

Expectations for Cape Sable Seaside Sparrow Habitat Suitability and Subpopulation Viability with Modified Water Deliveries

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Everglades National Park

Sparrow History - in brief



- Originally known from only Cape Sable (1918)
 - Considered extinct after the Labor Day Storm of 1935
- Rediscovered In Ochopee region in the 1940s
 - cordgrass marshes, even freshwater marshes west of Shark Slough
- First discovered near Taylor Slough and East Everglades in the early 1970s

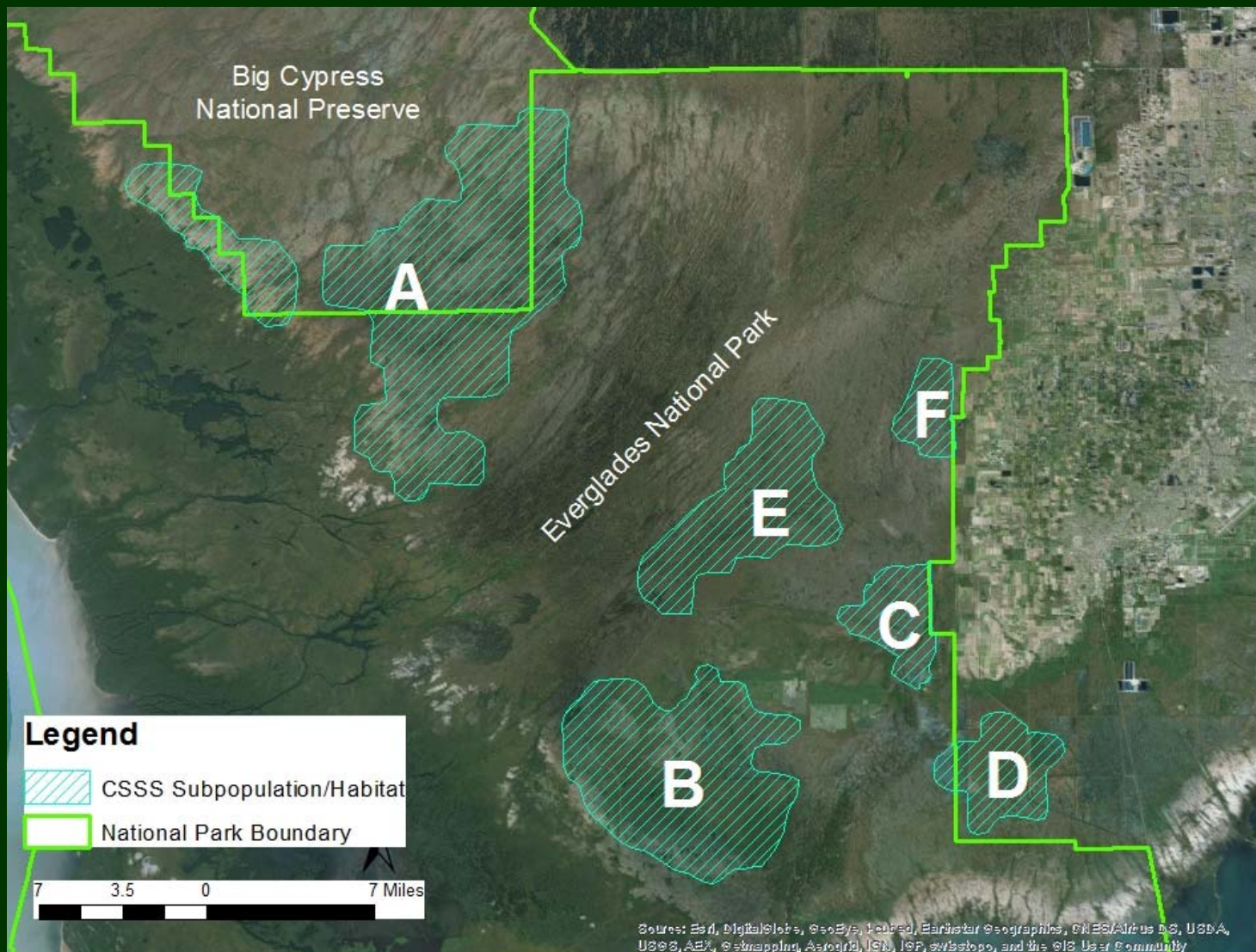


Characteristics of a Difficult Bird

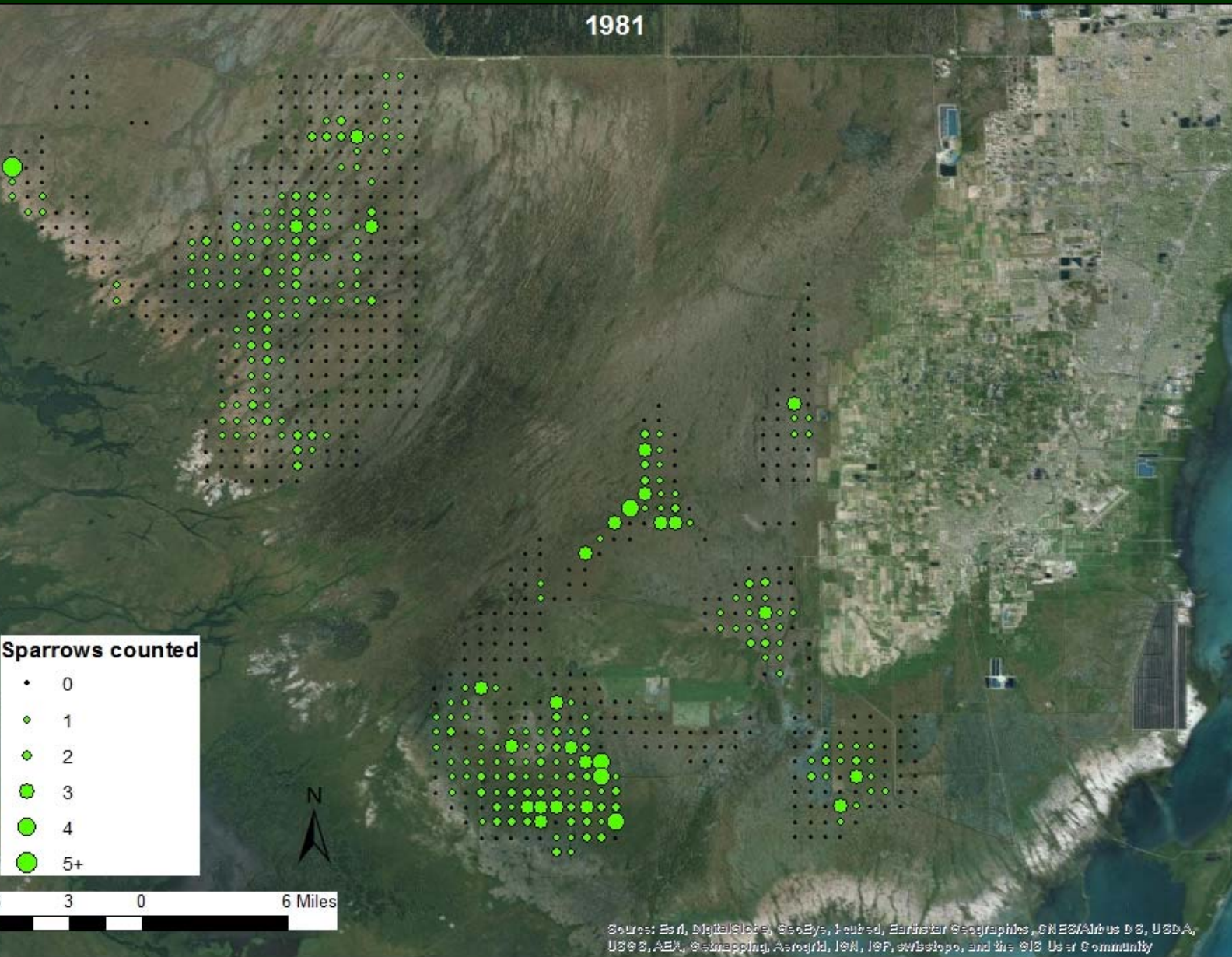


- Cryptic and difficult to study
- Relatively habitat-specific
- Short life expectancy
- Vulnerable to unfavorable hydrology
- Vulnerable to fire
- Endangered

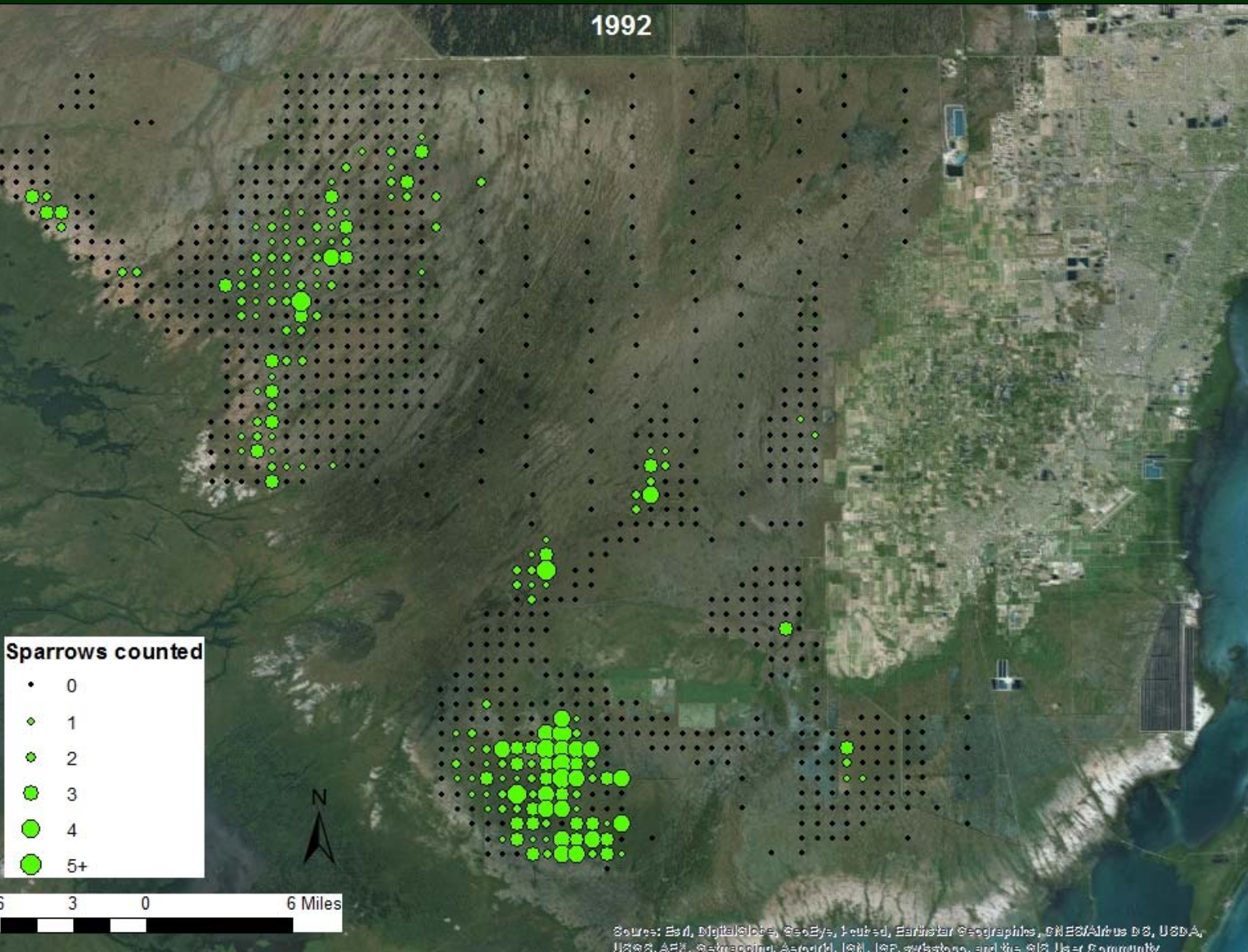
Cape Sable seaside sparrow subpopulations



