hen mort
- % Initializing Incubation: 74%
- Nest Success: 8.7%

SE Study Site

- Hen Survival: 28-46%
- Predation: 58-80% of hen mort
- % Initializing Incubation: 28-46%
- Nest Success: 13-22%

All data are preliminary until published.

(Back-of-the-Napkin) Summary Data

SW Study Site

- Hen Survival: 48%
- Predation: 60% of hen mort
- % Initializing Incubation: 74%
- Nest Success: 8.7%
- Pred.-related Nest Loss: 13%

SE Study Site

- Hen Survival: 28-46%
- Predation: 58-80% of hen mort
- % Initializing Incubation: 28-46%
- Nest Success: 13-22%
- Pred.-related Nest Loss: 55-77%

All data are preliminary until published.

(Back-of-the-Napkin) Summary Data

SW Study Site

- Hen Survival: 48%
- Predation: 60% of hen mort
- % Initializing Incubation: 74%
- Nest Success: 8.7%
- Pred.-related Nest Loss: 13%
- Poult Survival: 14%

SE Study Site

- Hen Survival: 28-46%
- Predation: 58-80% of hen mort
- % Initializing Incubation: 28-46%
- Nest Success: 13-22%
- Pred.-related Nest Loss: 55-77%
- Poult Survival: 0%

All data are preliminary until published.

Genetics: 2022 Spring Turkey Season

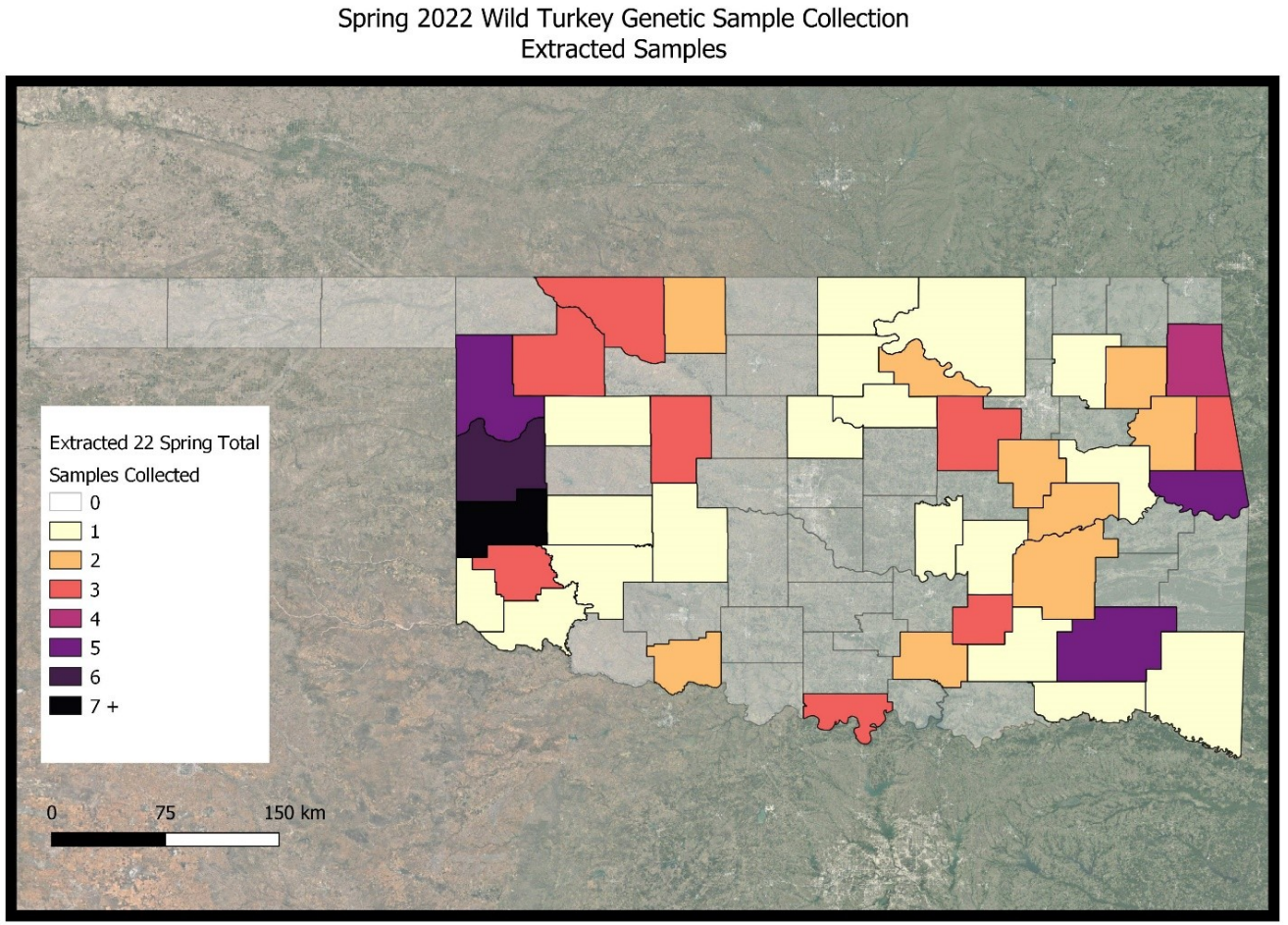
Approximately 100 samples were collected through hunter harvest!

