



Stormwater Treatment Areas & Wildlife

Avian Protection Plan and Snail Kite Nesting Updates



sfwmd.gov

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Long-Term Plan Meeting
West Palm Beach, FL

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Wildlife and STAs

- Operating the STAs in the presence of protected wildlife species has been very challenging.
- The District has operated around several protected species since the STAs became operational.



Avian Protection Plan

- When the STAs were first constructed, it was not predicted that protected nesting birds might be impacted by STA operations.
- A few years into the operation of the STAs, it was discovered that black-necked stilts were nesting within STAs which presented operation and maintenance (O&M) issues.
- Black-necked stilts are one of over 1000 species protected federally by the Migratory Bird Treaty Act.



Avian Protection Plan

- It took several years to agree to and develop an Avian Protection Plan (APP) for the STAs.
- By 2008, a final APP was completed.



*Avian Protection Plan
For Black-necked Stilts and Burrowing Owls Nesting in the
Everglades Agricultural Area Stormwater Treatment Areas*

FINAL DOCUMENT

Submitted to:
South Florida Water Management District
3301 Gum Club Road
West Palm Beach, FL 33406

Prepared by:



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4603 NW 6th Street
Gainesville, FL 32609
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September 2008

Avian Protection Plan

- The APP outlines threats to migratory birds in the STA during their construction, operation, and maintenance.
- It requires surveys to be conducted to know where black-necked stilts and Florida burrowing owls are nesting in each STA.



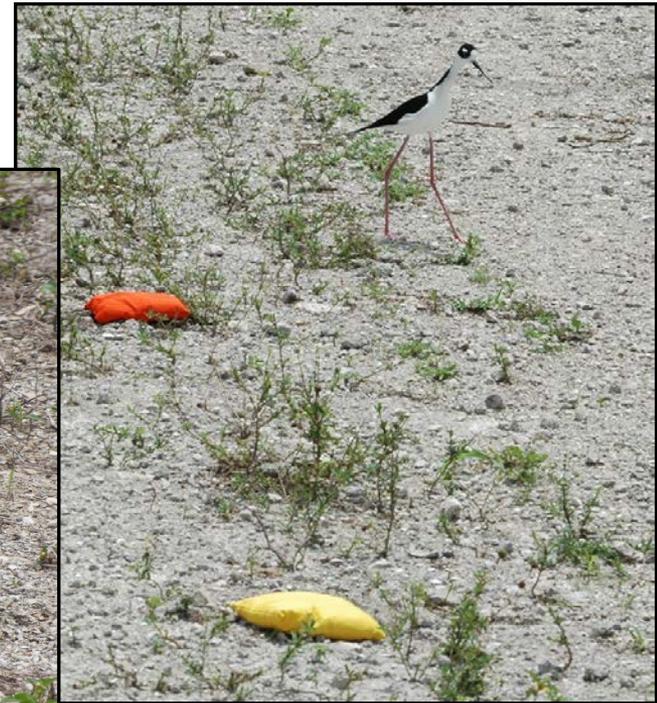
Avian Protection Plan

- The APP uses black-necked stilts and Florida burrowing owls as the main indicator species.
- It is predicted that if these two species are addressed by the APP that other ground nesting species will also be protected.
- Surveys are primarily conducted from March to July each year in the Everglades STAs.



Avian Protection Plan

- Migratory birds on levee road tops are identified and marked (using marker bags) during surveys.
- The birds do come back to the nests with the markers.



Avian Protection Plan

- In recent years we had least terns nest in both the Everglades STAs and Northern STAs.
- We've worked closely with FWC to make sure we don't negatively impact this species as well.



Avian Protection Plan

- **Least terns generally cause access issues within the STAs.**
- **Rock stock piles used to maintain and repair levee roads in STA-1E and STA-1W can be unavailable for months.**



Avian Protection Plan

- All nests (on levees and within the marsh) are compiled in reports.
- O&M staff use information in the reports to make adjustments to operations and other works to minimize impacts to nesting birds in the STAs.
- The APP has been successful in that it has greatly minimized impacts to ground-nesting birds in the STAs; however, optimal operation of the STAs can still be difficult to achieve.



