

Meeting Date
05/12/15



AGENDA	
Section	CONSENT
Item No.	II. B.2

AGENDA REPORT
BREVARD COUNTY BOARD OF COUNTY COMMISSIONERS

SUBJECT:	Memorandum of Agreement RE: Glenridge East, LLC scrub restoration work at the Malabar Scrub Sanctuary – District 3
DEPT/OFFICE:	Parks and Recreation Department Environmentally Endangered Lands (EEL) Program

Requested Action:
It is requested that the Board of County Commissioners approve and authorize the Chairman to execute the Memorandum of Agreement (MOA) between the Board of County Commissioners of Brevard County, Florida and Glenridge East, LLC., to allow the developer to complete scrub restoration work on the Malabar Scrub Sanctuary to satisfy the developer's mitigation permit conditions.

Summary Explanation & Background:
The Environmentally Endangered Lands (EEL) Program has a need for scrub restoration work to be completed at the Malabar Scrub Sanctuary. A developer, Glenridge East, LLC. has requested to complete this needed work to satisfy the conditions of their Army Corps of Engineers (ACOE) permit# SAJ-2013-02728, to compensate for scrub impacts caused by an off-site development project by Glenridge East, LLC. The proposed project will restore scrub habitat on the sanctuary, which is consistent with the Site Management Plan. This much needed work, which will be provided free of charge to the County, will restore 13.8 acres of scrub habitat and provide burning that the site requires. The subsequent habitat monitoring over the next 25 years will also be performed by the developer at no cost to the County. In addition, the developer will be paying \$16,560 to the County, for long term maintenance of this site. This is a one time payment.

In order for the developer to perform the work on the EEL Program managed lands, the County must grant permission to the developer which defines the terms and conditions through the approval of the attached MOA. The execution of the MOA between the County and the developer will ensure that any unauthorized impacts or uses of the sanctuary, which are a result of action by the developer, will be corrected by the developer and that the developer will indemnify and hold harmless the County from all claims, losses, and expenses arising out of or resulting from the performance of the work on the property. The MOA will be for a period of twenty-five (25) years unless either terminated or extended by both parties.

Fiscal Impacts:
FY 14/15 - There will be revenue in the amount of \$16,560 to EEL funds.
FY 15/16 - There are no fiscal impacts

Name: Mike Knight, EEL Program Manager
Phone: 321-255-4466
mike.knight@brevardparks.com

Clerk to the Board instruction: Please return two (2) originals to the EEL Program.

Exhibits Attached: MOA (3), Exhibit 1, Exhibit 2, Exhibit 3 (Scope of Work), Exhibit 4 (Biological Opinion)

Contract /Agreement (If attached): Reviewed by County Attorney Yes No PR

County Manager	Deputy County Manager, Mel Scott	Department Director, Parks & Recreation, Jack Masson
Stockton Whitten	Assistant County Manager, Venetta Valdengo <i>Venetta Valdengo</i>	<i>Jack Masson</i>



Tammy Etheridge, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972

May 13, 2015

MEMORANDUM

TO: Jack Masson, Parks and Recreation Director

RE: Item II.B.2., Memorandum of Agreement with Glenridge East, LLC for Scrub Restoration Work at Malabar Scrub Sanctuary

The Board of County Commissioners, in regular session on May 12, 2015, executed Memorandum of Agreement with Glenridge East, LLC, to allow the developer to complete scrub restoration work on the Malabar Scrub Sanctuary to satisfy the developer's mitigation permit conditions. Enclosed are two fully-executed copies of the Memorandum of Agreement.

Your continued cooperation is greatly appreciated.

Sincerely yours,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Etheridge

Tammy Etheridge, Deputy Clerk

Encls. (2)

cc: EEL Program Manager
Contracts Administration
Finance
Budget

**BREVARD COUNTY
BOARD OF COUNTY COMMISSIONERS**

INITIAL CONTRACT FORM

SECTION I

The following information must be completed on all new contracts submitted to the Board.

1. Contractor: Glenridge East, LLC	
2. Fund/Account #: 3219/340250	Division Name: EEL PROGRAM
4. Contract Description: MOA with Glenridge East, LLC for mitigation project –Malabar Scrub Sanctuary	
5. Contract Monitor: JENNY ASHBURY	6. Mail Stop #: 74
7. Dept./Office Director: JACK MASSON	8. Contract Type:
ACTION DATE: PLEASE CALL JENNY 321-369-8169 WHEN ORIGINALS AND AO 29 ARE READY	ACTION REQUIREMENT: Need complete data

SECTION II

The following departments must approve all contracts submitted to the Board:

<u>COUNTY OFFICE</u>	<u>APPROVAL</u>		<u>INITIALS</u>	<u>DATE</u>
	<u>YES</u>	<u>NO</u>		
User Agency	x		MK	3/20/15
Risk Management	_____	_____	_____	_____
County Attorney	_____	_____	_____	3/24/15

If any office denies approval, the package will be returned immediately to the User Agency.

NOTE: This form should be attached to all new contracts being submitted to the Board for approval. After the contract has been approved, the contract package, including this form, will go to the Clerk to the Board. The Clerk's office will return the Initial Contract Form to department for contract to be entered into the Contract Management System. See AO-29 for additional information.

AO-29: EXHIBIT I

**BREVARD COUNTY
BOARD OF COUNTY COMMISSIONERS**

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	<u>YES</u>	<u>NO</u>		
User Agency	x		MK	3/20/15
Risk Management	x		JLJ	3/23/15
County Attorney	_____	_____	_____	_____

If any office denies approval, the package will be returned immediately to the User Agency.

NOTE: *This form should be attached to all new contracts being submitted to the Board for approval. After the contract has been approved, the contract package, including this form, will go to the Clerk to the Board. The Clerk's office will return the Initial Contract Form to department for contract to be entered into the Contract Management System. See AO-29 for additional information.*

AO-29: EXHIBIT I

THIS MEMORANDUM OF AGREEMENT, hereinafter referred to as "MOA", is hereby made and entered into by and between the Board of County Commissioners of Brevard County, Florida, hereinafter referred to as "COUNTY", and GLENRIDGE EAST, LLC, hereinafter referred to as "GLENRIDGE EAST".

WITNESSETH

WHEREAS, COUNTY owns the Malabar Scrub Sanctuary located at 951 Briar Creek Blvd, Malabar, FL, hereinafter referred to as the "Property", and manages the Property through the Brevard County Environmentally Endangered Lands (EEL) Program and the Malabar Scrub Sanctuary Management Plan; and

WHEREAS, GLENRIDGE EAST is required, as a condition of Permit # SAJ 2013-02728 issued by the Army Corps of Engineers (ACOE) to construct an on offsite mitigation project ("Project") to compensate for scrub impacts anticipated in the development of Glenridge Subdivision; and

WHEREAS, the proposed Project will enhance scrub function on the Property and is consistent with the goals of the Malabar Scrub Sanctuary Management Plan; and

WHEREAS, COUNTY agrees to allow GLENRIDGE EAST access to the Property for the purposes of constructing the Project as, more particularly described in Exhibit "A".

NOW THEREFORE, in consideration of the faithful and timely performance of and compliance with all the terms and conditions stated herein, the COUNTY does hereby grant to GLENRIDGE EAST, the right to use the Property subject to the following terms and conditions:

1. SCOPE OF AGREEMENT: This MOA covers the use of the Property for the purposes of constructing the Scrub Mitigation Plan required by ACOE Nationwide Permit #SAJ 2013-02728, and the US fish and Wildlife Service Biological Opinion, hereinafter referred to as the USFWS BO. A copy of the Scrub Mitigation Plan is attached as Exhibit "A". The terms and requirements of the USFWS BO are adopted and incorporated into this MOA by reference.

2. TERM: This MOA is for a period of Twenty-five (25) years, commencing on the effective date of this MOA, unless sooner terminated by COUNTY or otherwise extended in writing by both parties to this MOA to coincide with the requirements of the USFWS BO.

3. UNDUE WASTE: GLENRIDGE EAST shall not commit undue waste to the premises. GLENRIDGE EAST shall restore landscape features damaged during construction to the satisfaction of the property's Environmentally Endangered Lands Program Land Manager, at hereinafter referred to as Land Manager.
4. RIGHT OF INSPECTION: COUNTY or its duly authorized agent shall have the right at any time to inspect the works and operation of GLENRIDGE EAST pertaining to this MOA.
5. PROPERTY RIGHTS: This MOA constitutes permissive use only, and the placing of permanent facilities or related structures upon the premises pursuant to this MOA is prohibited. GLENRIDGE EAST agrees that it does not and shall not claim at any time any interest or estate of any kind or extent whatsoever in the premises, by virtue of this MOA or its occupancy or use hereunder.
6. USE OF PROPERTY: This MOA shall be non-exclusive. COUNTY, or its duly authorized agents, shall retain the right to enter the premises or to engage in management activities not inconsistent with the use herein provided for, and COUNTY shall retain the right to grant compatible uses of the Property, subject to this MOA, to third parties during the term of this MOA.
7. PROHIBITIONS: In order to preserve and protect the project, COUNTY and GLENRIDGE EAST agree that, except for enhancement activities permitted by this MOA, the following activities shall be prohibited within the Property:
 - 7.1. Construction or placing of buildings, roads, signs, billboards or other advertising, utilities or other structure on or above the ground.
 - 7.2. Dumping or placing of soil or other substances or materials as landfill or dumping or placing of trash, waste or unsightly or offensive material.
 - 7.3. Removal or destruction of trees, shrubs, or other vegetation (other than exotics) except that vegetation in the Project area; Diking or any other activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation or fish and wildlife habitat preservation.
8. MAINTENANCE OF PROJECT: Upon completion of the Project or termination of this MOA, whichever comes first, maintenance shall become the responsibility of COUNTY. COUNTY agrees to maintain the Project enhancements in accordance with the Sanctuary management Plan and EEL Program policies. GLENRIDGE EAST agrees to pay the COUNTY, and the COUNTY agrees to accept, a one-time maintenance fee of \$16,560.00 upon completion of the restoration described in Exhibit A to the USFWS permit standards. COUNTY agrees to maintain the Property in a manner that would not adversely impact the improved vegetative, hydrologic, and open condition of the

Property. Further for up to 25 years, COUNTY agrees to implement management actions as necessary to maintain the property as suitable scrub-jay habitat as described in Exhibit A.

9. LIABILITY: GLENRIDGE EAST agrees to indemnify and hold harmless COUNTY from all claims, losses and expenses, arising out of or resulting from its performance of the Project, caused in whole or in part by any negligent act or omission of GLENRIDGE EAST, any of GLENRIDGE EAST'S contractors, subcontractors, or any of employees, agents or representatives. GLENRIDGE EAST agrees that it will pay the costs of the COUNTY's legal defense, including fees of attorneys, as may be selected by COUNTY and shall defend, satisfy, pay any judgments which may be rendered against COUNTY in connection with the above hold harmless agreement. GLENRIDGE EAST shall be solely responsible for any liability, damages, costs, fines and administrative or criminal enforcement actions resulting from the relocation of any endangered or protected species required to implement the Project. GLENRIDGE EAST shall be responsible to the COUNTY for the acts and omissions of GLENRIDGE EAST'S employees, Subcontractors and Sub- subcontractors, suppliers, their agents and employees, and other persons performing any of the work and for their compliance with each and every requirement of the Project, in the same manner as if they were directly employed by GLENRIDGE EAST. GLENRIDGE EAST acknowledges specific consideration has been received for this hold harmless/indemnification provision. The duties and responsibilities established in this paragraph shall survive expiration or termination of this MOA.

10. APPLICABLE LAW AND VENUE: This MOA shall be interpreted and construed in accordance with and governed by the laws and ordinances of Brevard County and the State of Florida. Venue for any legal action brought by any party to this MOA to interpret, construe or enforce this agreement shall be in a court of competent jurisdiction in and for Brevard County, Florida, and any trial shall be non-jury.

11. ATTORNEY'S FEES: In the event of any legal action to enforce the terms of this MOA, each party shall bear its own attorney's fees and costs.

12. AMENDMENTS: No modification, amendment, or alteration in the terms or conditions contained herein shall be effective unless contained in a written document prepared with the same or similar formality as this MOA and executed by COUNTY and GLENRIDGE EAST.

13. ENTIRE AGREEMENT: This MOA incorporates and includes all prior negotiations, correspondence, conversations, agreements, and understandings applicable to the matters contained herein and the parties agree that there are no commitments, agreements or understandings concerning the subject matter of this MOA that are not contained in the MOA. Accordingly, the parties agree that no deviation from the terms hereof shall be predicated upon any prior

representations or agreements, whether oral or written. It is further agreed that no modification, amendment or alteration in the terms and conditions contained herein shall be effective unless contained in a written document in accordance with paragraph 12 above.

14. SUCCESSION OF AGREEMENT: This MOA and the rights and obligations contained herein shall insure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

15. ASSIGNMENT: This MOA is personal to GLENRIDGE EAST and may not be transferred or assigned without the prior written approval of COUNTY, which shall not be unreasonably withheld. COUNTY and GLENRIDGE EAST recognize and agree that some or all of the activities permitted under this MOA may be performed by GLENRIDGE EAST or GLENRIDGE EAST'S contractor under separate agreement with GLENRIDGE EAST. Such performance by GLENRIDGE EAST's contractor does not create or impose any duty or responsibility between COUNTY and GLENRIDGE EAST's contractor, nor does it relieve GLENRIDGE EAST of any duty, responsibility, or liability under this MOA.

16. REMOVAL OF DEBRIS: On a daily basis, GLENRIDGE EAST shall clear, remove and pick up all of GLENRIDGE EAST's and its contractor's debris including but not limited to mud containers, oil containers, papers, discarded tools and trash foreign to the work locations and dispose of the same offsite in such a manner as to leave work locations clean and free of any such debris.

17. TRIPPLICATE ORIGINALS: This MOA is executed in triplicate originals each of which for all purposes shall be considered an original.

18. COMPLIANCE WITH LAWS: This MOA is contingent upon and subject to GLENRIDGE EAST obtaining all applicable permits, regulations, ordinances, rules, and laws of the State of Florida, the United States or of any political subdivision or agency thereof.

19. RESPONSIBILITY FOR COMPLIANCE: The parties hereto contemplate the performance of all or a part of the activities authorized herein by GLENRIDGE EAST. Notwithstanding the foregoing, GLENRIDGE EAST shall bear the full and ultimate responsibility and liability to COUNTY for the faithful and timely compliance with the terms and conditions set forth herein.

20. DAMAGE: GLENRIDGE EAST shall not damage the premises, or unduly interfere with public or private rights therein.

21. TERMINATION:

21.1. This MOA will terminate automatically without further action by either Party in the event that the USFWS permit expires prior to commencement of Project construction.

21.2. This MOA may be terminated by COUNTY for cause. Termination pursuant this section shall include, but not be limited to, failure to suitably perform the work or failure to continuously perform the work in a manner calculated to meet or accomplish the objectives of COUNTY as set forth in the MOA, or in the event it is determined that termination is necessary to protect the public health, safety or welfare.

21.3 GLENRIDGE EAST, by acceptance of the MOA, binds itself, its successors and assigns, to abide by the provisions and conditions shall be deemed covenants of GLENRIDGE EAST, its successors and assigns. In the event GLENRIDGE EAST fails or refuses to comply with the provisions and conditions herein set forth or in the event GLENRIDGE EAST violates any of the provisions and conditions herein, COUNTY, shall give notice to GLENRIDGE EAST that curative action must be completed within a thirty (30) day curative period. COUNTY may elect to terminate this MOA by means of a letter of termination. In the event this MOA is terminated by COUNTY, all rights inuring to GLENRIDGE EAST or its successors shall cease upon the effective date of the letter of termination with the exception of those activities necessary to demobilize and remove personnel and equipment. GLENRIDGE EAST'S obligations and responsibilities under paragraphs 9 and 25 of this MOA shall survive termination.

22. All notices given under this MOA shall be in writing and shall be served by certified mail to the last address of the party to whom notice is to be given, as designated by such party in writing. COUNTY and GLENRIDGE EAST hereby designate their address as follows:

NAME:

GLENRIDGE EAST, LLC
C/O Chad Genoni
4760 N. US1 #201
Melbourne, FL 32935

CONSULTANT:

Atlantic Environmental Solutions
C/O Jon Shepherd
1301 W Eau Gallie Blvd
Suite 98

Melbourne, FL 32935

COUNTY: Brevard County Parks & Recreation
C/O Mike Knight, EEL Program Manager
Environmentally Endangered Lands Program
91 East Drive
Melbourne, Florida 32904

23. REMOVAL OF EQUIPMENT: Upon termination or expiration of the MOA, the removable equipment and removable improvements placed on the premises by GLENRIDGE EAST that have not become a permanent part of the premises and are not desired by COUNTY, shall be removed by GLENRIDGE EAST, at its sole cost and expense, within thirty (30) days after the termination or expiration of this MOA. GLENRIDGE EAST's failure to remove said items within the thirty (30) day time period shall constitute abandonment and all rights there to shall be considered forfeited. Further, GLENRIDGE EAST shall restore the premises to substantially the same or better condition it was upon the effective date of MOA.

24. ENFORCEMENT OF PROVISIONS: No failure, or successive failures on the part of COUNTY to enforce any provision nor any waiver or successive waivers on its part of any provision herein, shall operate as a discharge thereof or render the same inoperative or impair the right to COUNTY to enforce the same upon any extension thereof or in the event of subsequent breach or breaches.

25. PROHIBITIONS AGAINST LIENS OR OTHER ENCUMBRANCES: Fee title to the premises is held by COUNTY. GLENRIDGE EAST shall not do or permit anything to be done which purports to create a lien or encumbrance of any nature against the real property contained in the premises including, but not limited to, mortgages or construction liens against the premises or against any interest of COUNTY.

26. SEVERABILITY: If any term, covenant, condition or provision of this MOA shall be ruled by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

27. SPECIAL CONDITIONS: GLENRIDGE EAST shall comply with the following conditions which are in addition to the Scrub Mitigation Plan and a part of this MOA:

27.1. GLENRIDGE EAST shall coordinate with and obtain prior written approval of the Land Manager, including approval of proposed contractors and subcontractors, which shall not be unreasonably withheld, before undertaking any construction, maintenance, or repair activity on the

Property. Such approval shall not alter GLENRIDGE EAST's liability as set forth in Paragraph 9.

- 27.2. It is understood and agreed that the Land Manager shall have the authority to direct GLENRIDGE EAST or GLENRIDGE EAST'S contractor or subcontractors onsite to cease construction of the Project in cases where public safety is at risk or for the failure to meet all permit specifications.
- 27.3. GLENRIDGE EAST shall not remove or destroy any trees, shrubs, or other vegetation, other than exotics, outside of the restoration site where the mitigation project will take place.
- 27.4. GLENRIDGE EAST must obtain a "Notice to Proceed" from the Land Manager prior to initiating any onsite construction activities.
- 27.5. Final approval of construction activities must be obtained from the Land Manager to be in compliance with the USFWS Permit.
- 27.6. A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid/quote/proposal on a contract to provide goods or services to a public entity, may not submit a bid/quote/proposal on a contract with a public entity for construction or repair of a public building or public work, may not submit bids/quotes/proposals on leases of rental property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of threshold amount provided in Section 287.017 for CATEGORY TWO (\$25,000) for a period of 36 months from date of being placed on convicted vendor list. GLENRIDGE EAST agrees to not propose any contractors or subcontractors who would be disqualified by the preceding statement.
- 27.7. GLENRIDGE EAST shall make available to each proposed contractor or subcontractor, prior to the execution of an agreement, copies of this Memorandum of Agreement and Exhibits and identify to the contractor or subcontractor any terms and conditions of the proposed agreement which may be at variance with this Agreement.
28. INSURANCE: GLENRIDGE EAST shall purchase and maintain in companies properly licensed and qualified to do business in the State of Florida, and acceptable to the COUNTY, such insurance as will protect GLENRIDGE EAST, and the COUNTY, and their agents, representatives, and employees from

GLENRIDGE EAST under the terms of the Contract. Subcontractor's insurance shall be the responsibility of GLENRIDGE EAST.

29. INDEPENDENT CONTRACTOR: GLENRIDGE EAST shall perform the services under this MOA as an independent contractor and nothing contained herein shall be construed to be inconsistent with this relationship or status. Nothing in this agreement shall be interpreted or construed to constitute GLENRIDGE EAST or any of its agents or employees to be the agent, employee or representative of COUNTY.

30. RIGHT TO AUDIT RECORDS: In the performance of this MOA, GLENRIDGE EAST shall keep books, records, and accounts of all activities, related to this MOA, in compliance with generally accepted accounting procedures. Books, records and accounts related to the performance of this MOA shall be open to inspection during regular business hours by an authorized representative of COUNTY and shall be retained by GLENRIDGE EAST for a period of three (3) years after termination of this MOA. All records, books and accounts related to the performance of this MOA shall be subject to the applicable provisions of the Florida Public Records Act, Chapter 119, Florida Statutes.