Samples collected by:

- -ODWC, OSU
- -Cherokee, Choctaw, Muskogee [Cr Nations
- -NWTF

Total

- 68 extractions
- Representing 41 counties



Genetics: 2023 Spring Turkey Season

Samples collected by:

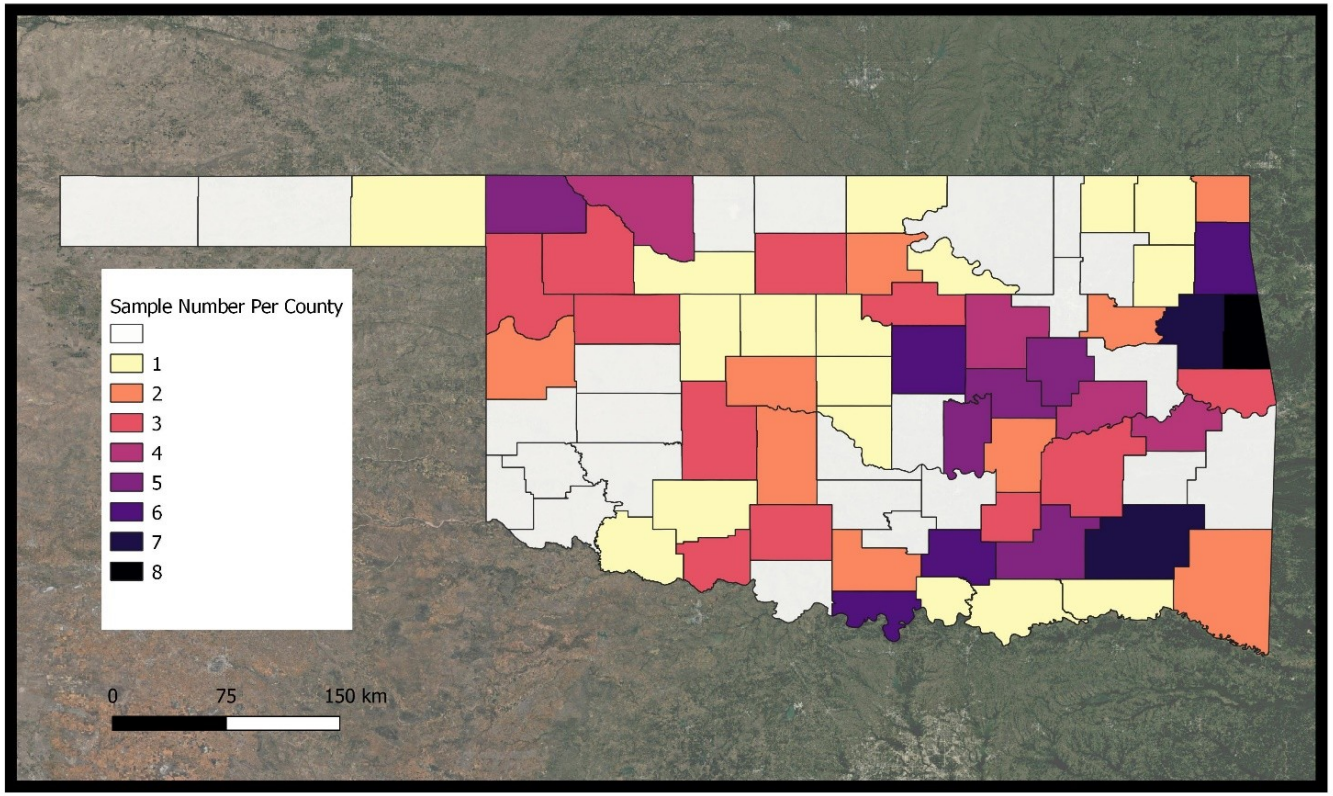
-ODWC, OSU

-Cherokee, Choctaw, Muskogee (Creek) Nations

Total

- 166 and counting
- Representing 53 counties and counting

Spring 2023 Wild Turkey Genetic Sample Collection



* Additional 52 samples from OSU graduate student study sites (not shown)

