

REPORT BV-24A DMMA Florida Scrub-Jay Survey Brevard County

Submitted to:

David L. Stites, Ph.D.

Director of Environmental Services Taylor Engineering, Inc. 10199 Southside Blvd Suite 310 Jacksonville, FL 32256

Submitted by: **Golder Associates Inc.** 6026 NW 1st Place, Gainesville, Florida, USA 32607

+1 352 336-5600

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Executive Summary

The USACE requested a 2018 survey of Florida Scrub Jays on the BV-24A DMMA property (Site) after observing a group of jays near the middle of the property. The Site, located approximately 2 km north of the city of Grant in Brevard County, Florida (Figure 1 – Site Location), is owned by the Florida Inland Navigation District (FIND). FIND plans to construct a dredged material management area on the Site and has submitted permit applications for the project. The US Army Corps of Engineers (USACE) requested an updated survey for Florida scrub-jays to complement the 2015 scrub-jay survey as part of their review of the FIND application for site development authorization.

Florida scrub-jay surveys were conducted in accordance with *Florida Scrub-Jay General Survey Guidelines and Protocols* (USFWS 2007) within the approximately 112-acre Site and on a 3.8-acre pipeline easement between September 12th and 20th, 2018. Results of the 2018 survey were compared with results of scrub-jay surveys conducted in March 2015. In general, scrub-jays appeared to use more of the property in 2018 than they did during the 2015 surveys.

A large nest in the southeastern portion of the Site was also assessed during the September 2018 scrub-jay survey period. While the nest appears to have been constructed by bald eagles, the nest did not appear to be active during the scrub-jay survey period and it does not appear on the Florida Fish and Wildlife Commission's eagle nest locator website.

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1.0 INTRODUCTION

The Florida Inland Navigation District (FIND) is planning to construct a dredged material management area (DMMA) on an approximately 112-acre BV-24A DMMA property (Site) located in Brevard County, Florida (Figure 1). As part of federal regulatory review for development authorization, USACE requested an updated Florida scrub-jay (*Aphelocoma coerulescens*; FSJ) survey in 2018. Golder Associates, Inc. was retained to conduct the FSJ survey on the Site and on a connected 3.8-acre pipeline easement. The survey was conducted from September 12th to 20th, 2018.





1.1 Site Description

The BV-24A property is largely undisturbed and is dominated by natural upland communities with interspersed freshwater marshes. Flatwoods and scrubby flatwoods communities cover the majority of the Site (FNAI Cooperative Land Cover v3; see 2015 unpublished report by Normandeau Associates, Inc. for more details and see Appendix A this report, Site Photographs, photo 1). Portions of the Site, especially the northwest side, are scrub with fewer palmettos and slash pines and more scrub oaks than in the scrubby flatwoods (Appendix A – Site Photographs, photo 2) and, consequently, higher quality FSJ habitat. In addition to the BV-24A DMMA Site, a 3.8-acre pipeline easement to the north of the Site has a small area of potential FSJ habitat.

1.2 Site Florida Scrub-Jay Survey Background

In March of 2015, a five-day scrub-jay survey was conducted on the BV-24A DMMA Site in conjunction with a survey on a Brevard County property to the north and west of the Site (Normandeau Associates, Inc. 2015, unpublished report). The 2015 survey found FSJs only on the western portion of the Site (Figure 2). Lack of FSJ use of other portions of the property with potentially suitable FSJ habitat (e.g., scrub between survey points 13 and 14 and by Point 29) may have been due to a higher density of tall pines than is typically preferred by FSJs.



Figure 2: 2015 Scrub-Jay Survey Daily Minimum Polygons (map by Normandeau Associates, Inc.)

In 2018, USFWS staff observed five FSJs in the central portion of the Site (between survey points 19 and 20 as illustrated on Figure 3) where they were not observed in the 2015 survey (Figure 2). A large nest, potentially constructed by bald eagles (*Haliaeetus leucocephalus*), was also observed by the USFWS on the Site (Figure 3, Appendix A – Site Photographs; photo 3) during the USFWS site visit.



Figure 3: 2015 Scrub-Jay Observations and High-Quality Habitat Buffer, 2018 USFWS Scrub-Jay Sightings, and Potential Eagle Nest (map by Taylor Engineering, Inc.)

2.0 METHODS

Florida scrub-jay survey methods in 2018 were the same as during the spring 2015 surveys. As in 2015, surveys were designed and led by Adam Kent, an ornithologist and a former Florida Scrub-Jay Conservation Coordinator for the Florida Fish and Wildlife Conservation Commission. In addition to the FSJ survey in the BV-24A DMMA Site, a 3.8-acre pipeline easement to the north of the Site was assessed for suitability for FSJs. The portion of this easement with the most potential to contain FSJs was surveyed.

