Restoring Fire to Conserve SGCN Wildlife in an Urban Pine Barrens Preserve

Conservation & Management of Pyrogenic Wildlife in the Northeast
16 April, 2019

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Pine Barrens of the Northeastern US

-Globally rare, isolated ecosystems with unique species assemblages

-Important habitat for early-successional wildlife species, including shrubland birds

- > 50% loss since the 1960s

-Maintained almost exclusively through active management

The Albany Pine Bush

ALBANY PINE BUSH PRESERVE COMMISSION

Audubon IMPORTANT BIRD AREA

New York State Bird Conservation Area

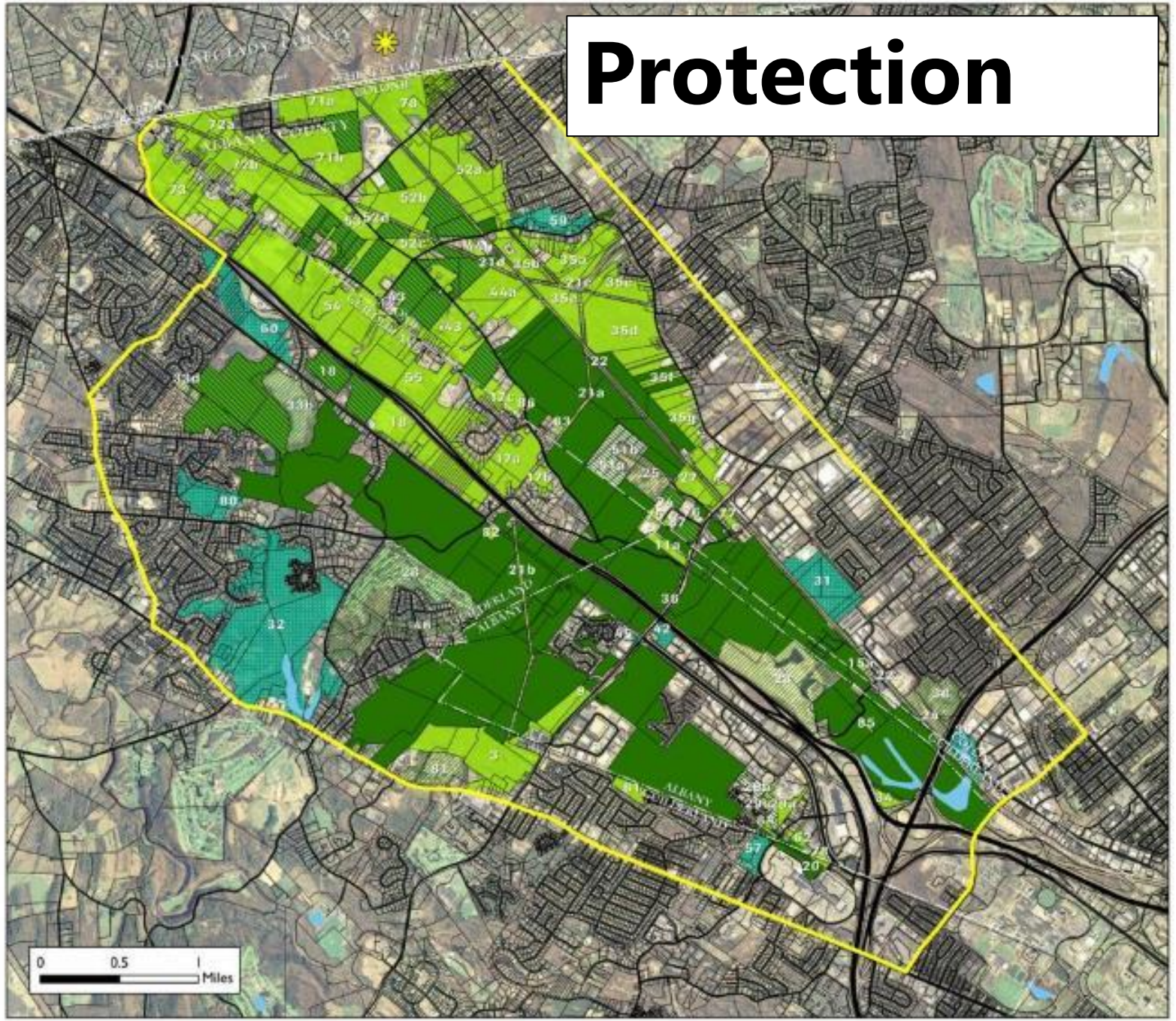
National Natural Landmarks Program
www.nature.nps.gov/nnl

- **Pitch Pine Scrub Oak Barrens (S1/G2)**
- **Karner blue butterfly type locality**

Wildlife Management In the APB

- US Fish and Wildlife Service Kbb Recovery Plan
- 2016 NYS Wildlife Action Plan (<u>76/366 SGCN</u>)
  - 44 Birds
  - 14 insects
  - 8 Reptiles
  - 3 Amphibians
  - 4 Mammals (Bats)
  - 3 Fish

Protection



Management Plan For The Albany Pine Bush Preserve

Woodlawn Preserve

Albany Pine Bush Study Area

Vision for Protection

- **Recommended Full Protection**
- **Recommended Partial Protection**
- **Recommended Open Space**
- **Protection Agreement/Easement**
- **Protected Lands**
- **Lands Protected since 2002**

Sources:

Imagery - 2007, 1 foot Natural Color Orthoimagery, New York State Office of Cyber Security & Critical Infrastructure Coordination.

