



Bear Research and Management – February 2024



David Telesco

Florida Fish and Wildlife Conservation Commission

Background

1500's
11,500 bears

Abundant

**Little or no
management**



FloridaMemory.com



Gene Smith



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Rare

Recovery
management

1970's
500 bears



FLORIDAMEMORY.COM



Gene Smith



Background

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11,500 bears

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Conflict
management

Rebounding

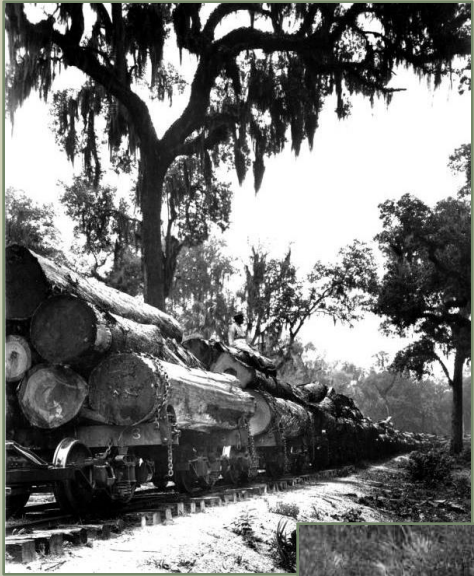
Rare

Recovery
management

2002

2,600 bears

1970's
500 bears



FLORIDAMEMORY.COM



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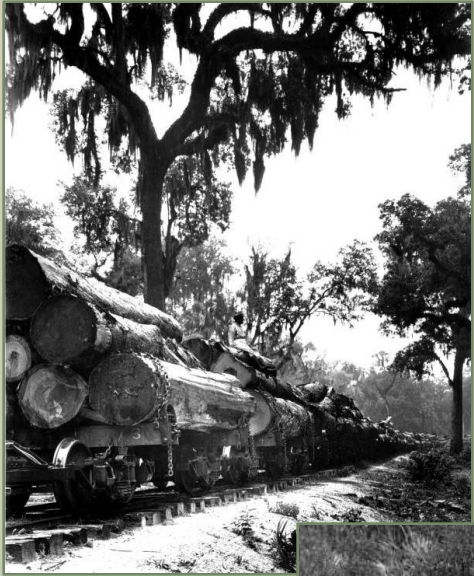
Rare

Recovery
management

2015
4,000 bears

2002
2,600 bears

1970's
500 bears



FLORIDAMEMORY.COM



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Background

1500's
11,500 bears

Abundant

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management

Rare

1970's
500 bears

Recovery
management

Rebounding

2002
2,600 bears

Conflict
management

Stable

2015
4,000 bears

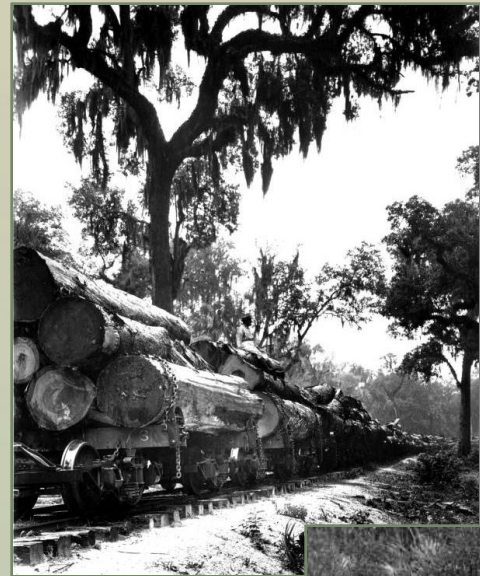
Sustainable
Co-Existence



ORLANDOSENTINEL



Gene Smith



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Bear Research

Bear Range

- 12 data sources
 - Hair Snares
 - Calls
 - Carcasses
 - Vehicle-related
 - Other
 - Sightings
 - iNaturalist
 - FWC (x4)
 - FNAI
 - FDOT
 - USGS

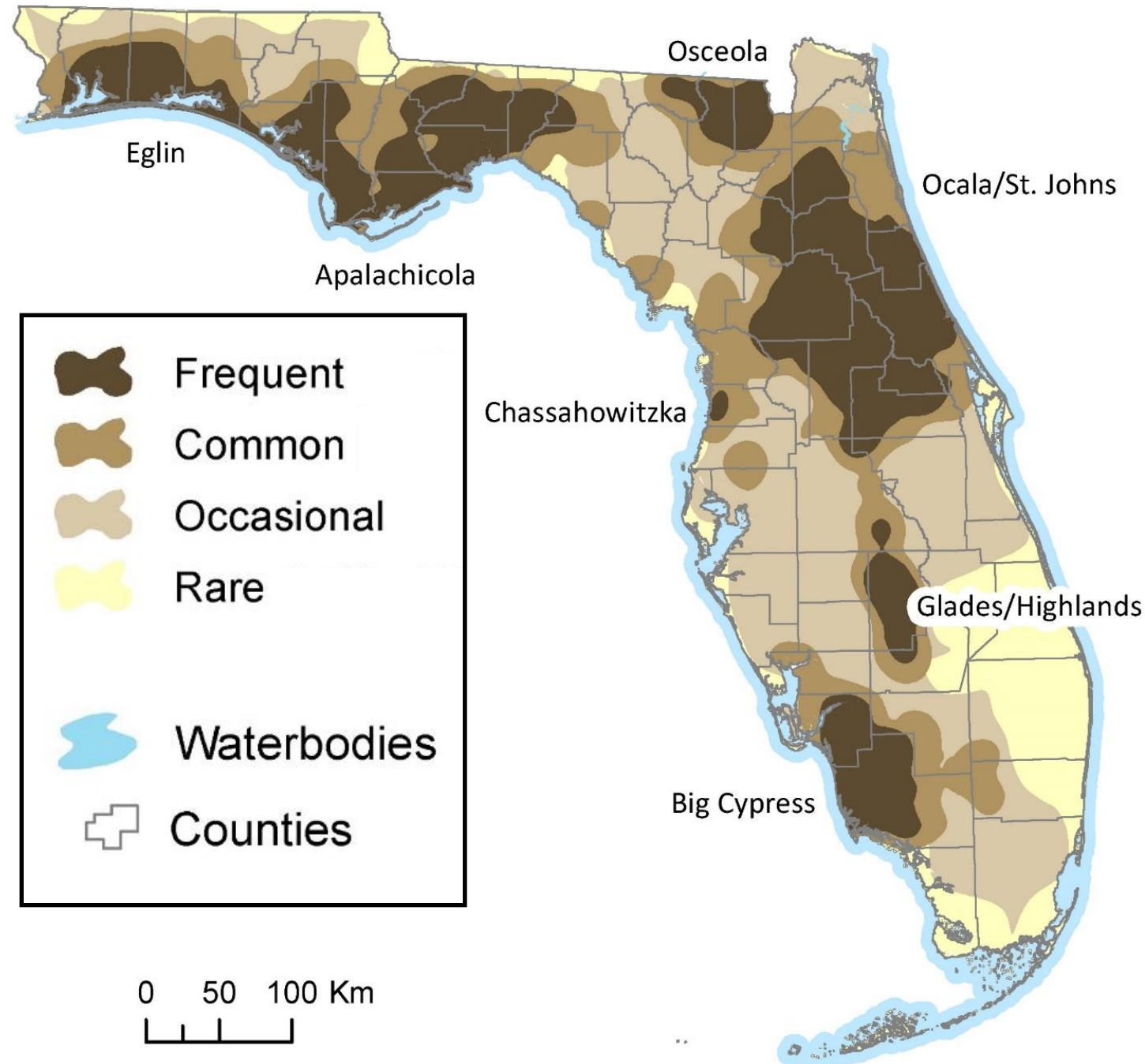


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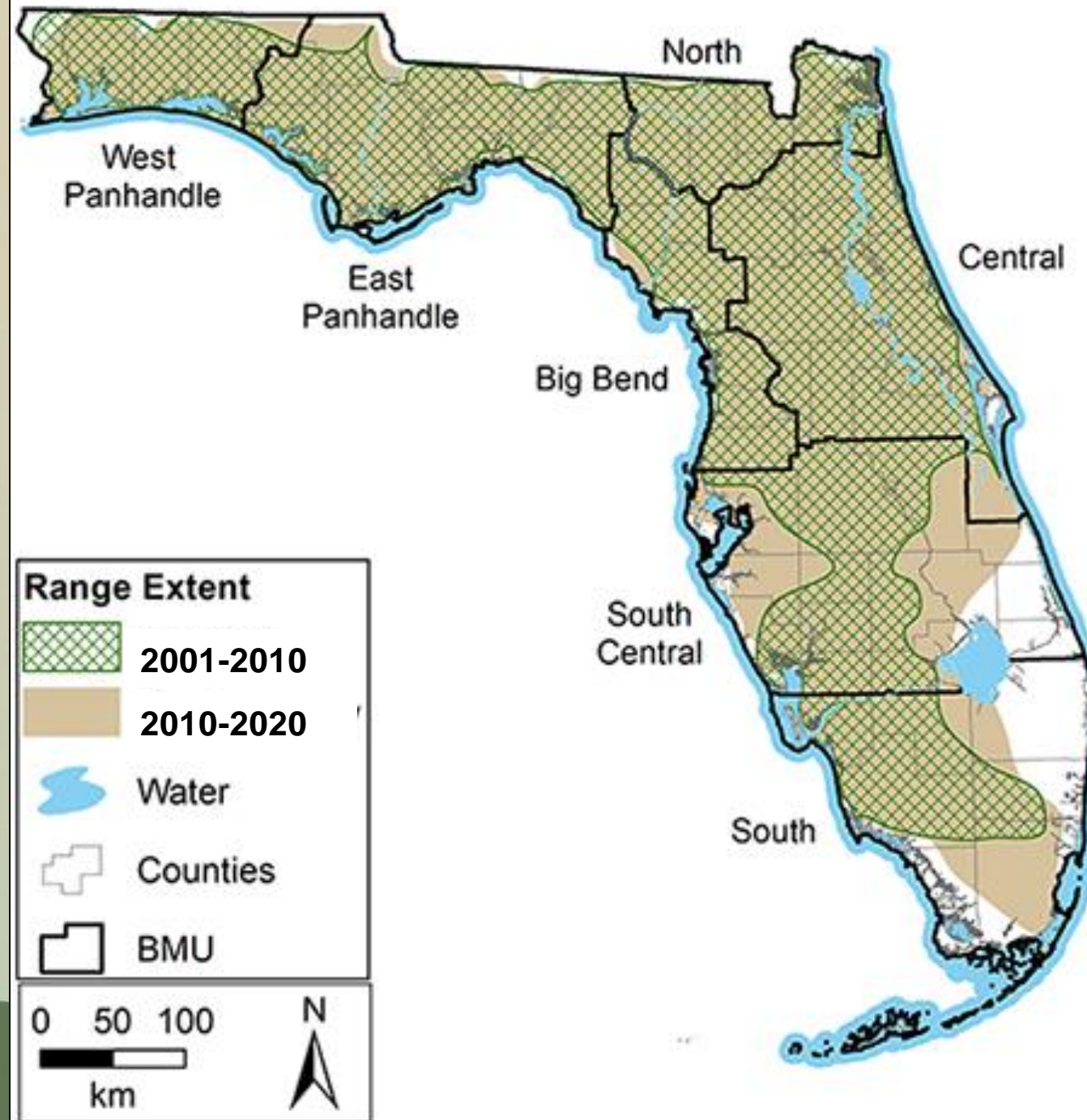
<https://doi.org/10.1002/jwmg.22394>