1981



1992



Sparrows counted

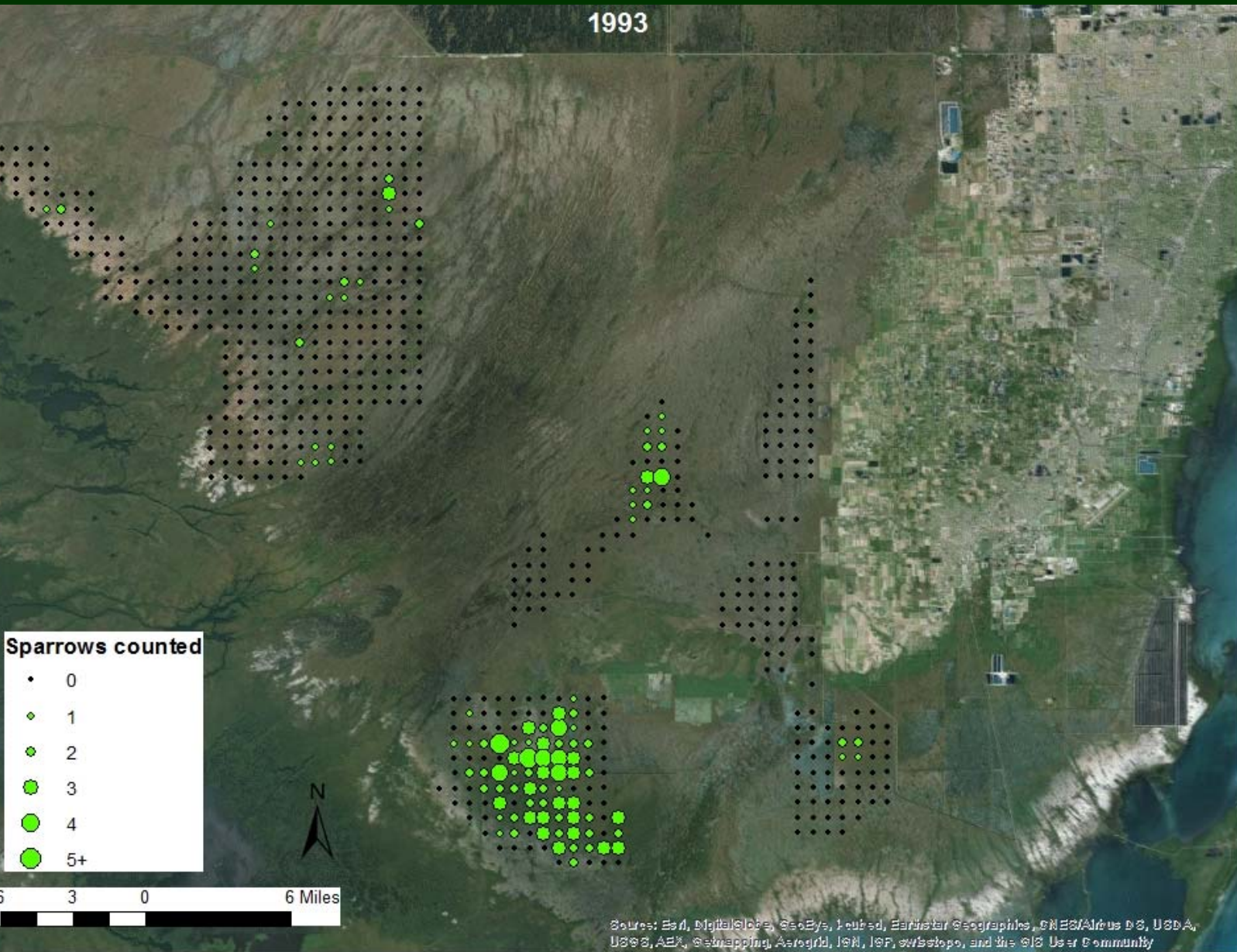
- 0
- ◊ 1
- 2
- 3
- 4
- 5+



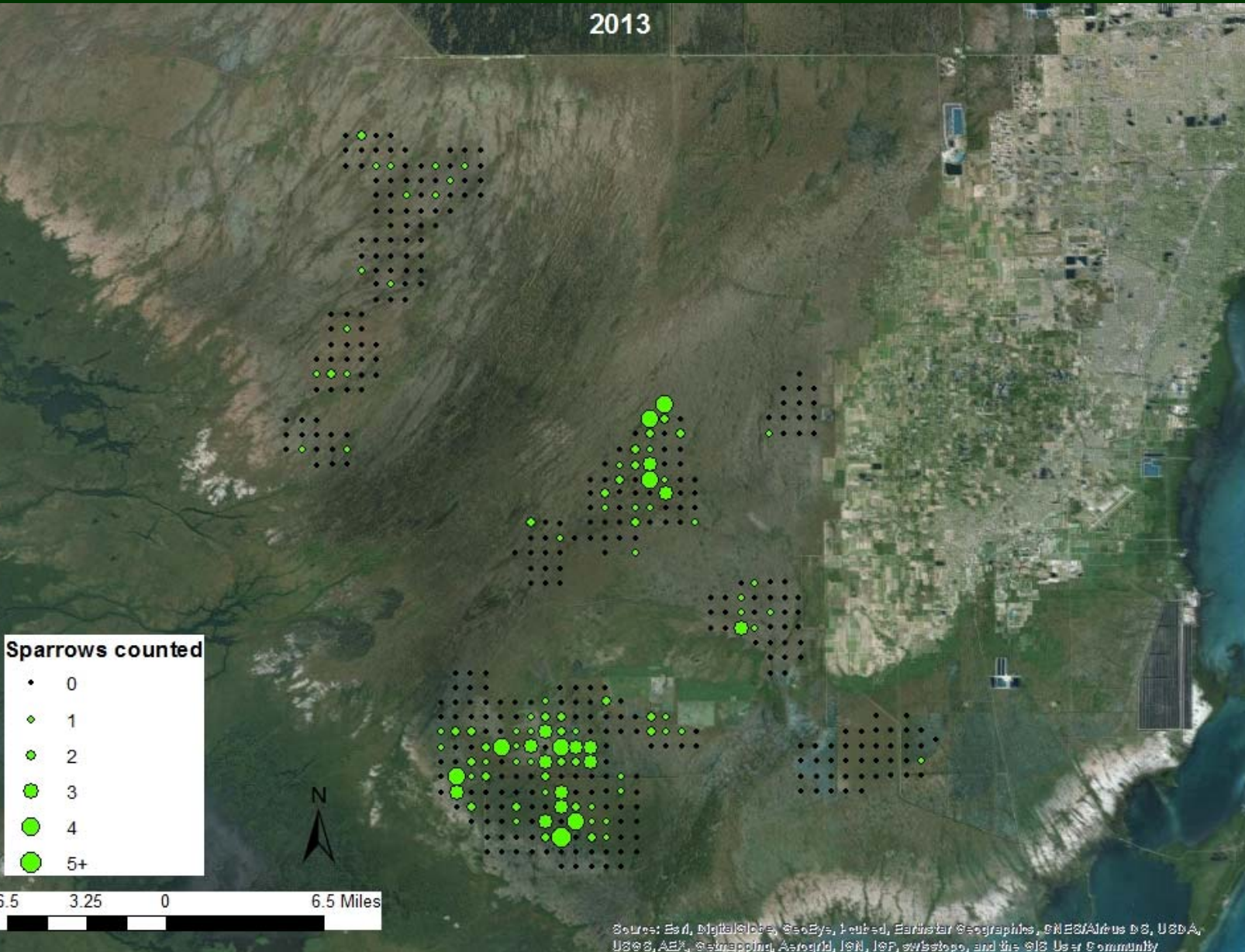
6 Miles

Source: Esri, DigitalGlobe, GeoEye, IGN, GeoEye, Inc., Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

1993



2013



Sparrows counted

- 0
- ◊ 1
- 2
- 3
- 4
- 5+

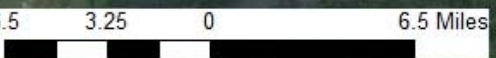
6.5 3.25 0 6.5 Miles

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Aero, @satellite, AeroGrid, IGN, IGP, swisstopo, and the @IS User Community