Vision Map - 2002, Albany Pine Bush Preserve

Protected Lands - 2009, The Nature Conservancy

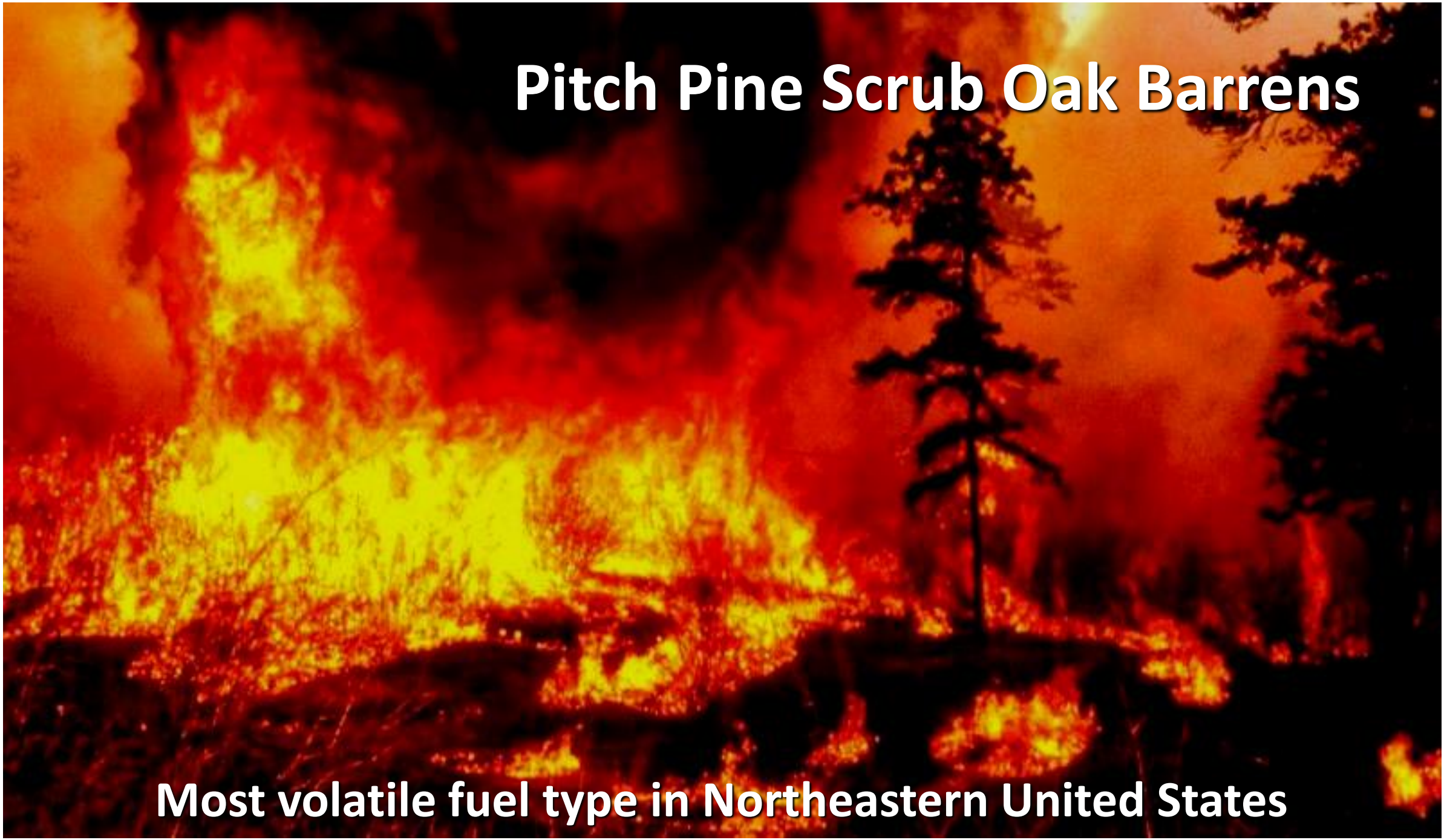
Prepared For: Albany Pine Bush Preserve Commission