Avian Protection Plan

- Florida burrowing owls have not been observed in the STAs since owls were relocated during the construction of STA-1E and STA-2.



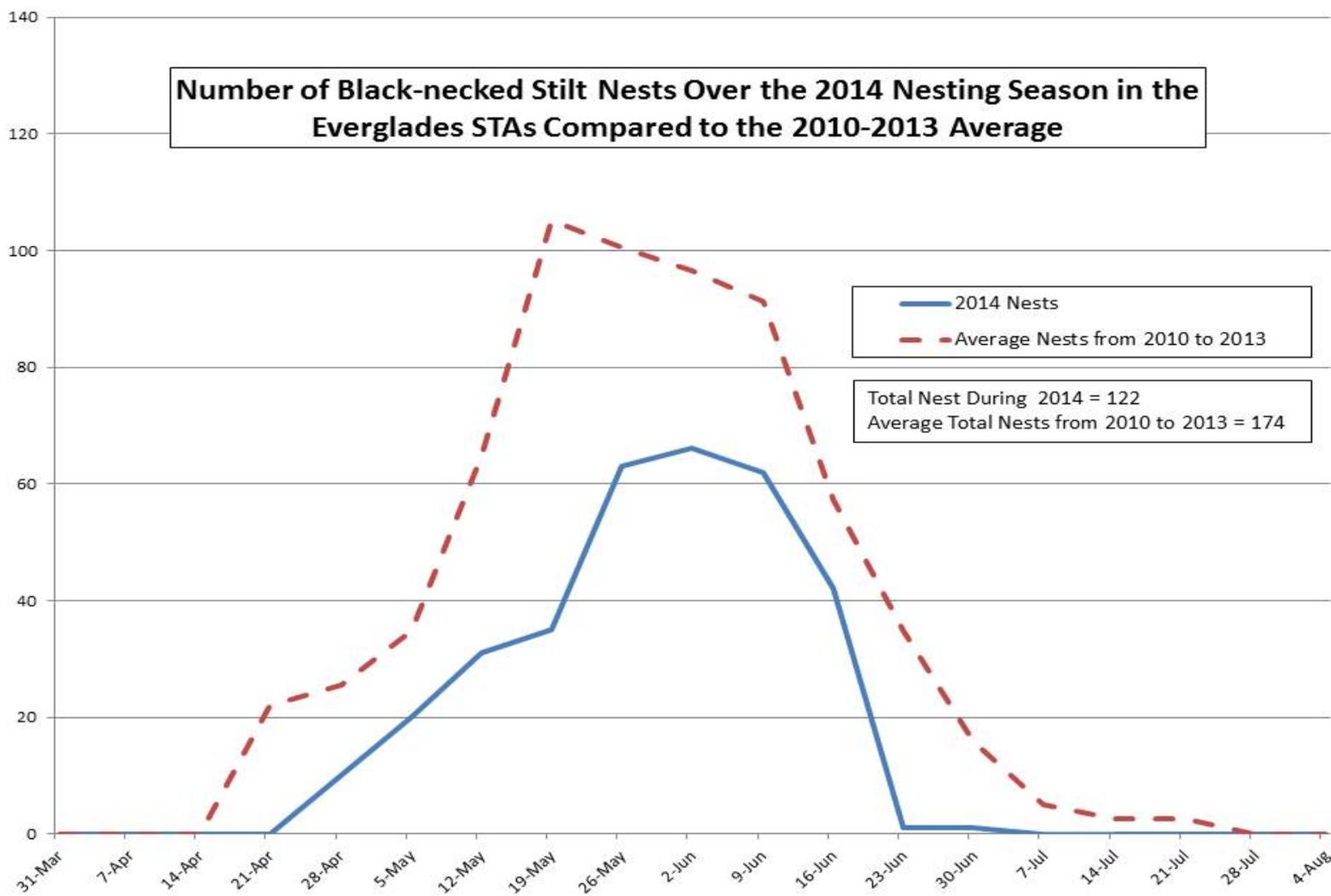
Avian Protection Plan

- APP surveys have been conducted since 2006. The total number of nests observed each year varies greatly due to factors like hydrology and the maturation of the marsh vegetation.