In addition to FSJ surveys, a large nest was assessed to determine if it was an active bald eagle nest.

2.1 Florida Scrub-Jay Survey Methods

Florida scrub-jay survey methods followed the same methods employed in the 2015 scrub-jay survey as recommended in the *Florida Scrub-Jay General Survey Guidelines and Protocols* (USFWS 2007). Two biologists conducted five days of FSJ surveys from September 12th to 20th, 2018.

Survey points were spaced less than 200 m apart in FSJ habitat and marginal habitat, but not in areas deemed to contain unsuitable habitat (Figure 4). The point numbering system used in 2015 was used again in 2018 to ease comparisons between the two surveys.



Figure 4: Florida Scrub-Jay Survey Points

One new survey point, Point 31, was added in 2018 to cover FSJ habitat in the pipeline easement to the north of the Site (Figure 4). Point 31 was approximately 100 m to the north of Point 12, but not visible from Point 12 due to intervening vegetation. The areas around Point 31 were assessed as secondary FSJ habitat during the 2015 survey. Based on Breininger et al. (2006) and Breininger (2004), secondary FSJ habitat is defined as "containing palmetto oak scrub ridges >0.4 ha (1 ac) and surrounded by potentially suitable habitat. These scrub ridges are not as well defined as the scrub ridges in primary potential habitat, usually due to the presence of palmettos or a thicker non-oak shrub layer." No other new points were added along the pipeline easement due to lack of suitable FSJ habitat. The habitat in the remainder of the easement contained many tall trees and very thick vegetation (Appendix A – Site Photographs, photo 4) and was not suitable for FSJs.

Three survey points from 2015 (Points 21, 27, and 30; Figure 2) were not surveyed during this 2018 survey because they did not contain suitable habitat according to the 2015 report and current site conditions

Points were surveyed starting approximately 45 minutes after sunrise and finishing before the morning became hot enough that the scrub-jays became less active, before 10:30 a.m. Due to potential for excessive heat during the survey period, surveys started approximately 15 minutes earlier than the typical survey start time of one hour after dawn to maximize the survey time in which scrub-jays were likely to be most active. During the surveys, biologists noted that 10 or 15 minutes after dawn scrub-jays had started calling and perching on top of vegetation and within approximately 30 minutes after dawn the jays had begun to move about the site.

The same limitations to estimating the number of scrub-jays and scrub-jay family groups that applied to the 2015 survey applied to this survey. As in the 2015 survey, minimum estimates of the number of FSJs in an area

were made based on the number of birds visible at a specific point in time. As in 2015, maximum estimates of the number of birds were difficult to estimate because individual birds could not be distinguished from each other. To estimate the maximum number of FSJs on the Site, observations that could potentially represent different individuals were noted with a different letter on the field maps, though this number still likely represents a number higher than the actual number of birds at the Site.

During the five days of surveys, the area between survey points 19 and 20 was also revisited before and after the surveys because of the 2018 USFWS FSJ sighting in this area.

2.2 Nest Assessment Methods

A large nest described by the USFWS as a "potential eagle nest" is present on the Site to the southeast of survey point 20 (at 27.94236, -80.53799; Appendix A – Site Photographs, photo 3). Although the nest assessment was conducted outside of the bald eagle nesting season (Oct 1st to May 15th), the nest was visited several times and at different times of day during scrub-jay surveys and the ground surrounding the nest was searched for evidence of recent eagle use (e.g., fresh nest material, prey items, or bird droppings).

3.0 RESULTS

3.1 2018 Florida Scrub-Jay Survey Results

Florida scrub-jays were observed primarily on the northwestern portion of the Site, though they were also less frequently observed in the western and northeastern parts of the Site (Figure 5). No more than five FSJs were ever observed at one time during surveys. All five individual FSJs appeared to belong to the same family group.

3.1.1 Use of BV24-A Site by Scrub-Jays in September 2018

During the 2018 survey, FSJs utilized most of northwestern part of the Site, with less frequent use in the northeastern and western parts of the Site. As with the 2015 survey, each day's survey results were mapped in different colors so that areas with more frequent FSJ use could be easily detected.





Figure 5: 2018 Florida Scrub-Jay Survey Daily Minimum Polygons

In addition to FSJs observed during the formal five-day survey period times, FSJs were also observed in the late afternoon the day before the survey began and on one morning before the start of the formal survey period. All documented FSJs sightings from the Site are summarized in Table 1: 2018 Scrub-Jay Observations.