Prepared By: The Nature Conservancy

N W E S

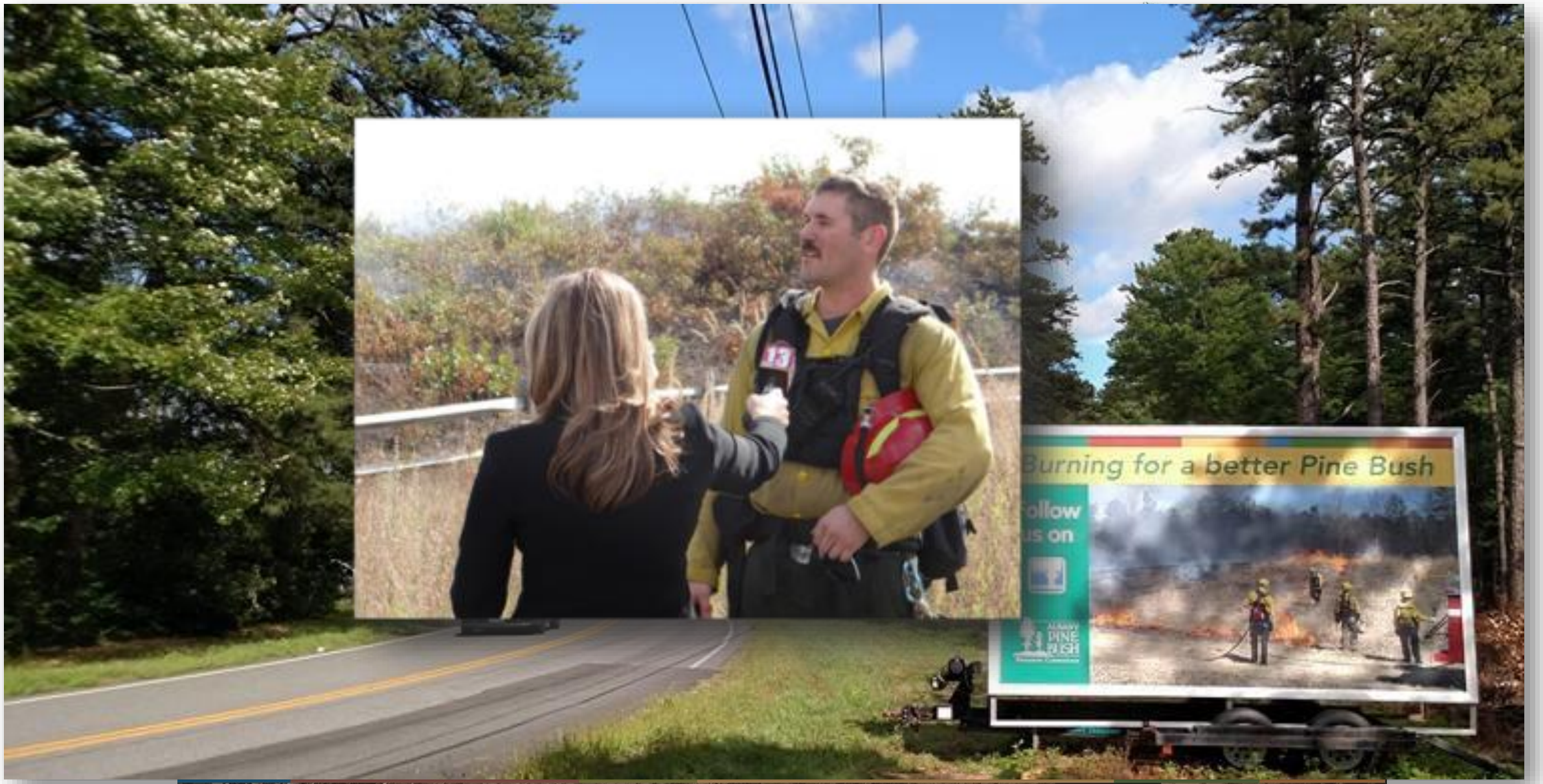
September 2010

Figure 10:
2010 Protection Priorities/
Preserve Vision

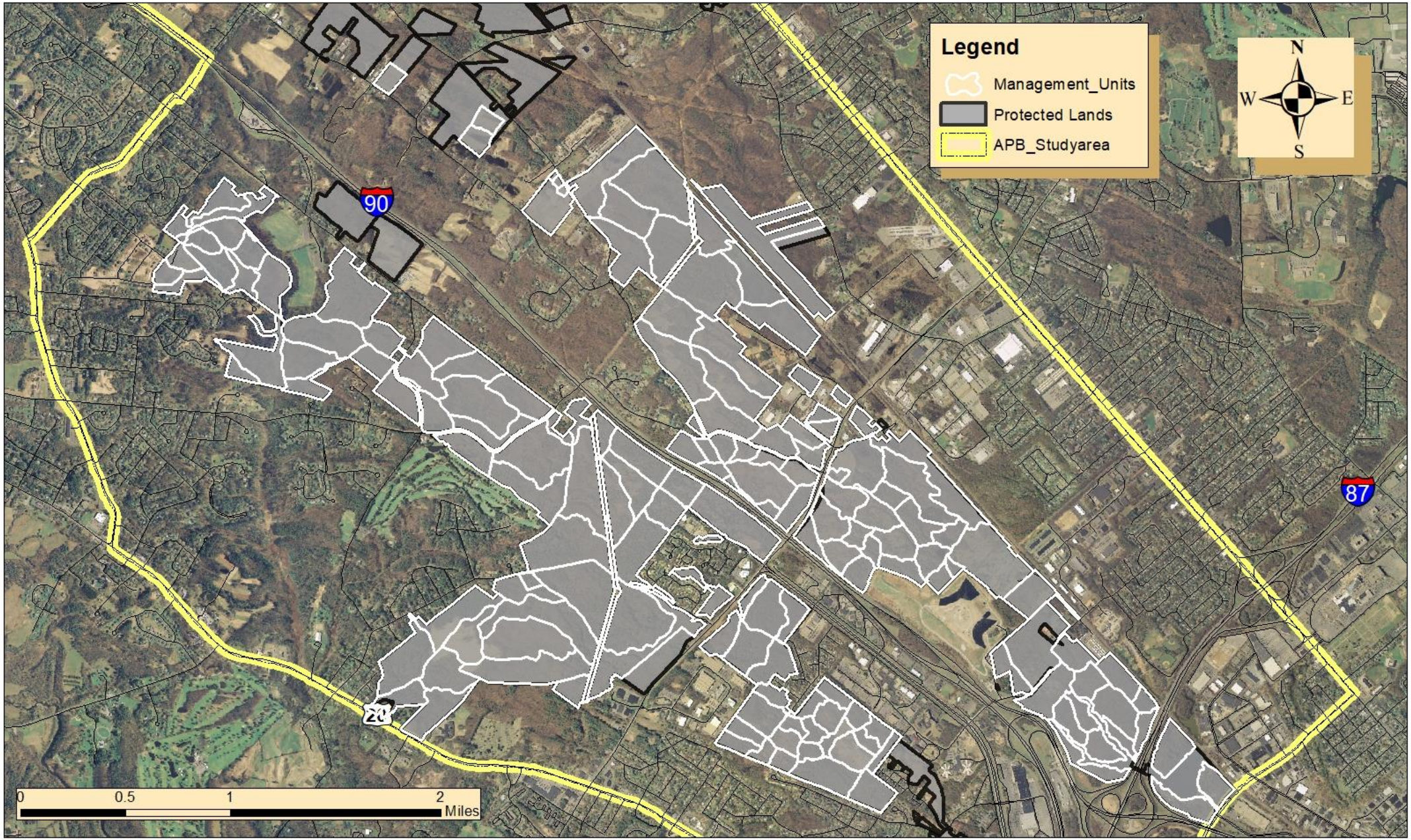

Pitch Pine Scrub Oak Barrens
Most volatile fuel type in Northeastern United States

Wildland Urban Interface

Communications



Management Units in Albany Pine Bush Preserve (NY)