Year	STA-1E	STA-1W	STA-2	STA-3/4	STA-5/6	Total Nests
2006	186	49	0	5	122	362
2007	102	236	74	55	147	614
2008	69	26	16	7	73	191
2009	102	360	237	69	105	873
2010	150	19	29	15	14	227
2011	42	105	39	142	11	339
2012	9	5	0	4	15	33
2013	23	13	12	4	45	97
2014	0	16	32	1	73	122



Avian Protection Plan





**The Ultimate Evidence That We've Had
Successful Nesting**

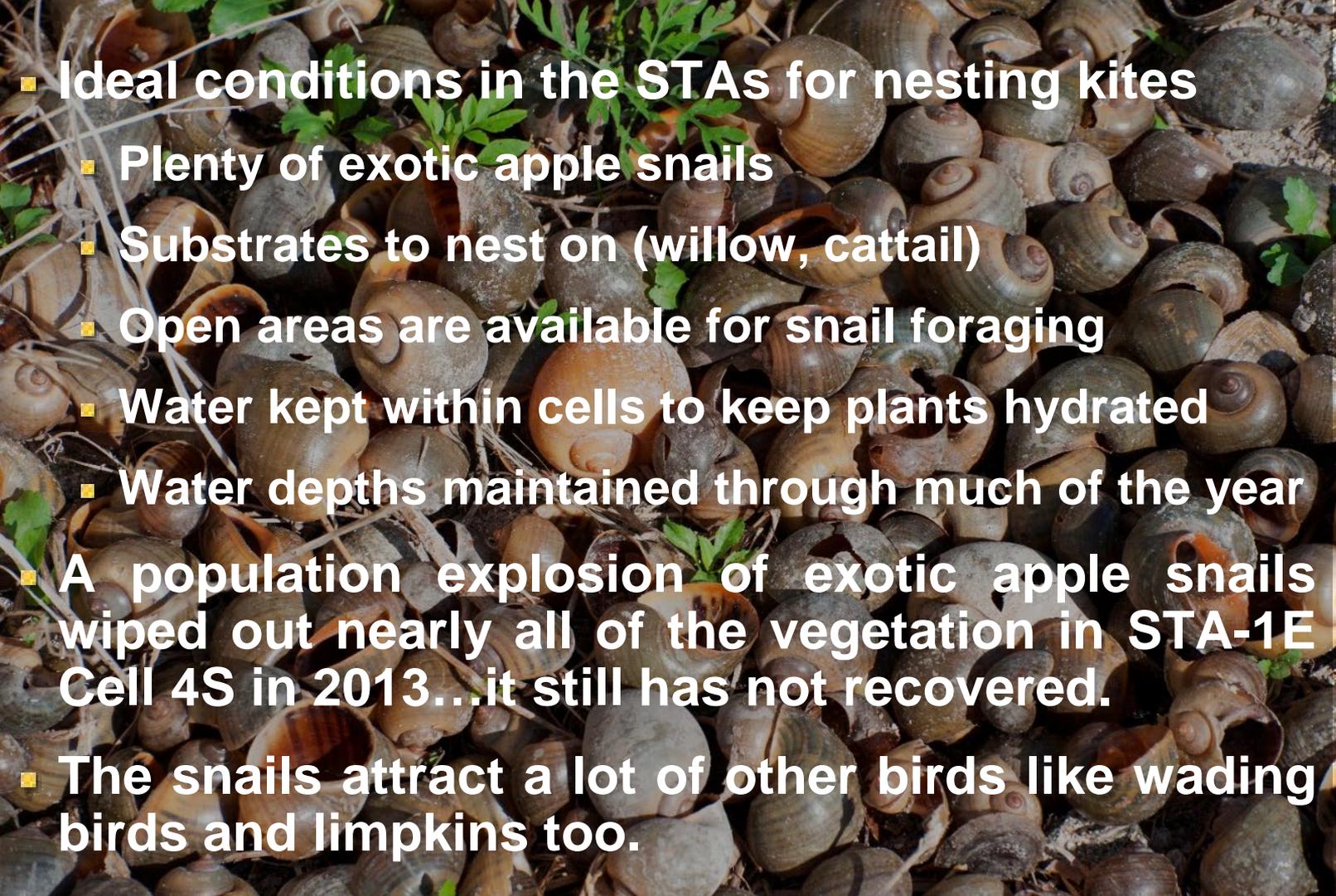
Snail Kite Nesting

- In 2010, the first noted Everglade snail kites nested in STA-5/6.
- Since that time 181 snail kite nests have been observed within the boundaries of the STAs.



Snail Kite Nesting

- Ideal conditions in the STAs for nesting kites
 - Plenty of exotic apple snails
 - Substrates to nest on (willow, cattail)
