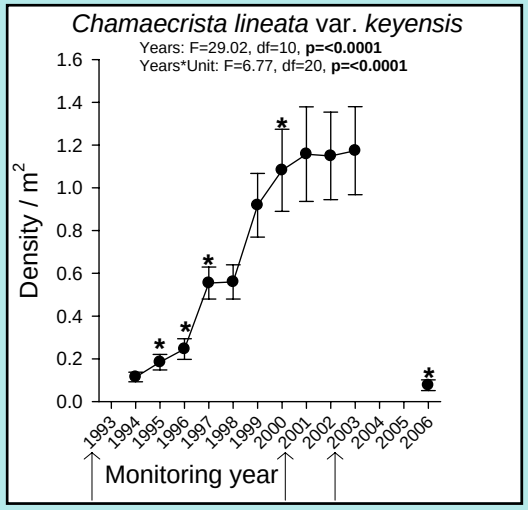
Prescribed Fire, Mechanical Pre-Fire Fuel Treatment and Hurricane Wilma's Storm Surge - Long Term Vegetation Community Monitoring at Terrestris Preserve

Big Pine Key, Florida



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The Nature Conservancy

SAVING THE LAST GREAT PLACES ON EARTH

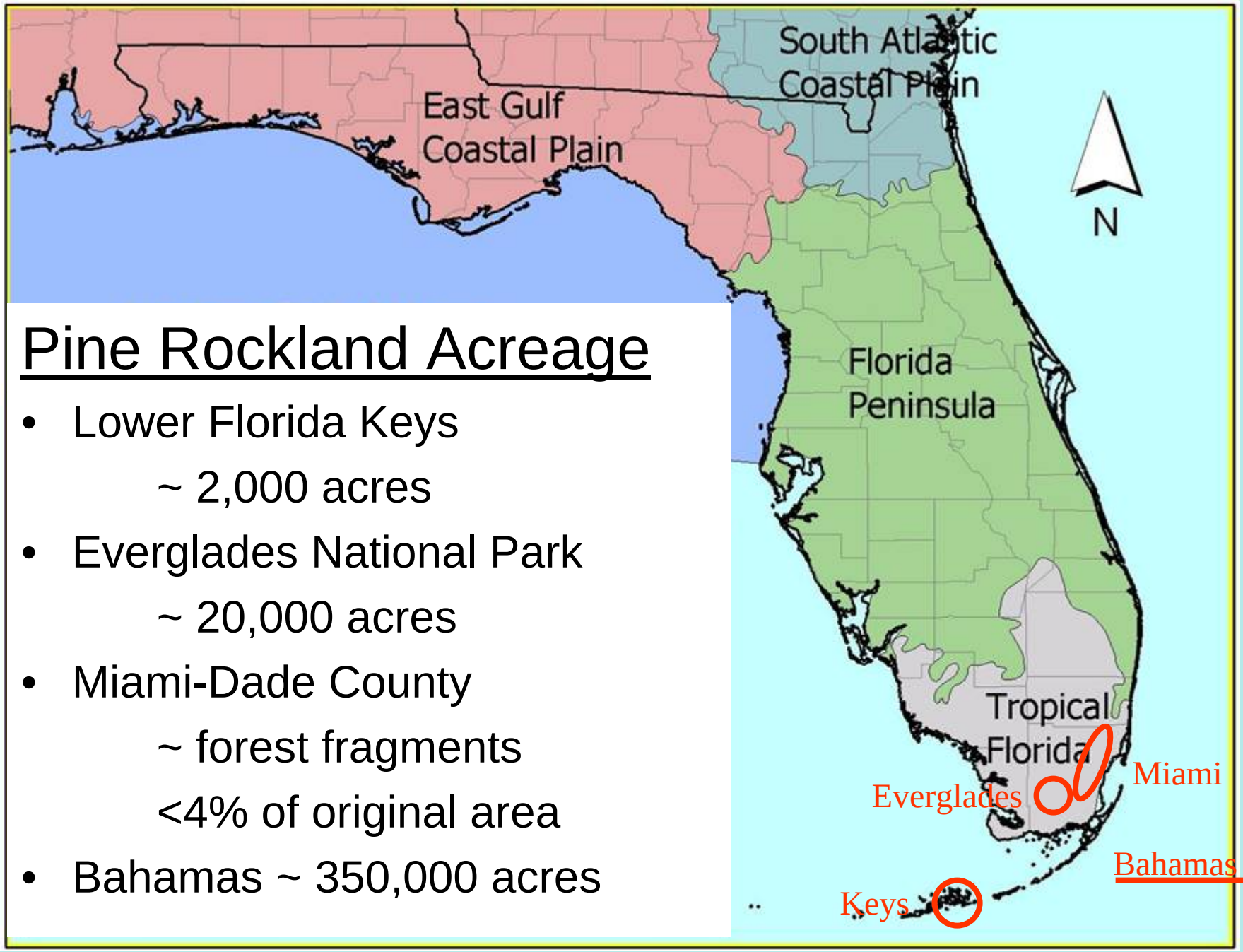
Pine Rockland

Fire Dependent

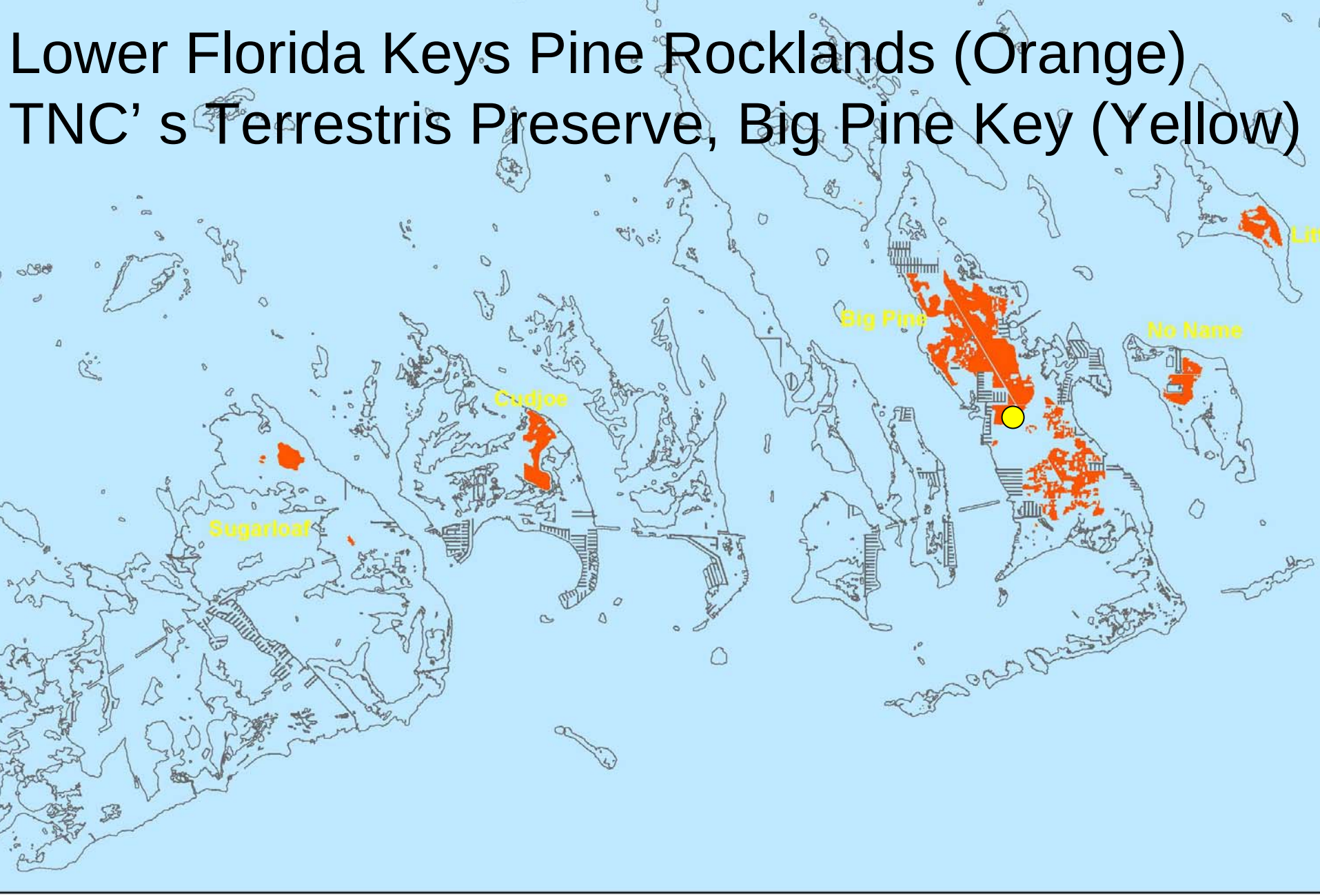
High Endemism

Pine Rockland Acreage

- Lower Florida Keys
  ~ 2,000 acres
- Everglades National Park
  ~ 20,000 acres
- Miami-Dade County
  ~ forest fragments
  <4% of original area
- Bahamas ~ 350,000 acres



Lower Florida Keys Pine Rocklands (Orange)
TNC' s Terrestris Preserve, Big Pine Key (Yellow)