Prescription Parameters

6. FUEL AND WEATHER PRESCRIPTION:

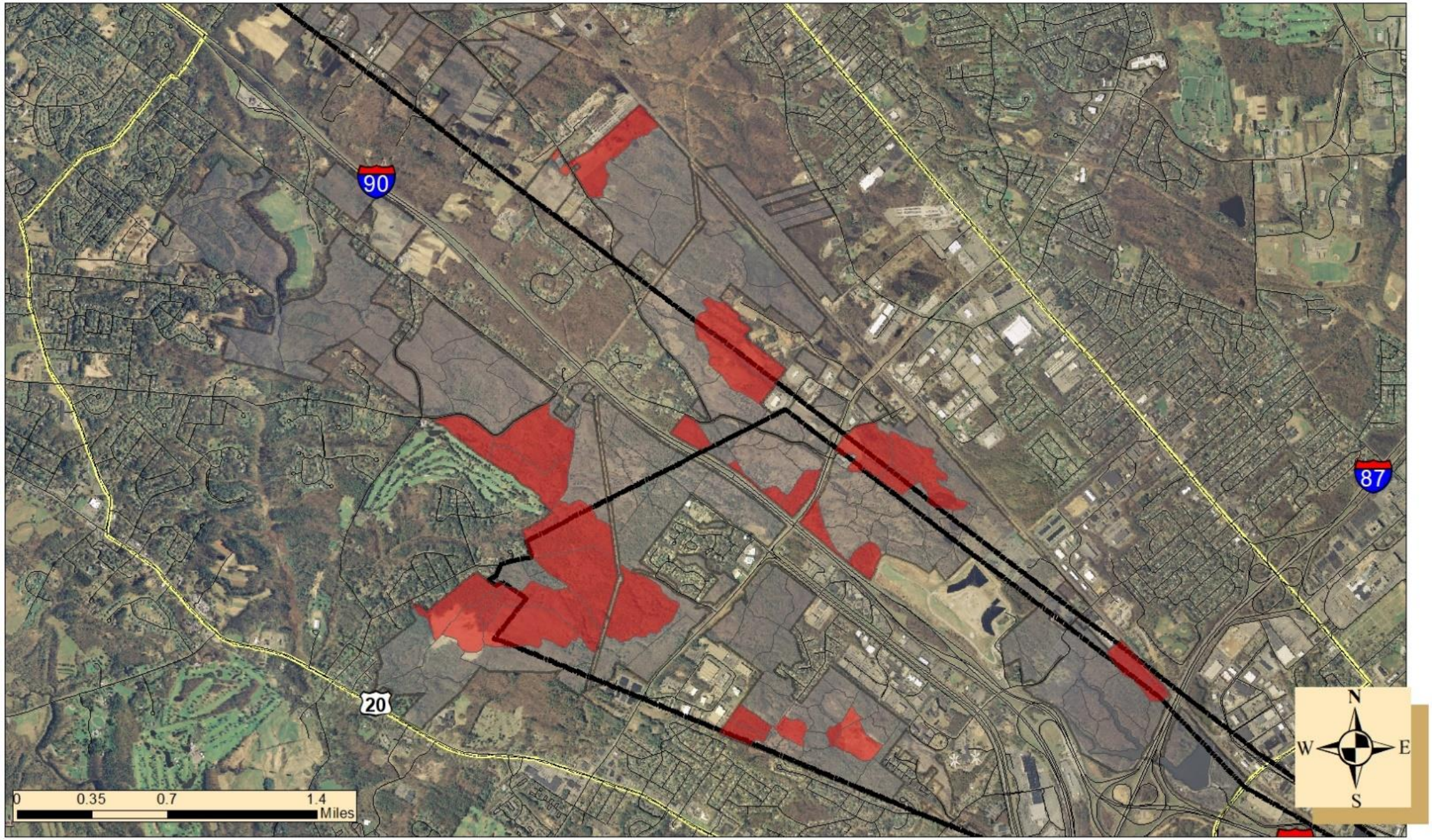
Weather and Fuel Parameters for Prescribed Fires in the Albany Pine Bush Preserve.

	MIN	MAX
Wind Direction	varies by unit - see table below	
Wind Gusts (mph)[a]	-	15
1-Hour Fuel Moisture (%)	5	18
100-Hour Fuel Moisture (%)	12	28
Atmospheric Mixing Height (ft.)	1,500	-
Air Temperature (ºF)	33	95
Relative Humidity (%)	35	60
Keetch Byram Drought Index[b]	0	200
Days Since Rain	dependent on fuel type and time of year [c]	
Growing Season Specific		
Midflame Windspeed (mph)[a]	1[d]	8
10-Hour Fuel Moisture	8	28
Live Fuel Moisture	60	300
Dormant Season Specific		
Midflame Windspeed (mph)[a]	2	8
10-Hour Fuel Moisture	10	24
Live Fuel Moisture	30	90