 - Open areas are available for snail foraging
 - Water kept within cells to keep plants hydrated
 - Water depths maintained through much of the year
- A population explosion of exotic apple snails wiped out nearly all of the vegetation in STA-1E Cell 4S in 2013...it still has not recovered.
- The snails attract a lot of other birds like wading birds and limpkins too.



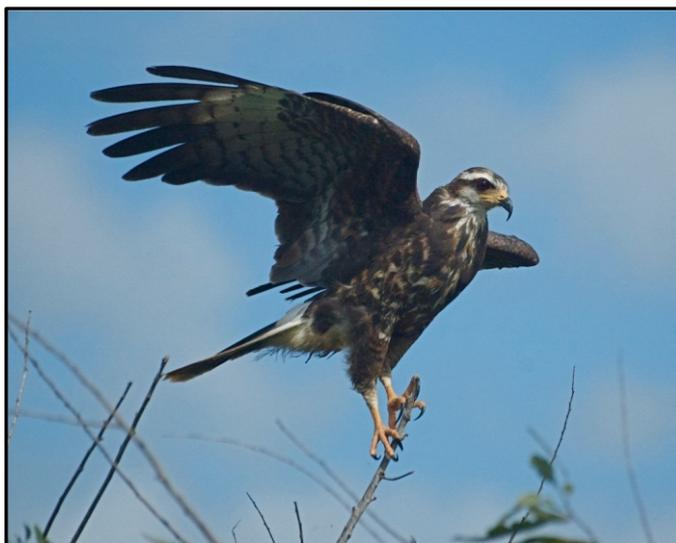
Snail Kite Nesting

- Snail kite nests are surveyed by the University of Florida (UF) Snail Kite Lab.
- The District has worked with UF to make sure they have access to the STAs & that they can provide timely data following each survey, so protective measures can be implemented.