Date	Time	Point	#FSJs	Notes
11-Sept	18:45	11	5	All 5 FSJs flew in from W, then flew S (pre-survey, not mapped)
12-Sept	08:31	10	5	3 FSJs first seen to S, then flew N; 2 more FSJs to S
12-Sept	09:02	17	2	Likely 2 of same FSJs from previous point seen to N
13-Sept	10:01	11	3	FSJs to NW of point; flew to SW
13-Sept	10:14	17	2	2 FSJs flying very high from SW of point to N
14-Sept	07:50	10	5	5 FSJs already at point at 7:45. Flew N then S, then 3+ FSJs flew far to W out of sight

Table 1: 2018 Scrub-Jay Observations

Date	Time	Point	#FSJs	Notes
14-Sept	08:35	17	2	2 FSJs flew N from far to S, then flew back to SW
14-Sept	09:48	17,18	2	2 FSJs flew from SW of P18 to W, the to NW of P17
19-Sept	07:55	11	2	2 FSJ flew in from W to near P10 then flew S; later 2 FSJs flew towards P31
19-Sept	08:12	31	2	2 FSJs flew from near P31 to W out of sight
19-Sept	08:42	10	4	4 FSJs at point at start of count; 2 flew S and 2 flew W
19-Sept	09:08	13,14	1	1 FSJ flew N from E of P13
19-Sept	09:10	14	1	1 FSJ flew N from P14, then back to SW of P14
19-Sept	10:21	20	3	3 FSJ flew in from between P13 and P14, then flew W
20-Sept	07:25	11	4	(pre survey) 3 FSJs appeared to have spent night to east of P11; a 4^{th} FSJ joined the 3 others at 7:40; all moved between P11 and 12 and to W of P31 for about $\frac{1}{2}$ hour.
20-Sept	07:55	31	4	All 4 FSJs perched in same pine then flew to S between P11 and P12
20-Sept	08:23	11, 12	3	Likely same FSJs as from previous point between P11 and P12
20-Sept	08:30	11	1	1 FSJ flew N from N of P11.
20-Sept	08:42	10	1	1 FSJ flew E from NE of P10
20-Sept	10:15	12	3+	(post survey) 3 or more FSJs moving from P12 to E to near P13, then to S of P12, then to W of P31, then towards P11, then to SE of P11

As with the 2015 survey, FSJ sightings from all survey days were combined to form minimum convex polygons showing areas that were used by all FSJs observed during surveys (Figure 6). These polygons only represent areas used by FSJs observed during the five-day survey period and it is possible that FSJs could have used other areas when a surveyor was not present. The high-quality habitat buffer drawn around this combined FSJ observations polygon was the same as was used in 2015 (Figure 3) because habitat conditions had not changed noticeably. Based on Breininger et al. (2006), high-quality FSJ habitat was defined as containing scrub patches >1 ac, having an average shrub height of 4 to 5.5 ft, and <15% tree cover. Most areas around the occupied habitat polygon were lower habitat quality due either to the presence of too many trees or very small scrub oak patches.



Figure 6: Florida Scrub-Jay Survey Results and High-Quality Habitat Buffer

3.1.2 Estimated Number of Scrub-Jays on BV24-A Site in 2018

While five FSJs were observed at one time on the Site on a few occasions, fewer than five (usually 2 or 3) FSJs were observed during most counts (Table 1). While it is possible that as many as two additional FSJs could have been observed on at least one occasion for a total of 7 FSJs using the Site during the survey, it appears the Site was occupied by five FSJs in one family.

3.2 Comparison of 2018 and 2015 Florida Scrub-Jay Surveys

In comparison with the 2015 scrub-jay survey conducted by Normandeau Associates, Inc. (Figure 2, Figure 3), the 2018 survey found FSJs using a larger portion of the Site. Based on the 2018 survey results, the occupied area is 25.3 ac, compared with 6.5 ac during the 2015 survey. When a high-quality (see Section 3.1.1) habitat buffer is applied to these minimum convex polygons, the area in 2018 contains an additional 1.3 ac compared with an additional 3.5 ac in 2015 (Table 2). Increased usage of the Site was most evident in the northeastern and western parts of the Site.

Survey Year	FSJ Occupied Habitat	High-Quality Habitat Buffer
2015	6.5 ac	3.5 ac
2018	25.3 ac	1.3 ac

Table 2: Comparison of Areas of Occupied Habitat and High-Quality Habitat Buffers for 2015 and 2018 Surveys

3.3 Nest Assessment Results

There is a large nest (Appendix A – Site Photographs, photo 3) on the Site in a pine tree southeast of Point 20 (Figure 3). The nest appeared to have been constructed by bald eagles based on the diameter of the sticks it contained. No evidence of recent use was present at any point during the several times the nest was checked before, during, or after FSJ surveys.