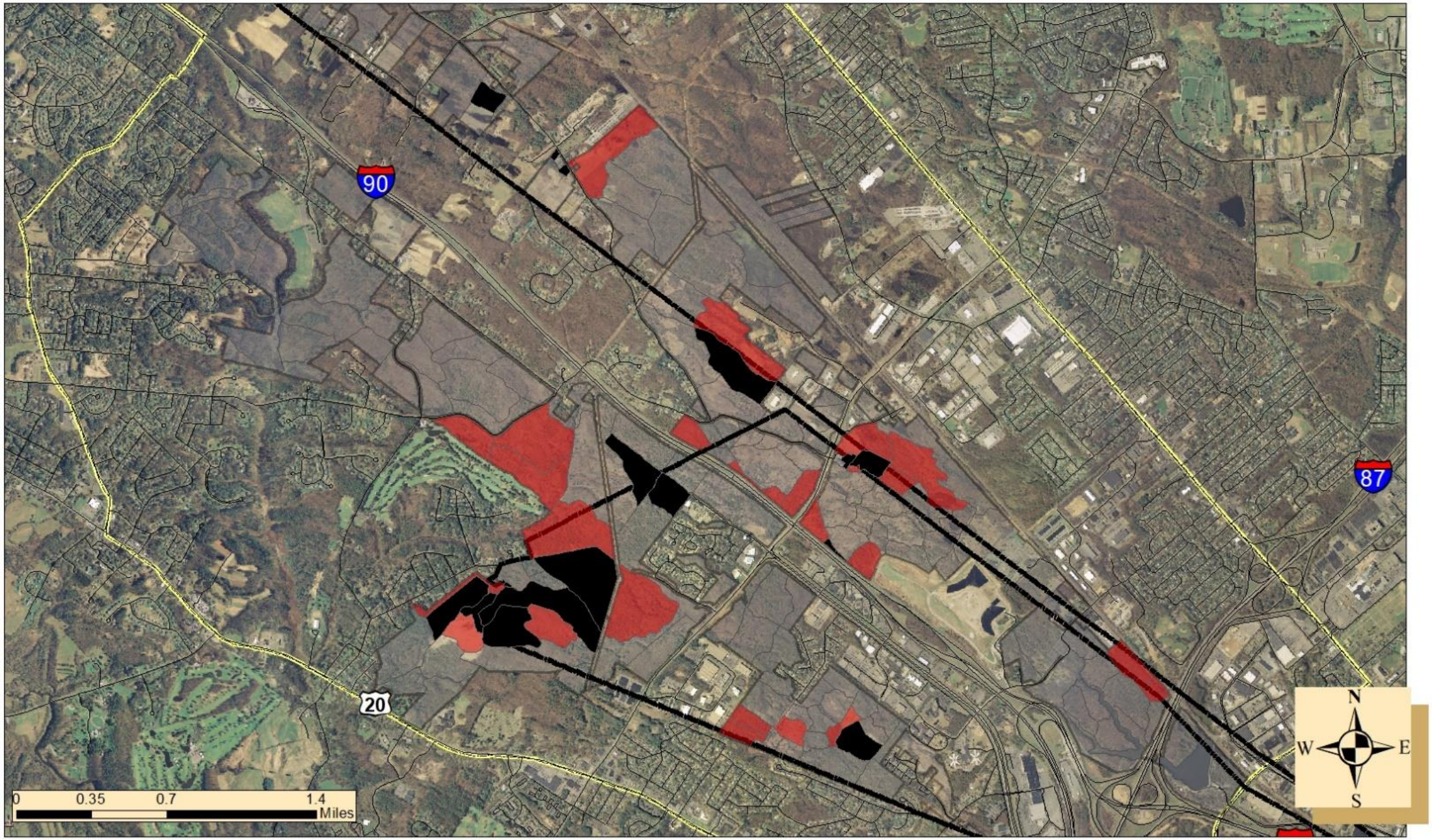
Region G Acceptable Wind Direction

Unit Name	Recommended
Gandalf	NW, N
Greenland	NW*, N, NE*
Goldfinch	NE, E
Gulch	W, NW*
Gifford	W, SW, S, SE*
Garcia	SE, E
Grendel	N, NE*
Gossimer	W, NW, N, S*
Gopher	W, SW, S*
Grouper	W, SW, S*
Greenday	W, SW, S, SW*
Geotaxis	W, SW, S*, SE, NW*
Genus	N, NW, W, SW, S, SE, E, NE
Gabble	N, NW, W, E, NE, SE, SW
Grosbeak	W, NW, N, SW*
Ghana	NW, N, NE*
Griffis	W, NW, N, NE, E*, S*
Grandad	W, NW, N, NE, E
Gus	W, NW, N, NE, E, SE, S, SW
Glacier	S, SE
Gallery	W, NW, N, NE, E, SE, S, SW
Guatemala	NW, N, NE
Grizzle	N*, NE, E
Graspen	N, NE, E, S*, SE, SW*
Gherkin	N, NE, E, SE, S, SW, NW*
Gull	E, SE
Grackle	SE