31. EFFECTIVE DATE. This MOA or any modification, amendment or alteration thereto, shall not be effective or binding upon any of the parties hereto until the latest date of execution of the parties.

ATTEST:



Scott Ellis, Clerk of Court

**BREVARD COUNTY
BOARD OF COUNTY
COMMISSIONERS OF BREVARD,
COUNTY, FLORIDA**

By: 
Robin Fisher, Chairman

As approved by the Board on: May 12, 2015

Reviewed for legal form and content:



Christine Lepore, Assistant County Attorney

Date: 3/26/15

claims which may arise out of or result from GLENRIDGE EAST'S operations under this Agreement, whether such operations be by the contractor or by any subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

GLENRIDGE EAST, at its own expense, will provide proof before beginning any work and keep in force at all times and maintain during the term of this MOA the following coverage:

- 28.1. WORKER'S COMPENSATION AND EMPLOYERS LIABILITY INSURANCE covering all persons conducting operations on County's Property or on behalf of County.
- 28.2. GENERAL LIABILITY INSURANCE policy with a \$1,000,000 combined single limit for each occurrence to include the following coverage: operations, products and completed operations, personal injury, contractual liability covering this Contract, and "X-C-U" hazards.
- 28.3. AUTO LIABILITY INSURANCE which includes coverage for all owned, non-owned and rented vehicles with a \$1,000,000 combined single limit for each occurrence.
- 28.4. The General Liability and Auto Liability certificates of insurance shall indicate that the policies have been endorsed to cover County as an additional insured and that these policies may not be canceled or modified without thirty (30) days prior written notice to County.
- 28.5. GLENRIDGE EAST will provide the COUNTY with Certificate(s) of Insurance on all policies of insurance and renewals thereof in a form acceptable to the COUNTY. Said Liability Policies shall provide that the COUNTY be additional insured. The COUNTY shall be notified in writing of any reduction, cancellation or substantial change of policy or policies at least thirty (30) days prior to the effective date of said action. All insurance policies shall be issued by responsible companies who are acceptable to the COUNTY and licensed and authorized under the laws of State of Florida.
- 28.6. The insurance coverage enumerated above constitutes the *minimum* requirements and shall in no way lessen or limit the liability of

GLENRIDGE EAST, LLC.

By: 

Its: Manager Member

Appendix A

Exhibit 1- Location of the Malabar Scrub Sanctuary

Exhibit 2- Project Area: (2 maps)

Exhibit 3- Scope of Work

Exhibit 4- USFWS BO



Project: Glen Ridge Subdivision

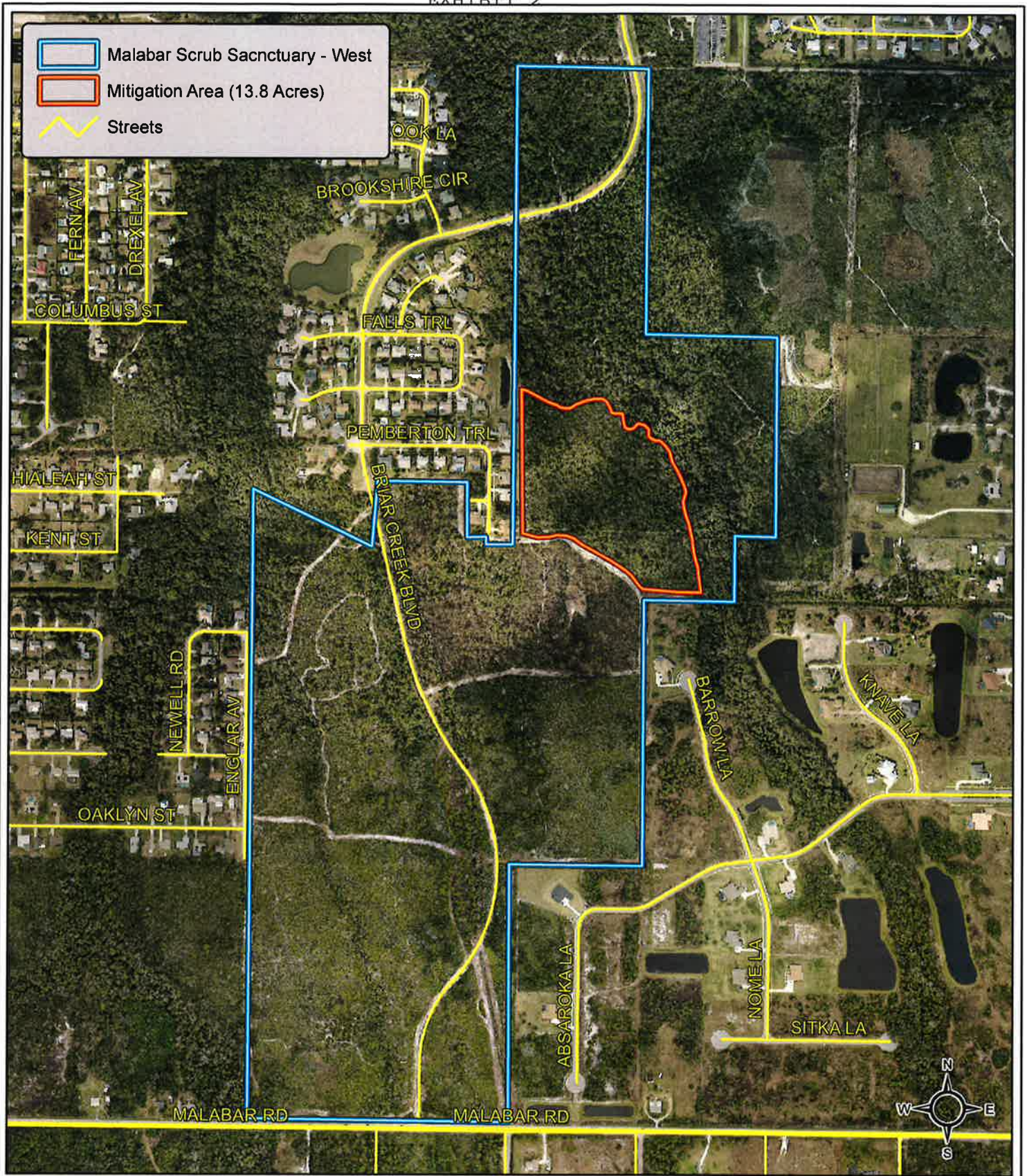
Figure 1: Mitigation Location Map



Brevard County, Florida



AES Proj #: 1332



Project: Glen Ridge Subdivision

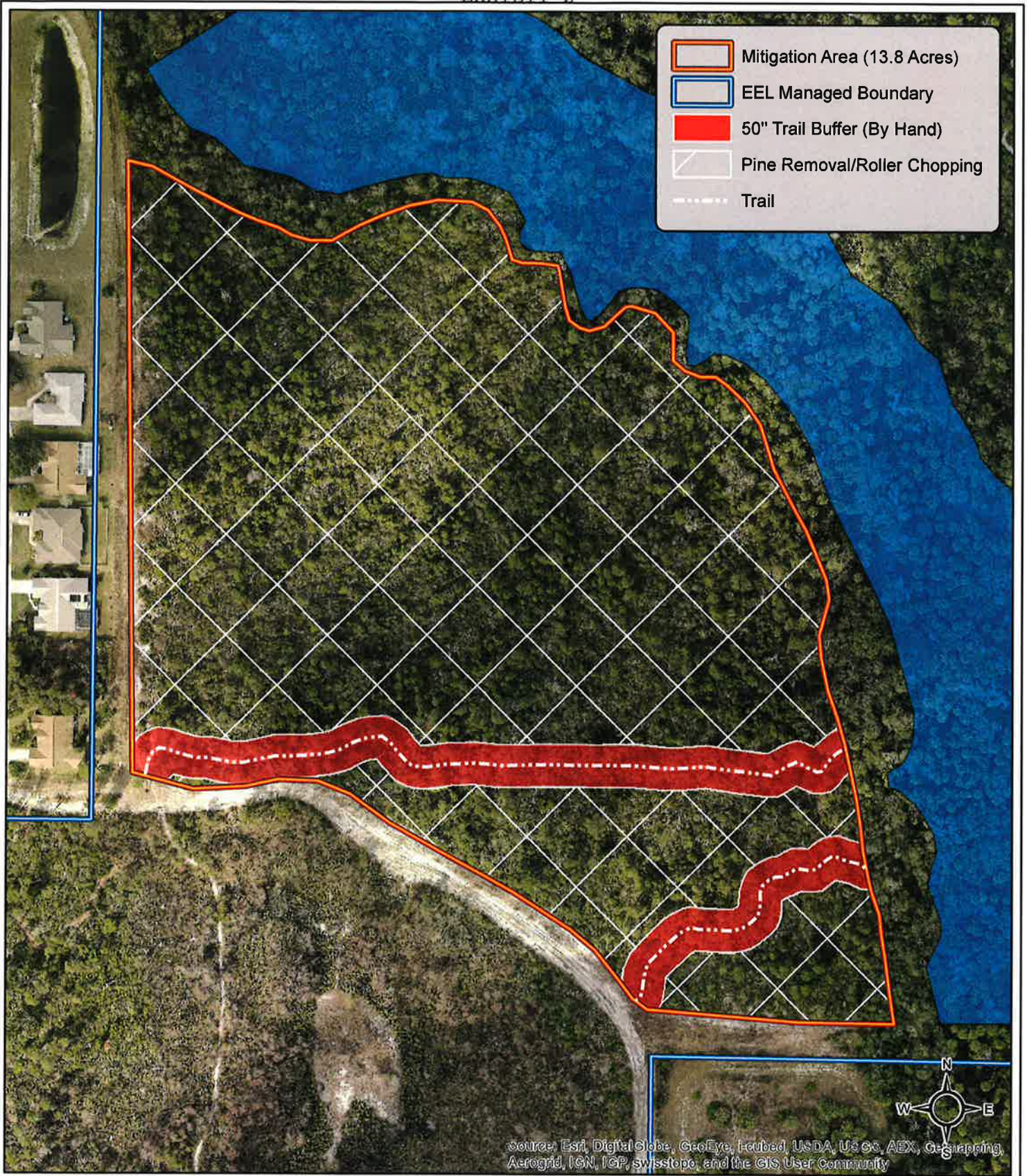
Figure 2: Scrub-Jay Mitigation Map



2012 Aerial, Brevard County, Florida



AES Proj #: 1332



Project: Glen Ridge Subdivision

Figure 3: Restoration Plan Map



2012 Aerial, Brevard County, Florida



AES Proj #: 1332

Exhibit 3 Scope of Work

The project area consists of 13.8 acres, located within Malabar Scrub Sanctuary. Malabar Scrub Sanctuary is located at 951 Briar Creek Blvd, Malabar FL 32950. (Exhibits 1&2) Within the project area the scrub and scubby flatwoods has become overgrown due to lack of fire for over 30 years, this has allowed the sand pines, saw palmetto and oaks to become overgrown. The restoration efforts of this project are to enhance the habitat of the Florida Scrub Jay, by reducing the vegetation height, removing hardwoods and providing increased open sandy areas. The restoration that will be provided through this project will be removal of all sand pines, oak trees over 8 feet tall, rollerchopping of the understory and a prescribed burn to be completed within one year of the rollerchopping.

The vegetation throughout the project area is extremely overgrown. The understory vegetation must be roller chopped. In addition, sand pines in the area will need to be removed or burned on site at an approved area(s), in preparation of the prescribed burn. The project is intended to improve wildlife habitat by reducing vegetation height and density followed by a prescribed fire that will reduce fuel loads and provide open sandy areas for the Florida Scrub Jay. The reduced vegetation height will allow the Florida Scrub Jay better protection from predators such as the Cooper's Hawk. This project will allow for the potential for Florida Scrub Jays to use of this area and possible translocation in the future.

The project goals are to remove 100% of the sand pines and larger oak trees (over 8 feet in height). All downed trees dbh of 4 inches or greater should be removed as well, to reduce the potential smoke issues associated with prescribed fire. To preserve the longleaf and slash pines that are to remain rollerchopping should not take place with fifteen feet drip line of the tree. Drip line is defined as the circle that could be drawn in the soil that outlines the outer most tips of the trees branches.

In order to conduct a prescribed fire the burner must be a Certified Prescribed Burner with the Florida Forest Service. To conduct burns to remove debris the contractor must be a Certified Pile Burner with the Florida Forest Service. The EEL Program must be notified one day prior to any prescribed burn or pile burn. The EEL program must approve the fire prescription prior to the prescribed burn. The EEL Fire Manager or approved staff member must be present during the prescribed burn for observation purposes. Debris piles for burning must be approved by EEL staff.

EEL Program staff will meet with contractors prior to the beginning of the project to ensure that all aspects of the project are clearly identified. The contractor will use existing roads and firelines throughout the project area. The contractor will avoid all areas flagged by EEL staff.

Mechanical Vegetation Reduction:

Mechanical reductions must be completed within the areas shown in Exhibits 1 & 2. **Also, no mechanical reduction is permitted within 25' of existing trails as marked on the Exhibits. No oak trees will be removed from this buffer as well.**

Vegetation height and density on the work site must be reduced in preparation for prescribed burning. The contractor shall provide all equipment and labor. Vegetative reduction will be done in such a way as to accomplish effective chopping while minimizing soil disturbance and avoid killing saw palmetto (*Serenoa repens*). Vegetation will be reduced to 12" or less throughout the project area. Prior to reduction, EEL Program staff may indicate sensitive natural areas to be avoided. The EEL program will provide maps to the contractor and flag areas that must not be treated.

If using a roller chopper or renovator, the amount of water in each drum must be approved by the Land Manager or the Assistant Land Manager prior to the start of the project. The amount of water in each drum might change during the project depending on vegetation type and weather condition. The Land Manager or Assistant Land Manager reserves the right to change the water level in each drum at any time during the project to prevent unnecessary soil disturbance.

Rubber tracked vehicles are required to pull the roller chopper or renovator during mechanical reduction. Tracked vehicles may be used during the pine removal stage of the project. All equipment to be used must be approved by the Land Manager.

Tree Removal

- 1) All conditions of the USFWS Biological Opinion must be met.
- 2) All standing sand pines and oak trees larger than 8 feet are to be removed from the project area. Any downed (DBH larger than 4 inches) or dead standing are to be removed as well. Some dead standing trees may be left of environmental purposes. All slash and long leaf pine are to remain.
- 3) Access by equipment and designation of staging areas must be done a way to minimize soil disturbance. Repairs of damaged roads, firebreaks and fences shall be the responsibility of the contractor. The EEL Program and the contractor will determine staging sites prior to the project starting.
- 4) Disturbance to wetlands must be avoided, any damages to wetlands will be the responsibility of the contractor to repair.
- 5) The vegetative debris resulting for the timbering shall be burned on site or removed from the property. It is understood that the if the timber has no market value. EEL staff will **NOT** be responsible for the burning of debris piles or removal.
- 6) Due care shall be exercised against the starting and spreading of wildfires during the projects duration. The contractor shall be held liable for all damages caused by such fires. All permits must be obtained prior to any burn activity on site.
- 7) Contractor should list all equipment to be used.
- 8) The Mitigant and any contractor or subcontractor agrees to cut and remove said timber in accordance with the following conditions:
 - a. Any damage caused by the contractor or subcontractor to fences, roads, culverts, or any other improvements on site, shall be repair by the contractor.
 - b. Contractor shall cut stumps so as to cause the least possible waste and not higher than six inches above the ground.
 - c. If used, all proposed skid trails must be approved by EEL staff.
 - d. The contractor will remove all trash weekly.
 - e. Contractor agrees to comply with all applicable government (municipality) regulations, rules and applicable laws in connection with this project.
- 9) In the case of removal of pines outside the designated project area, the County reserves the right to shut down the project and or MOA. In such a situation the Mitigation and/or contractor is responsible to mitigate the damages.
- 10) During tree removal every precaution must be taken not to disturb the trail, if heavy equipment needs to enter the 25 foot buffer Land Manager must approve before entering the area.
- 11) No oak trees will be removed from within the 25 foot buffer of the trail regardless of height.

General conditions:

- 1) The contractor shall be responsible for any lost material or damaged equipment staged on site. The contractor shall be responsible for damages to existing EEL Program fencing or to adjacent properties.
- 2) **It shall be the responsibility of the Contractor to keep gates closed and locked at all times, including while working on site and upon leaving the project site.**
- 3) There shall be no earthwork or excavation of soils, unless authorized in writing by a EEL Program representative. Such authorization, or failure to authorize, shall not constitute a change in contract price or time.
- 4) Soil disturbance within the Sanctuary during equipment loading and unloading shall be avoided. If soil rutting does occur during equipment turn-around, the contractor, to the County's satisfaction, shall repair the damage.
- 5) The contractor shall be responsible for identifying (locating) all utilities within the project area. Utilities damaged by contractor shall be the responsibility of the contractor.
- 6) All equipment shall be cleaned prior to entering the Sanctuary and prior to commencement of work and shall be free of potential exotic species to avoid transference to the project site. EEL Program staff reserve the right to inspect the equipment prior to commencement of the project.
- 7) Any trash brought on site shall be removed at the completion of the project. All spills of oil, fuel, or grease from machinery or during refueling and maintenance of equipment will immediately be contained, cleaned up by the Contractor and removed from the site in strict compliance with all State and Federal laws.
- 8) The contractor and any hired subcontractors shall have a printed copy of these Technical Specifications in their possession when working on the Sanctuary.

**Exhibit 4
Biological Opinion**



REPLY TO
ATTENTION OF

**DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
COCOA PERMITS SECTION
400 HIGH POINT DRIVE, SUITE 600
COCOA, FLORIDA 32926**

March 9, 2015

Regulatory Division
North Branch
Cocoa Permits Section
SAJ-2013-02728(SP-LEC)

Glenridge East, LLC.
c/o Mr. Charles Genoni
4760 N. US1 #201
Melbourne, FL 32935

Dear Mr. Genoni:

This is in reference to your email dated February 25, 2015, regarding the transfer of Department of the Army permit number SAJ-2013-02728. The permit was originally issued to Sunbay, LLC on September 30, 2014. The project is located north of State Road 429 and south of Constellation Drive in Section 36, Township 26 South, Range 36 East, Brevard County, Florida. The March 9th, 2015, notification is now part of the official permit and reflects the following:

Transfer From: Sunbay, LLC
c/o Chad Genoni
4760 North Harbor City Blvd
Melbourne, FL 32935

Transfer To: Glenridge East, LLC.
c/o Mr. Charles Genoni
4760 N. US1 #201
Melbourne, FL 32935

Please be aware that all general and specific permit conditions remain in effect and as the Permittee you are required adhere to all conditions and limitations of the permit. Although all works authorized must be completed within a specific time limit, the permit itself with its limitations does not expire. You should attach this letter to the permit.

Enclosed is a blank transfer form to be used should the permit be transferred again. General Condition 4 requires the permit be transferred to the new owner if the property is sold. Upon completion of ownership transfer, please have the transferee sign, date and send the enclosed notification to the U.S. Army Corps of Engineers, Regulatory Division, Special Projects and Enforcement Branch, Meredith Allen, P.O. Box 4970 Jacksonville, Florida 32232-0019.

Thank you for your cooperation with the U.S. Army Corps of Engineers Regulatory program. If you have any questions concerning this matter please contact Lauren Wyckoff Carroll at the letterhead address or by telephone at 321-504-3771 ext. 15.

Sincerely,

A handwritten signature in black ink, appearing to read "L. Wyckoff Carroll", written in a cursive style.

Lauren Wyckoff Carroll
Project Manager

Enclosure

DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST

PERMIT NUMBER: SAJ-2013-02728(SP-LEC)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Special Projects and Enforcement Branch, Post Office Box 4970, Jacksonville, Florida 32232-0019.

(TRANSFEEE-SIGNATURE)

(SUBDIVISION)

(DATE)

(LOT) (BLOCK)

(NAME-PRINTED)

(STREET ADDRESS)

(EMAIL ADDRESS)

(MAILING ADDRESS)

(PHONE NUMBER)

(CITY, STATE, ZIP CODE)

EXHIBIT 4



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
COCOA PERMITS SECTION
400 HIGH POINT DRIVE, SUITE 600
COCOA, FLORIDA 32926

October 8, 2014

Regulatory Division
North Branch
Cocoa Permits Section
SAJ-2013-02728 (SP-LEC)

Sunbay, LLC
c/o Mr. Chad Genoni
4760 North Harbor City Blvd
Melbourne, FL 32935

Dear Mr. Genoni:

The U.S. Army Corps of Engineers (Corps) is pleased to enclose the Department of the Army permit, which should be available at the construction site. Work may begin immediately but the Corps must be notified of:

- a. The date of commencement of the work,
- b. The dates of work suspensions and resumptions of work, if suspended over a week, and
- c. The date of final completion.