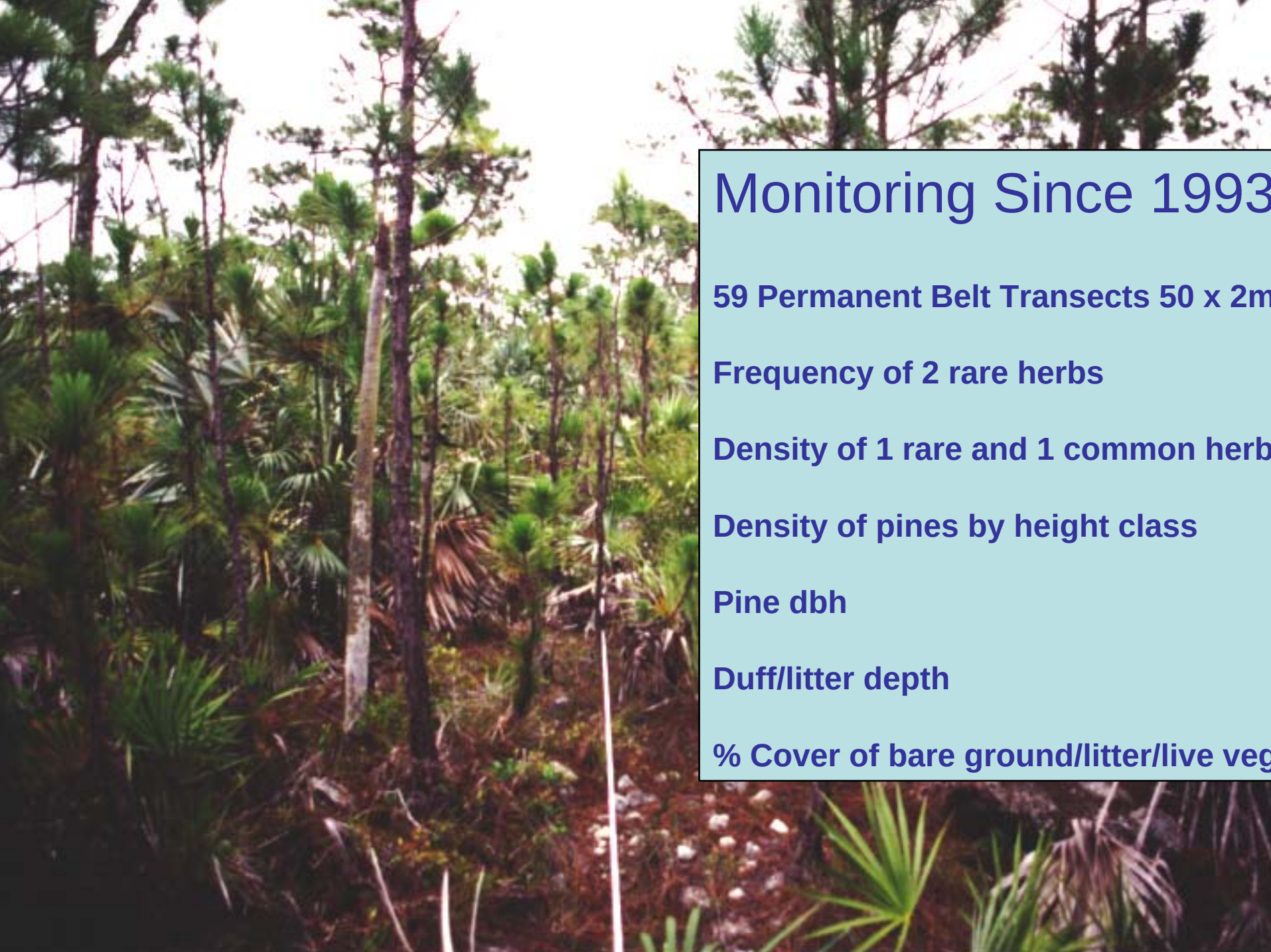


Map by Keith A. Bradley
The Institute for Regional Conservati
February 2006

Terrestris Preserve on Big Pine Key (Yellow)