Range Extent

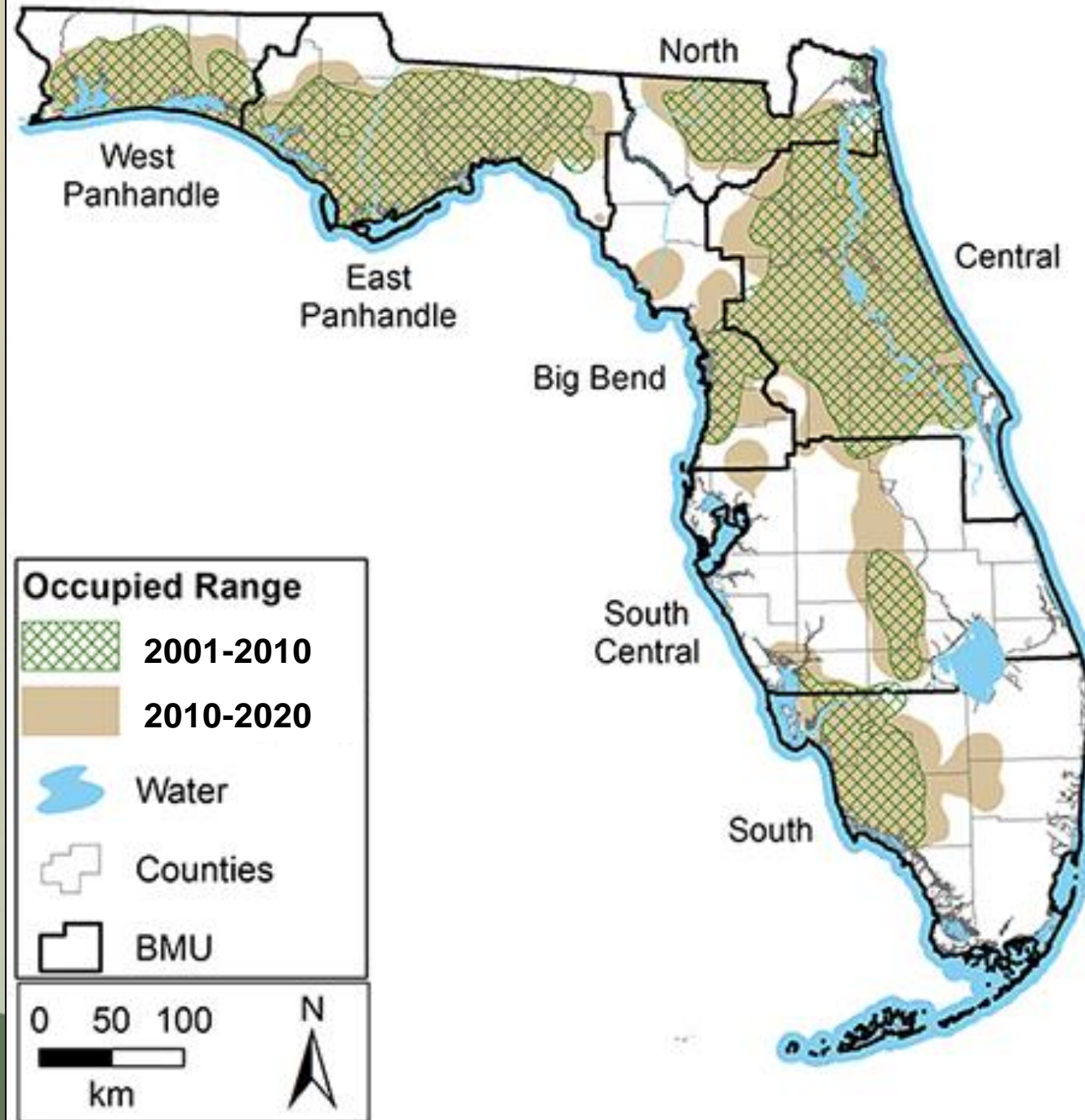
2001-2010 vs 2010-2020

- Excludes Rare
- 86% of Florida in range
 - >13% from 2001-2010
- Largest changes:
 - >51% South Central
 - >31% South



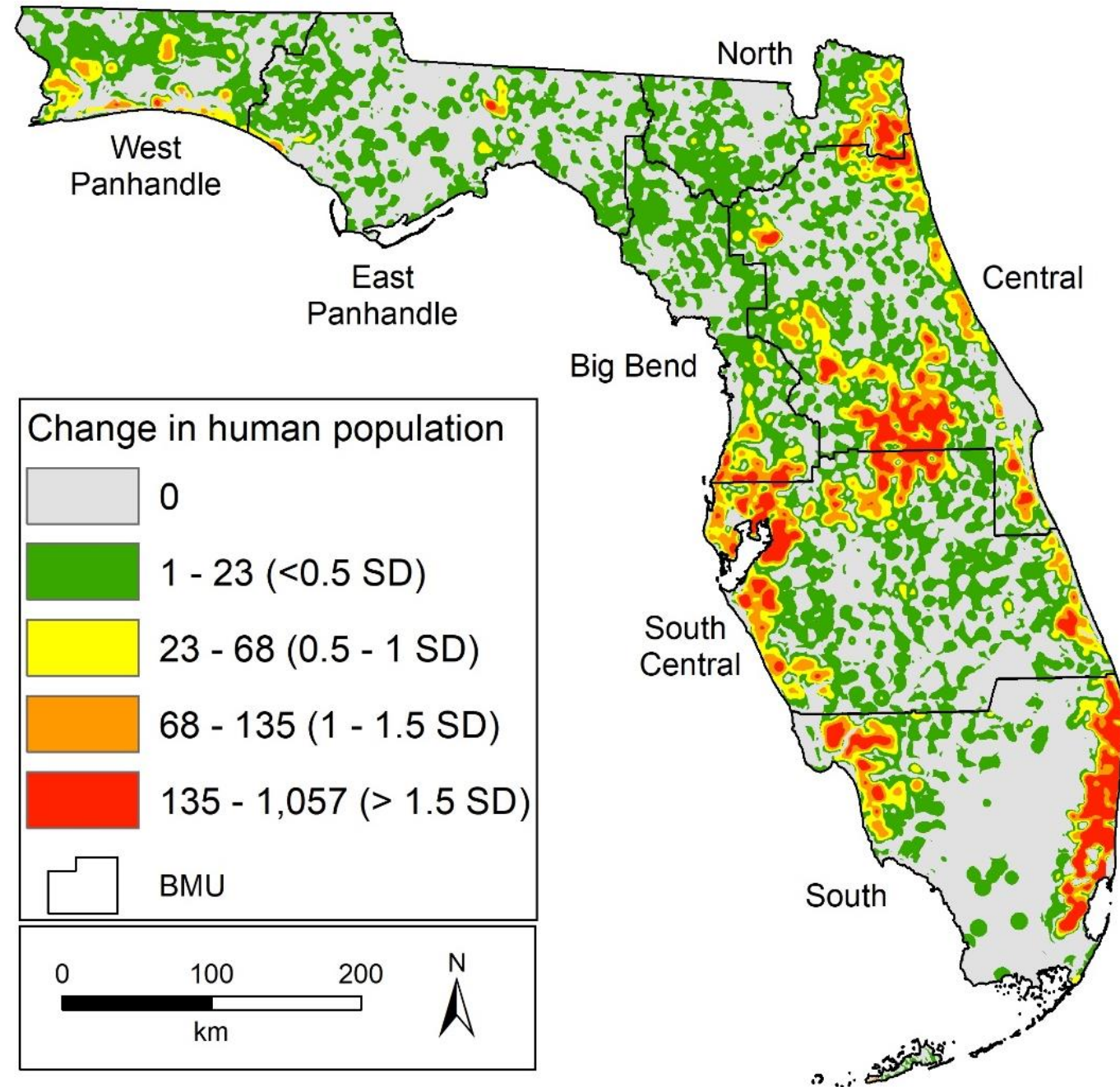
Occupied Range 2001-2010 vs 2010-2020

- Excludes Rare & Occasional
- 51% of Florida occupied
>11% from 2001-2010
- Largest changes:
 - >18% Big Bend
 - >17% Central



Account for Difference

- Subsampled based on:
 - human population
 - Traffic volume
- Human population
 - >13.4% range extent
 - >11.3% occupied range



Apalachicola Adult Females

- 47 adult females, >413,000 locations
- 8 adult female mortalities
 - 2 conflict removals
 - 2 vehicle-related
 - 2 illegal kills
 - 2 unknown
- 91.5% survival