This information should be mailed to the Special Projects and Enforcement Branch of the Regulatory Division of the Jacksonville District at P.O. Box 4970, Jacksonville Florida 32232-0019. The Special Projects and Enforcement Branch is also responsible for inspections to determine whether Permittees have strictly adhered to permit conditions.

IT IS NOT LAWFUL TO DEVIATE FROM
THE APPROVED PLANS ENCLOSED.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Kinard", written over a large, light-colored oval shape.

Donald W. Kinard
Chief, Regulatory Division

Enclosures

Copy Furnished w/ encls:

Atlantic Environmental Solutions, Inc., c/o Jon Shepherd, Jshep@cfl.rr.com

DEPARTMENT OF THE ARMY PERMIT

Permittee: Sunbay, LLC
c/o Mr. Chad Genoni
4760 North Harbor City Blvd
Melbourne, FL 32935

Permit No: SAJ-2013-02728(SP-LEC)

Issuing Office: U.S. Army Engineer District, Jacksonville

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: The permittee is authorized to impact waters of the United States, including 1.50 acres of wetlands, with fill to construct a single family subdivision and associated infrastructure. The work described above is to be completed in accordance with the seven drawings, and five attachments [totaling 132 pages] affixed at the end of this permit instrument.

Project Location: The project is located west of North Wickham Road, north of State Road 429 and south of Constellation Drive, in Section 36, Township 26 South, Range 36 East, Brevard County, Florida; Lake Washington-St. Johns River (Hydrologic Unit Code 030801010604) and the Indian River Lagoon (Hydrologic Unit Code 030802020302).

Directions to site: From Interstate 95 take exit 188 for Florida 404/Pineda Causeway Extension and head east on Pineda Causeway for approximately 2.5 miles. Turn right onto County Road 509/N. Wickham Road, travel for approximately 1.1 miles and the project site will be on your right.

Latitude & Longitude: Latitude: 28.185163 ° North
Longitude: 80.677763 ° West

Permit Conditions

if you have difficulty finding forms or need copies of the appropriate forms, please contact the Bureau of Regulatory Support at (386) 329-4570.

Transferring Your Permit:

As required by a condition of your permit, you must notify the District in writing within 30 days of any sale, conveyance or other transfer of a permitted system or facility, or within 30 days of any transfer of ownership or control of the real property where the permitted system or facility is located. You will need to provide the District with the information specified in District rule 40C-1.612, Florida Administrative Code (name and address of the transferee and a copy of the instrument effectuating the transfer). Please note that a permittee remains liable for any corrective actions that may be required as a result of any permit violations that occur before the sale, conveyance, or other transfer of the system or facility, so it is recommended that you request a permit transfer in advance.

Thank you and please let us know if you have additional questions. For general questions contact e-permit@sjrwmd.com or (386) 329-4570.
Sincerely,

M. Daniels

Margaret Daniels, Bureau Chief
Bureau of Regulatory Support
St. Johns River Water Management District
4049 Reid Street
Palatka, FL 32177-2529
(386) 329-4570

Enclosures: Permit

cc: District Permit File



Project: Glen Ridge Subdivision

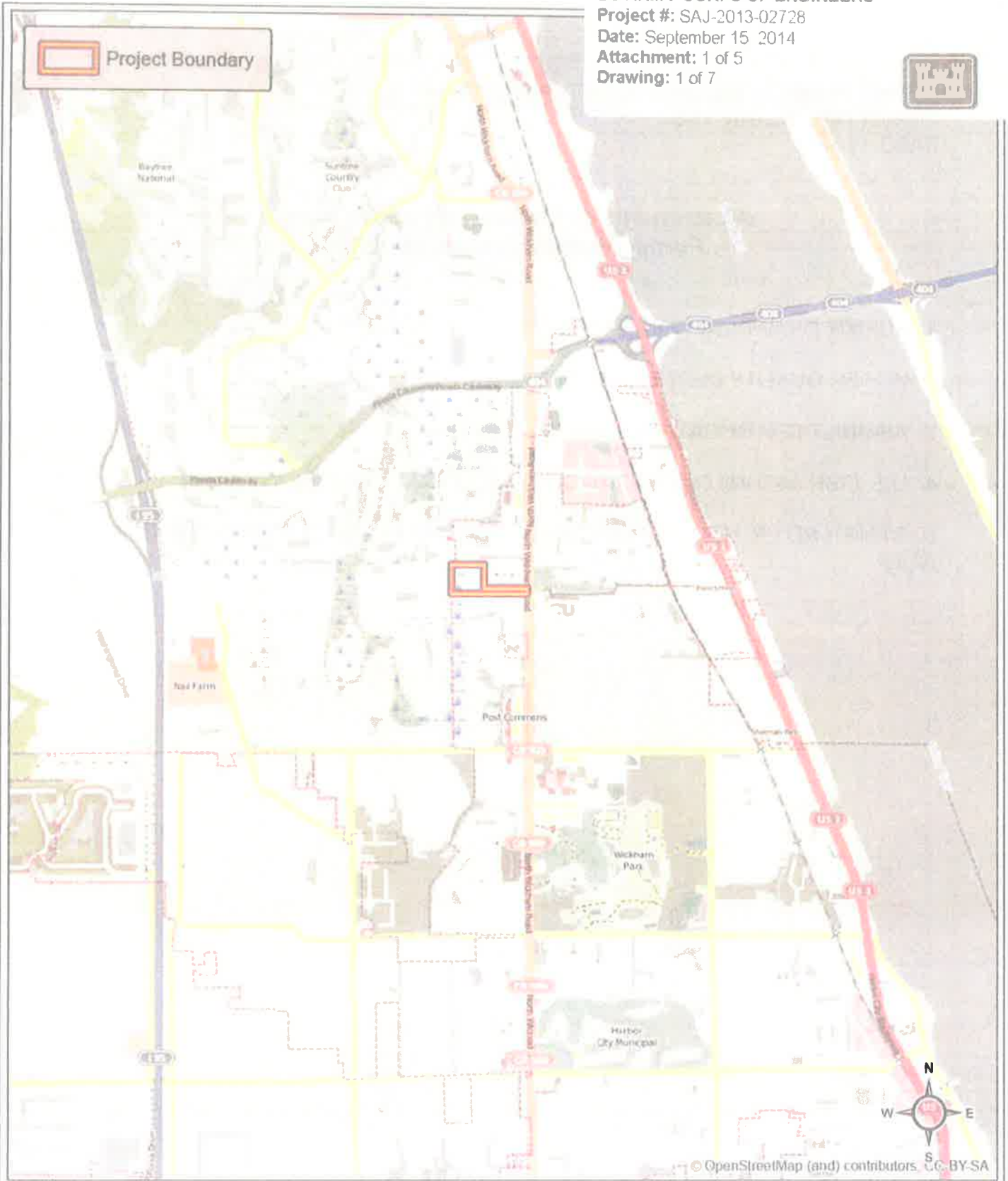
Figure 3: Land Use (FLUCFCS) Map

0 200 400 800 Feet

2012 Aerial, Brevard County, Florida

US ARMY CORPS OF ENGINEERS
 Project #: SAJ-2013-02728
 Date: September 15, 2014
 Attachment: 1 of 5
 Drawing: 3 of 7





Project: Glen Ridge Subdivision

Figure 1: Location Map



Brevard County, Florida



AES Proj #: 1332

PERMIT NUMBER: SAJ-2013-02728 (SP-LEC)

PERMITTEE: Sunbay, LLC

PAGE 10 of 11

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE-SIGNATURE)

(DATE)

(NAME-PRINTED)

(ADDRESS)

(CITY, STATE, AND ZIP CODE)

PERMIT NUMBER: SAJ-2013-02728 (SP-LEC)
PERMITTEE: Sunbay, LLC
PAGE 8 of 11

6. Extensions: General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

PERMIT NUMBER: SAJ-2013-02728 (SP-LEC)
PERMITTEE: Sunbay, LLC
PAGE 6 of 11

same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

11. Clearing and Excavated Material Disposal: The Permittee shall place all site clearing debris and excavated material in a self-contained upland disposal site. Where a permitted landfill is not used for disposal, the Permittee shall maintain the upland disposal site to prevent the discharge of debris, excavated material and associated effluent into waters of the United States.

12. Regulatory Agency Changes: Should any other regulatory agency require changes to the work authorized or obligated by this permit, the Permittee is advised that a modification to this permit instrument is required prior to initiation of those changes. It is the Permittee's responsibility to request a modification of this permit from the Jacksonville District Regulatory Office.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

() Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

() Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

- a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.
- b. This permit does not grant any property rights or exclusive privileges.
- c. This permit does not authorize any injury to the property or rights of others.
- d. This permit does not authorize interference with any existing or proposed Federal projects.

PERMIT NUMBER: SAJ-2013-02728 (SP-LEC)
PERMITTEE: Sunbay, LLC
PAGE 4 of 11

conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. However, the FWS is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the ESA. For further clarification on this point, you should contact the FWS.

7. Implementation Plan: The permittee shall submit a plan outlining how the Biological Opinion (Attachment 4) will be implemented; specifically the Term and Conditions of the Biological Opinion. The permittee shall submit the plan electronically to the Corps via email at CESAJ-complydocs@usace.army.mil within 60 days of initiation of the authorized work.

8. As-Builts: Within 60 days of completion of the authorized work or at the expiration of the construction authorization of this permit, whichever occurs first, the Permittee shall submit as-built drawings of the authorized work and a completed As-Built Certification Form (Attachment 3) to the Corps. The drawings shall be signed and sealed by a registered professional engineer and include the following:

a. A plan view drawing of the location of the authorized work footprint (as shown on the permit drawings) with an overlay of the work as constructed in the same scale as the attached permit drawings (8½-inch by 11-inch). The drawing should show all "earth disturbance," including wetland impacts, water management structures, and any on-site mitigation areas.

b. List any deviations between the work authorized by this permit and the work as constructed. In the event that the completed work deviates, in any manner, from the authorized work, describe on the As-Built Certification Form the deviations between the work authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings any deviations that have been listed. Please note that the depiction and/or description of any deviations on the drawings and/or As-Built Certification Form does not constitute approval of any deviations by the U.S. Army Corps of Engineers.

c. The Department of the Army Permit number.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Post Office Box 1429
Palatka, Florida 32178-1429

PERMIT NO. IND-009-134825-2

DATE ISSUED: April 4, 2014

PROJECT NAME: Glen Ridge Subdivision

A PERMIT AUTHORIZING:

Construction of a Stormwater Management System with stormwater treatment by dry retention and wet detention for Glen Ridge Subdivision, a 22.49 - acre project to be constructed as per plans received by the District on March 5, 2014.

LOCATION:

SECTION(S): 36

TOWNSHIP(S): 26S RANGE(S): 36E

Brevard County

ISSUED TO:

Sunbay, LLC
4760 N US Highway 1
Melbourne, FL 32935-7200

Permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit may be revoked, modified or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes.

PERMIT IS CONDITIONED UPON:

See conditions on attached "Exhibit A", dated April 4, 2014

AUTHORIZED BY: St. Johns River Water Management District
Division of Regulatory Engineering and Environmental Services

By:



John Jullianna
Service Center Director

"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER IND-009-134825-2
Sunbay, LLC
DATED April 04, 2014

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.
2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the District staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.
3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5, F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.
4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the District a fully executed Form 62-330.350(1), "Construction Commencement Notice," [10-1-13], incorporated by reference herein (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02505> and completion dates. A copy of this form may be obtained from the District, as described in subsection 62-330.010(5), F.A.C. If available, an District website that fulfills this notification requirement may be used in lieu of the form.
5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.
6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
 1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex — "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or
 2. For all other activities — "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
 3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.
7. If the final operation and maintenance entity is a third party:

1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
2. Within 30 days of submittal of the as- built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.
8. The permittee shall notify the District in writing of changes required by any other regulatory District that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.
9. This permit does not:
 1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
 2. Convey to the permittee or create in the permittee any interest in real property;
 3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
 4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.
10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.
11. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.
12. The permittee shall notify the District in writing:
 1. Immediately if any previously submitted information is discovered to be inaccurate; and
 2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, District staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.
14. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.
15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.
16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.
17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the District will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.
18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

19. Deed of Conservation Easement

This permit requires the recording of a conservation easement. Within 30 days of recording, the permittee shall provide the District with: (a) the original recorded easement (including exhibits) showing the date it was recorded and the official records book and page number, (b) a copy of the recorded plat (if applicable), (c) a surveyor's sketch of the easement area plotted on the appropriate USGS topographic map, and (d) the original recorded consent and joinder(s) of mortgagee (if applicable). Before recording them, the permittee shall ensure that these documents are acceptable to the District as described below.

Description of Conservation Easement Area.

The permittee shall provide to the District for review and written approval a copy of: (a) the preliminary plat showing the area to be encumbered by the conservation easement, or (b) a surveyor's sketch and legal description of the area to be placed under the conservation easement, per the approved mitigation plan, at least 45 days before (1) dredging, filling, or clearing any wetland or surface water for which mitigation is required; (2) clearing any upland within a Riparian Habitat Protection Zone for which mitigation is required; (3) the

sale of any lot or parcel; (4) the recording of the subdivision plat; or (5) use of the infrastructure for its intended use, whichever occurs first.

If the impacts to an upland within a Riparian Habitat Protection Zone or to a wetland or surface water for which mitigation is required will occur in discrete phases, the areas to be preserved to offset such impacts may be placed under conservation easement in phases such that impacts are offset during each phase. Such phasing of preservation shall only occur if it has been proposed in the mitigation plan and approved by the permit, or if it is approved in writing by the District. A surveyor's sketch and legal description of the area to be placed under conservation easement during each phase must be submitted in accordance with the previous paragraph.

Recording of Conservation Easement.

Before (1) dredging, filling, or clearing any wetland or surface water for which mitigation is required, (2) clearing any upland within a Riparian Habitat Protection Zone for which mitigation is required, (3) the sale of any lot or parcel, (4) the recording of the subdivision plat, or (5) use of the infrastructure for its intended use, whichever occurs first, the permittee shall record a conservation easement. The conservation easement shall include restrictions on the real property pursuant to section 704.06, Florida Statutes, and be consistent with section 10.3.8, ERP Applicant's Handbook, Volume I (October 1, 2013) and Fla. Admin. Code R. 62-330.301(6).

The conservation easement shall be in the form approved in writing by the District and, if no plat has been submitted, the easement shall include the approved legal description and surveyor's sketch. If the District does not provide written comments on the preliminary plat or surveyor's sketch and legal description within 45 days of receipt, then the permittee may record the conservation easement with the legal description and surveyor's sketch or plat reference previously submitted. If the District provides written disapproval of the preliminary plat or surveyor's sketch and legal description, the permittee shall, within ten (10) days of receipt of the disapproval, correct all errors with the conservation easement, including the preliminary plat or legal description and surveyor's sketch, and record the conservation easement. Pursuant to section 704.06, Florida Statutes, the conservation easement shall prohibit all construction, including clearing, dredging, or filling, except that which is specifically authorized by this permit, within the mitigation areas delineated on the final plans and/or mitigation proposal approved by the District.

The easement may not be amended without written District approval.

Additional Documents Required.

The permittee shall ensure that the conservation easement identifies, and is executed by, the correct grantor, who must hold sufficient record title to the land encumbered by the easement. If the easement's grantor is a partnership, the partnership shall provide to the District a partnership affidavit stating that the person executing the conservation easement has the legal authority to convey an interest in the partnership land. If there exist any mortgages on the land, the permittee shall also have each mortgagee execute a consent and joinder of mortgagee subordinating the mortgage to the conservation easement.

The consent and joinder of the mortgagee shall be recorded simultaneously with the conservation easement in the public records of the county where the land is located. Within 30 days of recording, the permittee shall provide the District with: (a) the original recorded easement (including exhibits) showing the date it was recorded and the official records book and page number, (b) a copy of the recorded plat (if applicable), (c) a surveyor's sketch of the easement area plotted on the appropriate USGS topographic map, and (d) the original recorded consent and joinder(s) of mortgagee (if applicable).

Demarcation of Conservation Easement Area.

Prior to lot or parcel sales, all changes in direction of the easement area boundaries must be permanently monumented above ground on the project site.

20. Prior to the use of the infrastructure or sale of any lot or parcel, the permittee must:
 - a) install a fence along the boundaries of the conservation area to restrict access
 - b) install permanent information signs (number of signs to be approved by the District) advising residents of the conservation areas along all conservation tract boundaries with lots or roads. These signs must indicate that this is a conservation area and that no clearing or dumping is allowed.
 - c) permanently monument the boundaries of all wetland and upland conservation areas, and install erosion control devices such as silt fence along all boundaries of preserved wetlands and uplands. Monumenting of the conservation area boundaries shall occur through the installation of iron rebar and 2-inch PVC pipe protruding a minimum of 8 inches above grade or the seasonal high water line (whichever is higher), at all changes in direction of the conservation area boundaries.
21. This permit for construction will expire five years from the date of issuance.
22. At a minimum, all retention and detention storage areas must be excavated to rough grade prior to building construction or placement of impervious surface within the area to be served by those facilities. To prevent reduction in storage volume and percolation rates, all accumulated sediment must be removed from the storage area prior to final grading and stabilization.
23. All wetland areas or water bodies that are outside the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity, and dewatering.
24. Prior to construction, the permittee must clearly designate the limits of construction on-site. The permittee must advise the contractor that any work outside the limits of construction, including clearing, may be a violation of this permit.
25. This project must be constructed and operated in accordance with the plans received by the District on March 5, 2014.
26. The operation and maintenance entity shall inspect the stormwater or surface water management system once within two years after the completion of construction and every two years thereafter to determine if the system is functioning as designed and permitted. The operation and maintenance entity must maintain a record of each required inspection, including the date of the inspection, the name, address, and telephone number of the inspector, and whether the system was functioning as designed and permitted, and make such record available for inspection upon request by the District during normal business hours. If at any time the system is not functioning as designed and permitted, then within 14 days the entity shall submit a report to the District detailing the reasons for non-function and a proposal to remedy the non-functioning of the system.
27. Before the start of any construction, the permittee must provide the District with documentation demonstrating that 4.0 mitigation credits have been debited from the Mary A Mitigation Bank ledger.

28. Within 60 days of permit issuance, the permittee shall submit for review and District approval, the updated title information in the form of a title policy/commitment, an ownership and encumbrance report or an attorney's title opinion letter.

AS-BUILT CERTIFICATION BY PROFESSIONAL ENGINEER

Submit this form and one set of as-built engineering drawings to the U.S. Army Corps of Engineers, Special Projects and Enforcement Branch, P.O. Box 4970, Jacksonville, FL 32232-0019. If you have questions regarding this requirement, please contact the Special Projects and Enforcement Branch at 904-232-3131.

1. Department of the Army Permit Number: SAJ-2013-02728 (SP-LEC)

2. Permittee Information:

Name _____

Address _____

3. Project Site Identification:

Physical location/address _____

4. As-Built Certification:

I hereby certify that the authorized work, including any mitigation required by Special Conditions to the permit, has been accomplished in accordance with the Department of the Army permit with any deviations noted below. This determination is based upon on-site observation, scheduled and conducted by me or by a project representative under my direct supervision. I have enclosed one set of as-built engineering drawings.

Signature of Engineer

Name (Please type)

(FL, PR or VI) Reg. Number

Company Name

Address

City State ZIP

(Affix Seal)

Date

Telephone Number





United States Department of the Interior

U. S. FISH AND WILDLIFE SERVICE

7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FLORIDA 32256-7517

IN REPLY REFER TO:

FWS Log. No 04EF1000-2014-F-0149

August 8, 2014

Colonel Alan M. Dodd, District Engineer,
U.S. Army Corps of Engineers
Jacksonville District
Regulatory Division, North Permits Branch
Cocoa Regulatory Office
400 High Point Drive, Suite 600
Cocoa, Florida 32926
(Attn: Lauren E. Carroll)

RE: Biological Opinion for U.S. Army Corps of Engineers Permit Application No. SAJ-2013-02728 (SP-LEC), for Sunbay, LLC (Glen Ridge), Melbourne, Brevard County, Florida

Dear Colonel Dodd:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (BO) to the U.S. Army Corps of Engineers (Corps) for the development of the proposed 22.5±-acre Glen Ridge tract residential subdivision located in Melbourne, Brevard County, Florida, and its effects on the Florida scrub-jay (*Aphelocoma coerulescens*) (hereafter referenced as scrub-jay) in accordance with Section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). We received your letter requesting formal consultation (dated February 24, 2014) on February 25, 2014 via email.

This biological opinion (BO) is based on information contained in the correspondence received from the applicant (Sunbay, LLC) and the Corps via email on February 25, 2014; (letter dated February 24, 2014), requesting formal consultation ; a scrub-jay survey report (dated April 18, 2013), and a compensation plan to offset unavoidable impacts (dated March 26, 2014) prepared by Atlantic Environmental Solutions, Inc., along with email and telephone conversations with Project Manager Jon Shepherd and Corps Project Manager Lauren Carroll; field investigations; and other sources of information. A complete administrative record of this consultation is on file in the North Florida Ecological Services Field Office, Jacksonville, Florida.