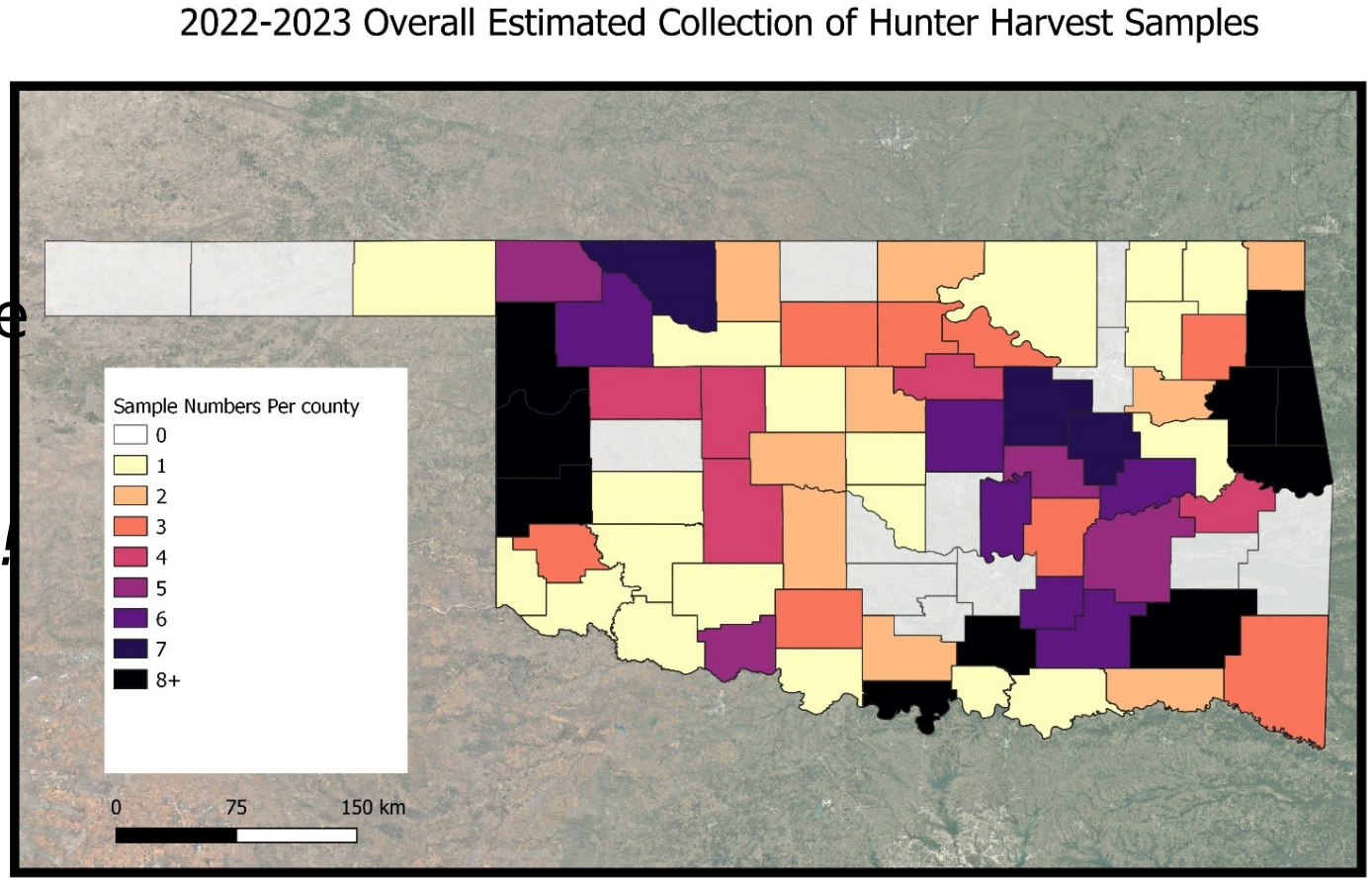
Genetics: Total Samples

- Approximately 250 hunter-collected samples
- 52 blood samples (OSU graduate students)

~300 Oklahoma turkey samples!

Representing 64 Counties!