Apalachicola Cubs

- 76 cubs collared, located 2-5/week
- 12 cub mortalities
 - 5 predation (bear; 4 litters)
 - 3 prescribed fire (same litter)
 - 2 malnutrition (same litter)
 - 1 unknown
- 66.4% survival



Apalachicola Growth Rate

- Fecundity = litter size, age of 1st reproduction
- 1st time vs. experienced mothers
- Annual Growth Rate = 12.5%

Age Class	Survival	Fecundity
0-1	0.66	0.00
1-2	0.79	0.00
2-3	0.91	0.25
3-4	0.91	0.33
4+	0.91	0.69

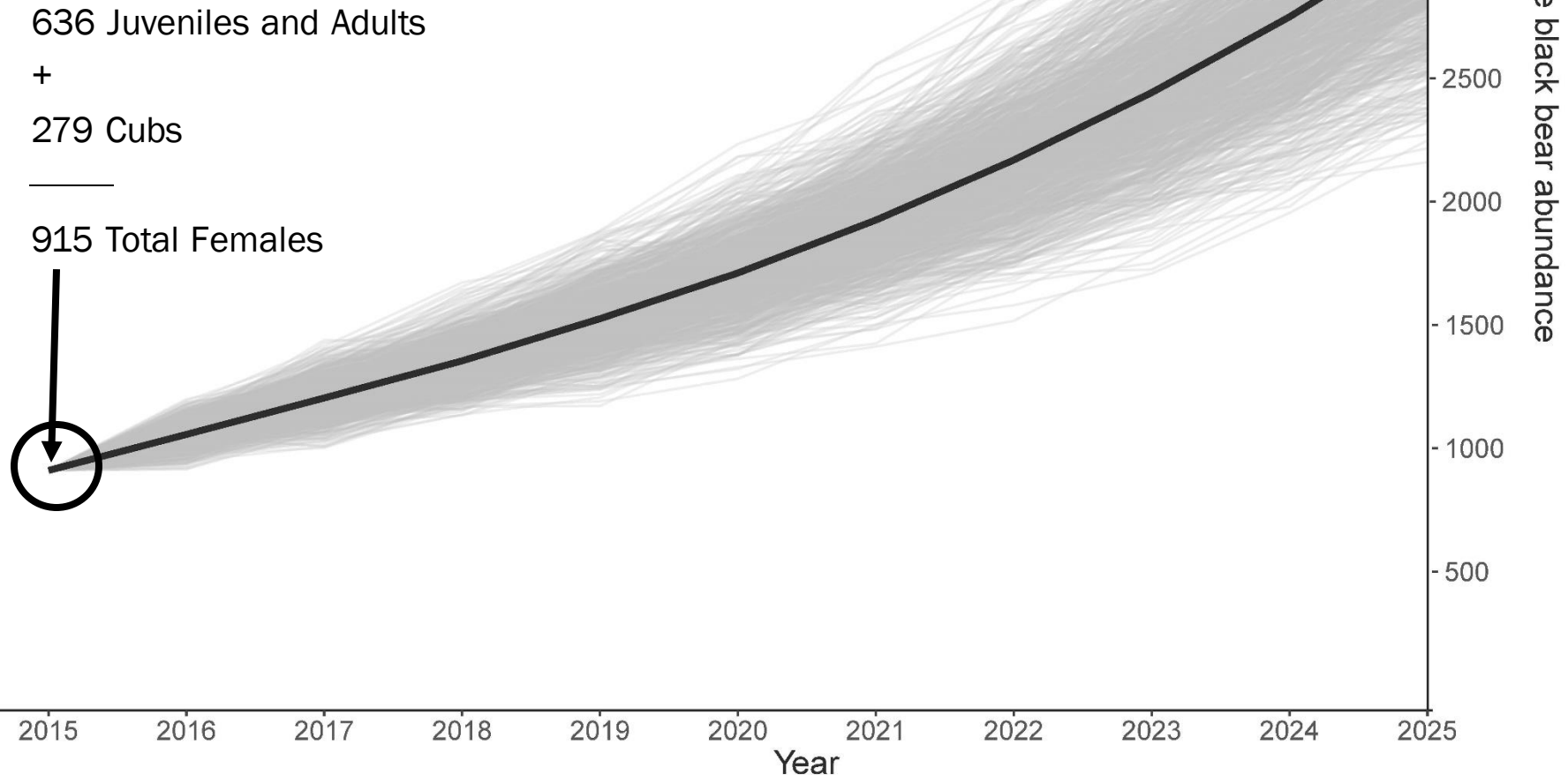


Apalachicola Projected Subpopulation Growth

- ONLY looking at female bears
- 1,060 adults and juvenile bears:
 - 636 female adults and juveniles
 - 279 female cubs
 - 915 total females (all ages)