The Service concurs with the Corps final determination of "may affect, but not likely to adversely affect" for the federally-endangered wood stork (*Mycteria americana*) as discussed below; and for the federally-threatened eastern indigo snake (*Drymarchon coraiscouperi*) based on the *Wood Stork Effect Determination Key* (dated September 2008) and the *Eastern Indigo Snake Effect Determination Key* (dated January 25, 2010; August 13, 2013 Addendum).

US ARMY CORPS OF ENGINEERS

Project #: SAJ-2013-02728

Date: September 15, 2014

Attachment: 4 of 5



Wood Stork

Based on the Applicant's submitted information, including the SFH compensation proposal, and in accordance with the Wood Stork Effect Determination Key provided to the Corps of Engineers, Jacksonville District by the U.S. Fish and Wildlife Service, Jacksonville Ecological Services Field Office for Central and North Peninsular, dated September 2008, the Corps determined that the key sequence for the proposed project is A>B>C>D>E> "may affect, not likely to adversely affect" the Wood Stork, and the Service has subsequently concurred with that finding.

Eastern Indigo Snake

In accordance with all the preceding information to date, the Corps and the Service have concluded that the proposed residential development project "may affect, not likely to adversely affect" the threatened Eastern indigo snake as long as the Applicant subsequently implements the Standard Protection Measures for the Eastern Indigo Snake, as revised August 12, 2013. **If at any time an eastern indigo snake is encountered during clearing and construction activities for this project, the Permittee shall immediately cease activities and notify the U.S Fish and Wildlife Service North Florida Ecological Office within one (1) business day, at telephone number 904-731-3336, in order to obtain further guidance relative to this consultation.**

Audubon's Crested Caracara

The Service also concurs with the Corps final determination of "no effect" for the Audubon's crested caracara (*Polyborus plancus audubonii*). Based on the information provided, the project is within the Audubon's crested caracara's consultation area but outside of the primary and secondary protection zones of known nests for this species; suitable nesting habitat does not occur in the project vicinity and Audubon's crested caracara have not been observed nesting on the project site or in the vicinity.

Scrub-Jay

The Applicant's scrub-jay survey report, *Florida Scrub-Jay Survey Report for the Glen Ridge 22.5 ±Acre Site*, dated April 2013, is provided in Appendix A. This report indicates that a 3.40±-acre portion of the subject 22.5±-acre development site is occupied by one (1) scrub-jay family consisting of two (2) individuals. The occupied territory of this scrub-jay family was documented to include areas to the north and northeast of the site. Therefore, the total habitat area estimated to be occupied by the subject scrub-jay family is 3.40±acres, all of which is proposed to be eliminated for the development of this project. The Corps made a "May affect likely to adversely affect" determination with concurrence from the Service. The applicant proposes to minimize the impacts of taking scrub-jays through the restoration and management plan (Appendix B) identified in the Reasonable and Prudent Measures and Terms and Conditions, in addition to the translocation of scrub-jays as stipulated in the Conservation Recommendations of this BO.

Consultation History

April 18, 2013 – A scrub-jay survey was conducted by Atlantic Environmental Solutions (AES) on the project site and one family (2 individuals) was confirmed.

February 24, 2014 - The Service received a request from the Corps to initiate formal consultation for the Glen Ridge subdivision based on the above-referenced scrub-jay discussion which led to our concurrence with a “may affect, likely to adversely affect” determination for scrub-jays by the Corps.

March 26, 2014 – The Service received the applicants Glen Ridge scrub-jay compensation plan to offset unavoidable impacts.

August 19, 2014 - The Service transmitted the final BO for Glen Ridge to the Corps.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The proposed 22.5±-acre project site is located north of Preserve Drive, south of Constellation Drive and west of North Wickham Road in Section 36, Township 26 South, Range 36 East, Melbourne, Brevard County, Florida (Figure 2).

The proposed activity is the construction of a single-family residential subdivision with infrastructure on 22.5± acres, with a proposed 1.50± acre of direct impacts to “water of the United States,” as described in the new Public Notice prepared by AES, received by the Service and the Corps on February 24, 2014. The 1.50± acres of direct impacts are associated with fill activities in Wetlands 1 (Attachment 1). As part of the wetland avoidance and minimization regulatory procedures, the Applicant is purchasing credits from a federally approved mitigation bank.

The habitats and community types occupying the site were designated by AES using the Florida Land Use, Cover and Forms Classification System (FLUCFCS) (FDOT1999) as a guideline. Specific land uses/communities identified within the project site with approximate acreages are: 1) Pine Flatwoods (411) - 16.02 acres; the most dominant community; 2) Scrubby Pine Flatwoods (416) – 2.50 acres; located in the northwest corner of property contains slash pine and scattered occurrences of oak species, saw palmetto understory, rusty lyonia and wiregrass; 3) Brazilian Pepper (422) - 0.15 acres; eastern side of the property surrounding the north boundary is a sliver of Brazilian pepper with scattered occurrences of wax myrtle; 5) Wetland Shrub (631) – 1.82 acres; a topographic depression predominantly vegetated in dahoon holly, wax myrtle, red maple and saltbush with bushy bluestem, Sugarcane plume grass and Virginia chain fern in the groundcover; 6) Vegetated Non-Forested Wetlands (640) – 0.30 acres; western project boundary consist of a subcanopy of fetterbush underlain by Virginia chain fern, bushy bluestem, roadgrass, Sphagnum moss, coinwort, redroot; 7) Freshwater Marsh (641) – 1.70 acres; southwest corner of the property contains a 1.50 acre of Freshwater Marsh and two isolated marshes totaling 0.20 acres; vegetated by bushy bluestem, Virginia chain fern, red ludwigia, sawgrass, roadgrass, coinwort, redroot and muscadine. The locations of these communities are depicted in Figure 3 in the attached consultation letter.

AES first conducted a scrub-jay survey from April 3, 5, 8, 10 and 11, 2013, which revealed that one scrub-jay family, consisting of two (2) individuals, was defending a 3.4±-acres of the Glen Ridge site as a portion of their territory, as well as areas to the north and northeast of the site. Scrub-jays were noted on or just off-site of the Glen Ridge site on three of the five survey dates. On the remaining two survey dates the jays were heard to the east-northeast of the project site as depicted in the attached Scrub-Jay Survey Report.

The entire 22.5±-acre parcel is located within the boundaries of the South Brevard scrub-jay metapopulation polygon, as delineated in the U.S. Fish and Wildlife Service's (Service) *Florida Scrub-Jay Umbrella Habitat Conservation Plan and Environmental Assessment*, dated November 2007.

Since the above referenced 3.4± acres of occupied scrub-jay habitat is within the 22.5±-acre parcel and will be subject to direct impacts from development related activities associated with the project, the Service anticipates that the entire described project will impact 3.4±-acres of occupied scrub-jay habitat.

As such, the Applicant shall minimize and offset impacts to the scrub-jay population by restoring and managing a total of 13.8±-acres of overgrown scrub habitat located offsite within the 550±-acre Malabar Scrub Sanctuary West. The Applicant will provide initial management and fund long term management of scrub-jay habitat within the 550± acre western portion of Malabar Scrub Sanctuary West in Malabar, Florida (Appendix B). Within this area, the applicant shall contract with a habitat management specialist as approved by the Brevard County Environmentally Endangered Lands (EELs) program to restore and manage habitat for scrub-jays. This management will consist primarily of the felling and burning of pines (excluding longleaf pines), and roller-chopping of dense scrub vegetation and will provide for the longterm survival and recruitment of scrub-jays.

The applicant will also donate additional funds (\$16,560) sufficient to EELs in support of the long-term management of the 13.8 acres for 25 years. The details of the -compensation plan to offset unavoidable impacts will be secured under a Memorandum of Agreement (MOA) between the Applicant and the Board of County Commissioners of Brevard County and are included in the Terms and Conditions of this BO.

This above-referenced compensation plan reflects the best available commercial and scientific information and is consistent with the recommended goals and objectives discussed more recently by researchers involved with scrub-jay conservation at Archbold Biological Station in a report entitled "State wide assessment of Florida Scrub-Jays on managed areas: A comparison of current populations to the results of the 1992-93 survey" (2011 State wide Assessment) that was submitted to the Service in May 9, 2011 (R. Boughton and R. Bowman, 2011).

ACTION AREA

Stith (1999) defined 21 metapopulations for the remaining scrub-jays suggesting that they are demographically isolated from each other. Metapopulations are defined as collections of relatively

discrete demographic populations distributed over a landscape. These populations are connected within the metapopulations through dispersal or migration (National Research Council 1995). Utilizing Stith's (1999) boundaries, this project falls within the Central Brevard metapopulation. Since the time of Stith's work, however, Breininger *et al.* (2001, 2003) conducted additional studies within Brevard County. Dispersal data, improved habitat mapping, and new buffering results provide reasonable evidence that the South Brevard and Central Brevard metapopulations, as defined by Stith (1999), show greater connectivity, through observed Florida scrub-jay dispersals, than was previously evident. Therefore, South Brevard and Central Brevard can now be treated as one "South Brevard" metapopulation. As such, the action area for this BO is defined as the South Brevard Florida scrub-jay metapopulation located in central and south Brevard County, Florida and includes Indian River and North St. Lucie Counties.

STATUS OF THE SPECIES/CRITICAL HABITAT

This section summarizes scrub-jay biology and ecology as well as information regarding the status and trends of the scrub-jay throughout its entire range. We use this information to assess whether a federal action is likely to jeopardize the continued existence of the species. The "Environmental Baseline" section summarizes information on status and trends of the scrub-jay specifically within the action area. These summaries provide the foundation for our assessment of the effects of the proposed action, as presented in the "Effects of the Action" section.

Species/Critical Habitat Description

Scrub-jays are about 10 to 12 inches long and weigh about three ounces. They are similar in size and shape to blue jays (*Cyanocitta cristata*), but differ significantly in coloration (Woolfenden and Fitzpatrick 1996a). Unlike the blue jay, the scrub-jay lacks a crest. It also lacks the conspicuous white-tipped wing and tail feathers, black barring, and bridle of the blue jay. The scrub-jay's head, nape, wings, and tail are pale blue, and its body is pale gray on its back and belly. Its throat and upper breast are lightly striped and bordered by a pale blue-gray "bib" (Woolfenden and Fitzpatrick 1996a). Scrub-jay sexes are not distinguishable by plumage (Woolfenden and Fitzpatrick 1984), and males, on the average are only slightly larger than females (Woolfenden 1978). The sexes may be identified by a distinct "hiccup" call made only by females (Woolfenden and Fitzpatrick 1984, 1986). Scrub-jays that are less than about five months of age are easily distinguishable from adults; their plumage is smoky gray on the head and back, and they lack the blue crown and nape of adults. Molting occurs between early June and late November and peaks between mid-July and late September (Bancroft and Woolfenden 1982). During late summer and early fall, when the first basic molt is nearly done, fledgling scrub-jays may be indistinguishable from adults in the field (Woolfenden and Fitzpatrick 1984). The wide variety of vocalizations of scrub-jays is described in Woolfenden and Fitzpatrick (1996b).

Scrub-jays are in the order Passeriformes and the family Corvidae. They have been called a "superspecies complex" and described in four groups that differ in geographic distribution within the United States and Mexico: *A. californica*, from southwestern Washington through Baja California; *A. insularis*, on Santa Cruz in the Channel Islands, California; *A. woodhousii*, from southeastern Oregon and the Rocky Mountains and Great Plains to Oaxaca, Mexico; and *A. coerulescens* in peninsular Florida (American Ornithological Union [AOU] 1983). Other jays of the same genus include the Mexican jay or

gray-breasted jay (*A. ultramarina*) and the unicolored jay (*A. unicolor*) of Central America and southwest North America (Woolfenden and Fitzpatrick 1996b).

The Florida scrub-jay, which was originally named *Corvuscoerulescens* by Bosc in 1795, was transferred to the genus *Aphelocoma* in 1851 by Cabanis. In 1858, Baird made *coerulescens* the type species for the genus and it has been considered a subspecies (*A. c. coerulescens*) for the past several decades (AOU 1957). It recently regained recognition as a full species (Florida scrub-jay, *Aphelocomacoerulescens*) from the AOU (AOU 1995) because of genetic, morphological, and behavioral differences from other members of this group: the western scrub-jay (*A. californica*) and the island scrub-jay (*A. insularis*). The group name is retained for species in this complex; however, it is now hyphenated to "scrub-jay" (AOU 1995).

The Florida scrub-jay species account references the full species name, *A. coerulescens*, as listed in the most recent Service Federal Register notice of Endangered and Threatened Wildlife and Plants (50 Code of Federal Regulations [CFR] §§ [sections] 17.11 and 17.12).

No critical habitat has been designated for this species; therefore, none will be affected.

Life History/Population Dynamics

The Florida scrub-jay has specific habitat needs. It is endemic to peninsular Florida's ancient dune ecosystems or scrubs, which occur on well-drained to excessively well-drained sandy soils (Laessle 1958, 1968; Myers 1990). This relict oak-dominated scrub, or xeric oak scrub, is essential habitat to the scrub-jay. This community type is adapted to nutrient-poor soils, periodic drought, and frequent fires (Abrahamson 1984). Xeric oak scrub on the Lake Wales Ridge is predominantly made up of four species of stunted, low-growing oaks: sand live oak (*Quercusgeminata*), Chapman oak (*Q. chapmanii*), myrtle oak (*Q. myrtifolia*), and scrub oak (*Q. inopina*) (Myers 1990). In optimal habitat for scrub-jays on the Lake Wales Ridge, these oaks are 3 to 10 feet high, interspersed with 10 to 50 percent unvegetated, sandy openings, and a sand pine (*Pinusclausa*) canopy of less than 20 percent (Woolfenden and Fitzpatrick 1991). Trees and dense herbaceous vegetation is rare. Other vegetation noted along with the oaks includes saw palmetto (*Serenoarepens*) and scrub palmetto (*Sabaletonia*), as well as woody shrubs such as Florida rosemary (*Ceratiolaericoides*) and rusty lyonia (*Lyoniaferruginea*).

Scrub-jays are also documented to occupy areas exhibiting less scrub oak cover and fewer openings along the Atlantic Coastal Ridge, the Merritt Island/Cape Canaveral Complex and in southwest Florida, than typical of xeric oak scrub habitat on the Lake Wales Ridge (Schmalzer and Hinkle 1992b; Breining et al. 1995; Thaxton and Hingtgen 1996). The predominant communities within these regions are oak scrub and scrubby flatwoods. Scrubby flatwoods differ from scrub by occurring on poorly-drained soils and having a sparse canopy of slash pine (*P. elliotii*); sand pines are rare. Shrub species mentioned above are common, except for scrub oak and scrub palmetto, which are restricted to the Lake Wales Ridge. Runner oak (*Q. minima*), turkey oak (*Q. laevis*), bluejack oak (*Q. incana*), and longleaf pine (*P. palustris*) also have been reported. Kennedy Space Center (KSC), located on Merritt Island and Cape Canaveral in Brevard County, supports one of the largest contiguous populations of Florida scrub-jays. Studies conducted at KSC provide good descriptions of suitable scrub-jay habitat representative of this region (Schmalzer and Hinkle 1992b).

Human interference with natural fire regimes continues to play a major role in the decline of the Florida scrub-jay population due to declining habitat suitability, and at present, may exceed habitat loss as the single most important limiting factor (Woolfenden and Fitzpatrick 1991, 1996a; Fitzpatrick *et al.* 1994). Lightning strikes cause virtually all naturally-occurring fires in Florida scrub habitat (Abrahamson 1984; Hofstetter 1984; Woolfenden and Fitzpatrick 1990). Fire has been noted to be important in maintenance of scrub habitat for decades (Nash 1895; Harper 1927; Webber 1935; Davis 1943; Laessle 1968; Abrahamson *et al.* 1984). Human efforts to prevent and/or control natural fires have allowed scrub to become too dense and tall to support populations of scrub-jays, resulting in the decline of local populations of scrub-jays throughout the state (Fernald 1989; Fitzpatrick *et al.* 1994, unpubl. data; Percival *et al.* 1995; Stith *et al.* 1996; Thaxton and Hingtgen 1996; Woolfenden and Fitzpatrick 1990, 1996a; Toland 1999).

Optimal scrub-jay habitat occurs as patches with the following attributes: (1) oak cover: greater than 50 percent of the shrub layer made up of scrub oaks; (2) open space: mosaic of sand open spaces among oaks; (3) forest height: patches of oak scrubs that occur in optimal height (approx. 4 to 6 feet) without patches of tall scrub (greater than 6 feet) in patches greater than 1-acre; (4) tree cover: less than 15 percent canopy cover; and (5) greater than 984 feet from a forest (Breininger *et al.* 1998, 2003). Much potential scrub-jay habitat occurs as patches of oak scrub within a matrix of little-used habitat of saw palmetto and herbaceous swale marshes (Breininger *et al.* 1991, 1995). These native matrix habitats supply prey for scrub-jays and habitat for other species of conservation concern. The flammability of native matrix habitats is important for spreading fires into oak scrub (Breininger *et al.* 1995, 2002). Degradation or replacement of native matrix habitats with habitat fragments and industrial areas attract predators of scrub-jays, such as fish crows, that are rare in most regularly burned native matrix habitats (Breininger and Schmalzer 1990; Woolfenden and Fitzpatrick 1991). Matrix habitats often develop into woodlands and forests when there is a disruption of fire regimes. These woodlands and forests are not suitable for use by scrub-jays, decrease the habitat suitability of nearby scrub, attract predators, and further disrupt fire patterns.

Florida scrub-jays have a social structure that involves cooperative breeding, a trait that is not exhibited in the other North American species of scrub-jays (Woolfenden and Fitzpatrick 1984, 1990). Florida scrub-jays live in families ranging from two birds (a single mated pair) to extended families of eight adults (Woolfenden and Fitzpatrick 1984) and one to four juveniles. Fledgling scrub-jays stay with the breeding pair in their natal territory as "helpers," forming a closely-knit, cooperative family group. Pre-breeding numbers are generally reduced to either a pair with no helpers or families of three or four individuals (a pair plus one or two helpers) (Woolfenden and Fitzpatrick 1996a).

Florida scrub-jays have a well-developed intra-familial dominance hierarchy with breeder males most dominant, followed by helper males, breeder females, and, finally, female helpers (Woolfenden and Fitzpatrick 1977, 1984). Helpers take part in sentinel duties (Woolfenden and Fitzpatrick 1984; McGowan and Woolfenden 1989), territorial defense (Woolfenden and Fitzpatrick 1984), predator-mobbing, and the feeding of both nestlings (Stallcup and Woolfenden 1978) and fledglings (Woolfenden and Fitzpatrick 1984; McGowan and Woolfenden 1990). The well-developed sentinel system involves having one individual occupying an exposed perch watching for predators or territory intruders. When a predator is seen, the sentinel scrub-jay gives a distinctive warning call (McGowan and Woolfenden

1989, 1990), and all family members seek cover in dense shrub vegetation (Fitzpatrick *et al.* 1991).

Scrub-jay pairs occupy year-round, multi-purpose territories (Woolfenden and Fitzpatrick 1978, 1984; Fitzpatrick *et al.* 1991). Territory size averages 22 to 25 acres (Woolfenden and Fitzpatrick 1990; Fitzpatrick *et al.* 1991), with a minimum size of about 12 acres (Woolfenden and Fitzpatrick 1984; Fitzpatrick *et al.* 1991). The availability of territories is a limiting factor for scrub-jay populations (Woolfenden and Fitzpatrick 1984). Because of this limitation, non-breeding adult males may stay at the natal territory as helpers for up to six years, waiting for either a mate or territory to become available (Woolfenden and Fitzpatrick 1984). Scrub-jays may become breeders in several ways: (1) by replacing a lost breeder on a non-natal territory (Woolfenden and Fitzpatrick 1984); (2) through "territorial budding," where a helper male becomes a breeder in a segment of its natal territory (Woolfenden and Fitzpatrick 1978); (3) by inheriting a natal territory following the death of a breeder; (4) by establishing a new territory between existing territories (Woolfenden and Fitzpatrick 1984); or (5) through "adoption" of an unrelated helper by a neighboring family followed by resident mate replacement (Woolfenden and Fitzpatrick 1984). Territories also can be created by restoring habitat through effective habitat management efforts in areas that are overgrown (Thaxton and Hingtgen 1994).