Prescribed Fire and Mechanical Pre-Fire Fuel Treatment

Terrestris Preserve
Big Pine Key, Florida



Monitoring Since 1993

59 Permanent Belt Transects 50 x 2m

Frequency of 2 rare herbs

Density of 1 rare and 1 common herb

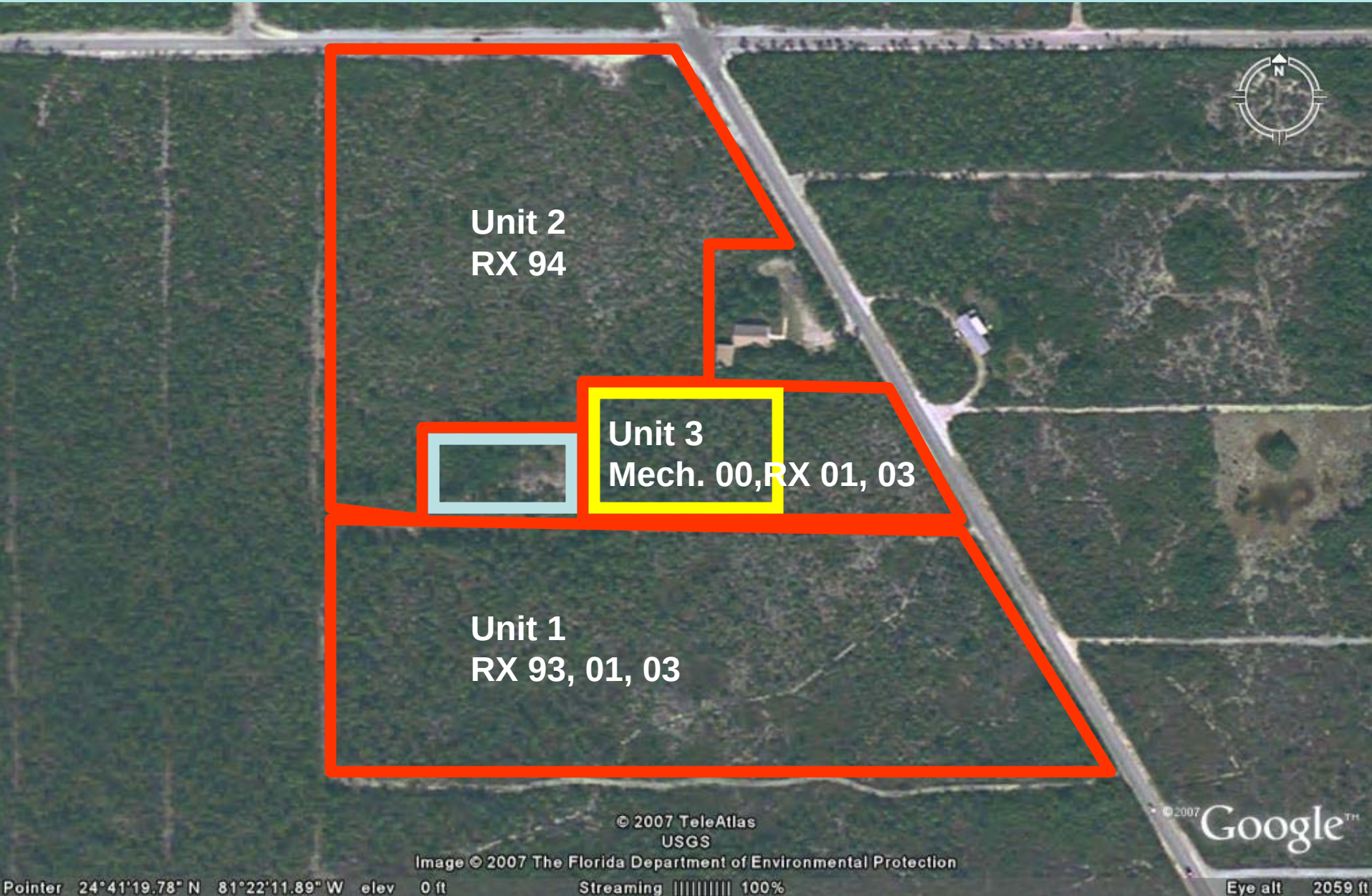
Density of pines by height class

Pine dbh

Duff/litter depth

% Cover of bare ground/litter/live veg

Rx Fire and Mech.Treatment Years by Burn Unit



Rx Fire

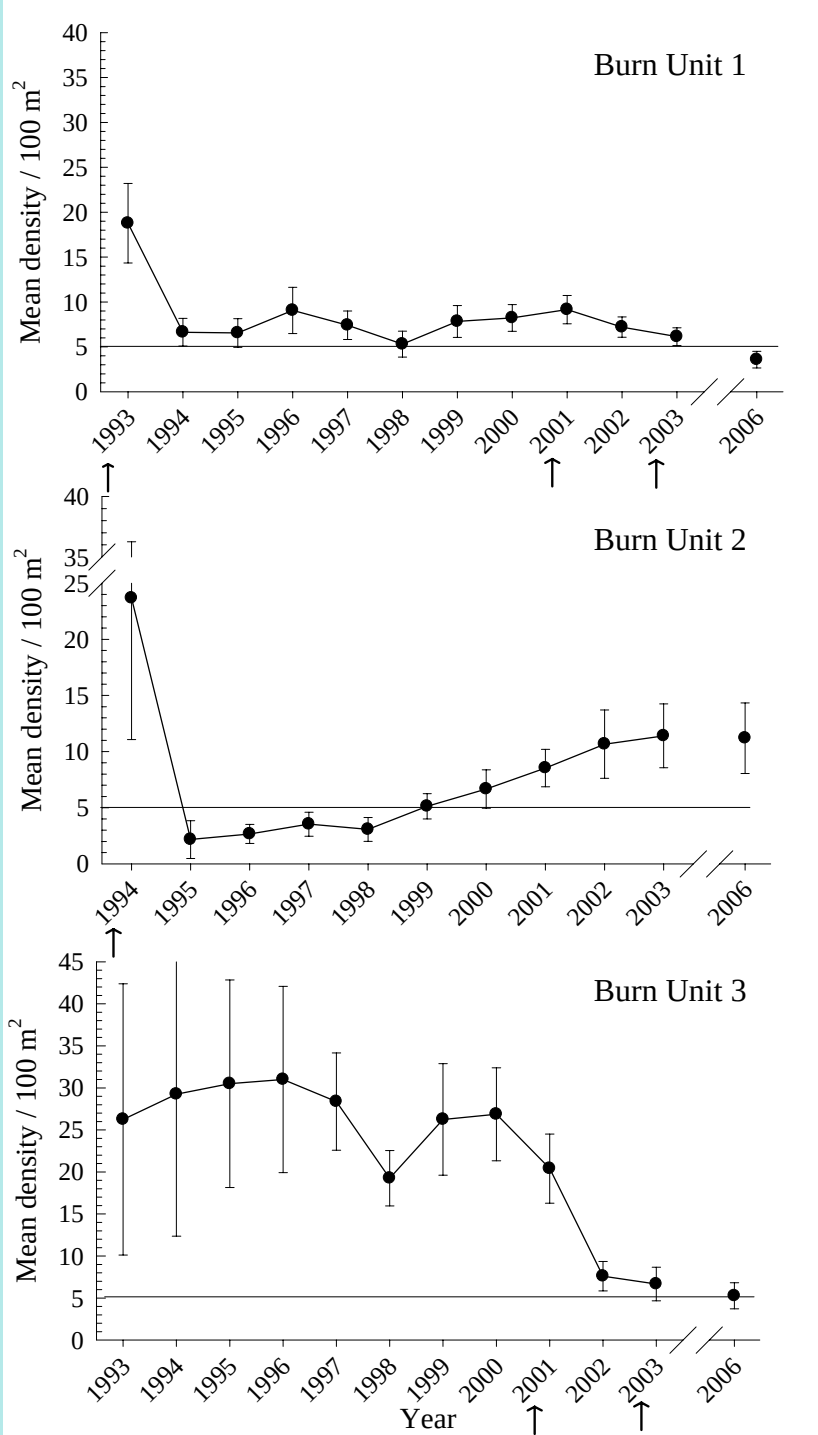
Mechanical Pre-fire Fuel Treatment

Storm surge from Hurricane Wilma in Oct. ‘05

Percent change in *Pinus elliottii* var. *densa* density in three size classes relative to pre-burn values

	Unit 1			Unit 2			Unit 3		
PB	<0.3 m	0.3-1.4 m	>1.4 m	<0.3 m	0.3-1.4 m	>1.4 m	<0.3 m	0.3-1.4 m	>1.4 m
1	-86	-60	-54	-74	-100	-90	-42	-94	-57
2	-84	-58	-57	-87	-100	-82	-80	-95	-61
3	-44	-64	-53	-58	-100	-84	-100	-97	-67
4	-30	-39	-7	-72	-98	-84			
5	-74	-85	-67	-11	-98	-94			
6	-44	-84	-60	+10	-89	-87			
7	-56	-77	-51	+55	-84	-89			
8	-34	-81	-53	+69	-69	-85			
9				+50	-57	-81			
1	-21	-64	-17						
2	-63	-43	-9						
3	-88	-71	-39						

Change over time in mean *Pinus elliottii* var. *densa* density per 100 m2 (± 90% CI) for all three size classes combined in three burn units. Arrows indicate burn year.