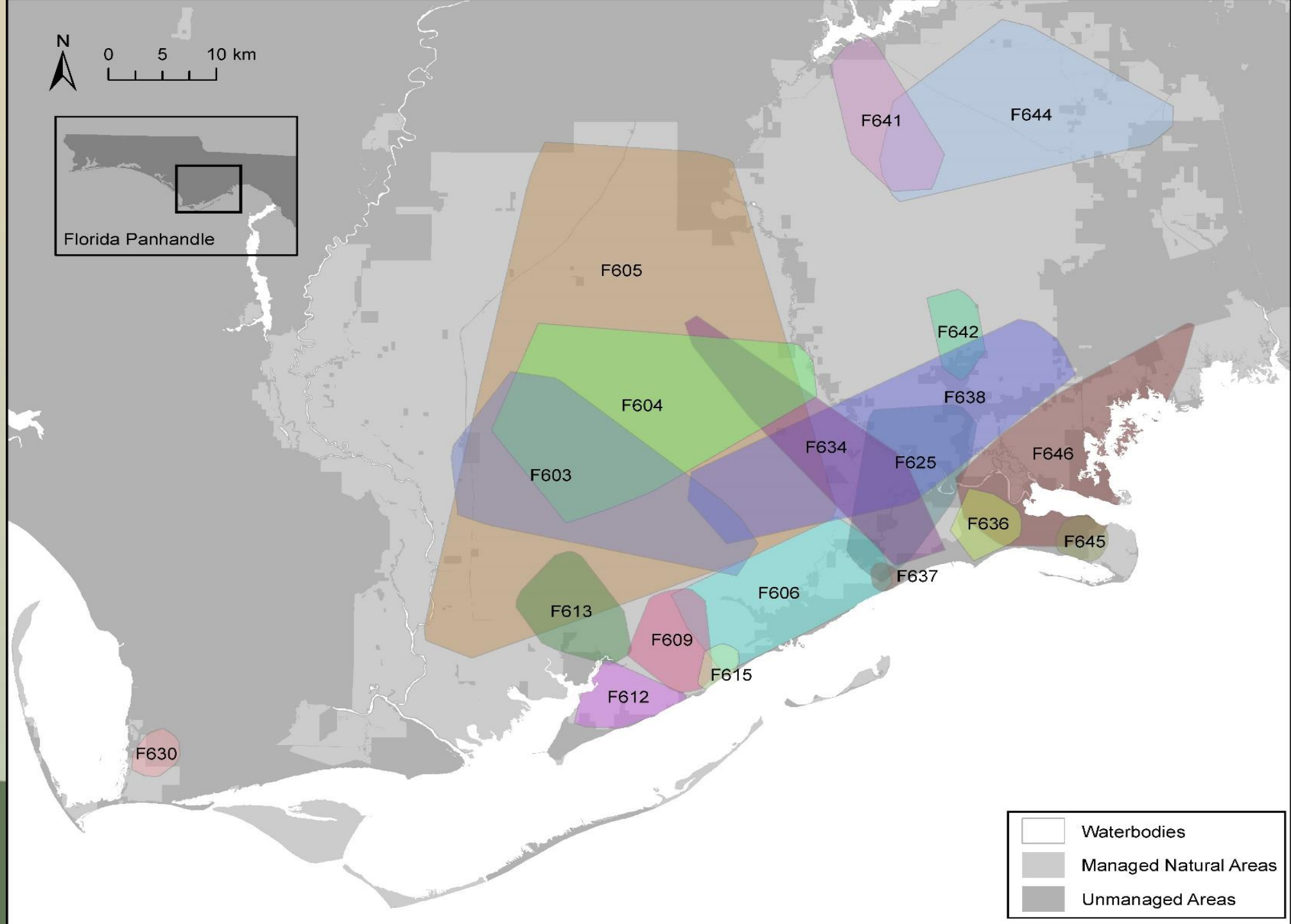


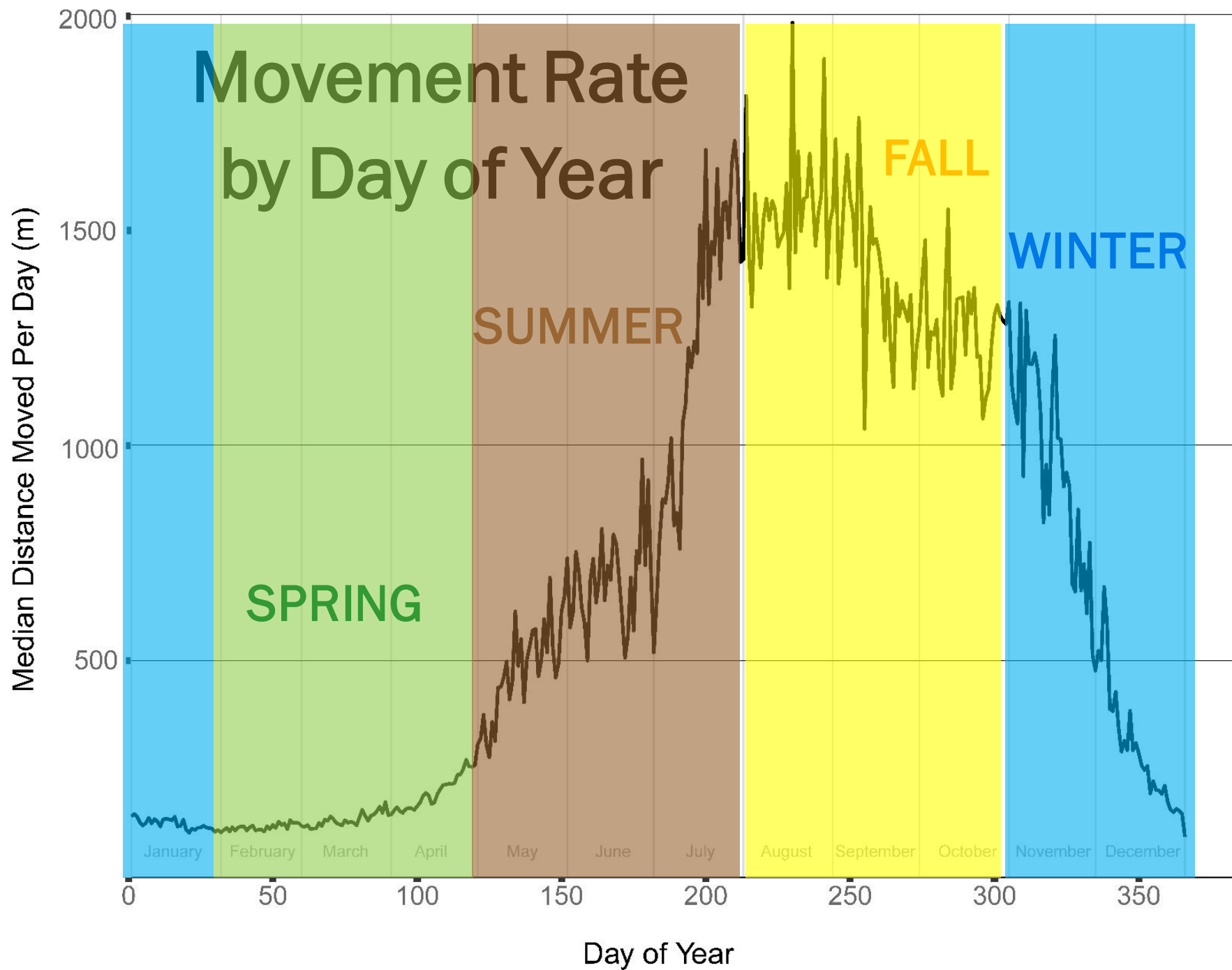
Apalachicola Projected Subpopulation Growth - All Female Age Classes



Home Ranges

56 mi² Avg
(2 – 523 mi²)





Bear Subpopulation Comparison

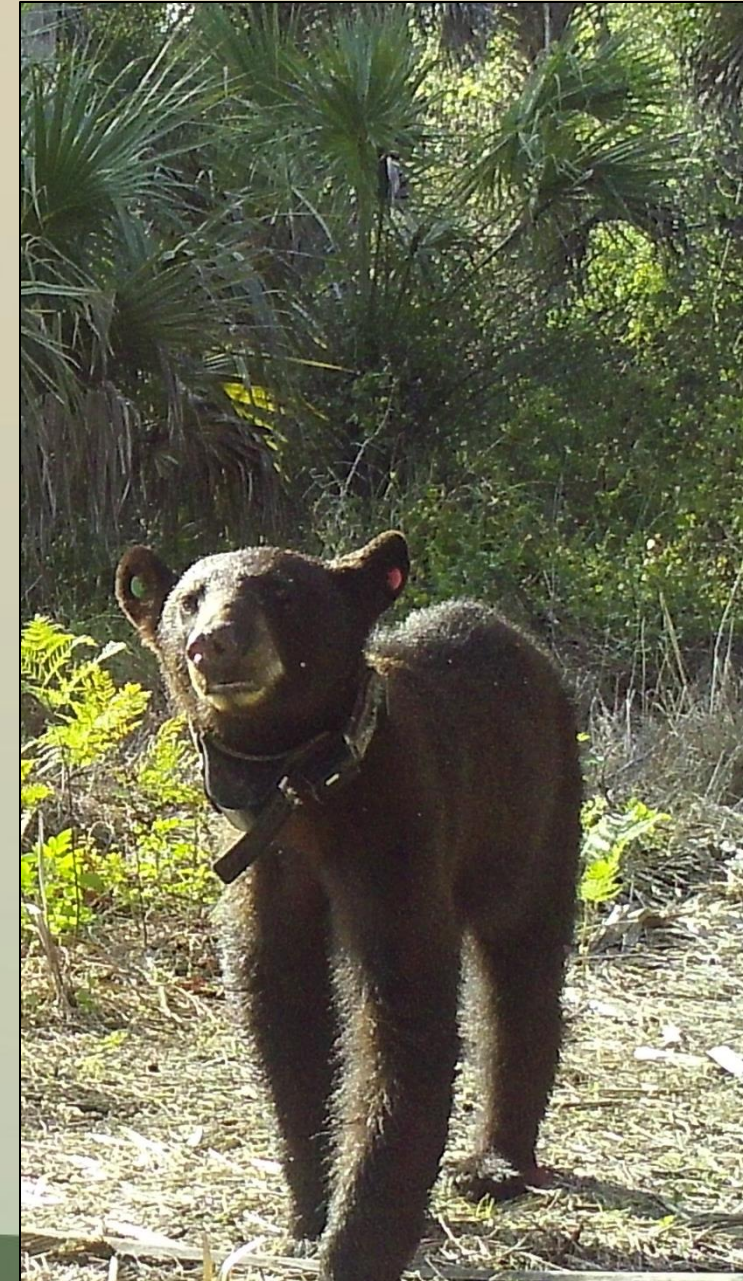
Demographics	Apalachicola	Ocala	Osceola
Adult Female Survival	92%	91%	97%
Cub Survival	66%	46%	75%*
Cubs Per Litter	2.2	2.1	2.1
Annual Growth Rate	12.5%	2.2%	15.4%

**Cub survival estimate based on literature not on cubs being monitored.*



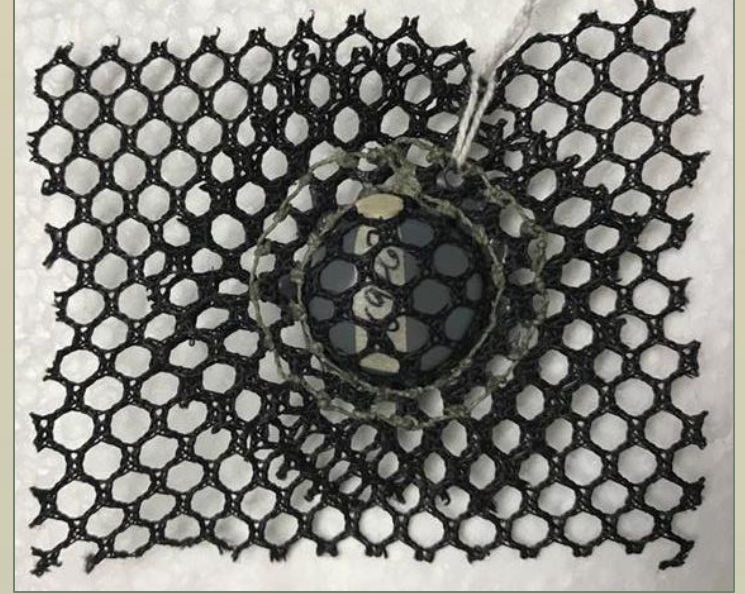
Big Cypress Adult Females

- 122 bears (48 F:74 M) captured 204 times
- Ear tags varies by year for camera stations
- 47 collared females
 - 20 active
 - 19 dropped
 - 6 missing
 - 2 dead



Cub Monitoring Changes

- Switching from expandable collars
- Transmitter in mesh pouch
- Crochet hair into mesh
- Glue/epoxy