To become a breeder, a scrub-jay must find a territory and a mate. Evidence presented by Woolfenden and Fitzpatrick (1984) suggests that scrub-jays are monogamous. The pair retains ownership and sole breeding privileges in its particular territory year after year. Courtship to form the pair is lengthy and ritualized and involves posturing and vocalizations made by the male to the female (Woolfenden and Fitzpatrick 1996b). Copulation between the pair is generally out of sight of other scrub-jays (Woolfenden and Fitzpatrick 1984). These authors also reported never observing copulation between unpaired scrub-jays or courtship behavior between a female and a scrub-jay other than her mate. Age at first breeding in the scrub-jay varies from 1 to 7 years, although most individuals become breeders between 2 and 4 years of age (Fitzpatrick and Woolfenden 1988). Persistent breeding populations of scrub-jays exist only where there are scrub oaks in sufficient quantity and form to provide an ample winter acorn supply, cover from predators, and nest sites during the spring (Woolfenden and Fitzpatrick 1996b).

Scrub-jay nests are typically constructed in shrubby oaks, at a height of 1.6 to 8.2 feet (Woolfenden 1974). Sand live oak and scrub oak are the preferred shrub on the Lake Wales Ridge (Woolfenden and Fitzpatrick 1996b), and myrtle oak is favored on the Atlantic Coastal Ridge (Toland 1991) and southern Gulf coast (J. Thaxton, Uplands, Inc., pers. comm. 1998). In suburban areas, scrub-jays nest in the same evergreen oak species, as well as in introduced or exotic trees; however, they build their nests in a significantly higher position within this developed landscape as compared with natural scrub habitat (Bowman *et al.* 1996). Scrub-jay nests are an open cup, about 7 to 8 inches outside diameter and 3 to 4 inches inside diameter. The outer basket is bulky and built of coarse twigs from oaks and other vegetation, and the inside is lined with tightly wound palmetto or cabbage palm fibers. There is no foreign material as may be present in a blue jay nest (Woolfenden and Fitzpatrick 1996b).

Nesting is synchronous, normally occurring from 1 March through 30 June (Woolfenden and Fitzpatrick 1984). On the Atlantic Coastal Ridge and southern Gulf coast, nesting may be protracted through the end of July (B. Toland, Service, pers. comm. 1996; J. Thaxton, Uplands, Inc., pers. comm. 1998). In

suburban habitats, nesting is consistently started earlier (March) than in natural scrub habitat (Fleischer 1996), although the reason for this is unknown.

Clutch size ranges from one to five eggs, but is typically three or four eggs (Woolfenden and Fitzpatrick 1990). Clutch size is generally larger in suburban habitats, and the birds try to rear more broods per year (Fleischer 1996). Double brooding by as much as 20 percent has been documented on the Atlantic Coastal Ridge and in suburban habitat within the southern Gulf coast, compared to about 2 percent on the Lake Wales Ridge (B. Toland, Service, pers. comm. 1996; J. Thaxton, Uplands, Inc., pers. comm. 1998). Scrub-jay eggs measure 1.1 inches x 0.8 inches (length x breadth) (Woolfenden and Fitzpatrick 1996b), and coloration "varies from pea green to pale glaucous green... blotched and spotted with irregularly shaped markings of cinnamon rufous and vinaceous cinnamon, these being generally heaviest about the larger end" (Bendire *in* Bent 1946). Eggs are incubated for 17 to 19 days (Woolfenden 1974), and fledging occurs 15 to 21 days after hatching (Woolfenden 1978; Fitzpatrick *et al.* unpubl. data). Only the breeding female incubates and brood eggs and nestlings (Woolfenden and Fitzpatrick 1984). Average production of young is two fledglings per pair, per year (Woolfenden and Fitzpatrick 1990; Fitzpatrick *et al.* 1991), and the presence of helpers improves fledging success (Woolfenden and Fitzpatrick 1990; Mumme 1992). Annual productivity must average at least two young fledged per pair for a population of scrub-jays to support long-term stability (Fitzpatrick *et al.* 1991).

Fledglings depend upon adults for food for about ten weeks, during which time they are fed by both breeders and helpers (Woolfenden 1975; McGowan and Woolfenden 1990). Survival of scrub-jay fledglings to yearling age class averages about 35 percent in optimal scrub, while annual survival of both adult males and females averages around 80 percent (Fitzpatrick *et al.* unpubl. data). Data from Archbold Biological Station located in Highlands County, Florida, however, suggest that survival and reproductive success of scrub-jays in sub-optimal habitat is lower (Woolfenden and Fitzpatrick 1991). These data help explain why local populations inhabiting unburned, late successional habitats become extirpated. Similarly, data from Indian River County show that mean annual productivity declines significantly in suburban areas where Toland (1991) reported that productivity averaged 2.2 young fledged per pair in contiguous optimal scrub, 1.8 young fledged per pair in fragmented moderately-developed scrub, and 1.2 young per pair fledged in very fragmented suboptimal scrub. The longest observed lifespan of a scrub-jay is 15.5 years at Archbold Biological Station. (Woolfenden and Fitzpatrick 1996b).

Scrub-jays are non-migratory and permanently territorial. Juveniles stay in their natal territory for up to six years before dispersing to become breeders (Woolfenden and Fitzpatrick 1984, 1986). Once a scrub-jay pair becomes breeders, generally within two territories of their natal territory, they stay on their breeding territory until death. In suitable habitat, fewer than 5 percent of scrub-jays disperse more than 5 miles (Fitzpatrick *et al.* unpubl. data). All documented long-distance dispersals have been in unsuitable habitat such as woodland, pasture, or suburban plantations. Scrub-jay dispersal behavior is affected by the intervening land uses. Protected scrub habitats will most effectively sustain scrub-jay populations if they are located within surrounding habitat types that can be used and traversed by scrub-jays. Brushy pastures, scrubby corridors along railway and road rights-of-way, and open burned flatwoods offer links for colonization among scrub-jay populations. Breininger (1999) reported in Brevard County a maximum natal dispersal distance for females to be 9.3 miles; males, 1.0 mile; and mean of 3.5 miles for females and 0.7 miles for males. Mean dispersal from territories in suburban areas was females: 5.0

miles, males: 1.2 miles, while unfragmented areas for females was 0.6 miles, and males: 0.2 miles.

Scrub-jays forage mostly on or near the ground, often along the edges of natural or man-made openings. They visually search for food by hopping or running along the ground beneath the scrub or by jumping from shrub to shrub. Insects, particularly orthopterans (e.g., locusts, crickets, grasshoppers, beetles) and lepidopteran (e.g., butterfly and moth) larvae form most of the animal diet throughout most of the year (Woolfenden and Fitzpatrick 1984). Small vertebrates are eaten when encountered, including frogs and toads (*Hyla femoralis*, *H. squirella*, rarely *Bufo quercicus*, and unidentified tadpoles, lizards (*Anolis carolinensis*, *Chamaeleo sexlineatus*, *Sceloporus woodi*, *Eumeces inexpectatus*, *Neoseps reynoldsi*, *Ophisaurus compressus*, *O. ventralis*), small snakes (*Thamnophis sauritus*, *Opheodrys aestivus*, *Diadophis punctatus*), small rodents (*Sigmodon hispidus*, *Peromyscus polionotus*, *Rattus rattus* young), downy chicks of the bobwhite (*Colinus virginianus*), and fledgling common yellowthroat (*Geothlypis trichas*). In suburban areas, scrub-jays will accept supplemental foods once they have learned about them (Woolfenden and Fitzpatrick 1984).

Acorns are the principal plant food (Woolfenden and Fitzpatrick 1984; Fitzpatrick *et al.* 1991). From August to November each year, scrub-jays may harvest and cache 6,500 to 8,000 oak (*Quercus* spp.) acorns throughout their territory. Acorns are typically buried beneath the surface of bare sand patches in the scrub during fall, and retrieved and consumed year-round, though most are consumed in fall and winter (DeGange *et al.* 1989). On the Atlantic Coastal Ridge, acorns are often cached in pine trees, either in forks of branches, in distal pine boughs, under bark, or on epiphytic plants, between one to 30 feet in height (B. Toland, Service, pers. comm. 1996). Other small nuts, fruits, and seeds also are eaten (Woolfenden and Fitzpatrick 1984).

Many scrub-jays occur in poor habitat conditions due to habitat fragmentation and fire suppression. Although they may be present in these areas, their long-term persistence is threatened (Swain *et al.* 1995; Stith *et al.* 1996; Root 1998; Breininger *et al.* 2001). A primary cause for scrub-jay population decline is poor demographic success associated with reductions in fire frequency (Woolfenden and Fitzpatrick 1984, 1991; Schaub *et al.* 1992; Stith *et al.* 1996; Breininger *et al.* 1999). The reduction in fire frequency is associated with increases in shrub height, decreases in open space, increases in tree densities, and the replacement of scrub and marshes by forests (Duncan and Breininger 1998; Schmalzer and Boyle 1998; Duncan *et al.* 1999). These habitat trajectories result in declines in habitat use and demographic success (Woolfenden and Fitzpatrick 1984, 1991). As a result, mean family size declines, and eventually the number of breeding pairs can decline by 50 % every 5 to 10 years (Woolfenden and Fitzpatrick 1991; Breininger *et al.* 1999, 2001).

Status and Distribution

The Florida scrub-jay was federally listed as threatened in 1987 primarily because of habitat fragmentation, degradation, and loss (52 FR 20719).

Historically, oak scrub occurred as numerous isolated patches in peninsular Florida. These patches were concentrated along both the Atlantic and Gulf coasts and on the central ridges of the peninsula (Davis 1967). Probably until as recently as the 1950s, scrub-jay populations occurred in the scrub habitats of 39 of the 40 counties south of, and including Levy, Gilchrist, Alachua, Clay, and Duval Counties. Historically, most of these counties would have contained hundreds or even thousands of breeding pairs (Fitzpatrick *et al.* 1994). Only the southernmost county, Monroe, lacked scrub-jays (Woolfenden and Fitzpatrick 1996a). Although scrub-jay numbers probably began to decline when European settlement began in Florida (Cox 1987), the decline was first noted in the literature by Byrd (1928). After 40 years of personal observation of the Etonia scrub (now known as Ocala National Forest), Webber (1935) observed many changes to the previously-undisturbed scrub habitat found there, noting that "The advent of man has created a new environmental complex."

A state-wide scrub-jay census was conducted in 1992-1993, at which time there were an estimated 4,000 pairs of scrub-jays left in Florida (Fitzpatrick *et al.* 1994). At that time, the scrub-jay was considered extirpated in ten counties (Alachua, Broward, Clay, Duval, Gilchrist, Hernando, Hendry, Pinellas, and St. Johns), and were considered functionally extinct in an additional five counties (Flagler, Hardee, Levy, Orange, and Putnam), where ten or fewer pairs remained. Recent information indicates that there are at least 12 to 14 breeding pairs of scrub-jays located within Levy County, higher than previously thought (K. Miller, FWC, in lit.), and there is at least one breeding pair of scrub-jays remaining in Clay County (K. Miller, FWC, in lit.). One scrub-jay was documented in St. Johns County in 2003 (J.B. Miller, FDEP, in lit.) however, no sightings have been reported since. Populations are close to becoming extirpated in Gulf coast counties (from Levy south to Collier) (Woolfenden and Fitzpatrick 1996a). In 1992-1993, population numbers in 21 of the counties were below 30 or fewer breeding pairs (Fitzpatrick *et al.* 1994). Based on the amount of destroyed scrub habitat, scrub-jay population loss along the Lake Wales Ridge is 80 percent or more since pre-European settlement (Fitzpatrick *et al.* 1991). Since the early 1980s, Fitzpatrick *et al.* (1994) estimated that in the northern third of the species' range, the scrub-jay declined somewhere between 25 and 50 percent. In 1996, Stith *et al* reported that the species may have declined by as much as 25 to 50 percent in the past decade.

Even though no further comprehensive state wide surveys have been completed since 1992-93 on both private and public lands, considerable evidence exists that populations have continued to decline, especially in unmanaged and suburban areas (Fitzpatrick *et al* 1991; Woolfenden and Fitzpatrick 1996; Bowman 1998; Bowman and Pruett 2009; Breininger *et al* 2003; Boughton and Bowman 2011). However, steps to reverse this decline have occurred through the acquisition and protection of nearly 280,000 acres of scrub habitat (USFWS 2007), and management of scrub habitat is continuing in many areas of Florida (Boughton and Bowman 2011); also in part due to more recently funded regulatory compensatory measures requested in Service biological opinions.

Best estimates of the 2009-2010 range-wide population of scrub-jays on 198 different managed lands were 1,253 groups; where in 1992-93 on 178 of those sites, the total scrub-jay population was 1,495 groups reflecting a decline of 17%. However, it was reported likely that the actual population in 1992-93 was larger than 1,495 because 20 of the sites surveyed in 2009-2010 were not surveyed in 1992-93, so a direct comparison excluding the non-surveyed areas from 1992-93 shows a 26% decline by 2009-2010 for the remaining 178 sites (Boughton and Bowman 2011). Also contributing to this decline is the economic downturn starting around 2007-2008, causing public agencies to suffer severe budget cuts that

reduced their ability to manage their lands for scrub-jays.

Stith (1999) utilized a spatially explicit individual-based population model developed specifically for the scrub-jay to complete a metapopulation viability analysis for each of the 21 metapopulations that he had defined. A series of simulations were run for each of the 21 metapopulations based on different scenarios of reserve design ranging from the minimal configuration consisting of only currently protected patches of scrub (no acquisition option) to the maximum configuration, where all remaining significant scrub patches were acquired for protection (complete acquisition option) (Stith 1999). The assumption was made that all areas that were protected were also restored and properly managed.

Results from Stith's (1999) simulation model included estimates of extinction, quasi-extinction (the probability of a scrub-jay metapopulation falling below 10 pairs), and percent population decline. These were then used to rank the different state-wide metapopulations by vulnerability. The model predicted that five metapopulations (NE Lake, Martin, Merritt Island, Ocala National Forest, and Lake Wales Ridge) have low risk of quasi-extinction. Two of the five (Martin and NE Lake), however, experienced significant population declines under the "no acquisition" option; the probability for survival of both of these metapopulations could be improved with more acquisitions. Eleven of the remaining 21 metapopulations were shown to be highly vulnerable to quasi-extinction if more habitats were not acquired (Central Brevard, N Brevard, Central Charlotte, NW Charlotte, Citrus, Lee, Levy, Manatee, Pasco, St. Lucie, and W Volusia). The model predicted that the risk of quasi-extinction would be greatly reduced for 7 of the 11 metapopulations (Central Brevard, N Brevard, Central Charlotte, NW Charlotte, Levy, St. Lucie, and W Volusia) by acquiring all or most of the remaining scrub habitat. The model predicted that the remaining four metapopulations (Citrus, Lee, Manatee, and Pasco) would moderately benefit if more acquisitions were made.

Stith (1999) classified two metapopulations (South Brevard and Sarasota) as moderately vulnerable with a moderate potential for improvement; they both had one or more fairly stable subpopulations of scrub-jays under protection, but the model predicted population declines. The rest of the metapopulations could collapse without further acquisitions, making the protected subpopulations there vulnerable to epidemics or other catastrophes.

Three of the metapopulations evaluated by Stith (1999) (Flagler, Central Lake, and S Palm Beach) were classified as highly vulnerable to quasi-extinction and had low potential for improvement, since little or no habitat is available to acquire or restore.

Finally, the spatial structure in Stith's model (1999) was more recently confirmed by genetic analyses that suggest at least 11 distinct genetic units exist (Coulon et al. 2008). The metapopulation structure conforms to these genetic units; although several previously described metapopulations could comprise a single genetic unit (Coulon et al. 2008). Recent research contained in the Statewide Assessment (2011) describes 10 genetically differentiated groups of scrub-jays throughout their extant range as summarized in a table by population trends with genetic units labeled A through K, Total Carrying Capacity, Managed Areas with Populations (1992-93 Compared to 2009-2010), Total Groups and Percent (%) Carrying Capacity.

Current Threats

Research and monitoring of Florida scrub-jays has revealed more information about threats to this species since the time the first recovery plan was approved in 1990. The following discussion is intended to give an up-to-date analysis based on the Service's 2007 Five-Year Review for the Florida Scrub-Jay (USFWS 2007):

The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range: Scrub habitats have continued to decline throughout peninsular Florida since listing occurred, and habitat destruction continues to be one of the main threats to the scrub-jay. Eighty percent or more of the scrub habitats have been destroyed along the Lake Wales Ridge since pre-European settlement (Fitzpatrick *et al.* 1991). Fernald (1989), Fitzpatrick *et al.* (1991), and Woolfenden and Fitzpatrick (1996a) noted that habitat losses due to agriculture, silviculture, and commercial and residential development have continued to play a role in the decline in numbers of scrub-jays throughout the state. State-wide, estimates of scrub habitat loss range from 70 to 90 percent (Woolfenden and Fitzpatrick 1996a; Fitzpatrick *et al.* unpubl. data). Various populations of scrub-jays within the species' range have been monitored closely, and more precise estimates of habitat loss in these locations are available (USFWS 2007).

Toland (1999) estimated that about 70 to 78 percent of pre-European settlement scrub habitats had been converted to other uses in Brevard County. This is due mainly to development activity and citrus conversion, which were the most important factors that contributed to the scrub-jay decline between 1940 and 1990. A total of only 10,656 acres of scrub and scrubby flatwoods remain in Brevard County (excluding federal ownership), of which only 1,600 acres (15 percent) is in public ownership for the purposes of conservation. Less than 1,977 acre of an estimated pre-settlement of 14,826 acres of scrubby flatwoods habitat remain in Sarasota County, mostly occurring in patches averaging less than 2.5 acres in size (Thaxton and Hingtgen 1996).

Habitat destruction not only reduces the amount of area scrub-jays can occupy, but also increases fragmentation of habitat. As more scrub habitat is altered, suitable habitat is cut into smaller and smaller pieces, separated from other patches by larger distances; such fragmentation increases the probability of inbreeding and genetic isolation, which is likely to increase extinction probability (Fitzpatrick *et al.* 1991; Woolfenden and Fitzpatrick 1991; Stith *et al.* 1996; Thaxton and Hingtgen 1996). As discussed above, dispersal distances of scrub-jays in fragmented habitat are further than in optimal unfragmented habitats, and demographic success is poor (Thaxton and Hingtgen 1996; Breininger 1999).

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes:

At the time of listing, shooting of scrub-jays and their collection as pets were identified as threats. Since the time of listing, known incidences of scrub-jay shootings have been rare and have not substantially impacted the species. Research on scrub-jays over the past 20 years has increased, and numerous scientific research permits have been issued. To date, we are aware of one scrub-jay mortality resulting from permitted research. This factor does not pose a risk to scrub-jays.

Disease or Predation: At the time of listing, disease and predation were not believed to be major threats. However, most scrub-jay mortality probably is from predation (Woolfenden and Fitzpatrick 1996b). The second most frequent cause of mortality may be disease, or predation on disease-weakened scrub-jays

(Woolfenden and Fitzpatrick 1996b). Known native predators of scrub-jays are numerous (see Woolfenden and Fitzpatrick 1990; Fitzpatrick *et al.* 1991; Schaubet *al.* 1992; Woolfenden and Fitzpatrick 1996a, 1996b; Breininger 1999; K. Miller FWC, in litt. 2004; Franzreb and Puschock 2004). Scrub-jays are also vulnerable to predation by feral and free-ranging domestic cats (Fitzpatrick *et al.* 1991; Bowman and Averill 1993; Bergen 1994; Breininger *et al.* 1995, 2001; Woolfenden and Fitzpatrick 1996a, 1996b; Breininger 1999; Toland 1999; Christman 2000). Woolfenden and Fitzpatrick (1996b) state that in suburban habitats, house cats are “important” predators to young and adult scrub-jays. Fitzpatrick *et al.* (1991) suspected that domestic cats supported by human food offerings could eliminate a small local population of scrub-jays. However, the impact of cat predation on scrub-jays has not been quantitatively assessed.

Woolfenden and Fitzpatrick (1996b) noted three episodes of elevated mortality (especially among juveniles) in 26 years at Archbold Biological Station. During the most severe of these presumed epidemics (August 1979 through March 1980), all but one of the juvenile cohorts and almost half of the breeding adults died (Woolfenden and Fitzpatrick 1984, 1990). The 1979-1980 incidents coincided with an outbreak of eastern equine encephalitis among domestic birds in central Florida (J. Day pers. comm., cited in Woolfenden and Fitzpatrick 1996b). From the fall of 1997 through the spring of 1998, the continuing population decline of scrub-jays along the Atlantic coast and in central Florida may have been augmented by an epidemic of unknown origin (Breininger 1999).

The scrub-jay hosts two protozoan blood parasites (M. Garvin pers. comm., cited in Woolfenden and Fitzpatrick 1996b) and 15 species of intestinal parasitic fauna have been documented (Kinsella 1974). Fly larvae (Woolfenden and Fitzpatrick 1996b), chewing lice (R. Price pers. comm., cited in Woolfenden and Fitzpatrick 1996b), wing-feather mites, chiggers, fleas (J. Kinsella pers. comm., cited in Woolfenden and Fitzpatrick 1996b), and tick nymphs and larvae (L. Durden and J. Keirans pers. comm., cited in Woolfenden and Fitzpatrick 1996b) are known to occur on scrub-jays. These naturally-occurring parasites are not believed to have a negative impact on scrub-jay populations.