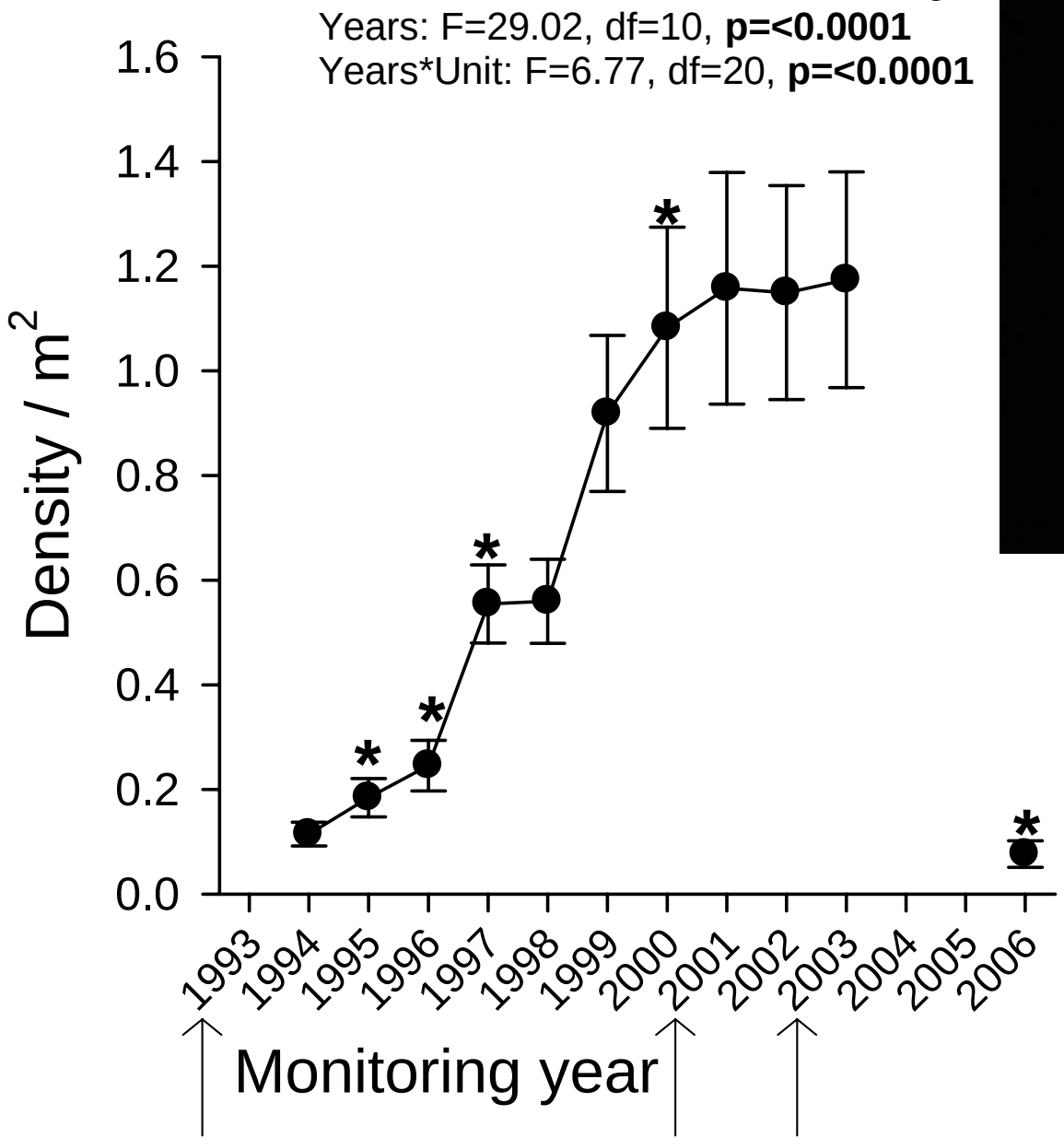
Percent change in understory percent cover relative to pre-burn values. PB = years post-burn, BG = bare ground, LIT = litter, and VEG = vegetation.

Unit 1				Unit 2				Unit 3			
PB	BG	LIT	VEG	PB	BG	LIT	VEG	PB	BG	LIT	VEG
1	+196	-58	-14	1	+427	-51	-59	1	+159	-30	-36
2	+152	-50	-11	2	+416	-46	-29	2	+99	-26	-7
3	+72	-41	+6	3	+313	-52	-46	3	+48	-9	-31
4	-9.0	-1	+2	4	+305	-34	-18				
5	+84	-22	+25	5	+249	-39	-11				
6	+57	-14	-30	6	+271	-34	+6				
7	+62	-5	-42	7	+325	-31	+6				
8	+81	-0.7	-18	8	+263	-31	+4				
1	+32	-24	+0.3	9	+249	-17	-4				
2	+42	-16	+10								
3	+5	-13	-29								