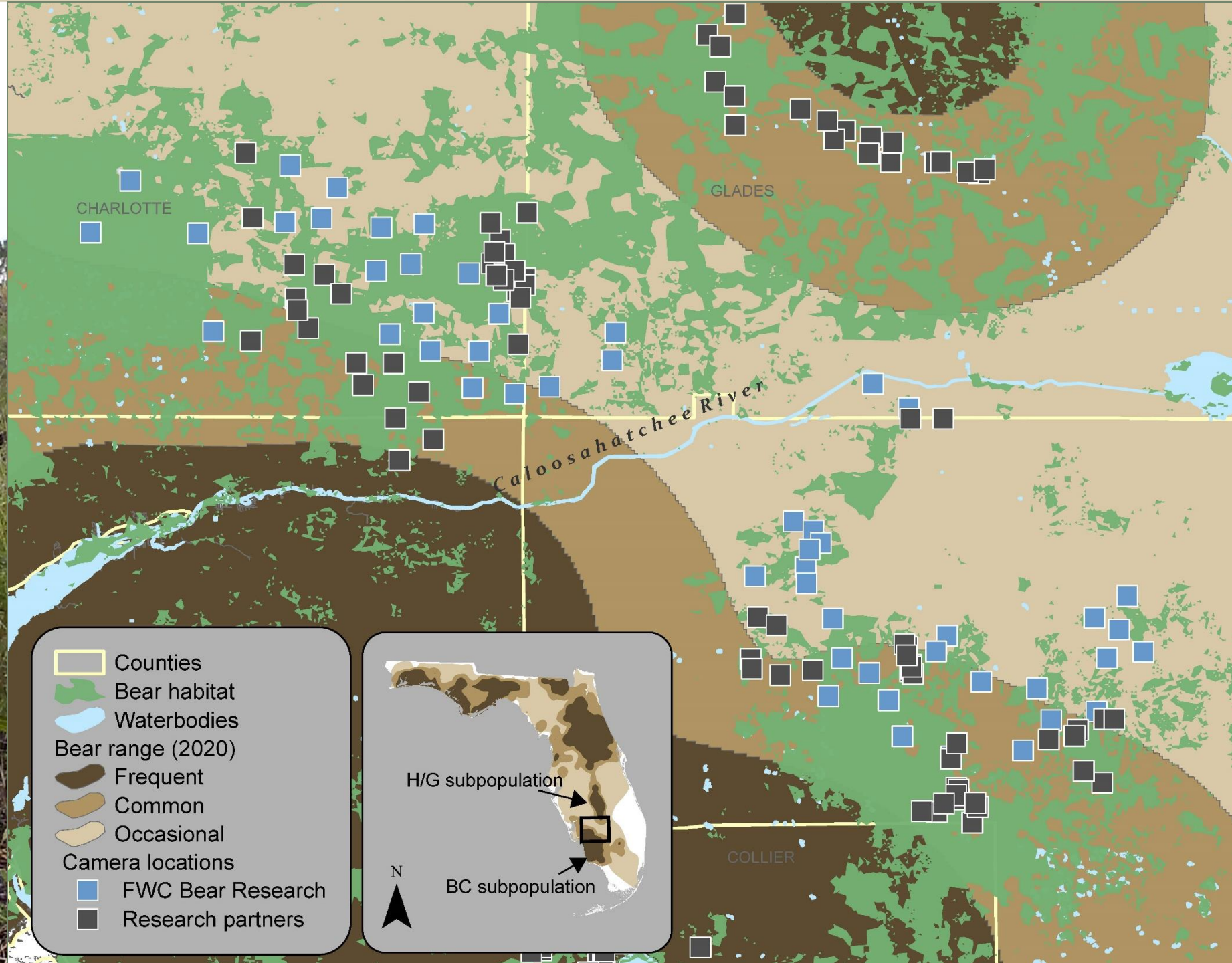
Big Cypress Cubs

2022 and 2023

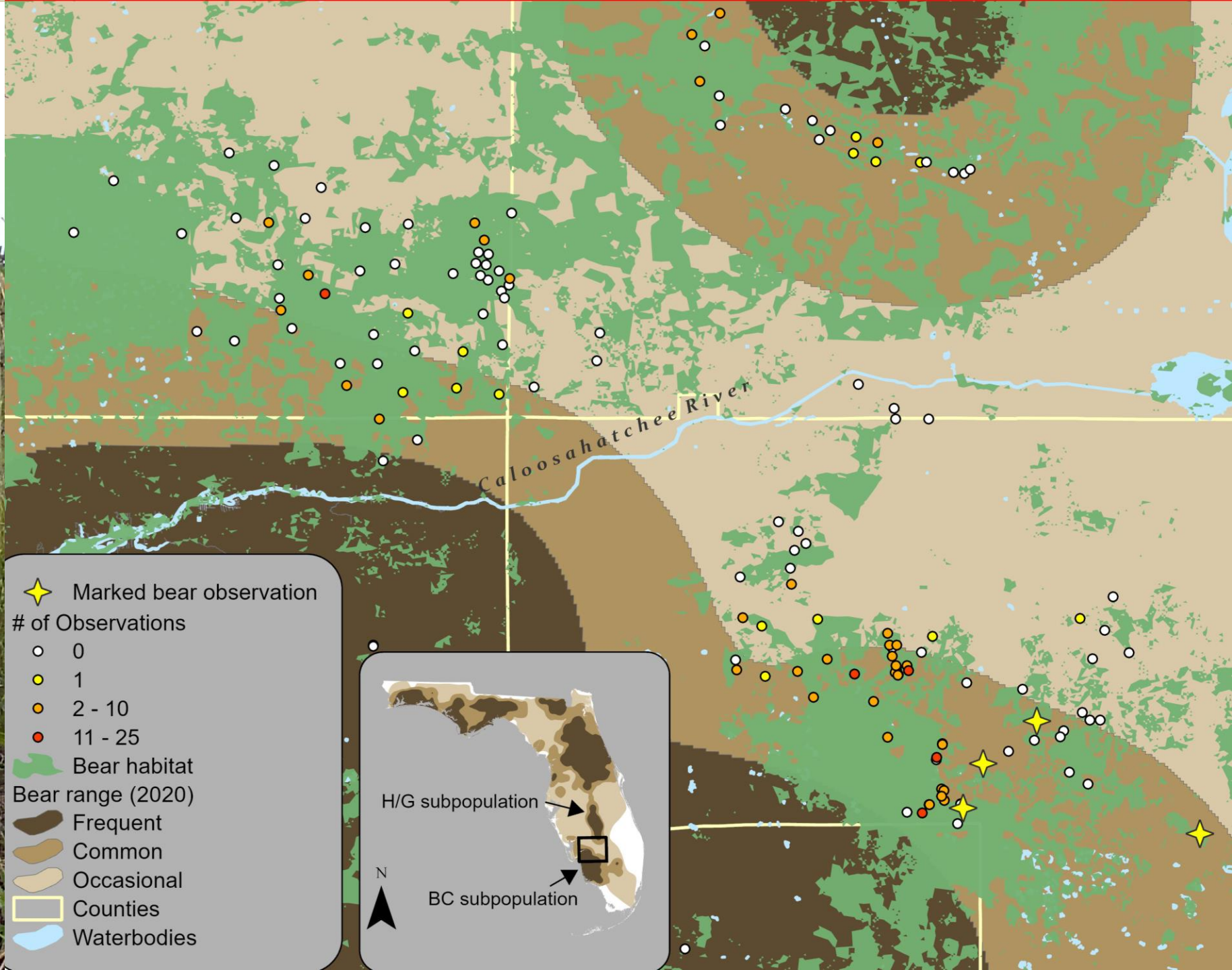
- 15 dens visited
- Mean litter size = 2.2
- 43 (2022) to 92 (2023) days
- 33 cubs (13 F: 20 M)
 - 5 died (3 litters)
 - 20 dropped
 - 7 lost



Big Cypress – Highlands/Glades Corridor Cameras



Big Cypress – Highlands/Glades Corridor Cameras



Big Cypress – Highlands/Glades Corridor Cameras

- ~1,500,000 images, >16,000 videos
- Reviewed >610,000 images & all videos
- Artificial intelligence to filter photos
- 16 volunteers ID species
- 605 bear images



Bear Abundance Estimates

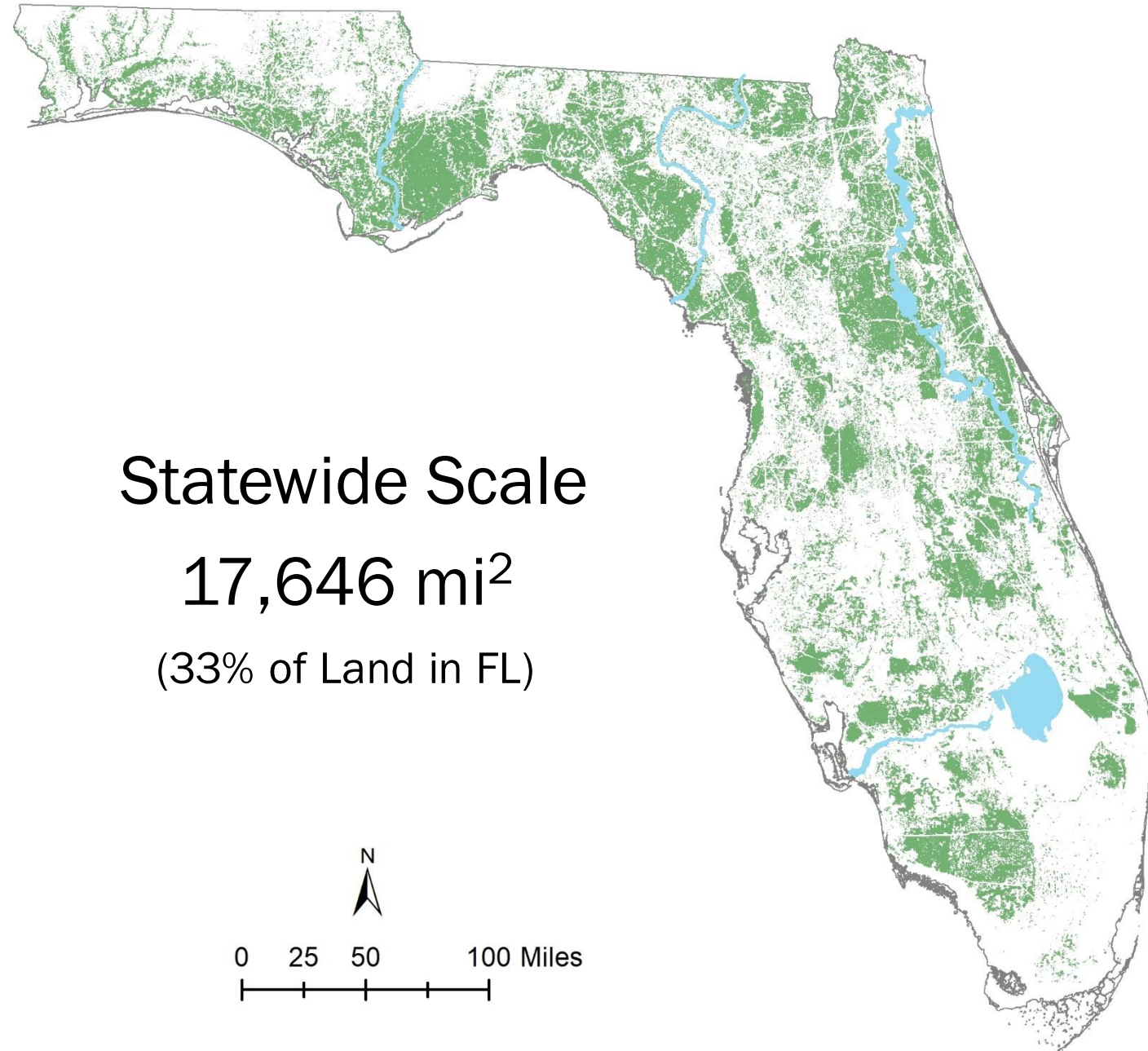
Bear Mgt Unit (Subpopulation)	Estimate #	Estimate Yr
Big Bend (Chassahowitzka)	30	2010
South Central (Highlands/Glades)	98	2012
North (Osceola)	496	2014
Central (Ocala)	1,200	2014
East Panhandle (Apalachicola)	1,060	2015
South (Big Cypress)	1,044	2015
West Panhandle (Eglin)	120	2015
STATEWIDE	4,046	