West Nile virus was first documented in Florida during 2001 (G. Wallace, FWC, in litt. 2001; Stark and Kazanis 2001). West Nile's appearance caused concern initially because of the scrub-jay's close familial relationship to other bird species that have been negatively impacted by this virus (CDC undated). It has not yet been confirmed that scrub-jays have been affected in Florida (Stark and Kazanis 2001; Collins *et al.* 2002, 2003; Rivers *et al.* 2004). There have been local die-offs of scrub-jays reported since the arrival of West Nile virus in Florida, but no confirmation that West Nile virus was responsible (Breininger *et al.* 2001, 2003).

Large scrub-jay populations are at lower risk of extinction due to disease outbreaks than small populations (Breininger *et al.* 1999). Long-term monitoring of large populations in Brevard County and the southern Lake Wales Ridge indicated that most large populations recovered from a suspected 1997 epizootic outbreak (Breininger *et al.* 2003). Furthermore, Breininger *et al.* (2003) suggests that some large populations in high quality habitat may not have shown reductions in breeding population size because surviving helpers represent a surplus of potential breeders in these situations. Thus, having many large scrub-jay populations may act to buffer scrub-jays from possible epidemics that may impact scrub-jays and appear to be patchy in distribution. Maintaining large, contiguous parcels of high quality scrub-jay habitat may reduce the impacts of disease in the future (Breininger *et al.* 2003).

In summary, disease has been periodic and patchy, affecting some scrub-jay populations. Research of scrub-jay diseases has not been extensive, but at present disease does not appear to be a significant risk factor to scrub-jays. Predation has been reported in many scrub-jay populations and is reported to be higher in urban landscapes. In urban areas, predation, in combination with other effects related to habitat fragmentation and degradation, contribute to poor scrub-jay demographic performance. However, predation alone is not a significant risk factor to scrub-jays.

The Inadequacy of Existing Regulatory Mechanisms: Scrub-jays (including their eggs and young) (collectively referred to as “individuals” below) and/or their habitat are protected by the following regulatory mechanisms: Federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703 *et seq.*) – individuals throughout range, except on Department of Defense property during military readiness training. National Wildlife Refuge System Administration Act of 1966 – individuals and habitat on national wildlife refuges. Referenced under State Chapter 68A-27.004, Florida Administrative Code – individuals throughout range; and Chapter 68A-15.004, Florida Administrative Code - individuals and habitat on State wildlife management areas.

At the time of listing, the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703 *et seq.*) protected individual scrub-jays from take throughout their range, but did not protect their habitat. Regulations finalized in February 2007 authorize incidental take of migratory birds, including scrub-jays, for military readiness training.

The National Wildlife Refuge System Administration Act (NWRAA) represents organic legislation that set up the administration of a national network of lands and water for the conservation, management, and restoration of fish, wildlife, and plant resources and their habitats for the benefit of the American people. Amendment of the NWRAA in 1997 required the refuge system to ensure that the biological integrity, diversity, and environmental health of refuges be maintained. The ability to meet these statutory requirements on Merritt Island National Wildlife Refuge is complicated by competing operational constraints on Cape Canaveral Air Force Station, which owns most of the refuge property.

The scrub-jay is listed in the State of Florida as a threatened species. Florida State Law (Chapter 68A-27.004, Florida Administrative Code) prohibits taking of individuals of state listed threatened species, or parts thereof, or their nests or eggs, except as authorized; however, the statute does not prohibit destruction or modification of habitat occupied by threatened species. To date, the FWC has not developed a regulatory program that ensures compliance with this State statute. Instead, the FWC relies on Service implementation of the ESA through sections 7 and 10 to permit regulated destruction or modification of occupied habitat and enforcement of illegal taking violations of occupied habitat through section 9.

On State wildlife management areas, regulations protect individual scrub-jays because they are not listed as a game bird and therefore have no legal seasons established for taking. Wildlife management area regulations prohibit destruction or modification of habitat, except for management and restoration activities.

Although there are no local regulations protecting scrub-jays or their habitat, Florida’s State

Comprehensive Plan and Growth Management Act of 1985 requires each county to develop local comprehensive planning documents. Comprehensive plans contain policy statements and natural resource protection objectives, including protection of state and federally listed species, but they are only effective if counties develop, implement, and enforce ordinances. Many county governments have developed protective ordinances, but all such ordinances are based on compliance with the ESA rather than local laws and therefore provide no additional protection. Within the current range of the scrub-jay, five counties and one municipality have provisions for reviewing all development proposals for impacts to scrub and/or scrub-jays and for referring projects that may potentially impact scrub-jays to the Service for ESA compliance (Service staff, personal observation). Four counties occasionally invoke threatened and endangered species screening, depending on the level of controversy surrounding pending developments. The remaining counties do not have environmental resource staff dedicated to habitat protection and/or have not developed protective ordinances.

In summary, Federal laws currently protect individual birds on both private and most public lands and ensure protection and management of individuals and their habitat on national wildlife refuges. State statute exists to ensure protection of individuals on public and private property, but regulatory processes are not currently in place to implement this law in regard to destruction or modification of occupied habitat. However, State regulations protect individuals and habitat on FWC wildlife management areas. In combination, these local and State regulatory mechanisms adequately protect individual scrub-jays but not their habitat.

Other Natural or Manmade Factors Affecting its Continued Existence:

Fire Suppression - Fire suppression, and resulting habitat degradation, reduces habitat quality and scrub-jay demographic success (Woolfenden and Fitzpatrick 1984, 1991; Schaubet *et al.* 1992; Duncan *et al.* 1995; Breininger 1999; Breininger *et al.* 1995, 1996, 1998, 2006) and is likely responsible for declines and local extirpations of scrub-jays throughout Florida (Miller and Stith 2002). Fire suppression and its adverse effects on scrub-jays have been discussed by many authors: Breininger 1998, 1999; Breininger and Carter 2003; Breininger and Oddy 2004; Breininger *et al.* 1996, 2006 (Central Brevard, South Brevard-Indian River County-St. Lucie and Merritt Island-Cape Canaveral metapopulations); Bowman and Fleischer 1998; Bowman and Woolfenden 2001; Schoech and Bowman 2001; Woolfenden and Fitzpatrick 1984, 1991 (Lake Wales Ridge metapopulation) and Thaxton and Hingten 1994, 1996 (Sarasota-West Charlotte metapopulation).

Stith *et al.* (1996) estimated that at least 2,100 breeding pairs of scrub-jays were living in overgrown habitat statewide. Toland (1999) and Brevard County Natural Resources Management Office (2002) reported that most of Brevard County's remaining scrub is overgrown due to fire suppression. Population declines of scrub-jays within Brevard County between 1991 and 1999 were attributed mainly to habitat degradation resulting from fire exclusion and resulting vegetative overgrowth of remaining habitat patches (Breininger *et al.* 2001). Overgrowth of scrub results not only in the decline of species diversity and abundance but also a reduction in the percentage of open sandy patches (Fernald 1989; Woolfenden and Fitzpatrick 1996b). In the northern third of the scrub-jay's range, fire suppression was likely responsible for the decline of the scrub-jay (Fitzpatrick *et al.* 1994).

Habitat degradation due to fire suppression may exceed habitat destruction as the single most important limiting factor (Woolfenden and Fitzpatrick 1991, 1996a; Fitzpatrick *et al.* 1994). Fire is important in

the cyclical maintenance of scrub habitat (Nash 1895; Harper 1927; Webber 1935; Davis 1943; Laessle 1968; Abrahamson *et al.* 1984). Under natural fire regimes, late successional scrub habitats would have burned periodically to create early succession habitats (those with no or few canopy trees). Prevention and/or control of natural fires essentially lock scrub habitats into late successional stage vegetative communities that are not occupied by scrub-jays. Fire suppression is likely to continue on private lands and result in further declines of scrub-jays in these areas (Fernald 1989; Fitzpatrick *et al.* 1994, unpublished data; Percival *et al.* 1995; Stith *et al.* 1996; Thaxton and Hingtgen 1996; Woolfenden and Fitzpatrick 1990, 1996a; Toland 1999).

Natural fire regimes are mimicked through the application of prescribed fires on many public lands that contain scrub-jay habitat. Generally, use of prescribed fire is viewed as an effective tool in the management of scrub-jay habitat. Research in various portions of the scrub-jay's range identifies the need for fire management in scrub habitats. Experimental data at Archbold Biological Station (Fitzpatrick *et al.* unpublished data) show that fire-return intervals varying between 5 and 15 years are optimal for long-term maintenance of productive scrub-jay populations in central Florida. These intervals also correspond with those yielding healthy populations of rare and federally listed scrub plants (Menges and Kohfeldt 1995; Menges and Hawkes 1998). Optimal fire-return intervals may, however, be shorter in coastal scrub habitats (Schmalzer and Hinkle 1992a, 1992b).

Breiner and colleagues have combined GIS techniques with field studies to document the ecology and habitat use of color-banded scrub-jays since 1980 at Merritt Island National Wildlife Refuge and Kennedy Space Center, in Brevard County (Breiner *et al.* 1991; Breiner 1992; Breiner *et al.* 1995, 1996, 1998, 2001, 2003; 2006). Breiner's model for habitat characteristics in coastal scrub and scrubby flatwoods demonstrates the importance of an open habitat structure containing no more than 15 percent pine canopy cover and a mixture of low (less than four feet) and medium-height (four to five and one half feet) scrub oaks interspersed with bare sandy soil (Breiner 2006). These habitat conditions can only be maintained with use of periodic prescribed fire at intervals which may vary from 3 to 10 years depending on matrix vegetation and adjacent habitats (D. Breiner, personal communication, avian ecologist, Dynamac Corporation, February 21, 2007).

Woolfenden and Fitzpatrick (1996a) cautioned that prescribed fire applied too often to scrub habitat can result in local extirpations of scrub-jays. Similarly, Breiner (2006) found that aggressive prescribed burning creates oak scrub habitats that are structurally too short for scrub-jays. Demographic performance in extensively burned scrub is poorer than in optimal scrub (Breiner 2006).

Many public lands are not burned during the growing season or are ignited on a much smaller scale than would have occurred under natural fire regimes. Questions remain about the ecological effects of prescribed burning (during the non-growing season) on scrub-jays and their habitat. However, Foster and Schmalzer (2003) suggested that winter burning may not have significant biological impacts on the reestablishment of scrub vegetative communities.

More recently, some researchers have focused on development of adaptive fire management models (Breiner 2004, Johnson *et al.* 2004), recognizing that fire return intervals should be established based on ecological responses rather than a fixed burn schedule. This approach may be particularly useful

where scrub vegetative communities occur within a matrix of other vegetative communities that naturally burned more frequently.

Many land managers are currently confronted with urban interface issues that preclude or limit use of prescribed fire (Service 2006a). Smoke management and fire containment are often cited as concerns that affect decisions on when and where to use prescribed fire on public lands. With an anticipated increase in the human population in Florida, these constraints are likely to increase in the future.

The beneficial effects of habitat restoration and subsequent maintenance burning are obvious. Scrub-jays were absent from Blue Springs State Park in Volusia County in 1989, when a 30-acre tract of overgrown scrub was clearcut and burned. Another 100 acres were mechanically cleared in 1997. In the last five years, a total of 266 acres have been treated within park boundaries. Demographic monitoring and color-banding of scrub-jays in the region documented a rebound to 22 scrub-jays in 6 families as of 2006 (M. Keserauskis, in litt. 2006). Similar increases in scrub-jays have been noted following restoration and management actions at Oscar Scherer State Park in Sarasota County (Thaxton and Hingtgen 1994), Lyonia Preserve in Volusia County (Noss 2006), and Halpata Tastanaki Preserve in Marion County (Gordon 2005).

Fitzpatrick *et al.* (1991, 1994) and Woolfenden and Fitzpatrick (1996a) expressed concern for the management practices taking place on Federal lands at Ocala National Forest, Merritt Island National Wildlife Refuge/Kennedy Space Center, and Cape Canaveral Air Force Station, all supporting large contiguous populations of scrub-jays. They predicted that fire suppression and/or too frequent fires (on the latter two) and silvicultural activities involving the cultivation of sand pine on Ocala National Forest would be responsible for declines of scrub-jays in these large contiguous areas of scrub. Monitoring of scrub-jay populations (Kennedy Space Center), demography (Kennedy Space Center, Ocala National Forest), and nesting success (Kennedy Space Center, Ocala National Forest) is ongoing to assess the effectiveness of management practices.

Road Mortality - Scrub-jays forage along roadsides and are susceptible to being killed by passing cars. Mumme *et al.* (2000) indicated that scrub-jay territories found next to a two-lane road experienced adult mortality that was higher than recruitment. Such demographics would typically result in the extirpation of affected family groups unless other scrub-jays immigrated into the roadside family groups. Scrub-jay road mortality has been reported within the Federal land complex on Merritt Island (Dreschel *et al.* 1990), Ocala National Forest (U.S. Forest Service 2006), and adjacent to Archbold Biological Station (Mumme *et al.* 2000). Road mortality is a known mortality source but current data are insufficient to assess its impact on overall population viability. Nonetheless, it presents a growing management problem throughout the remaining range of the scrub-jay (Dreschel *et al.* 1990; Mumme *et al.* 2000), and proximity to high-speed paved roads needs to be considered when designing scrub preserves (Woolfenden and Fitzpatrick 1996a).

Suburban Settings- Scrub-jays may persist locally in otherwise marginal or unsuitable areas in or adjacent to suburban areas because they can obtain supplemental food from bird feeders (R. Bowman unpublished data, cited in Woolfenden and Fitzpatrick 1996a; Bowman 1998). However, recruitment in these scrub-jay populations appears to be lower than in populations occupying native habitat. Local densities of scrub-jays during nonbreeding seasons are sometimes elevated by supplemental food, even

though breeding densities may not be elevated. Therefore, artificial feeding may cause certain areas to act as population sinks. Such a result could have long-term implications for managing wild populations close to residential development (R. Bowman unpublished data, cited in Woolfenden and Fitzpatrick 1996a; Bowman 1998). In suburban areas where supplemental food was present, territory size was half that recorded in natural areas (Bowman 1998). In addition, suburban scrub-jays bred earlier, laid larger clutches, and attempted more nest starts per pair and more true second broods after successful first attempts than did scrub-jays in natural scrub. Despite these apparent benefits associated with supplemental food, annual recruitment of juveniles was 50 percent lower in suburban populations (Bowman 1998). Additionally, even though scrub-jays will preferentially supply natural food to their young, natural food availability is lower in suburban areas than in natural scrub. As a result, scrub-jays in suburban areas may be forced to switch to human-provided foods when feeding nestlings. Human-provided foods potentially result in reduced growth and survival of young (Sauteret *al.* 2006).

Scrub-jays in suburban settings often nest high in tall shrubbery. During March, these nests tend to be susceptible to destruction by seasonal wind storms (R. Bowman and G.E. Woolfenden unpublished data, cited in Woolfenden and Fitzpatrick 1996b; Bowman 1998). In addition, daily ambient temperatures differ between suburban and wildland sites in south central Florida (Aldredge *et al.* 2005). The higher ambient temperatures in suburban sites decrease the viability of first-laid scrub-jay eggs.

Stochastic Events - Hurricanes pose a potential risk for scrub-jays, although the impact of such catastrophic events is largely unknown. Breininger *et al.* (1999) modeled the effects of hurricanes on coastal and inland scrub-jay populations and found that small (< 20 pair) coastal populations were at risk of extirpation due to storm surge. Hurricane Charley (a category 4 storm) passed directly over the Deep Creek study area in Charlotte County on August 13, 2004. Miller (2006) reported extensive scrub-jay habitat modification. Short-term impacts may include reduced acorn production and less nesting and sheltering habitat due to vegetative windfall. However, one year after the hurricane, the number of family groups in the population remained near pre-hurricane levels (Miller 2006).

Several hurricanes impacted east-central Florida in 2004 and 2005. Subsequent site visits by Service biologists found scrub-jays in areas that were previously heavily canopied and unsuitable for scrub-jays. Sand pine scrub in western Volusia County was substantially altered by these storms. In many areas, pine canopy cover was greatly reduced, resulting in a more oak dominated scrub. Scrub-jays appear to have colonized areas where pine canopy damage was greatest (Service biologists, personal observations).

Exotic Plants and Animals - The invasion of some scrub habitat within Indian River, St. Lucie, and Martin counties by exotic plants and animals, including Brazilian pepper (*Schinus molle*), cypress pine (*Callitris* sp.), and Australian pine (*Casuarina equisetifolia*), has degraded scrub-jay habitat locally. Exotic vegetation typically out competes native vegetation and results in a reduction or elimination of native food resources and sheltering and nesting habitat. Other human-induced impacts identified by Fernald (1989) include the introduction of domestic dogs (*Canis familiaris*) and cats, black rats (*Rattus rattus*), greenhouse frogs (*Eleutherodactylus planirostris*), giant toads (*Bufo marinus*), Cuban tree frogs (*Osteopilus septentrionalis*), brown anoles (*Anolis sagrei*), and other exotic animal species. These exotic species may compete with scrub-jays for both space and food, although scrub-jays opportunistically feed on small exotic vertebrates.

Although road mortality, supplemental food, changes in habitat, stochastic events, and exotic plants and animals all pose risks to some scrub-jay populations, fire suppression, and the resulting degradation in habitat, represents the most significant and widespread manmade threat affecting the scrub-jay's continued existence. As previously discussed at the beginning of this section, current data indicate that declining scrub-jay numbers are likely due to habitat degradation resulting from lack of management or lack of territory-scale management.

Analysis of the Species/Critical Habitat Likely to be Affected

The scrub-jay's status since its listing in 1987 has not improved. The status and trends that we discussed above, clearly shows what two items are essential for recovery of this species: (1) restoration and management of publicly-owned scrub lands already under preservation; and (2) additional purchase of scrub lands for preservation in key areas. The summary discussion in the 2011 Statewide Assessment (Boughton and Bowman, 2011) suggested that recovery may be feasible for scrub-jays using a goal to increase populations of on currently managed lands from the present 1253 groups closer to their carrying capacity of over 3000 groups. On non-managed private lands, especially suburban populations, it was suggested that managers need to use their knowledge of local land use patterns and the size, number, and distribution of extant jay populations to quickly develop regional strategies (by the genetic unit) to increase core populations on managed sites in each of the 10 genetic units; and improve regional connectivity by facilitating movements among core populations and smaller satellite populations.

ENVIRONMENTAL BASELINE

Status of the Species in the Action Area

Scrub-Jay Habitat Quality on Glen Ridge Project Site

Generally, scrub-jays prefer a habitat which consists of oak shrubs between 3 and 10 feet tall, with coverage of about 50-75 percent of the area. Also the oak cover should be interspersed with bare ground or vegetation less than 6 inches tall covering 10-30 percent of the area, and no more than 20 percent canopy cover (Cox, J.A. 1987). Scrub-jay habitat suitability is typically broken down into three levels- **Type I Habitat** - an upland plant community, assessed in one-acre plots, with greater than or equal to 15 percent cover of scrub oak species; **Type II Habitat** - an upland plant community, assessed in one-acre plots, with percent cover of scrub oak species greater than zero but less than 15 percent; and **Type III Habitat** - native or improved uplands and seasonally dry wetlands within 1/4 mile of Type I or Type II habitat (Fitzpatrick *et al.* 1991).

In the Florida Scrub-Jay Survey Report for the property AES analyzed a variety of factors for scrub-jay habitat suitability, including the occurrence of scrub oak species, the height and density of dominant vegetation, the percent cover of canopy species, the presence of open sandy/herbaceous areas, the proximity of human activities and development, the presence of adequate sentinel trees and snags, and the potential effects of the recent on-site wildfire. Based on the above descriptions and on-site observations, Type I habitat was present on the project site, this was determined to be the best representative of suitable scrub-jay habitat on the project site. A portion of the site about 16.02 acres of Pine Flatwoods was also determined to be potential suitable habitat for scrub-jay. The remainder of the

property with the exception of the Freshwater Marsh and Brazilian Pepper communities, qualified as Type III habitat.

The scrub-jay habitat impacts associated with the project consist of 3.40±-acres of Scrubby Pine Flatwoods (FLUCFCS 416) and Pine Flatwoods (FLUCFCS 411) communities containing slash pine along with scrub oaks and longleaf pine - Type I and Type II scrub-jay habitat. The extent of potentially suitable scrub-jay habitat defined on and adjacent to Glen Ridge project site is delineated in Figure 3 of the AES scrub-jay survey (Appendix A).

While these habitats support scrub-jay occupation, the habitat size, fragmentation, and lack of management are becoming limiting factors for long term survival of the resident scrub-jay family. No active management has taken place on the proposed project site to maintain the scrub.