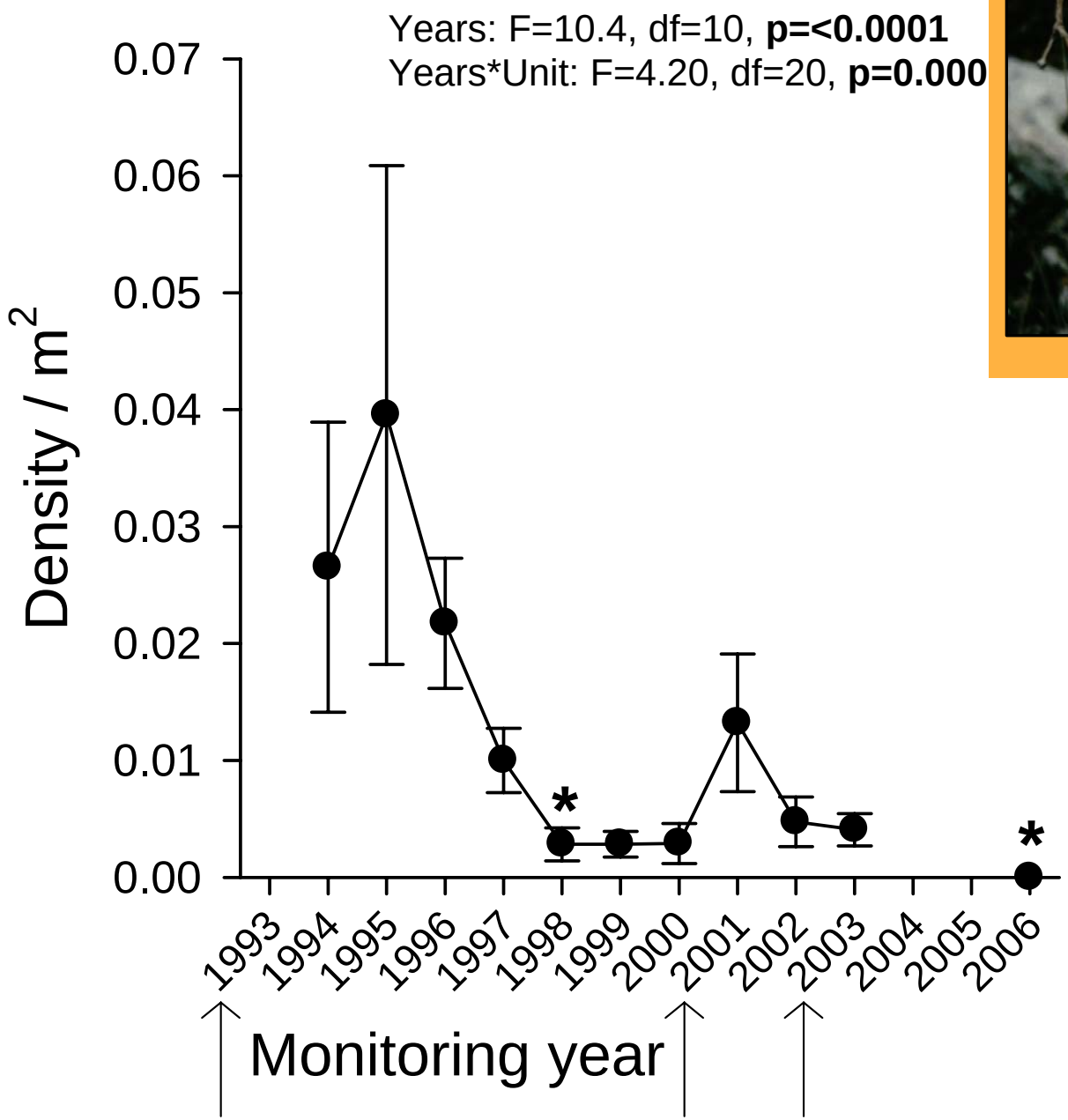
Percent change in litter depth relative to pre-burn values.
PB = years post-burn

PB	Unit 1	Unit 2	Unit 3
1	-72	-81	-80
2	-41	-86	-74
3	-50	-82	-61
4	-51	-76	
5	-32	-27	
6	-14	-50	
7	+3	-42	
8	+28	-59	
9		-9	
1	-48		
2	-16		
3	-32		