Bear Abundance Estimates

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Habitat Assessment

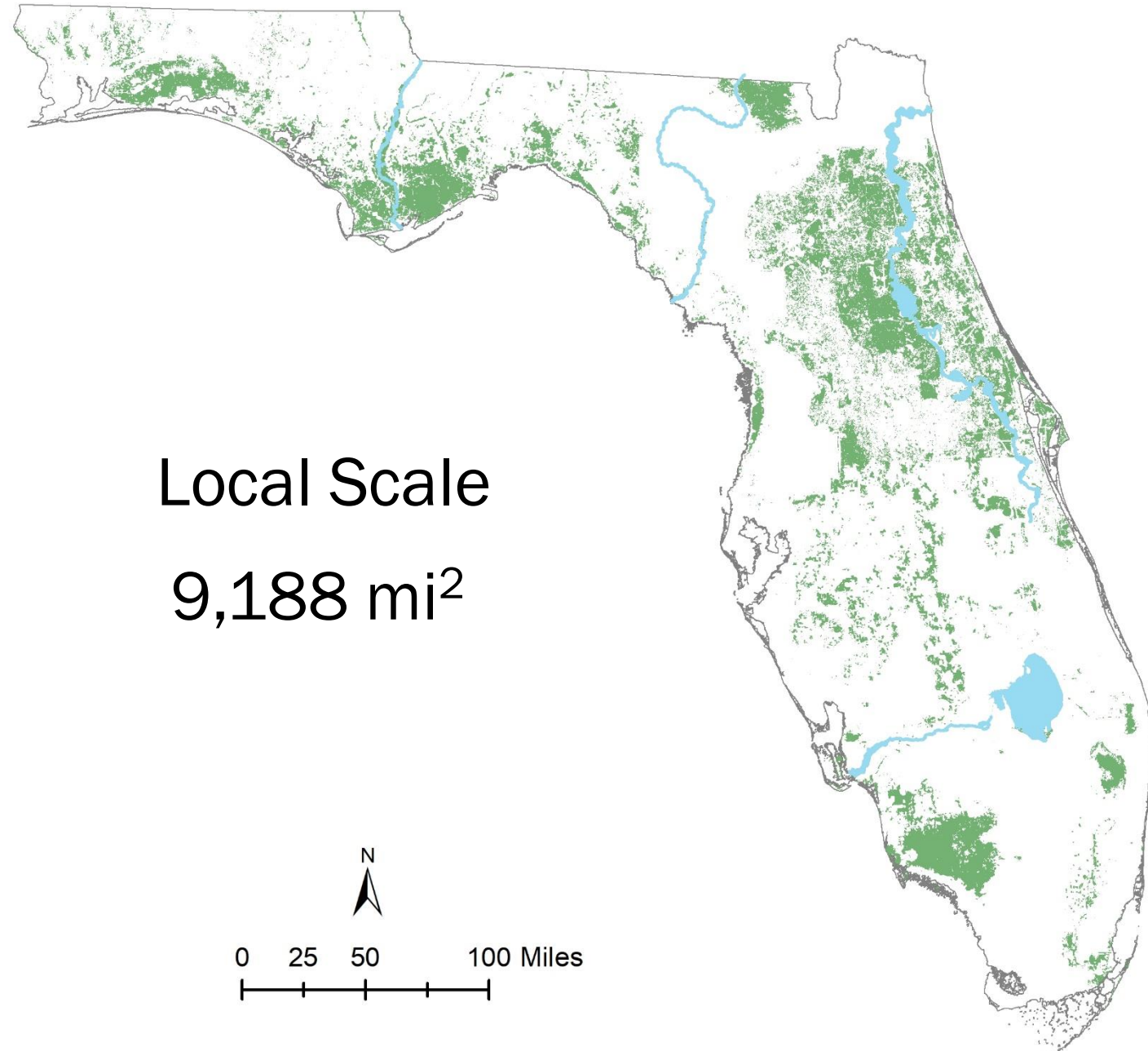
- Habitat quality models
- Telemetry locations
- Tested with hair snare hits
- Statewide and Local scales



<https://www.nature.com/articles/s41598-020-74716-3>

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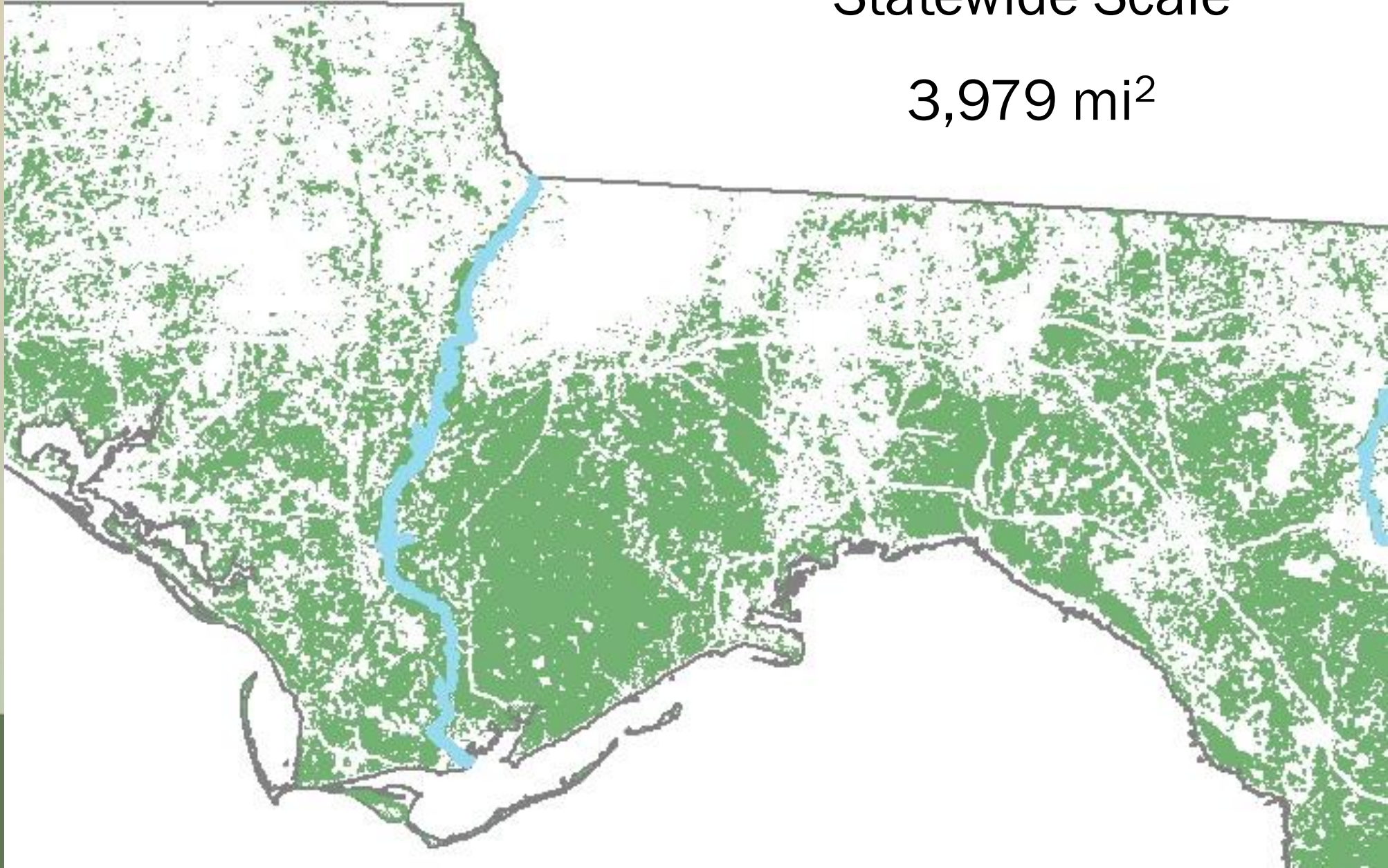