2018 Potential Burn Units (661 acres)



2018 Units Burned (243 acres)



Pre- and Post- Treatments

Mowing

Herbicide

Restoration Seeding

Silviculture

Crew: Staff, Partners and Volunteers

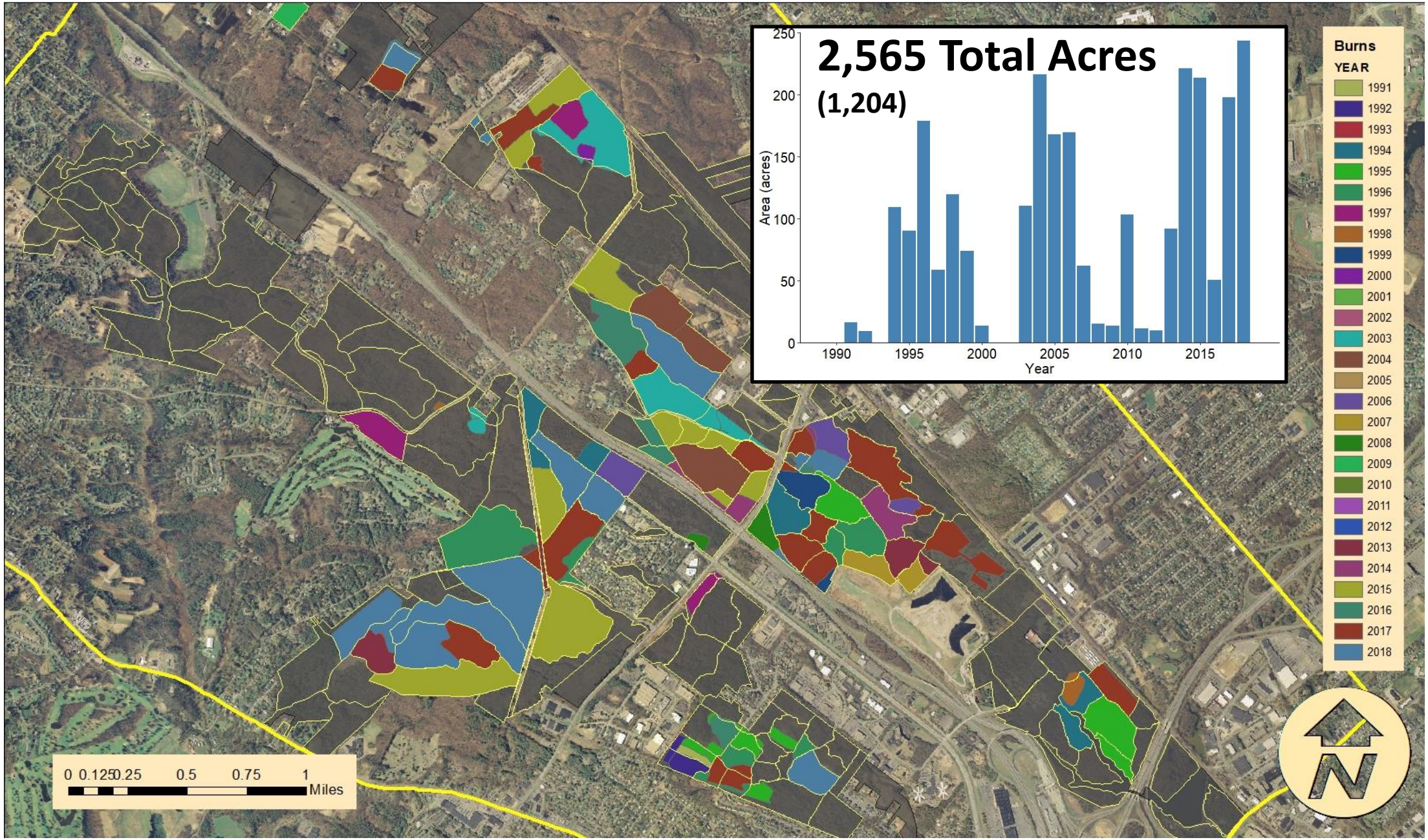
Rx Fire Season

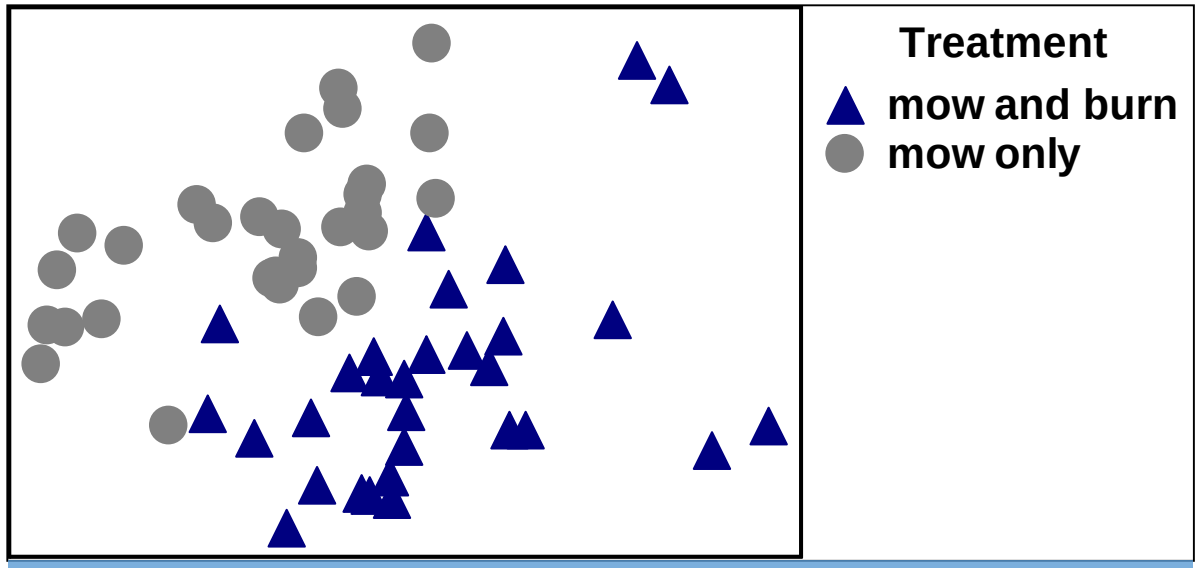
Dormant Season Rx

Growing Season Rx

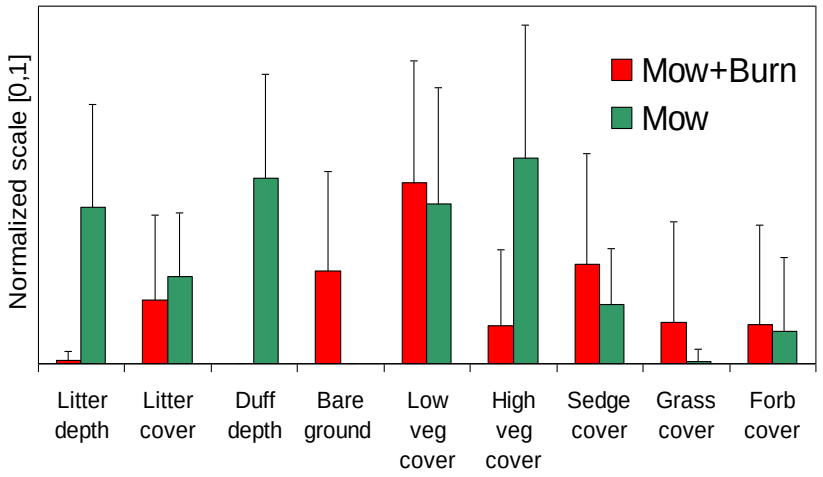
April 2019

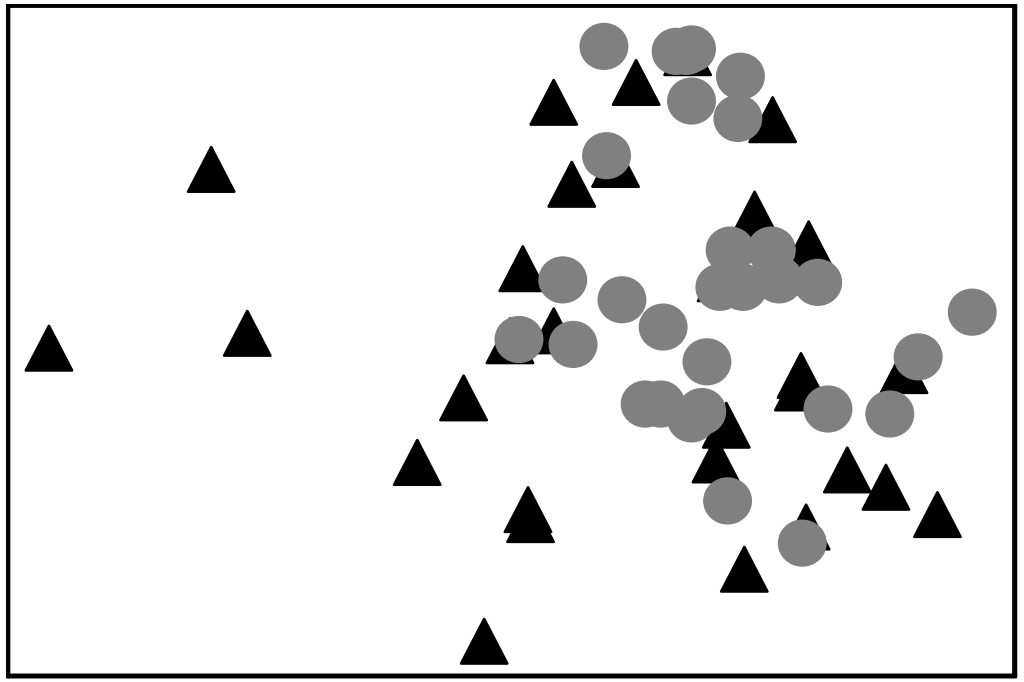
Prescribed Fire Management in the Albany Pine Bush Preserve 1991-2018