2014

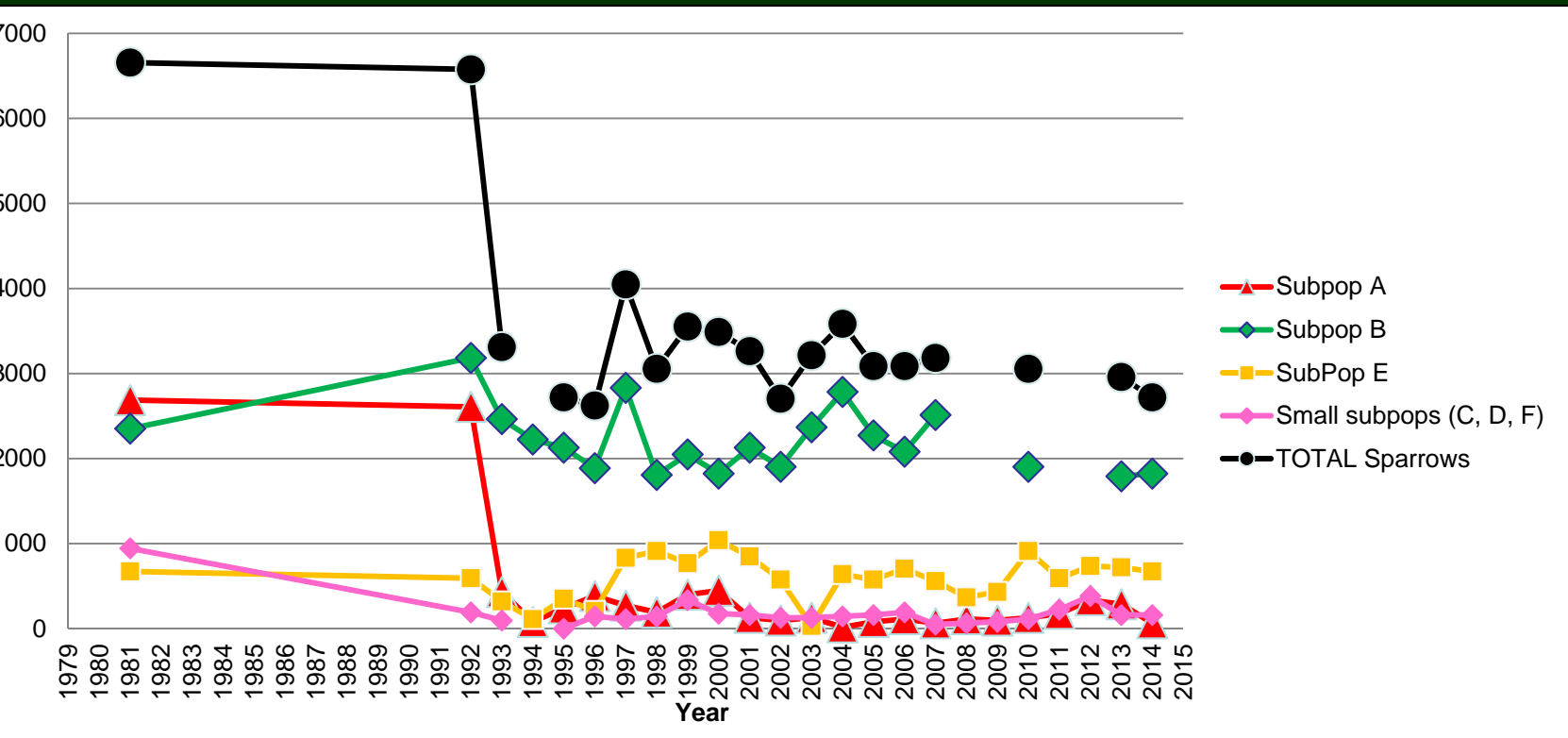
Sparrows counted

- 0
- ◊ 1
- ◊ 2
- ◊ 3
- ◊ 4
- ◊ 5+



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Aero, Swmapping, AeroGrid, IGN, IGP, swisstopo, and the GIS User Community

Cape Sable Seaside Sparrow Numbers Over Time



Hydrologic management to protect Cape Sable seaside sparrows

1999 – Test 7 of the Experimental Program
would jeopardize the continued existence of
CSSS

- Prescribed reduced flows to western Shark Slough
- Interim regulation schedules implemented
 - Interim Structural and Operational Plan (ISOP)
 - ISOP 2001
 - IOP
 - ERTP

Recommendations for improving sparrow populations

1999 AOU review:

- **“we strongly endorse (Mod Waters) and urge that it be implemented with all possible speed.”**

2003 Avian Ecology Panel

- **“restoration, once fully implemented, would benefit the Cape Sable seaside sparrow...”**

2007 Avian Ecology Panel

- **because implementation of ModWaters and Decomp have been seriously delayed, the sparrow will suffer an increased risk of extinction for the foreseeable future.**

Mod Waters Sparrow Modeling

Three increments of Mod Waters

- 7.5, 8.0, and 8.5 ft (stage in L-29 canal)

Preliminary RSM Models

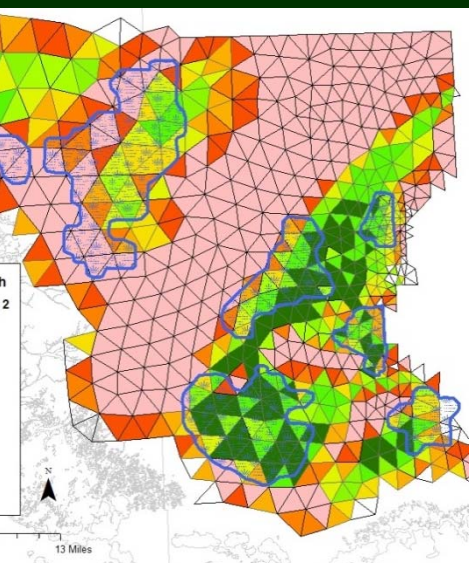
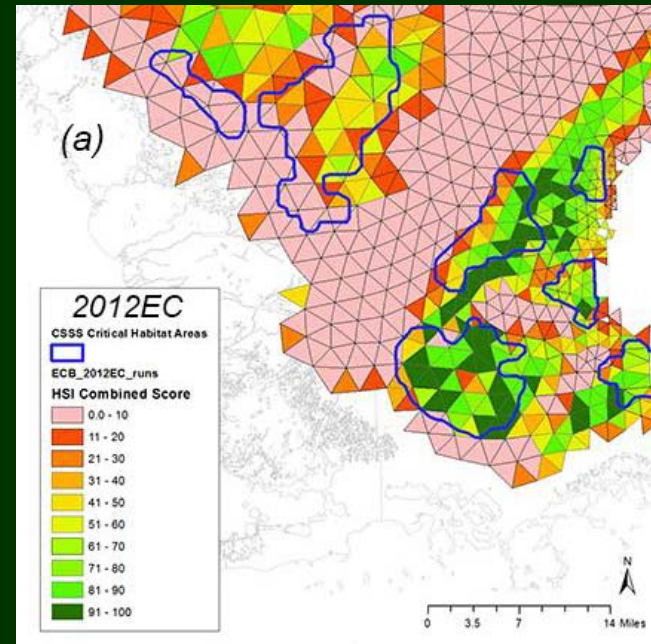
- based on ERTF operations - with some ops from CSOP

Marl Prairie Indicator (used in CEPP eval.)