The FWC's Eagle Nest Locator website shows several eagle nests within 16 km (10 miles) of the Site. The closest nest documented by FWC to the nest on the Site is BE041, last surveyed and active in 2016. BE041 is approximately 700 m to the south of the nest on the Site (at 27.93606, -80.53722).

The following bald eagle observations were made from the Site during FSJ surveys:

- 1. One adult perched in a large pine in the northeast corner of the Site on the afternoon of 11 September while setting survey points
- One juvenile (likely hatched in spring of 2018) perched in a large pine northeast of Survey Point 13 on 19 September in late morning
- 3. One adult flying past the southern boundary of the Site and another (possibly the same birds) flying west of the Site on the morning of 20 September

4.0 **DISCUSSION**

There were likely five FSJs in one family using the Site during the 2018 survey. No aggressive behaviors were observed during FSJs observations so it is likely these five birds represent one family. FSJ minimum convex polygons covered almost four times as much of the Site in 2018 as in 2015 surveys, while the 100-m buffer around the FSJs polygons covered approximately 3.5 times as much land within the Site. The main increases in Site use came in the northern and western portions of the Site.

In addition to FSJs observed on the Site during the five days of formal surveys, one group of at least three FSJs was observed on most mornings approximately 1,300 m west of the Site (at 27.95149, -80.55640). No attempt was made to follow these birds, but they were observed for several minutes on more than one occasion and were never seen flying far to the east towards the Site. Due to the distance from the Site and the timing of on-Site FSJ observations, it seems unlikely that these FSJs would be the same individuals observed during surveys.

The large nest on the site likely was constructed by a bald eagle due to the large diameter of many of the sticks it contained. Bald eagle nesting season is typically from October 1st to May 15th (FWC 2008) so it is possible the nest was used by eagles during the 2017-2018 nesting season and the juvenile eagle observed on the Site could have been hatched from the nest. It is also possible that the nest on the Site was an alternate eagle nest that was not used for rearing young. Most bald eagle territories in Florida contain more than one active eagle nest (FWC 2008). The nest could be used in future years by bald eagles even if it was not previously used. Additional nest surveys during the 2018-2019 nesting period would be necessary to determine nest activity.

In addition to the FSJ and bald eagle, the following bird species observed on the site are considered Birds of Conservation Concern by the USFWS (USFWS 2008) but are not classified as threatened or endangered: common ground-dove (*Columbina passerina*), loggerhead shrike (*Lanius ludovicianus*), brown-headed nuthatch (*Sitta pusilla*), prairie warbler (*Setophaga discolor*), and Bachman's sparrow (*Peucaea aestivalis*). The following state-listed species (FWC 2017) were also observed on the site during FSJ surveys: Florida sandhill crane (*Antigone canadensis pratensis*) and little blue heron (*Egretta caerulea*).

5.0 **REFERENCES**

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Golder Associates Inc.

Adem Kent

Adam Kent Senior Project Environmental Scientist

Kal sell

Karl Bullock Associate and Senior Scientist

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Site Photographs

APPENDIX A



Photo 1: Flatwoods to the north of Points 17 and 18



Photo 2: Scrub to the south of Point 10



Photo 3: Nest potentially belonging to bald eagle



Photo 4: Photo looking into overgrown pipeline easement to west of Old Dixie Hwy



Blank Survey Datasheet

APPENDIX B

October 29, 2018

			art: Temp end:	Comments (inc. direction FSJs travelled to and from, behaviors, nteractions, predators)								
Page0			Temp st	MapRef								
			l code:	BANDS								
	end time:		aufort winc	#UNKs								
Date:	Overall		: Be	svu[#								
			.). Sky code	#Adults								
/ Datasheet	art time:	Jame(s):	see reverse	StartTime								
FSJ Survey	Overall sta	Monitor N	Weather (Point#								

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October 29, 2018

	test Cadaa 0 DDC Clar Cadaa		
21	ort Codes & BBS Sky Codes		
		Wind Speed in	_
В	eaufort Wind Codes	mph/Kph	
0	Smoke rises vertically	< 1 / < 2	
-	Wind direction shown by smoke drift	1-3 / 2-5	
5	Wind felt on face; leaves rustle	4-7 / 6-12	
3	Leaves, small twigs in constant motion; light flag extended	8-12 / 13-19	
4	Raises dust and loose paper; small branches are moved	13-18 / 20-29	-
5	Small trees in leaf sway; crested wavelets on inland waters	19-24 / 30-38	-
S	xy Codes		_
0	Clear or a few Clouds		
-	Partly cloudy (scattered) or variable sky		-
5	Cloudy (broken) or overcast		
4	Fog or smoke		
5	Drizzle or light rain		
	Snow		

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Showers

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