Scrub-Jay Utilization of the Project Site

The Applicant's consultant, AES, conducted surveys for five days beginning on April 3,5,8,10,and 11, 2013, to determine the presence and approximate territory boundaries of scrub-jays within the project boundaries. During those surveys, one family of scrub-jays consisting of two (2) individuals was observed within the project site, and heard to the east-northeast of the project site. The scrub-jays inhabiting the project site are part of a larger South Brevard metapopulation of scrub-jays that persist in the central and southern Brevard County and extend south into northern Indian River counties (Stith, 1999).

Relationship of the Site to the Action Area

Breininger *et al.* (2001) defined patches of potential habitat for scrub-jays that are large enough to support at least one territory as Potential Reserve Units (PRUs). PRUs can be compared to critical habitat polygons used by Stith (1999) by excluding habitat fragments categorized as "suburban territories." Breininger *et al.* (2001) used major roads to separate PRUs, land ownerships, and major land use patterns. Within the PRUs are "territory clusters" or polygons that have been used to describe scrub-jay populations, which are areas of contiguous suitable habitat in areas occupied by scrub-jays and not areas contiguously occupied (Breininger *et al.* 2001). Suitable habitat was not restricted to oak and palmetto-oak and could include palmetto-lyonia, rural, and marshes that would have been included within their territories (Breininger *et al.* 1995, 1998). The potential scrub-jay habitat on the Glen Ridge project site is located within PRU 41 of the Wickham Road territory cluster (PRU's 37-48). Breininger *et al.* (2001) recognized that these habitat fragments were being rapidly lost to development. The project site areas unoccupied by scrub-jays cannot be regulated under the Act and may be developed with no coordination from the Service; therefore they may ultimately be developed rather than preserved.

As previously discussed, Stith (1999) classified South Brevard metapopulation as moderately vulnerable with a moderate potential for improvement since one or more fairly stable subpopulations of scrub-jays are under protection.

In 2002 at least 160 breeding pairs of scrub-jays were estimated to be within the South Brevard metapopulation; and when combined with the Central Brevard metapopulation it was 219 breeding

(Table 1) (Breininger *et al.* 2003); however, more updated information is needed. According to Fitzpatrick *et al.* 1994, a metapopulation consisting of more than 100 pairs has less than 10 percent probability of extinction within 100 years.

Through the compilation of data contained in the 2011 State wide Assessment and Coulonet. al. (2008), roughly 100 groups have been reported to occur on managed lands in Genetic Unit A, which includes Volusia, mainland Brevard, Indian River and North St. Lucie Counties.

The proposed action will result in the incidental take of one extended family of scrub-jays (2 individuals) in the South Brevard metapopulation. The compensatory restoration of +/-13.8-acres of potentially suitable scrub-jay habitat located off-site at the Malabar Scrub Sanctuary West and management for optimal scrub-jay habitat quality conditions, as defined in Breininger *et al.* 2003 (Exhibit 2), by the Brevard County EELs Program over a 25-year period will serve to minimize the impacts to the scrub-jays population within the action area. This compensatory action, as proposed, will be an important step towards the regional goal of restoring and managing enough scrub habitat to sustain the maximum number of scrub-jay breeding pairs to ensure long-term survival of the South Brevard metapopulation.

Table 1. Summary of Metapopulation Sizes (Breininger *et al.* 2003)

Metapopulation	Breeding Pairs		
	1992	2002	Potential ^a
Central Brevard	50	59	104
South Brevard-Indian River-St. Lucie	255 ^b	160	410
Combined	305	219	514

^a Includes unoccupied PRUs that could be restored to enhance connectivity.

^b Assumes that 1992 population sizes for Fox Lake, Carson Platt, and Coracii were at least as great as in 2002. None of these areas were surveyed in 1992.

Factors Affecting the Species Environment Within the Action Area

Scrub-jays evolved in a landscape matrix of nearly contiguous habitat patches that shifted in size and distribution in response to natural fire events. Habitat quality and the location of suitable habitat patches were dependent on periodic fires that retarded vegetative succession. Natural fire events created temporal, optimal, early stage xeric vegetative communities that were exploited by scrub-jays.

Over the last 100 years, human occupation of Florida resulted in direct habitat loss through land clearing, habitat fragmentation, and habitat degradation through fire suppression. The distribution and numbers of scrub-jays likely declined in response to these increasing urban pressures. These same factors continue to threaten the long-term viability of the scrub-jay population in Florida. As scrub-jay populations become smaller and more isolated, the adverse demographic effects of urbanization influences may be magnified and small populations are more susceptible to extinction than larger

populations.

Numerous federal actions have taken place within the action area that impacted scrub-jays. These projects resulted in incidental take through sections 7 and 10 of the Act. The impacts associated with these projects resulted in the loss of occupied scrub-jay habitat within the action area, and further fragmented the scrub habitat. However, the adverse effects of all these projects were offset through onsite preservation and/or offsite purchase and management of occupied scrub habitat, resulting in a net increase in scrub habitat under active management. A summary of impacts and minimization and/or compensation actions is provided in Table 2 below.

As of August 8, 2014 through projects evaluated under section 7 and section 10 of the Act, the acquisition and management of 1338.76± acres has occurred in Brevard County. This land has been acquired to minimize or mitigate for impacts to scrub-jays throughout Brevard County. Most of these properties have been turned over to the Brevard County EELs Program, who has assumed management responsibilities. By acquiring these properties, we have provided more potential scrub habitat to support scrub-jays long-term throughout Brevard County. The Service supports both acquisition and land management to help provide a corridor between the mainland metapopulations. There are management endowments associated with all acquisitions to provide for the restoration and management of these properties in perpetuity. Since many of these sites have been acquired, management has taken place and the sites are occupied by scrub-jays. Most of these sites are located adjacent to or within large tracts of conservation land already under public ownership. An additional 1,620 acres of scrub habitat have already been purchased (outside federal ownership) for preservation by Brevard County EELs Program, St. Johns Water Management District (SJWMD), and Florida Department of Environmental Protection (FDEP) (Toland 1999).

Table 2.List of Section 7 Projects in Brevard County from 1993 to 2014

Project Number (FWS Log No.)	Occupied scrub-jay habitat impacted(acres)	Occupied scrub-jay habitat acquired and managed(acres)
93-343	4	9
93-416	none (avoided scrub habitat)	2.34 (on-site)
94-202	none (avoided scrub habitat)	6 (on-site)
94-414	none (avoided scrub habitat)	14.64 (on-site)
95-222	27.8	69.2
95-275	25.0	50.0
95-398	205.0	411.0 (on-site)
96-053	1.91	8.28
96-539	4.26	10.9
97-540	14.72	58.58
97-551	5.2	21.4

Project Number (FWS Log No.)	Occupied scrub-jay habitat impacted(acres)	Occupied scrub-jay habitat acquired and managed(acres)
98-522	4.11	4.55 (on-site) and 9 (off-site)
98-689	0.25	0.55
98-818	17.06	54.41
99-303	17.46	60.0
00-350	2.72	4.5
00-370	37.58	101.66
00-664	2.16	4.32
01-379	1.5	3.0
01-513	none (avoided scrub habitat)	7.0
01-335	5.25	21.07
01-337	16.30	32.48
01-379	1.5	3.0
02-473	28	56
03-1204	2.3	9.97
03-375	2.3	5.0
04-1706.01	1.0	2.0
05-802.01	12.35	57.2
06-265	24.72	99.71
06-399	7.48	15.0
11-0319	12.7	26.0
14-0010	23.7	110.0
Total	508.33	1338.76

Climate Change

Based on the present level of available information concerning the effects of global climate change on the status of the Florida Scrub-Jay, the FWS acknowledges the potential for changes to occur in the action area, but presently has no basis to evaluate if or how these changes are affecting the Florida Scrub-Jay. Nor does our present knowledge allow the FWS to project what the future effects from global climate change may be or the magnitude of these potential effects.

EFFECTS OF THE ACTION

This section includes an analysis of the direct and indirect effects of the proposed action on the species and critical habitat and its interrelated and interdependent activities. To determine whether the proposed action is likely to jeopardize the continued existence of threatened or endangered species in the action area, we focus on consequences of the proposed action that affect rates of birth, death, immigration, and emigration because the probability of extinction in plant and animal populations is most sensitive to changes in these rates.

Factors to be Considered

The effects of the proposed Glen Ridge development project on the scrub-jay may occur as direct and indirect effects.

Direct Effects -The construction of the referenced residential development project may result in the direct "take" through harm and/or harassment of one scrub-jay family from the loss of 3.40±-acres of occupied habitat. The family occupying the project site is comprised of two (2) individuals. The probability of direct incidental take is dependent upon the number of scrub-jays in the region, their dispersal abilities, and the amount and distribution of available, suitable habitat.

Another significant threat to scrub-jay recovery is fire suppression and/or lack of management in scrub habitat (Woolfenden and Fitzpatrick 1984, 1991; Schaubet *et al.* 1992; Stithet *et al.* 1996; Breininger *et al.* 1999). While the project site was not being managed for scrub-jays, a portion of the site had been burned between January and November of 2007, which affected the majority of the Scrubby Pine Flatwoods habitat types.

Indirect Effects -Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action, and may include other Federal actions that have not undergone section 7 consultations, but will result from the action under consideration.

The indirect effects will occur from loss of scrub habitat on the project site that may interrupt dispersal corridors between areas occupied by scrub-jays within the South Brevard metapopulation.

Dreschel *et al.* (1990), Fitzpatrick *et al.* (1991), and Mumme *et al.* (2000) provide the best scientific and commercial data on the likelihood of incidental take as the result of scrub-jays being killed by the vehicles. The only scientific documentation of road-kill mortality in scrub-jays are from scrub-jays living in a territory immediately adjacent to a road, not from dispersing some unknown distance across a road to a new territory. The proposed project will most likely increase the amount of traffic, which could further increase the potential for scrub-jay fatalities due to vehicle strikes.

The proposed project will result in habitat destruction which reduces the amount of area for scrub-jays to occupy, and consequently increases fragmentation of habitat. As more scrub habitat is altered the habitat is cut into smaller pieces separated from other patches by larger distances. Such fragmentation increases the probability of genetic isolation, which is likely to increase extinction probability (Fitzpatrick *et al.*

1991; Woolfenden and Fitzpatrick 1991; Snodgrass *et al.* 1993; Stith *et al.* 1996; Thaxton and Hingten 1996). Dispersal distances of scrub-jays in fragmented habitat are further than in optimal unfragmented habitats (Thaxton and Hingten 1996; Breininger 1999).

CUMULATIVE EFFECTS

Cumulative effects include effects of future State, local, or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

All development projects that may affect occupied scrub-jay habitat in the action area require federal review pursuant to either section 7 or section 10 of the Act. However, we have no jurisdiction over activities that unintentionally resulted in the loss of unoccupied, but potentially suitable, habitat. Without continual management, occupied habitat will continue to become overgrown to the point that it no longer supports scrub-jays, and potentially suitable unoccupied habitat will be converted to other uses, precluding future management and occupation by scrub-jays. The extent to which this has historically occurred in Brevard County and throughout the range of the scrub-jay has been discussed previously. Habitat loss often results in habitat fragmentation which can have a greater impact than the amount destroyed by limiting or precluding the ability to effectively manage the remaining habitat. The extent to which it is likely to occur in the future is unknown.

For the purposes of this discussion we have assumed a worst-case scenario that all current potentially suitable unoccupied habitat will be converted to other land uses, and that all occupied habitat on private lands not under active management will eventually become unsuitable and unoccupied. We note that these assumptions for our worst-case scenario are very likely false because several agencies are actively pursuing opportunities to acquire and manage additional scrub-jay habitat, and that the rate of development in Brevard County has slowed considerably from earlier years as a result of poor economic growth conditions experienced throughout Florida. Nonetheless, under this scenario we would eventually see scrub-jay distribution limited to primarily public lands currently under active management. It is likely that under such a scenario that scrub-jay populations would decline from current numbers; however, it is also likely that scrub-jays would continue to persist in several viable metapopulations. Further, it must be noted that the proposed project with its offsite habitat restoration and management components works to counteract the effects contributing to further losses from the South Brevard metapopulation.

CONCLUSION

This proposed project will result in the direct, permanent loss of a total of 3.40±-acres of habitat occupied by scrub-jays. However, impacts to the species will be offset and minimized by the conservation measures proposed and carried out by the Applicant for the restoration and long-term management of 13.8±acres of overgrown scrub habitat located offsite at the previously referenced Malabar Scrub Sanctuary West managed by the Brevard County EEL Program.

From the information presented above, the following pertinent facts are apparent: 1) scrub-jays are dependent on continuous human management of scrub habitat; 2) scrub-jay recovery depends on

additional purchase of scrub lands in key areas, and effective restoration and ongoing management of those protected lands; 3) succession of unmanaged scrub habitat is as important a factor in the decline of scrub-jay populations as is loss of habitat to competing land uses; and 4) with respect to the action area for this project, restoration, management, and acquisition of important areas in North and South Brevard County would enhance the potential for interchange between these metapopulations; improving chances for their long-term persistence. When comparing the proposed project to these facts, we find: 1) the 3.40±-acres of habitat currently occupied by scrub-jays on the project site are unmanaged and unlikely to sustain scrub-jays long-term; and 2) the compensatory restoration proposal will result in a 25-year commitment for restoration and management of 13.8± acres of scrub habitat offsite (Malabar Scrub Sanctuary West) that will facilitate recruitment of more scrub-jay territories, thus enhancing the long-term viability of this South Brevard scrub-jay metapopulation.

After reviewing the current status of the scrub-jay, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's opinion that the proposed project is not likely to jeopardize the continued existence of the Florida scrub-jay. No critical habitat has been designated for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or to attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" and "harass" are further defined in Service regulations (50 CFR 17.3). "Harm" is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. "Harass" is defined as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding or sheltering. Under the terms of sections 7(b)(4) and 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The reasonable and prudent measures described below are non-discretionary, and must be implemented by the agency and/or the Applicant, as appropriate. As part of the permit, the Service recommends the reasonable and prudent measures become binding conditions of any grant or permit issued to the Applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Federal agency has a continuing responsibility to regulate the activity that is covered by this incidental take statement. If the agency (1) fails to require the Applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or (2) fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. Similarly, the Applicant's protective coverage of section 7(o)(2) may lapse if they do not remain in compliance with the reasonable and prudent measures that they are required to execute.

Section 7(b) (4) and 7(o) (2) of the Act do not apply to the incidental take of listed plant species. However, protection of listed plants is provided to the extent that the Act requires a Federal permit for removal or reduction to possession of endangered plants from areas under Federal jurisdiction, or for

any act that would remove, cut, dig up, or damage or destroy any such species on any State or in the course of any violation of a State criminal trespass law.

AMOUNT OR EXTENT OF TAKE ANTICIPATED

The Service has reviewed the biological information for the scrub-jay presented by the Corps Project Manager (Lauren E. Carroll) and the Applicant's consultant (AES), and other available information relevant to this action. Based on our review, incidental take is anticipated to include 3.40± acres of scrub-jay habitat occupied by one family (2 individuals) of scrub-jays.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

When providing an incidental take statement, the Service is required to give non-discretionary reasonable and prudent measures it considers necessary or appropriate to minimize the take along with terms and conditions that must be complied with, to implement the reasonable and prudent measures. Furthermore, the Service must also specify procedures to be used to handle or dispose of any individuals taken. The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take:

The Applicant (Mr. Chad Genoni.) has agreed to minimize impacts to the scrub-jay population by restoring and managing 13.8-acres (4:1 ratio) of overgrown potential scrub-jay habitat located offsite at the Malabar Scrub Sanctuary West, owned by the State of Florida and managed by the Brevard County EELs Program. For further discussion purposes of all conservation measures and terms and conditions, this location will be referred to herein as the 'Restoration Sites'.

To accomplish this compensatory measure, the Applicant will directly contract with EELs Program-approved land management personnel to conduct the initial restoration effort, consisting of removal of pines and tall oaks and reduction in profile of midstory vegetation. The Applicant will also provide funding to the EELs Program to support the long-term management and prescribed burning of the 'Restoration Sites' over the course of 25 years for the purpose of managing optimal scrub-jay habitat quality conditions, as defined in Breininger *et al.* 2003, to recruit new scrub-jay territories on the Restoration Sites.

The proposed scrub habitat restoration and management plan, referred to herein as Florida Scrub-Jay Habitat Restoration Plan (Restoration Plan) attached as Appendix B of the original EA Letter, was prepared in coordination with the EELs Program's South Management Region Land Manager, Chris O'Hara. This plan presented herein reflects our understanding of the proposed actions that meet the EEL Program's management goals for the Malabar Scrub Sanctuary West. The Service and the Corps have agreed that the proposed plan should successfully offset the proposed impacts to the scrub-jay territory on the Glen Ridge project site, and provide the appropriate compensation response to support the long-

term survival of the scrub-jay metapopulation in South Brevard County. As such, the Applicant agrees to the following conservation measures:

1. The Applicant will execute a Memorandum of Agreement (MOA) with Brevard County (draft provided as Exhibit 1 separately attached from BO) which allows the Applicant to conduct scrub habitat restoration actions, as described below in Terms and Conditions, on the referenced 13.8±-acre Restoration Site located within the South Brevard scrub-jay metapopulation;
2. The Restoration Plan will be secured under the MOA between the Applicant and the Board of County Commissioners of Brevard County **prior to implementation of any site clearing for the Glen Ridge residential development project site**. The general scope of the agreement will be similar to that shown on the attached sample MOA. The MOA will serve as a binding contract to insure that the scrub habitat restoration and management actions are completed according to the Restoration Plan, and funded in the long term for 25 years.
3. The Applicant will donate funding in the amount of \$1,200 per managed acre (13.8 x \$1200 = \$16,560) to the Brevard County EELs Program to support scrub habitat management activities on the Restoration Site for 25 years.
4. The Brevard County EEL Program will provide the Applicant access to the Restoration Site for 25 years for the purpose of preparing monitoring reports to be submitted to the Corps and Service documenting the management activities conducted on the site, the recruitment of scrub-jays to the Restoration Sites, and providing photo documentation of site conditions.

TERMS AND CONDITIONS

In order to be exempt from prohibitions in section 9 of the Act, the Corps, in conjunction with the Service, shall ensure that the Applicant complies with the following terms and conditions which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. **Execution of Memorandum of Agreement (MOA) Between Applicant and Brevard County:**
The Applicant shall execute an MOA, based on the separately attached draft Exhibit 1, with Brevard County prior to the implementation of any site clearing at the Glen Ridge development site.
2. **Scrub Habitat Restoration Actions:**

The Applicant shall offset impacts to the scrub-jay population by restoring and managing 13.8 acres of overgrown scrub habitat within the 550±-acre Malabar Scrub Sanctuary West, located in Section 35, Township 28 South, Range 37 East, Brevard County, Florida. The sanctuary is owned by the State of Florida (Division of State Lands, c/o the Florida Department of Environmental Protection), and consists of Parcel No's 28-37-35-00-00006.0, 28-37-35-00-00007.0, and 28-37-35-00-00500.0 and managed by the Brevard County EEL Program. Location Maps for the Restoration Site are provided in Figure 1 of the Florida Scrub-Jay Habitat Restoration Plan, Appendix B of the original EA Letter.

In accordance with the Restoration Plan, the Applicant shall implement the following scrub habitat restoration actions within the 13.8-acre Restoration Site at Malabar Scrub Sanctuary West, as described below. **The Service and the Corps shall be notified (via email) when restoration activities are scheduled to begin (including an approximate completion time), as these activities shall be initiated to run concurrently with the initiation of the site clearing for the Glen Ridge Project.**

- a. Scrub habitat restoration actions will be completed on the 13.8±acres Restoration Site as referenced in the Restoration Plan (see Figure 3).
- b. Cabbage palms will not be targeted for cutting, burning, or removal, unless this canopy coverage is determined to degrade the restoration of optimal habitat quality conditions for scrub-jay recruitment;
- c. All sand pines and slash pines are to be felled and burned in piles.
- d. All pines located within 10-feet of the top of the banks of the stream systems are required to be removed by hand. No work shall occur below the top of bank of the stream systems;
- e. Pines that are proximal to residential areas are to be felled and relocated at least 300 feet away from the nearest residence before burning;
- f. If longleaf pines are found, they are to be allowed to remain at a density of no more than 2-3 per acre. Any excess will be cut and pile burned along with the other pines;
- g. All dead pine and oak snags are to be felled and pile burned;
- h. All oaks taller than 8-feet are to be roller chopped per the Florida Scrub-Jay Habitat Restoration Plan;
- i. All palmetto, lyonia, gallberry, and other midstory vegetation taller than 6-feet is to be roller chopped;
- j. All recreational trails are to be left completely undisturbed. All oaks located within 25-feet to 10-feet of the on-site recreational trails shall be removed by hand to prevent the creation of tall, linear vegetative "curtains", which degrade the restoration of optimal habitat quality conditions for scrub-jay recruitment by increasing scrub-jay predator efficacy. If after hand removal of these trees a "curtain" still exists, then the EELs Program will remove such trees as part of the long term management of the Restoration Site;
- k. After tree felling and roller chopping is complete, prescribed burning within the Restoration Site management cells is recommended. The Applicant's direct restoration obligation is to cut and pile burn targeted pines and oaks and roller chop tall understory vegetation. The EEL program will be responsible for administering prescribed burning of the entire management cells when deemed appropriate;
- l. All initial management work will be completed by an EELs Program-approved, experienced land management contractor.