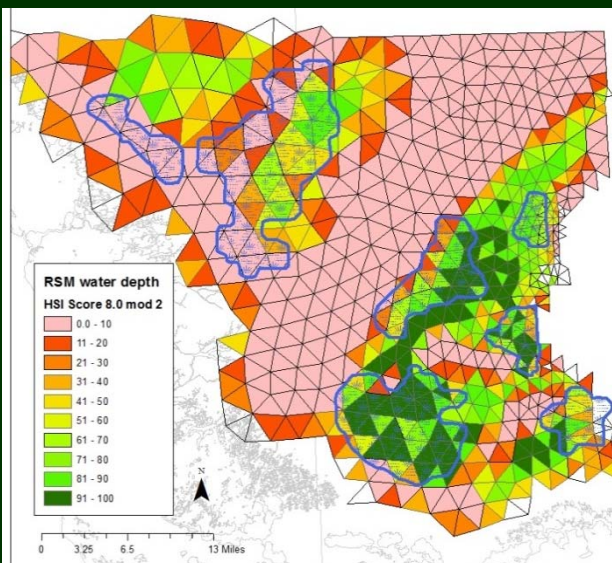
Preliminary Cape Sable seaside sparrow

[S]

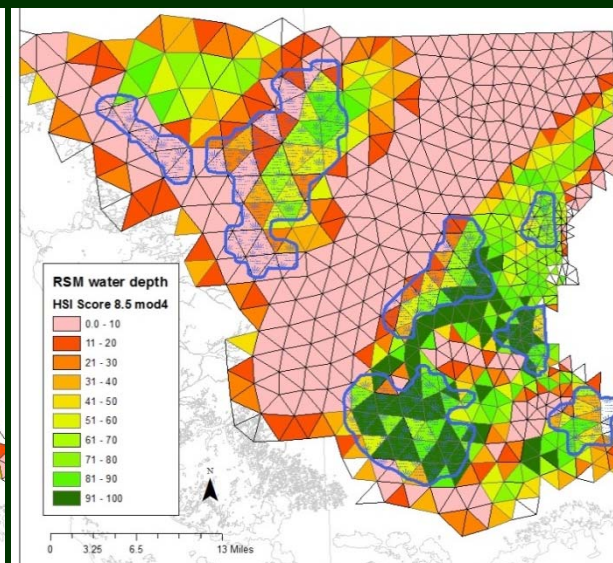
Marl Prairie Indicator (Draft)



7.5 ft

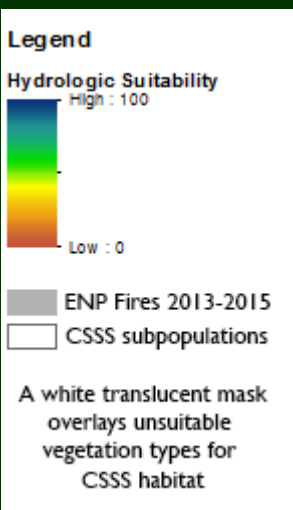
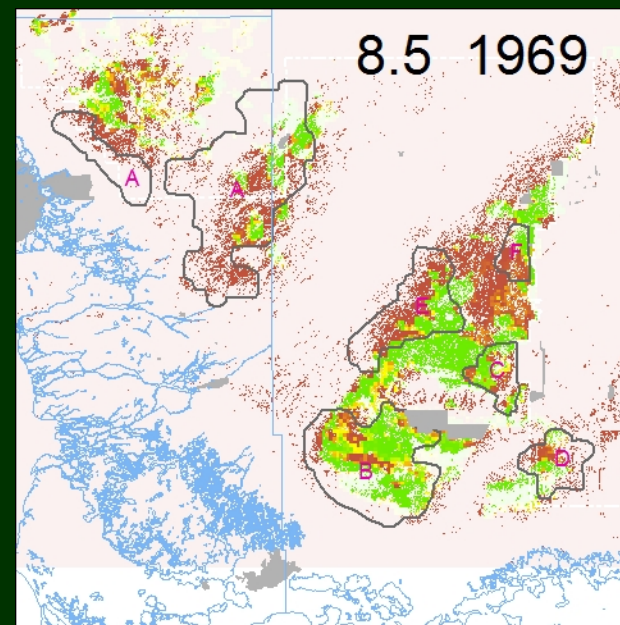
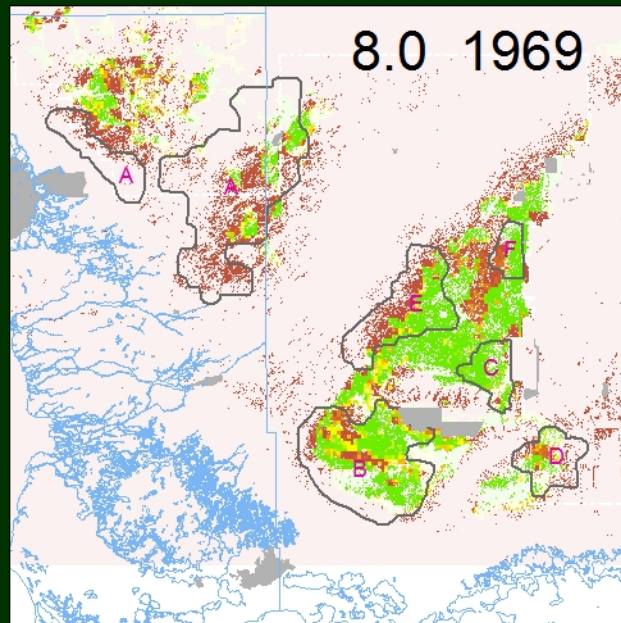
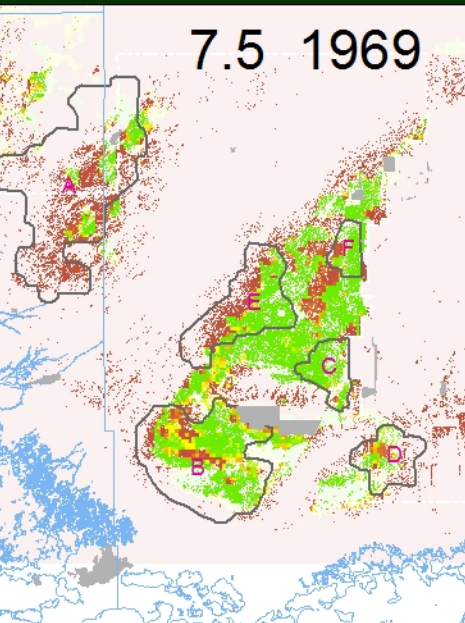