Additional outgroups from Texas (10) and New Mexico (98) were also collected!



Next Generation Sequencing

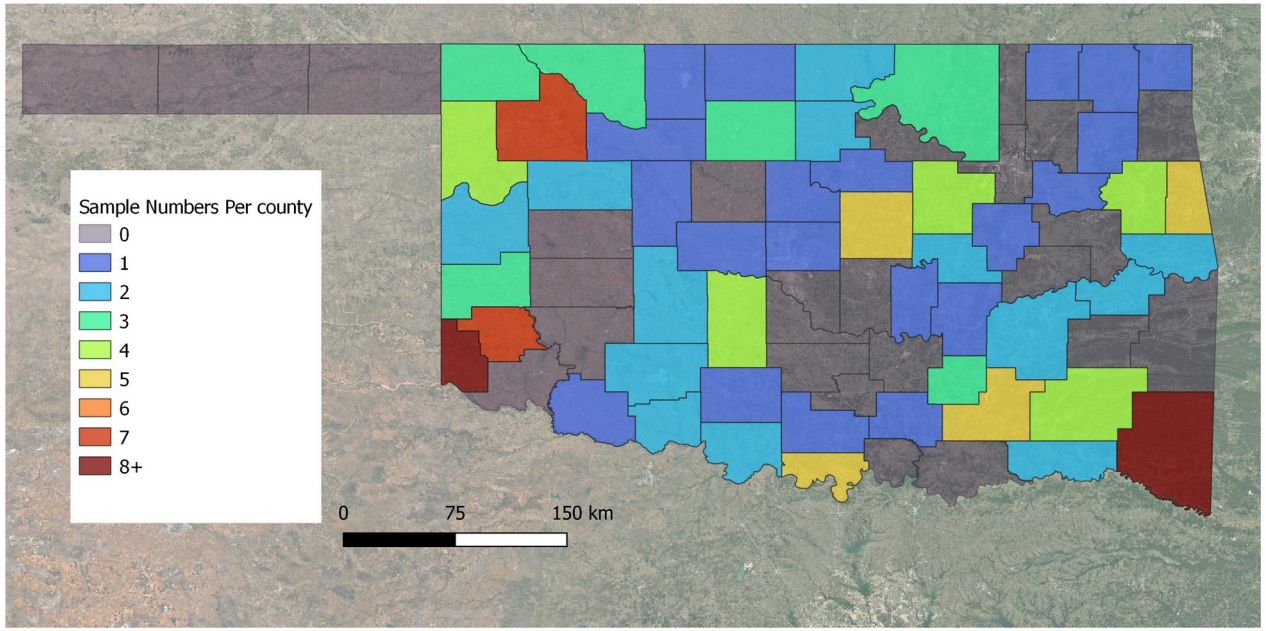
Low Coverage Whole Genome Sequencing Data