Principal components ordination of treatment plots based on vegetation structure





Non-metric multidimensional scaling of treatment plots in plant species space

Karner blue butterfly recovery

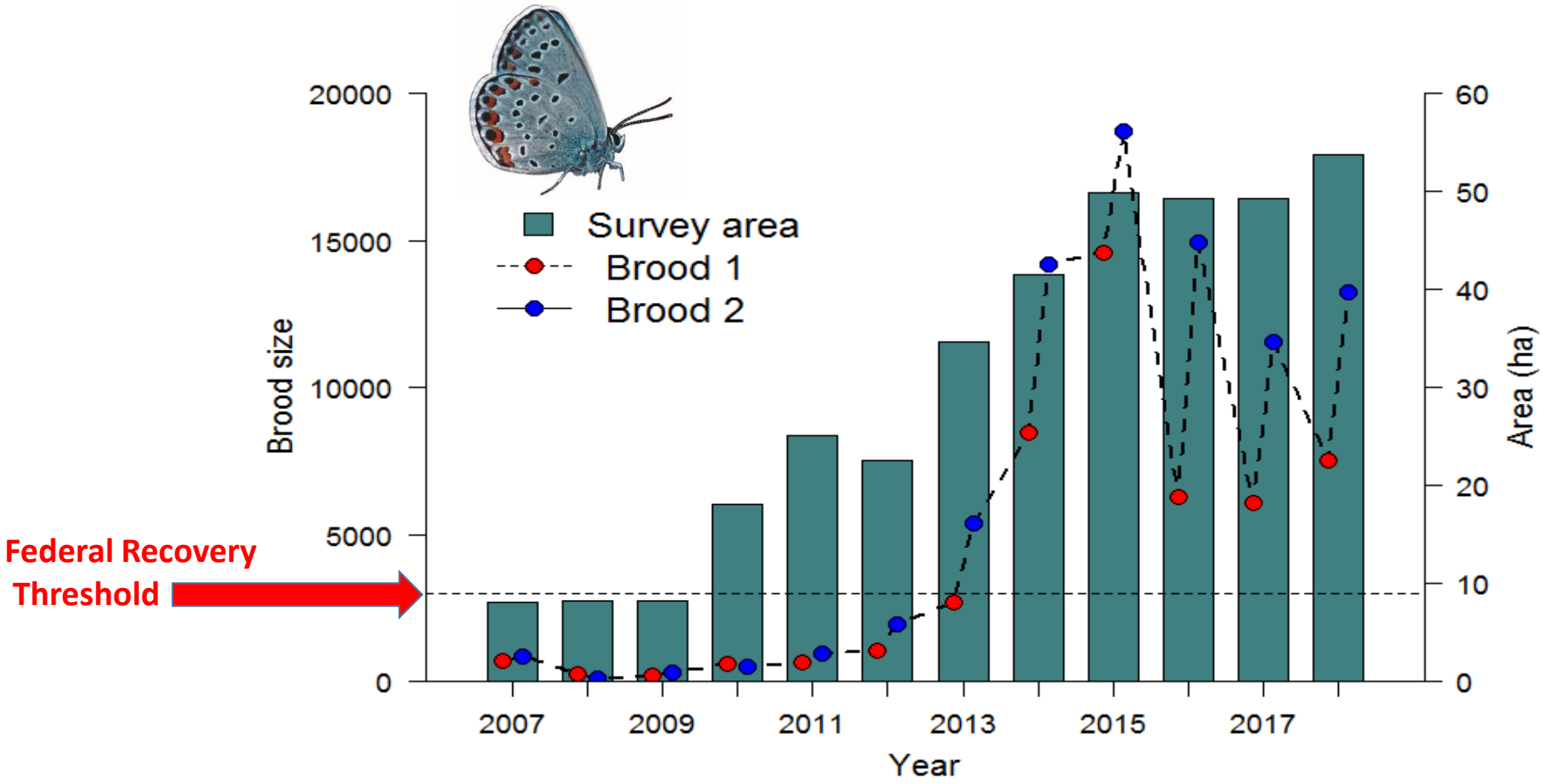


Figure 1. Brood size estimates of the Karner blue butterfly metapopulation at the Albany Pine Bush recovery unit, 2007-2017.