8.0 ft

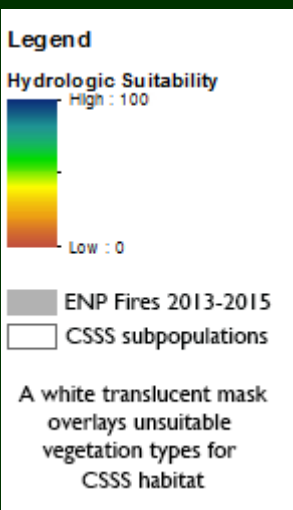
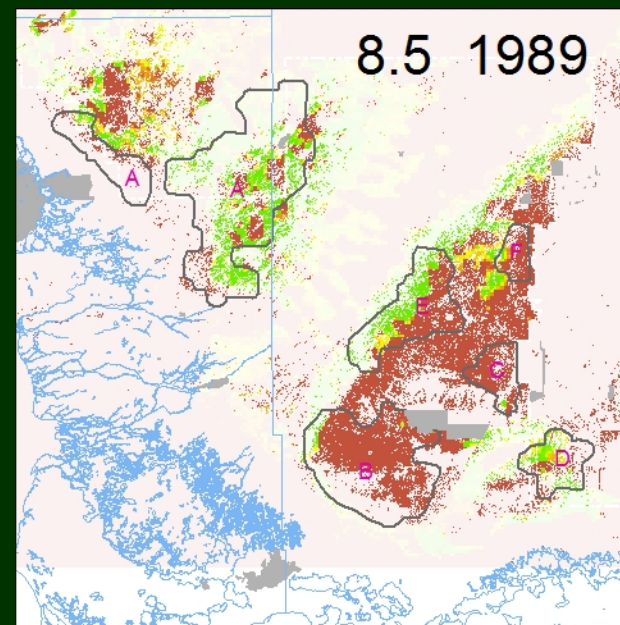
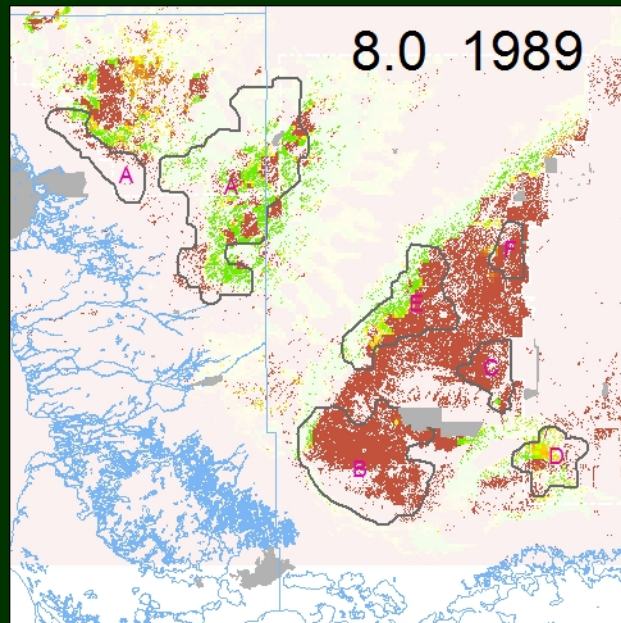
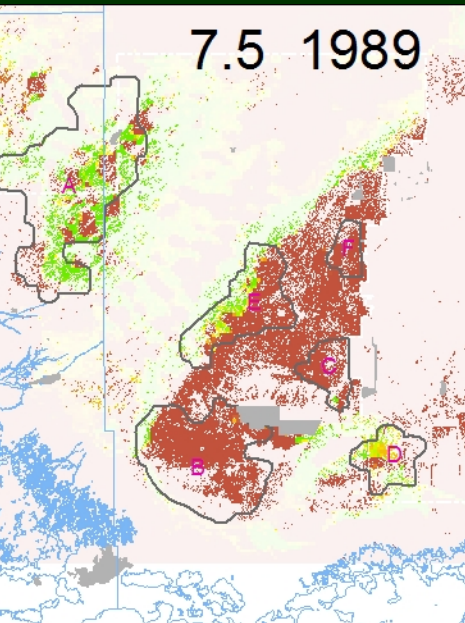