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East Panhandle

Statewide Scale

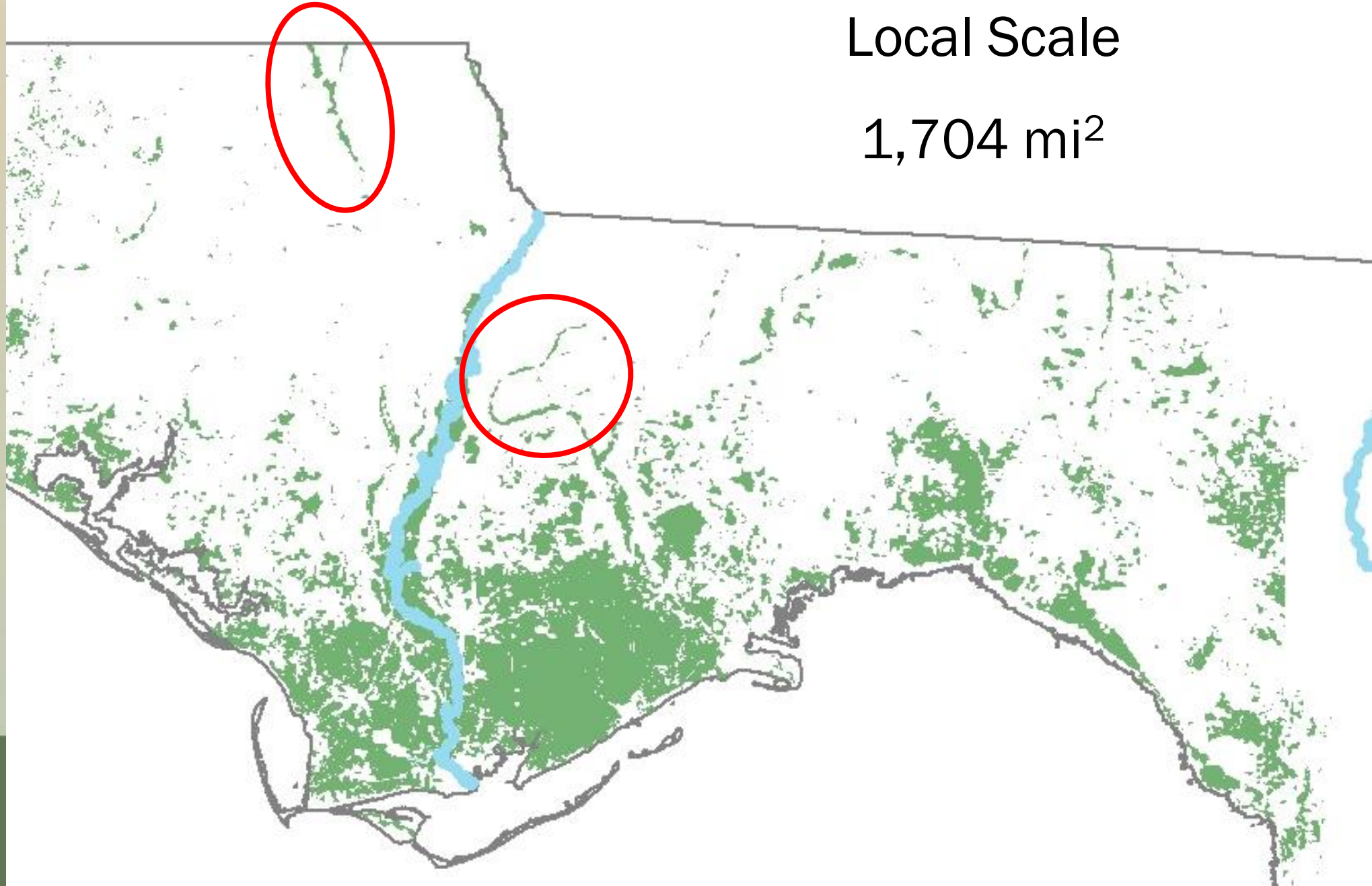
3,979 mi²



East Panhandle

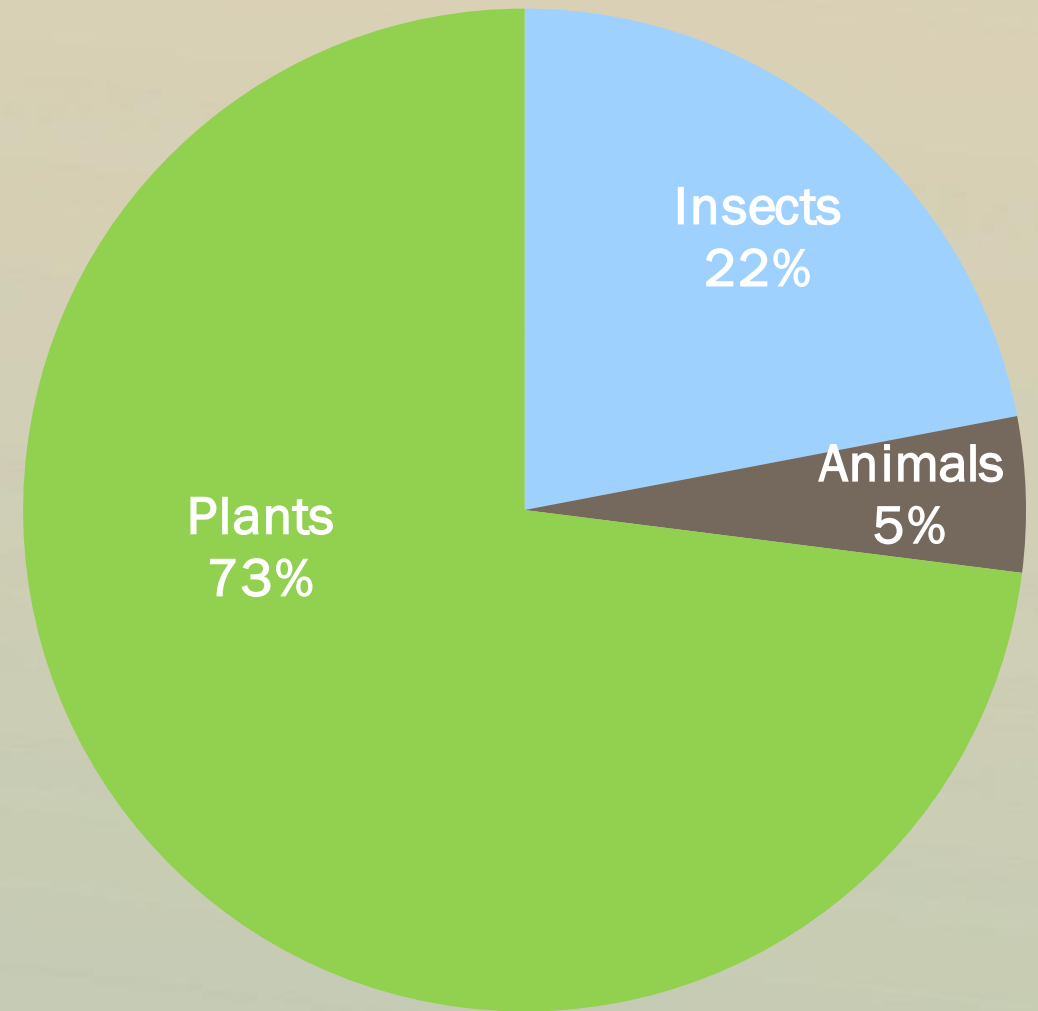
Local Scale

1,704 mi²



Bear Diet

- Stomach and/or scat content
- Stable isotopes in animal hair
 - High Nitrogen = animal proteins
 - High Carbon = corn or sugar cane
- Food conditioning can increase risk



Amount of Development in Home Ranges



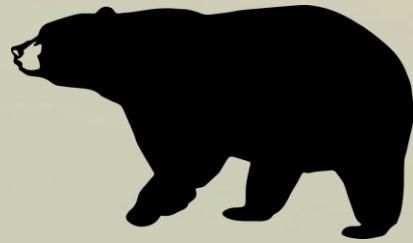
Wild



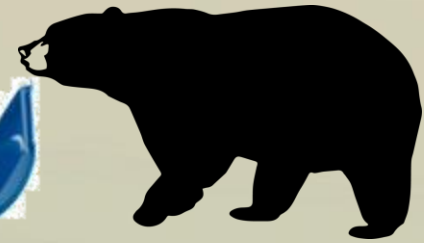
Developed



Bears Observed Feeding on Garbage



Management



Anthropogenic



OR



Relationship of Diet, Behavior and Movement

- Time spent in developed areas and feeding observations not 100%
- 79% of bear observed feeding were food conditioned
- 8% of bears with low % of roads and houses were food conditioned
- 60% of bears with high % of roads and houses in their home ranges were food conditioned

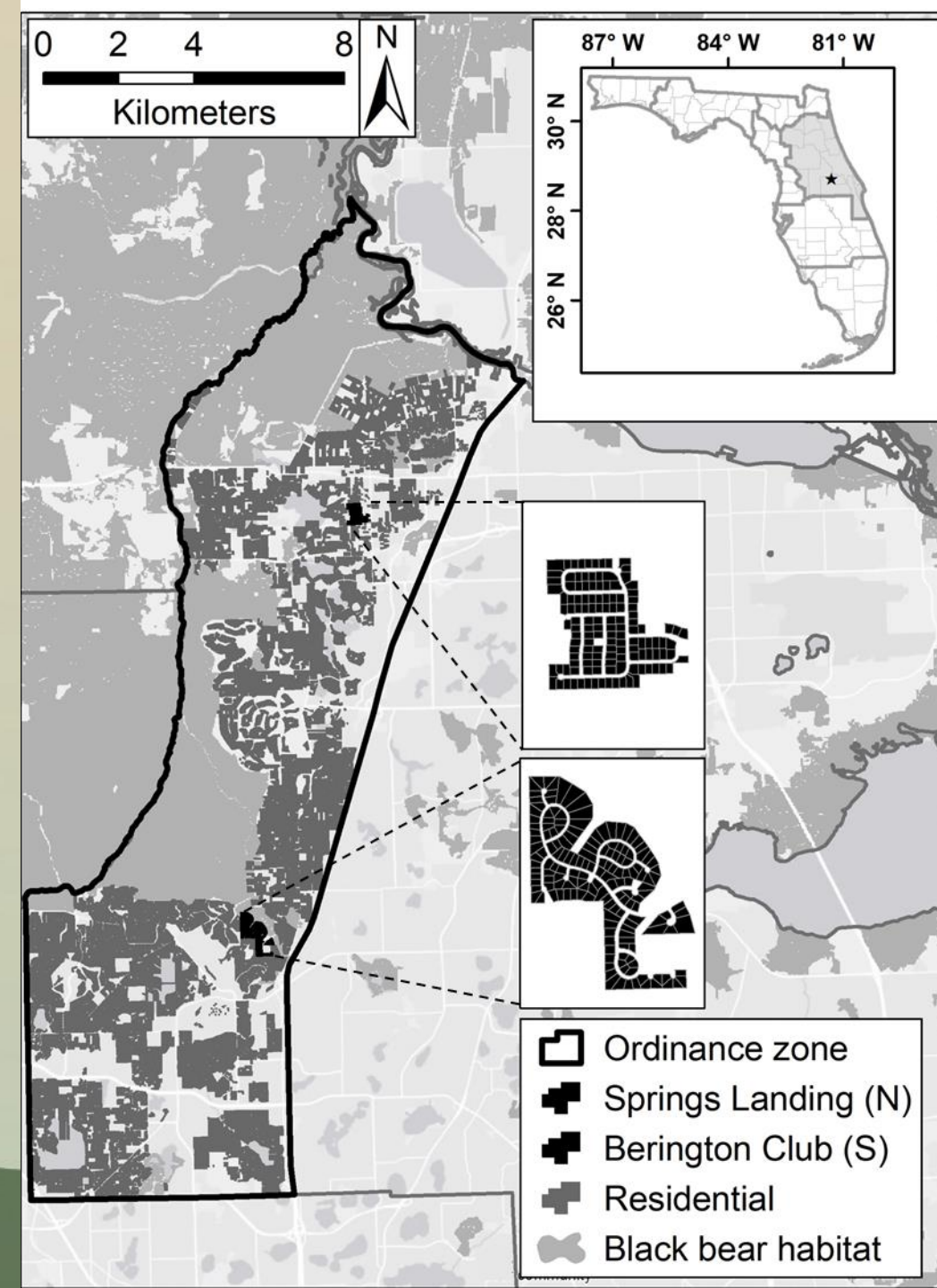


Human–Bear Interactions and Public Attitude Changes in an Urban Ordinance Zone

- Before vs after receiving bear-resistant-cans
- Seminole Co Urban Bear Mgt Ordinance Zone
- Springs Landing and Berrington Club
- Provisionally acceptance in February by Human-Wildlife Interactions journal