Patch Dynamics

- ✓ 1/3 rule
- ✓ Seeing mosaic effects from maintenance burns

20 MAY 2018
Rx FIRE IN OCCUPIED KBB/FE HABITAT

Birds

Prairie Warbler
>100 pair in Preserve

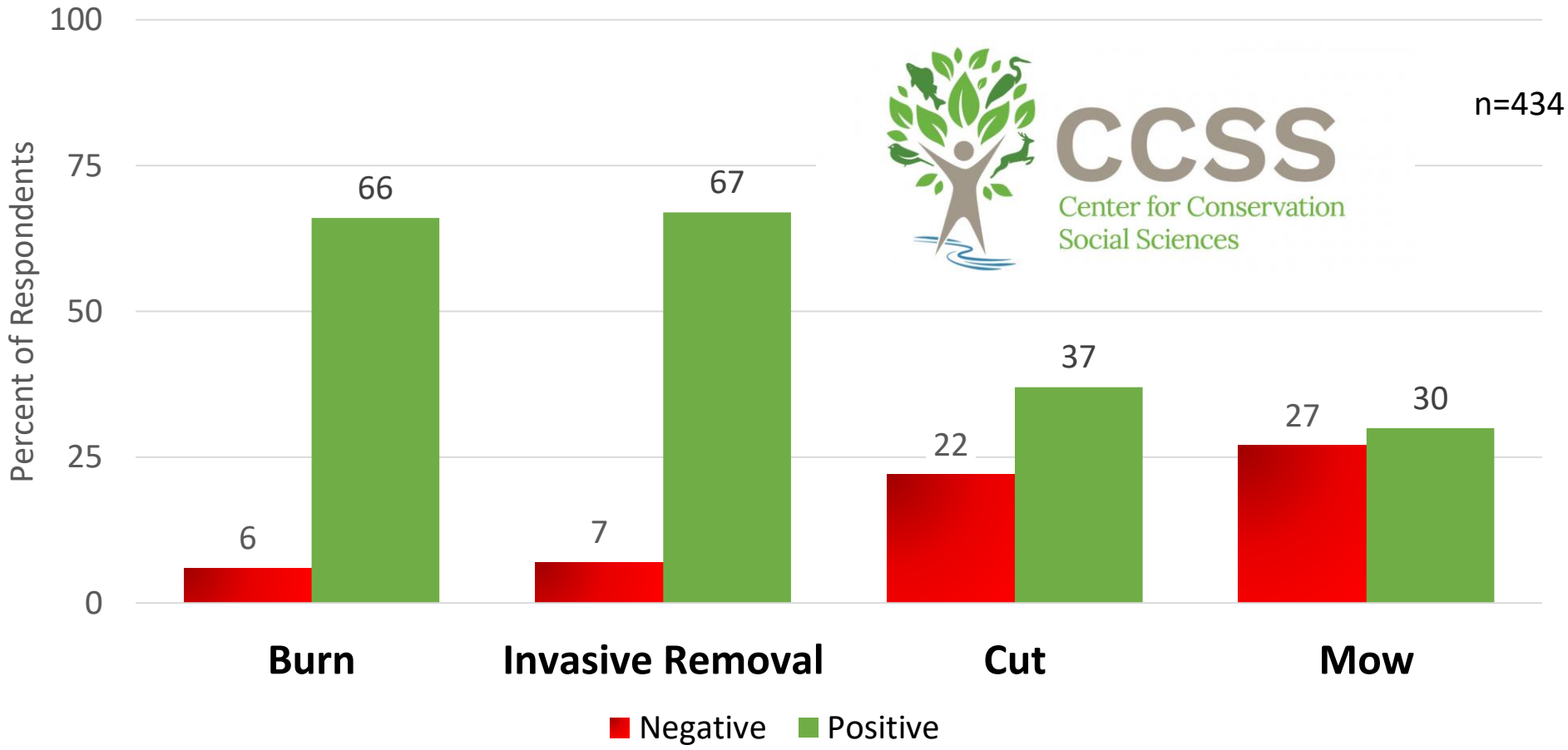
Brown Thrasher
>100 in the Preserve

Eastern Towhee
>600 in Preserve

Singing Ground Surveys
8 point mean = 1.94

Eastern whippoorwill Surveys
birds detected in 2007, 2008, & 2009, 2016, 2017, 2018**

General Attitudes towards Management Practices



Naiman, S.M., S.B. Allred, N. Gifford, E. Kinal, and C. Buckler. 2018. Understanding Support for Actively Managed Protected Areas: The Case of the Albany Pine Bush Preserve. Center for Conservation Social Sciences Publ. Series 18-2. Dept. of Nat. Resources., Coll. Agric. and Life Sci., Cornell Univ., Ithaca, NY. 137 pp.

This report is available electronically at: https://ccss.dnr.cals.cornell.edu/

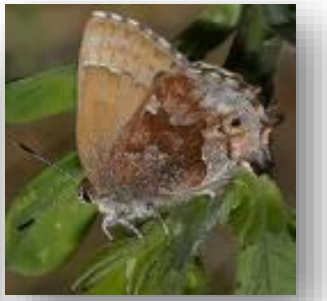
Conclusions

ALBANY PINE BUSH PRESERVE COMMISSION

- APBPC has been successfully managing the Preserve for 26 years.
- Rx fire is complicated: Rx fire to achieve specific outcomes in an urban landscape is even more so!
- Pre-treatments are essential to safely and effectively restoring altered fire regimes.
- Ecosystem management is benefitting PPSOB & SGCN wildlife, with little negative effects.
- Monitoring a suite of SGCN wildlife is our best window into management effects and what needs to change as we continue the restoration process.
- Relationships with our neighbors and partners is essential for long-term success and seems to be working.
- **<u>IF WE CAN DO IT HERE, YOU CAN DO IT ANYWHERE</u>**

Thank You

- ❖NYS Environmental Protection Fund
- ❖USDA Forest Service: Wildfire Risk Reduction Grant
- ❖Staff, Partners &Volunteers



ALBANY PINE BUSH PRESERVE COMMISSION

Albany Pine Bush SGCN

American eel
Blue-spotted salamander
American Black Duck
Common Nighthawk
Eastern whip-poor-will
Semipalmated sandpiper
Upland Sandpiper
Horned Lark
Grasshopper Sparrow
Vesper sparrow
Bobolink
Eastern Meadowlark
Rusty blackbird
Yellow-breasted chat
Brown thrasher
Bay-breasted Warbler
Canada Warbler
Cape May Warbler
Golden-winged Warbler

Olive-sided flycatcher
Red-headed Woodpecker
Rusty-patched bumble bee
Ashton's cuckoo bumble bee
Yellow bumble bee
American bumble bee
Yellow-banded bumblebee
Broad-lined catopyrrha
Mottled duskywing
Frosted elfin
Henry's elfin
Karner blue
Little brown myotis
Eastern hognose snake
Eastern box turtle
Spotted turtle
Wood turtle
Musk turtle
Longnose sucker
Brook trout

Fowler's toad
Eastern spadefoot
Bald Eagle
Northern goshawk
Northern harrier
Red-shouldered hawk
Blue-winged teal
Bonaparte's Gull
Laughing Gull
American Woodcock
Greater yellowlegs
Black-billed Cuckoo
American kestrel
Peregrine Falcon
Ruffed grouse
Scarlet tanager
Black-throated blue warbler
Blue-winged Warbler
Cerulean warbler
Louisiana waterthrush

Prairie warbler
Worm-eating warbler
Wood thrush
American Bittern
Great egret
Horned grebe
Pied-billed Grebe
Brown-bordered geometer
Chaetaglaea cerata
Chytonix sensilis
Inland barrens buckmoth
Eastern red bat
Hoary Bat
Silver-haired bat
Smooth greensnake
Worm snake
Snapping turtle

NYS High Priority SGCN
SGCN