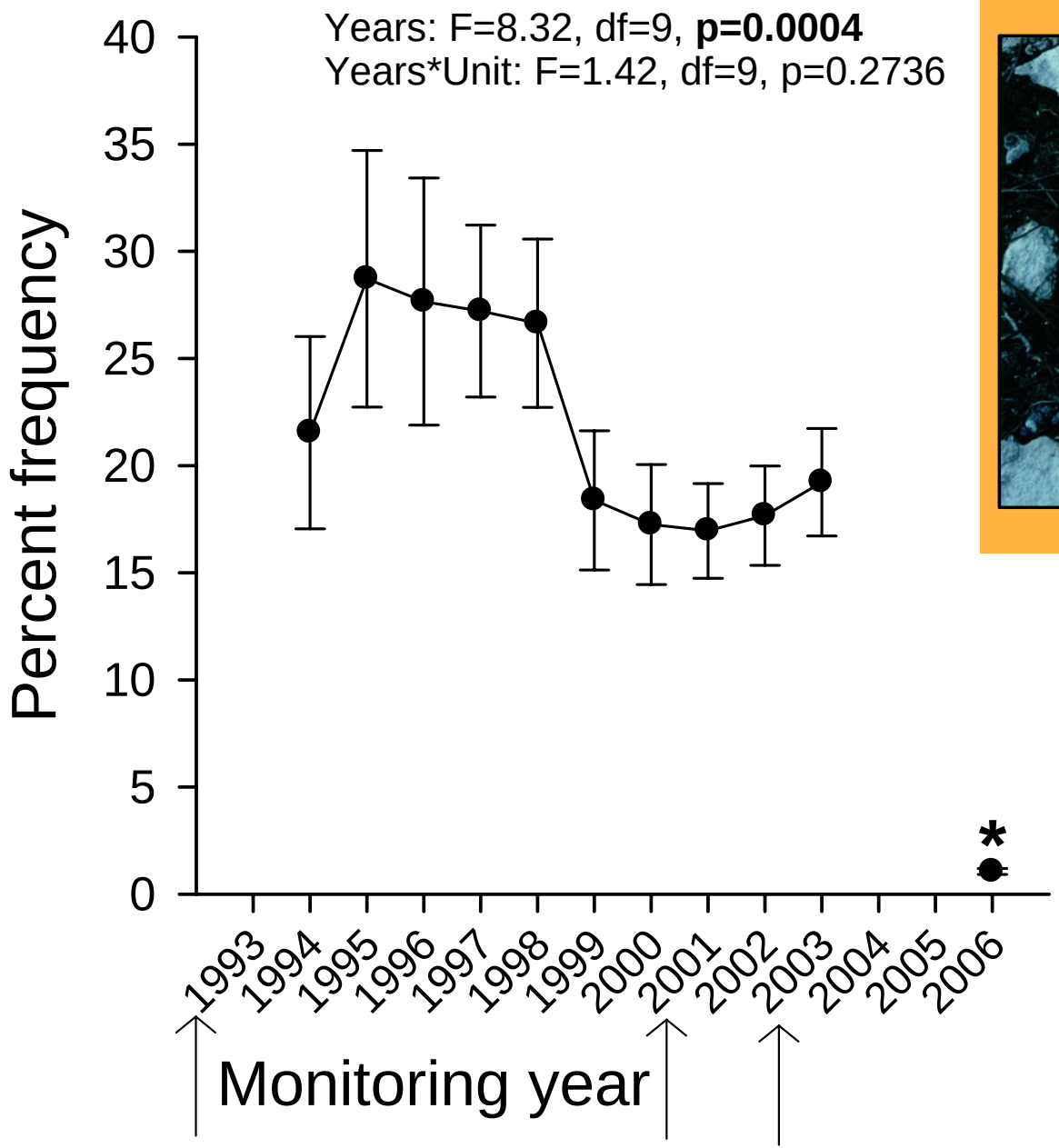
Chamaecrista lineata var. *keyensis*



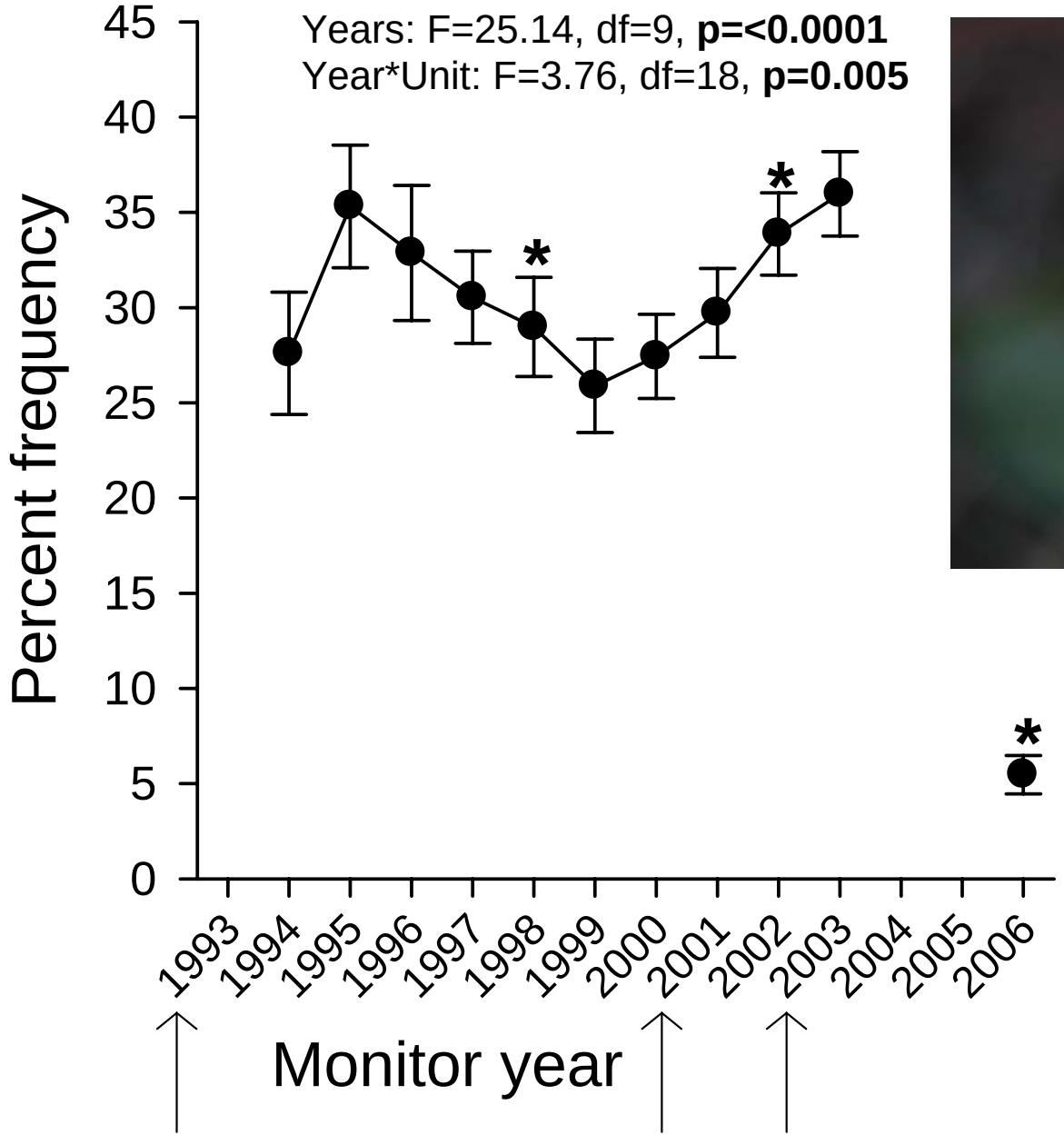
Linum arenicola



Chamaesyce deltoidea subsp. *serpyllum*



Dichromena floridensis



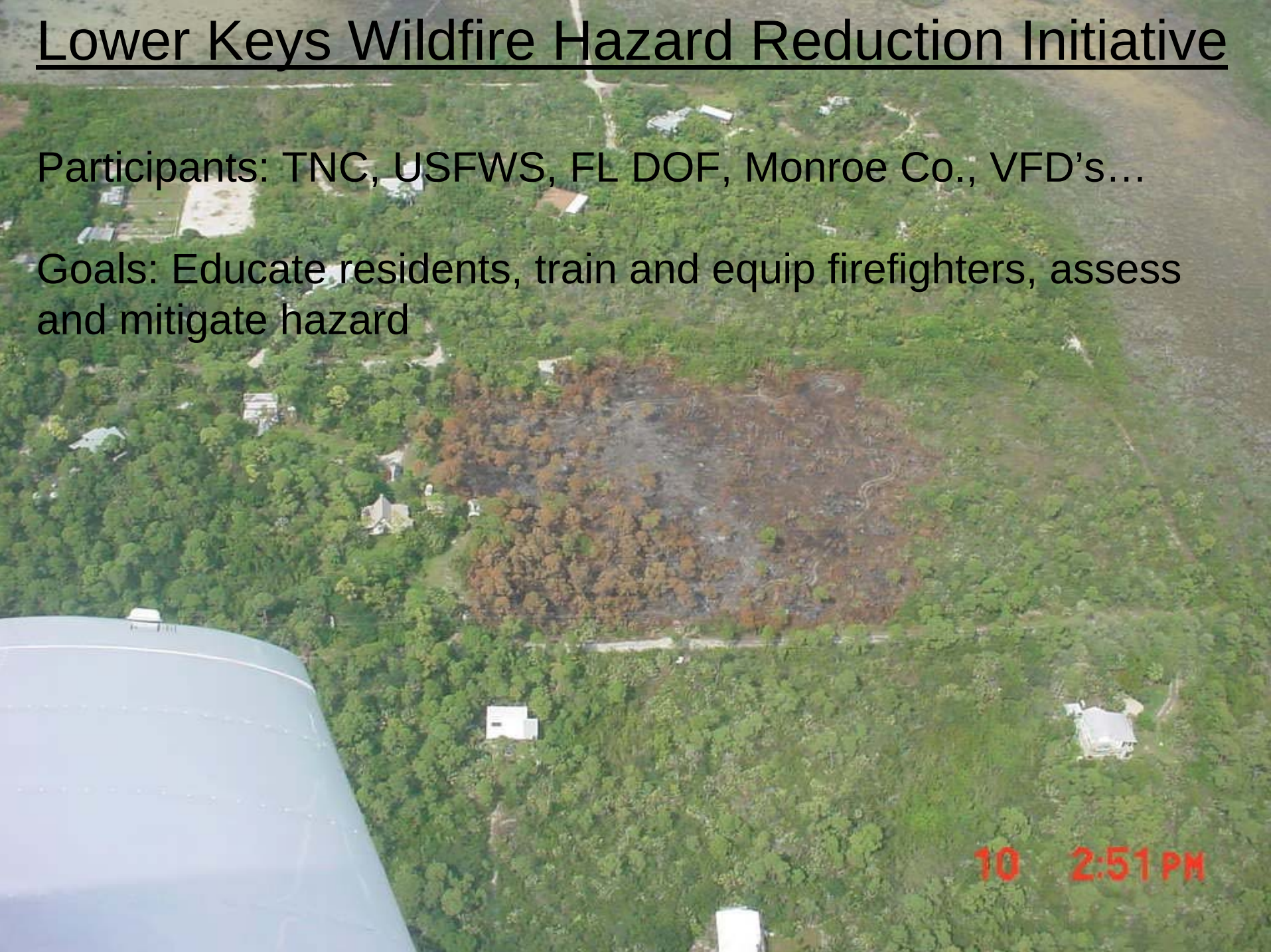
National Key Deer Refuge (USFWS)

Homes at Risk in the Wildland Urban Interface Complicate Fire Management

Lower Keys Wildfire Hazard Reduction Initiative

Participants: TNC, USFWS, FL DOF, Monroe Co., VFD's…

Goals: Educate residents, train and equip firefighters, assess and mitigate hazard



Pine Rockland Working Group

The mission of the Pine Rockland Working Group (PRWG) is;

"to maintain and restore the pine rockland natural community, associated species, fire and other natural processes upon which they all depend."