In Press: Human-Wildlife Interactions



Interactions with Bears Before vs After Securing Trash

Interactions	% Change After Securing Trash
ALL Interactions	- 66%
In Garbage	- 100%
Property damage	- 91%
In Building	- 77%
In Yard	- 70%
In Area	- 63%
In Pet feed	- 50%



Comfort Level Outdoors Before vs After Securing Trash

- 17% of respondents spent more amount of time outdoors
- 83% of respondents spent same amount of time outdoors

Variable	% Change After Securing Trash
Very Comfortable	+ 12%
Somewhat Comfortable	+ 15%
Not/Barely Comfortable	+ 85%



Quality of Life Before vs After Securing Trash

- 43% of respondents said their quality of life stayed the same
- 57% of respondents said their quality of life increased
 - 71% felt more secure because saw less bear activity
 - 12% appreciated not having to clean up garbage after bears





Bear Management

Statewide Bear Management Activities

Activities	2023	5 -Year Average	% Change
Calls	7,261	5,651	+ 29%
Trapping Events	292	221	+ 32%
Captures	184	136	+ 35%
Euthanized	19	28	- 32%
Killed	15	19	- 21%
Released / Rehab	150	89	+ 69%
Vehicle Collisions	299	264	+ 13%

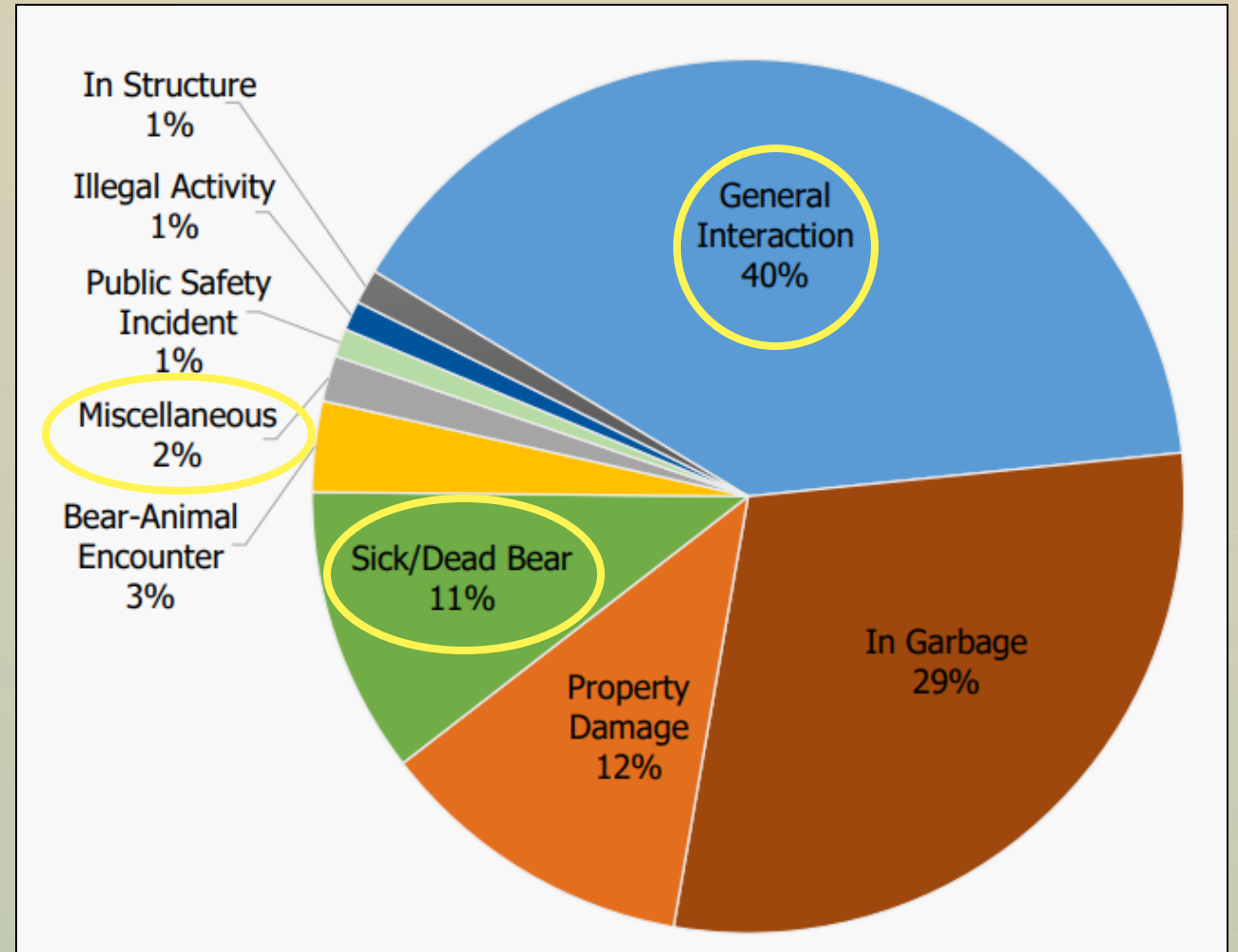


Calls by Category

Call Category	2023
Overall Calls	7,261
Core Complaints	2,826
Non-Core Complaints	4,435
% Core of All Calls	39%



Statewide Reasons for Calls 2003 - 2022 (n = 89,264)



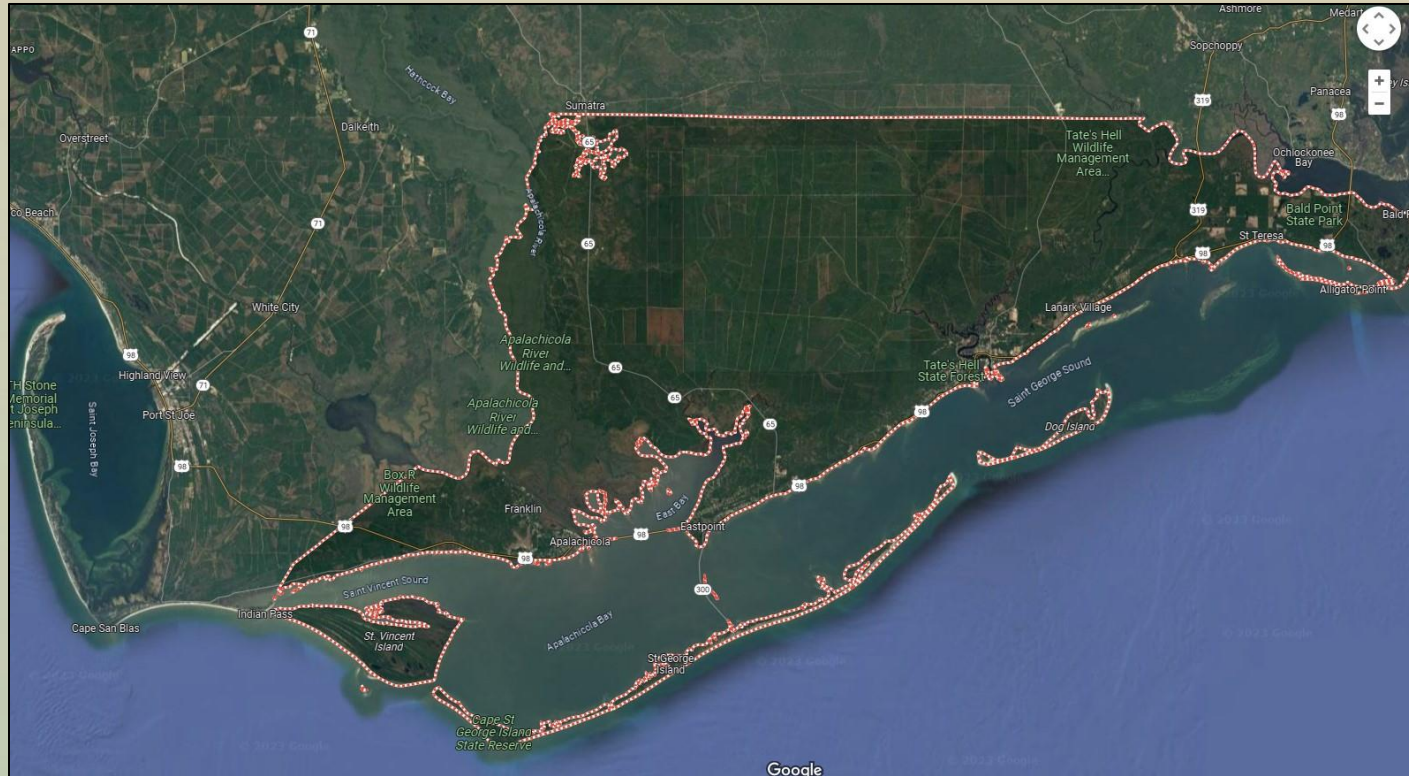
2023	West Panhandle	East Panhandle	North	Big Bend	Central	South Central	South	State- wide
Calls	1,414	1,426	95	93	3,195	324	714	7,261
LE Notices	27	24	0	0	41	2	0	94
Trapping Events	33	100	3	1	115	10	30	292
Captures	20	54	2	1	91	2	14	184
Euthanized	1	1	2	0	13	0	2	19
Killed	4	3	0	0	4	0	4	15
Released / Rehab	15	50	0	1	74	2	8	150
Vehicle Collision Mortalities	26	89	9	1	152	9	13	299

Cost-Share Funding For Bear-Resistant Equipment

- Almost \$2.2 million to local governments in 16 counties
 - > 13,000 cans
 - > 11,000 hardware sets
 - 382 dumpsters
 - 114 enclosures
 - 14 food lockers
 - 5 electric fences
- >\$1.4 million from State, >\$780,000 from CWT
 - 69% to local governments with ordinances



Franklin County



SPARTAN BMP65 M 09/28/2023 09:17:48 073°F P5



Any Questions?