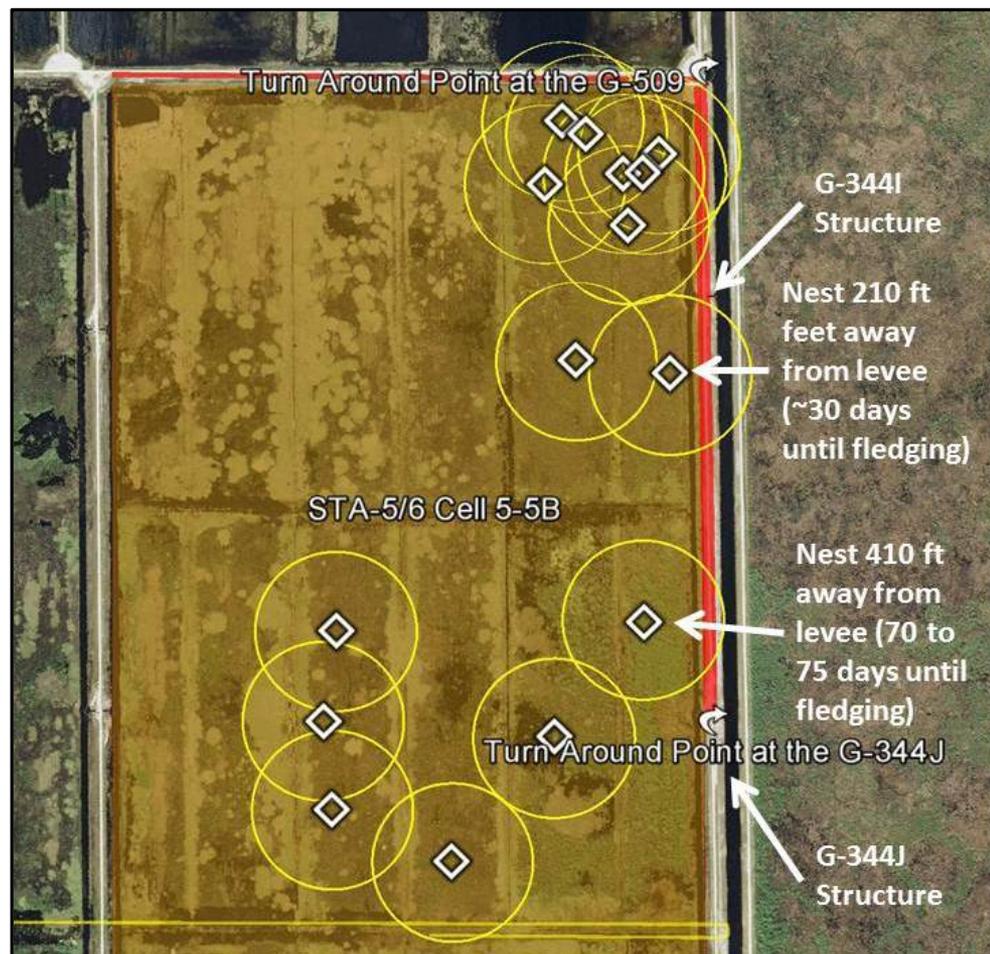
Snail Kite Nesting

- **Kite nests can be problematic to:**
 - **Structure and levee access**
 - **Water level management**
 - **Vegetation management**



Snail Kite Nesting

- **Structure G-344I** became unavailable within STA-5/6 since all levees leading to it are overlapped by 500-foot no-entry protective buffers that surrounds every snail kite nest.
- A letter has been issued to FDEP to explain why samples cannot be collected at the G-344I.



Snail Kite Nesting

- Nests in cattail typically sink towards the surface of the water as chicks grow & cattail leaves senesce.



Snail Kite Nesting

- As nests get closer to the water, the range of water depths in the cell where the nest is located become very limited. Water then must be redirected to other cells that may or may not have the capacity to take the water.

STA-5/6 Cell 5-3B (Elevation = 12.4 ft NVGD)

Date	Max Stage (ft)	Main Stage (ft)	Min Stage (ft)
Feb 15, 2014	No Max†	13.6*	13.4*
Mar 10, 2014	14.4	13.6*	13.4*
Mar 31, 2014	14.7	13.6*	13.4*
Apr 18, 2014	14.4	13.6*	13.4*
May 30, 2014	13.8	13.6*	13.4*

† Nest is above highest possible stage

* If water is available

Snail Kite Nesting

- 500-ft no entry buffer zones can limit vegetation management in STAs a great deal.
- Proper vegetation management helps keep water flowing properly through the STAs.



**There have been a
lot of successful
snail kite nests!**



Wildlife and STAs

- Over 200 species of migratory bird have been documented in the STAs.



Wildlife and STAs

- Several state listed T&E species utilize the STAs.



Wildlife and STAs

- Several federally protected species utilize the STAs too.



Wildlife and STAs

- Several federally protected species utilize the STAs too.



American Flamingos in STA-2

- Then there are the really special sightings such as the large flock of flamingos in STA-2 this past year.



American Flamingos in STA-2

- Over 140 individual flamingos at the peak.



STA and Wildlife



Questions?