8.5 ft

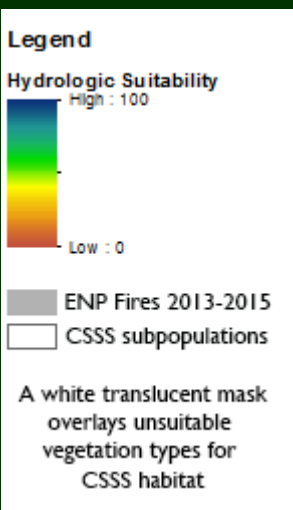
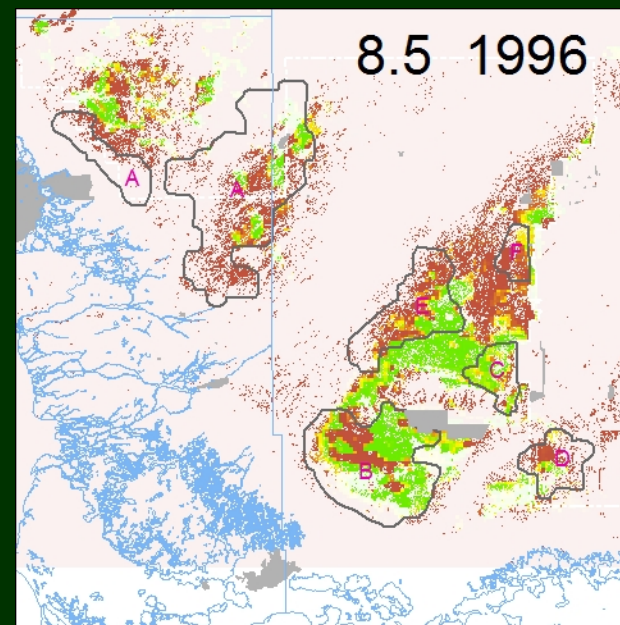
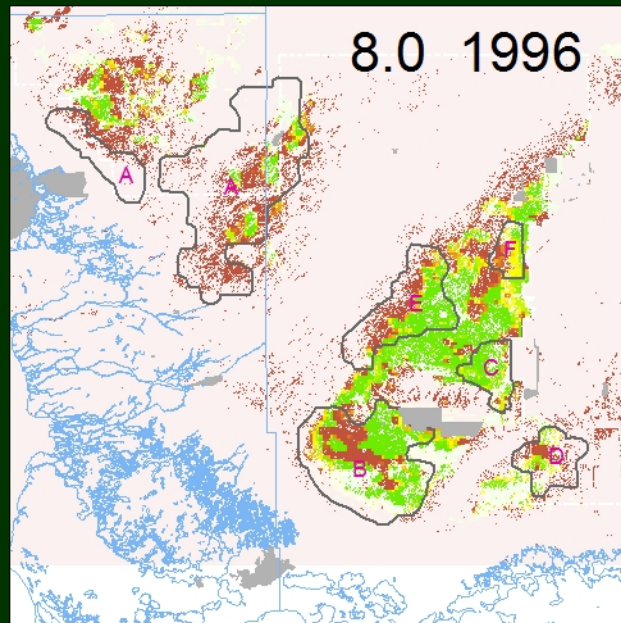
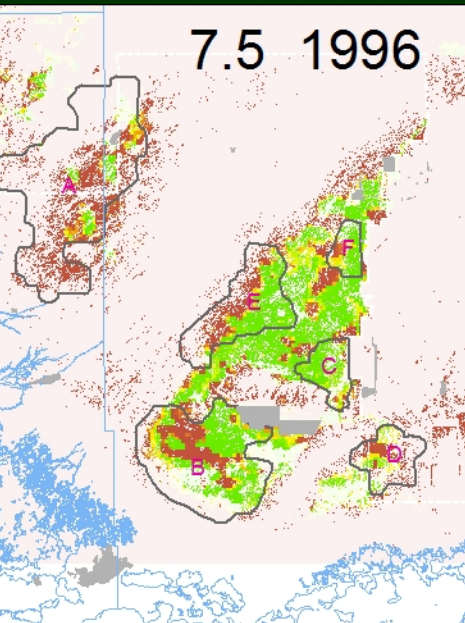
PRELIMINARY CSSS habitat suitability index Average Year



PRELIMINARY CSSS habitat suitability index Dry Year



PRELIMINARY CSSS habitat suitability index Wet Year



Conclusions

Changes in habitat are likely to occur

- Sparrows may shift in response
- Same general areas of suitable habitat

Natural hydrologic gradients will be restored

- More consistent habitat suitability over time
- Conditions vary within “normal” ranges across hydrologic gradients

Beneficial transition to Restored Conditions?

- CEPP? CERP?

These are preliminary evaluations with preliminary tools

New regulation schedules may allow for greater improvement

- Allow water managers to use the greater flexibility that Mod Waters will provide

HSI and Model refinement can aid decision-making

- Now is the time to develop our modeling tools
- Specific tools to address management needs