Vision Statement; "The members of the PRWG envision a future in which the pine rocklands of today are all still with us at the turn of the next century, but in better condition, and with a constituency of supporters in South Florida and the Bahamas to help keep them that way into the future.

PRWG Goals

- Enhance public outreach
- Coordinate fire effects and biological monitoring efforts across sites
- Foster research projects
- Enhance cooperation and resource sharing
- Host regular conferences

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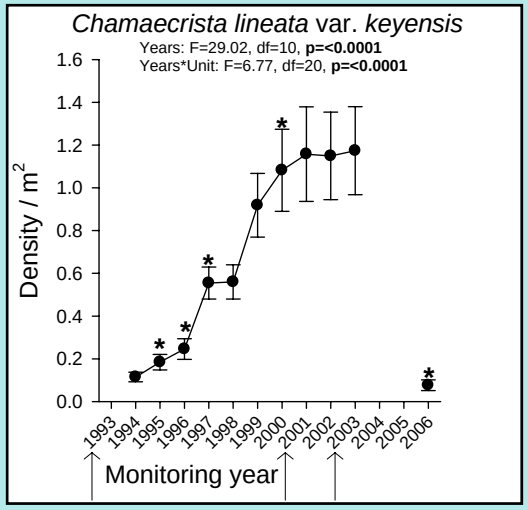

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