- 220 samples successfully sequenced
- Representing 52 Oklahoma counties, 1 Texas county, and 8 New Mexico counties

Raw data have been delivere

Next steps involve data clea
processing, and final analy

Samples Represented by Genomic Sequencing Data

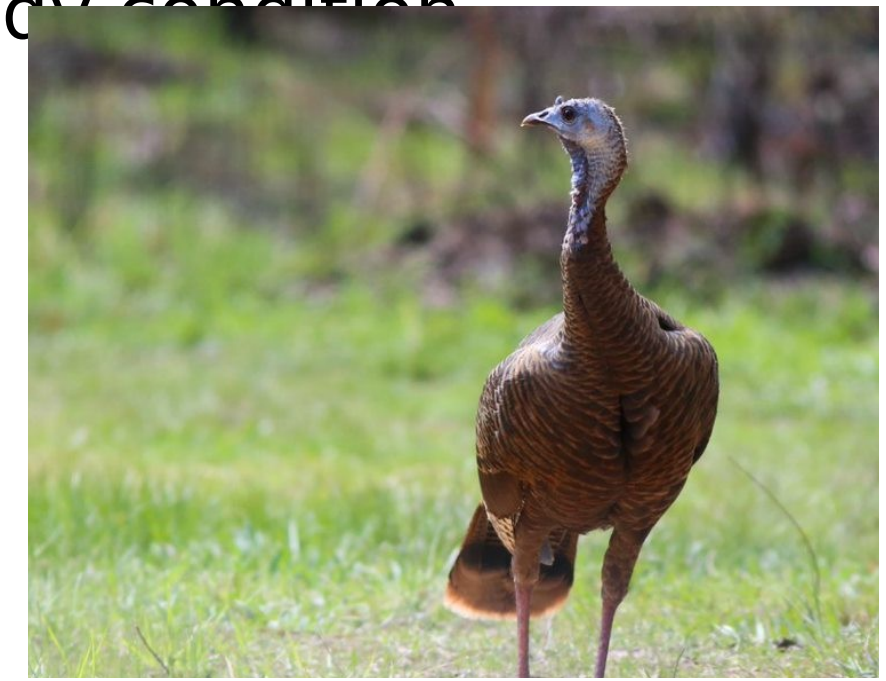


Genetic Analysis Objectives

- Examine phylogenetic relationships between populations/subspecies
- Assess genetic diversity and structure metrics between populations
- Examine levels of hybridization and introgression between Rio Grande and Eastern subspecies
- Assess potential gene flow from Merriam’s subspecies from New Mexico
- Assess statewide connectivity (geographic relationships, environmental influences, barriers to gene flow)

Additional Efforts

- Camera trapping for mammalian predatory density and behavior
- Predator swabs from mortality sites
- Serum chemistries for nutritional/body condition
- Disease testing



Expected Implications

- Provide ODWC with data to better manage wild turkey populations
- Provide recommendations to private landowners, land managers, and hunters regarding wild turkey management
- Aid in understanding region-wide declines in wild turkey populations

Acknowledgments

- Funding: ODWC, NWTF

- Partners: ODWC, NWTF, TFT, Muscogee (Creek) Nation, Cherokee Nation, Choctaw Nation

Questions?

@biggamedoc