3. **Long-term Scrub Habitat Management:**

The Applicant shall provide the one-time lump sum conservation contribution in the amount of \$1,200 per managed acre ($13.8 \times \$1200 = \$16,560$) per year for 25 years to the Brevard County EELs Program for long term management of the Restoration Site. **This conservation contribution shall be provided to the Brevard County EEL Program within (30) days after issuance of the Corps Permit with this BO, in order to allow enough time for the**

translocation of the scrub-jays prior to the initiation of clearing for the Glen Ridge residential development project site. The Service and the Corps Project Manager shall be notified, via email, when this transfer of funds occurs.

Controlled burns or roller chopping will be conducted by the Brevard County EEL Program on a five-year rotation or as needed for up to 25 years to optimize habitat quality conditions for scrub-jays, as defined in Breininger *et al.* 2003 (Exhibit 2). Brevard County EEL Program will designate the funds in their accounting system to be used only for the positive benefit of scrub-jay management on the 13.8±acre delineated Restoration Site at Malabar Scrub Sanctuary West. Brevard County EEL Program will use a tracking method to document how and when the money was used for management activities on the Malabar Scrub Sanctuary West Restoration Site and provides records to the Service, if requested. Such funds are to be used exclusively for management of the total 13.8± acres of delineated area of the Restoration Site, and should not be used in any manner to reduce other management funds available for scrub-jay management within the Brevard County EEL Program.

4. **Monitoring and Reporting:**

The Applicant shall provide the following monitoring and reporting:

- a. **BASELINE REPORT:** Establishes vegetative sampling protocol for evaluating, initially at a three-year term and five-year term, and thereafter, every five-years for the 25-year term, successful restoration of optimal scrub-jay habitat quality conditions, as defined in Breininger *et al.* 2003. This vegetative sampling protocol shall employ both qualitative and quantitative methodology. At a minimum, four (4) permanent sampling plots per management "cell" shall be established to provide photographic and quantitative documentation of the state of the scrub-jay habitat quality, as defined in Breininger *et al.* 2003. The sampling protocol shall be approved by the Service prior to initiation of the baseline survey.

In addition, the baseline report shall document the presence and number, if applicable, of scrub-jays on the delineated ±13.8-acre Restoration Site prior to the initiation of required scrub restoration activities. This baseline scrub-jay survey and subsequent surveys shall be conducted in accordance with the Service's most current version of the Florida Scrub-Jay Survey General Guidelines and Protocol. This survey guidance is published on the Service's website located at www.fws.gov/northflorida/.

- b. **THREE-YEAR AND FIRST FIVE-YEAR REPORTS:** A three-year and a five-year monitoring report, starting from the date of completion of the scrub habitat restoration action identified above in Item 2 and based on the vegetative sampling/scrub-jay survey protocol set forth under the Baseline Report above, shall be provided to the Service. In addition to evaluating the state of scrub-jay habitat quality, as defined in Breininger *et al.* 2003, and the level of scrub-jay recruitment (number of territories/individuals), these reports shall provide a discussion on management activities conducted by the EEL Program on the Restoration Site during each term and any passive observations of scrub-jay use from the EEL Program manager.

- c. **FIVE-YEAR REPORTS TO 25-YEAR TERM:** After the submittal of the first five-year monitoring report, subsequent reports shall be submitted at five (5) year intervals and shall contain the results of scrub-jay habitat quality and scrub-jay recruitment surveys, in accordance with the above specified protocol, for the remaining duration of this 25-year commitment. This monitoring and reporting is required to allow the Service to evaluate the effectiveness of the scrub habitat restoration and long-term management activities in recruiting new scrub-jay territories at the Malabar Scrub West Sanctuary, and to assist with ongoing recovery evaluations of the South Brevard metapopulation.
- d. **REPORTING ADDRESS:** The monitoring reports shall be submitted within 60-days from the date of completion of the scrub habitat restoration action identified above in Item 2. The Service should be contacted for specific guidance relative to the duration of these surveys, transmittal of information needed, and the current point of contact within the Jacksonville Field Office to receive the survey results.
5. **Actions to Minimize Impacts to Scrub-Jays During Land Development/Habitat Restoration:**
If clearing for either land development at the Glen Ridge project site or for habitat restoration at the Restoration Site is required within potential scrub-jay habitat during the nesting season, typically March 1 through June 30, then the entire area to be cleared shall be systematically surveyed prior to clearing to determine if any active scrub-jay nests are present within the vegetation. The results of this survey shall be provided in a letter report format documenting the survey dates, methodology, and findings to the Service and Corps Project Manager **prior** to initiation of any clearing actions to receive concurrence with reported findings. If an active scrub-jay nest is located, and upon Service and Corps concurrence, clearing activities shall not take place within 300-feet of the nest site until nestlings have fledged or until it has been determined that the nest has failed.
6. **Unauthorized Take:**
Unauthorized take of Florida scrub-jays associated with the proposed development activity shall be reported immediately by calling the Service North Florida Jacksonville Field Office at (904)731-3336. If a dead scrub-jay is found on the project site, the specimen should be thoroughly soaked in water and frozen for later analysis of cause of death or injury.

CONSERVATION RECOMMENDATIONS

Section 7(a) (1) of the Act directs Federal agencies to use their authority to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help carry out recovery plans, or to develop information.

The Applicant has agreed to allow the Brevard Zoo, and its associates, to translocate scrub-jay individuals from the project area to a managed conservation area in accordance with the joint USFWS –

FWC Florida Scrub-jay Translocation Guidelines (dated June 6, 2011). Trap-training and trapping activities will occur on the project area prior to land clearing activities. Any trapped scrub-jays will be translocated to a managed conservation area determined by the USFWS scrub-jay Recovery Lead and the FWC, in coordination with the Brevard Zoo and the lead agency responsible for the managed area.

REINITIATION OF SECTION 7 CONSULTATION

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required when discretionary Federal agency involvement or control over the action has been retained and if: (1) information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; (2) the Corps' action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion; or (3) a new species is listed or critical habitat designated that may be effected by the action. Should you have any questions regarding this Biological Opinion, please contact Zakia Williams of my staff at (904) 731-3142.

Sincerely,



for Jay B. Herrington
Field Supervisor

cc: Todd Mecklenborg, ES, Jacksonville

LITERATURE CITED

- Abrahamson, W.G. 1984. Post fire recovery of Florida Lake Wales Ridge vegetation. *American Journal of Botany* 71(1):9-21.
- Abrahamson, W.G., A.F. Johnson, J.N. Layne, and P.A. Peroni. 1984. Vegetation of the Archbold Biological Station, Florida: an example of the southern Lake Wales Ridge. *Florida Scientist* 47(4):209-250.
- American Ornithologists' Union [AOU]. 1957. Check-list of North American Birds. Fifth edition. Allen Press; Lawrence, Kansas.
- American Ornithologists' Union [AOU]. 1983. Check-list of North American Birds. Sixth edition. Allen Press; Lawrence, Kansas.
- American Ornithologists' Union [AOU]. 1995. Fortieth supplement to the American Ornithologists' Union check-list of North American Birds. *The Auk* 112(3):823-824.
- Bancroft, G.T. and G.E. Woolfenden. 1982. The molt of scrubjays and blue jays in Florida. Ornithological Monograph Number 29. American Ornithologists' Union; Washington, D.C.
- Bent, A.C. 1946. Life histories of North American jays, crows and titmice. U.S. National Museum Bulletin No. 191. U.S. Government Printing Office; Washington, D.C.
- Boughton, R. and R. Bowman. 2011. State wide assessment of Florida Scrub-Jays on *managed* areas: A comparison of current populations to the results of the 1992-93 survey. Report submitted to U.S. Fish and Wildlife Service 9 May 2011.
- Bowman, R. 1998. Population dynamics, demography, and contributions to metapopulation dynamics by suburban populations of the Florida scrub-jay, *Aphelocoma coerulescens*. Final report on Project No. NG94-032 to Florida Fish and Wildlife Conservation Commission, Tallahassee, FL.
- Bowman, R. and L. Averill. 1993. Demography of a suburban population of Florida scrub jays. Annual progress report for Agreement No. 14-16-0004-91-950 with U.S. Fish and Wildlife Service. December 1993.
- Bowman, R., G.E. Woolfenden, A.L. Fleischer, Jr., and L.M. Walton. 1996. Nest site selection by Florida scrub-jays in natural and modified habitats. Abstract, Archbold Biological Station 1996 Symposium. 12 September 1996. Lake Placid, Florida.
- Breiner, D.R. 1999. Florida scrub-jay demography and dispersal in a fragmented landscape. *The Auk* 116(2):520-527.
- Breiner, D.R. and P.A. Schmalzer. 1990. Effects of fire and disturbance on plants and birds in a Florida oak/palmetto scrub community. *American Midland Naturalist* 123(1):64-74.

- Breining, D.R., M.J. Provancha, and R.B. Smith. 1991. Mapping Florida scrub jay habitat for purposes of land-use management. *Photogrammetric Engineering & Remote Sensing* 57(11):1467-1474.
- Breining, D.R., V.L. Larson, B.W. Duncan, R.B. Smith, D.M. Oddy, and M.F. Goodchild. 1995. Landscape patterns of Florida scrub jay habitat use and demographic success. *Conservation Biology* 9(6):1442-1453.
- Breining, D.R., V.L. Larson, B.W. Duncan, and R.B. Smith. 1998. Linking habitat suitability to demographic success in Florida scrub-jays. *Wildlife Society Bulletin* 26(1):118-128.
- Breining, D.R., M.A. Burgman, and B.M. Stith. 1999. Influence of habitat quality, catastrophes, and population size on extinction risk of the Florida scrub-jay. *Wildlife Society Bulletin* 27(3):810-822.
- Breining, D.R., B. Toland, D. Oddy, M. Legare, J. Elseroad, and G. Carter. 2001. Biological criteria for the recovery of Florida scrub-jay populations on public lands in Brevard and Indian River county. Annual Progress Report to Endangered Species Office, U.S. Fish and Wildlife Service, Jacksonville, Florida.
- Breining, D.R., B.W. Duncan, and N.J. Dominy. 2002. Relationships between fire frequency and vegetation type in pine flatwoods of east-central Florida, USA. *Natural Areas Journal* 22(3):186-193.
- Breining, D.R., B. Toland, D. Oddy, M. Legare, J. Elseroad, and G. Carter. 2003. Biological criteria for the recovery of Florida scrub-jay populations on public lands in Brevard County and Indian River County. Final Report to Endangered Species Office, U.S. Fish and Wildlife Service, Jacksonville, Florida.
- Byrd, H. 1928. Notes from correspondents: Florida jay. *Florida Naturalist* 1(4):87.
- Coulon, A., Fitzpatrick, J.W., Bowman R., Stith, B.M., Makarewich, C.A., Stenzler, L.M., & Lovett, I.J. (2008). Congruent population structure inferred from dispersal behavior and intensive genetic surveys of the threatened Florida scrub-jay (*Aphelocoma coerulescens*). *Molecular Ecology* 17, 1685-1701.
- Cox, J.A. 1987. Status and distribution of the Florida scrub-jay. Florida Ornithological Society Special Publication No. 3. Gainesville, Florida.
- Davis, J.H., Jr. 1943. The natural features of southern Florida: especially the vegetation and the Everglades. Florida Department of Conservation, Florida Geological Survey Bulletin 25.311 pp.
- Davis, J.H., Jr. 1967. General map of natural vegetation of Florida. Agricultural Experiment Station, Institute of Food and Agricultural Sciences, University of Florida, Gainesville.

- DeGange, A.R., J.W. Fitzpatrick, J.N. Layne, and G.E. Woolfenden. 1989. Acorn harvesting by Florida scrub jays. *Ecology* 70(2):348-356.
- Dreschel, T.W., R.B. Smith, and D.R. Breininger. 1990. Florida scrub jay mortality on roadsides. *Florida Field Naturalist* 18(4):82-83.
- Duncan, B.W. and D.R. Breininger. 1998. Quantifying habitat change: modeling historic and current Florida scrub-jay habitat suitability. *Proceedings of GIS/LIS 1998 Annual Conference*, Ft. Worth, Texas.
- Duncan, B.W., S. Boyle, D.R. Breininger, and P.A. Schmalzer. 1999. Coupling past management practice and historic landscape change on John F. Kennedy Space Center, Florida. *Landscape Ecology* 14:291-309.
- Fernald, R.T. 1989. Coastal xeric scrub communities of the Treasure Coast Region, Florida: A summary of their distribution and ecology, with guidelines for their preservation and management. Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 6. Tallahassee, Florida.
- Fitzpatrick, J.W., and G. E. Woolfenden. 1988. Components of lifetime reproductive success in the Florida scrubjays. Pages 305-320 in: T.H. Clutton-Brock, ed., *Reproductive Success*. University of Chicago Press; Chicago, Illinois.
- Fitzpatrick, J.W., G.E. Woolfenden, and M.T. Kopeny. 1991. Ecology and development-related habitat requirements of the Florida scrubjays (*Aphelocoma coerulescens*). Florida Game and Fresh Water Fish Commission Nongame Wildlife Program Technical Report No. 8. Tallahassee, FL. 49pp.
- Fitzpatrick, J.W., B. Pranty, and B. Stith. 1994. Florida scrubjays statewide map, 1992-1993. Final report by Archbold Biological Station for U.S. Fish and Wildlife Service Cooperative Agreement 14-16-0004-91-950. 16 pp + appendices.
- Fleischer, A.L., Jr. 1996. Pre-breeding time budgets of female Florida scrub-jays in natural and suburban habitats. Abstract, Archbold Biological Station 1996 Symposium. 12 September 1996. Lake Placid, Florida.
- Franzreb, K.E. and J. Puschock. 2004. Year 3 (FY 2003): Status, population dynamics, and habitat use of the Florida scrub-jay on the Ocala National Forest, Florida. Draft annual report 2003. Southern Region, U.S. Forest Service. 19 pp.
- Harper, R.M. 1927. Natural resources of southern Florida. Florida State Geological Survey Annual Report 18:27-206.

- Hastie, K. and E. Eckl. 1999. North Florida team rallies around scrub-jay. Page 28 in M. Durham (ed.). Fish and Wildlife News. July/August 1999. U.S. Fish and Wildlife Service, Washington, D.C.
- Hofstetter, R.H. 1984. The effect of fire on the pineland and sawgrass communities of southern Florida. Pages 465-476 in: P.J. Gleason (ed.). Environments of South Florida: present and past II. Miami Geological Society, Coral Gables, Florida.
- Kautz, R.S. 1993. Trends in Florida wildlife habitat 1936-1987. Florida Scientist 56:7-24.
- Kinsella, J.M. 1974. Helminth fauna of the Florida scrubjay: host and ecological relationships. Proceedings of the Helminthological Society of Washington 41(2):127-130.
- Laessle, A.M. 1958. The origin and successional relationship of sandhill vegetation and sand-pine scrub. Ecological Monographs 28(4):361-387.
- Laessle, A.M. 1968. Relationship of sand pine scrub to former shore lines. Quarterly Journal of the Florida Academy of Science 30(4):269-286.
- McGowan, K.J., and G.E. Woolfenden. 1989. A sentinel system in the Florida scrubjay. Animal Behavior 37(6):1000-1006.
- McGowan, K.J., and G.E. Woolfenden. 1990. Contributions to fledgling feeding in the Florida scrubjay. Journal of Animal Ecology 59(2):691-707.
- Menges, E.S. and C.V. Hawkes. 1998. Interactive effects of fire and microhabitat on plants of Florida scrub. Ecological Applications 8(4):935-946.
- Menges, E.S. and N. Kohfeldt. 1995. Life history strategies of Florida scrub plants in relation to fire. Bulletin of the Torrey Botanical Club 122(4):282-297.
- Mumme, R.L. 1992. Do helpers increase reproductive success? An experimental analysis in the Florida scrubjay. Behavioral Ecology and Sociobiology 31:319-328.
- Mumme, R.L., S.J. Schoech, G.E. Woolfenden, and J.W. Fitzpatrick. 2000. Life and death in the fast lane: demographic consequences of road mortality in the Florida scrub-jay. Conservation Biology 14(2):501-512.
- Myers, R.L. 1990. Scrub and high pine. Pages 150-193 in: R.L. Myers and J.J. Ewel, eds. Ecosystems of Florida. University of Central Florida Press; Orlando, Florida.
- Nash, G.V. 1895. Notes of some Florida plants. Bulletin of the Torrey Botanical Club 22(4):141-161.
- National Research Council. 1995. Modern perspectives of habitat. Pages 75-87 in: Science and the Endangered Species Act. Committee on Scientific Issues in the Endangered Species Act, Board

on Environmental Studies and Toxicology, Commission on Life Sciences. Prepublication copy.

- Percival, H.F., D.B. McDonald, and M.J. Mazurck. 1995. Status and distribution of the Florida scrubjays (*Aphelocoma c. coerulescens*) in Cape Canaveral, Florida. Technical Report Number 51, final report for U.S. Air Force, Environmental Flight, research work order 136. Florida Cooperative Fish and Wildlife Research Unit, October 31, 1995.
- Root, K.V. 1998. Evaluating the effects of habitat quality, connectivity, and catastrophes on a threatened species. *Ecological Applications* 8(3):854-865.
- Schaub, R., R.L. Mumme, and G.E. Woolfenden. 1992. Predation on the eggs and nestlings of Florida scrubjays. *The Auk* 109(3):585-593.
- Schmalzer, P.A. and S.R. Boyle. 1998. Restoring long-unburned oak-saw palmetto scrub requires mechanical cutting and prescribed burning. *Restoration and Management Notes* 16(1):96-97.
- Schmalzer, P.A. and C.R. Hinkle. 1992a. Recovery of oak-saw palmetto scrub after fire. *Castanea* 57(3):158-173.
- Schmalzer, P.A., and C.R. Hinkle. 1992b. Species composition and structure of oak-saw palmetto scrub vegetation. *Castanea* 57(4):220-251.
- Snodgrass, J.W., T. Townsend, and P. Brabitz. 1993. The status of scrub and scrubjays in Brevard County, Florida. *Florida Field Naturalist* 21(3):69-74
- Stallcup, J.A. and G.E. Woolfenden. 1978. Family status and contributions to breeding by Florida scrubjays. *Animal Behavior* 26(4):1144-1156.
- Stark, L.M. and D. Kazanis. 2001. Arbovirus surveillance: annual summary report, 2001. Florida Department of Health, Tampa, FL. Available on the internet at http://www.myfloridaeh.com/community/arboviral/pdfs/2001/2001_arboannual.pdf.
- Stevens, T. and J. Hardesty. 1999. Status and distribution of the Florida scrub-jay (*Aphelocoma coerulescens*) at Cape Canaveral Air Station, Florida, Annual Report: 1998-1999. Prepared for 45th CES/CEV, Patrick Air Force Base, Florida by The Nature Conservancy. 56 pp.
- Stith, B.M. 1999. Metapopulation viability analysis of the Florida scrub-jay (*Aphelocoma coerulescens*): a statewide assessment. Final report to SERVICE, Contract # 1448-40181-98-M324, 201 pp.
- Stith, B.M., J.W. Fitzpatrick, G.E. Woolfenden, and B. Pranty. 1996. Classification and conservation of metapopulations: a case study of the Florida scrubjays. Pages 187-215 in: *Metapopulations and wildlife conservation*. Island Press; Washington, D.C.
- Swain, H.M., R. Bowman, D. Breininger, P. Schmalzer, K. Root, S. Boyle, S. Bergen, and S. MacCaffree. 1995. Out of the pyrogenic frying pan and into the political fire: developing

- reserve designs for the Florida scrub jay. ABSTRACTS.Society of Conservation Biology annual meeting, p. 79.
- Thaxton, J.E. and T.M. Hingtgen. 1994. Responses of Florida scrubjays to management of previously abandoned habitat. District 4 Annual Report, Florida Park Service, Tallahassee, Florida.
- Thaxton, J.E. and T.M. Hingtgen. 1996. Effects of suburbanization and habitat fragmentation on Florida scrub-jay dispersal. Florida Field Naturalist 24 (2): 25-37.
- The Nature Conservancy (TNC). 2001. Saving the Florida Scrub-jay: recommendations for preserving Florida's scrub habitat. The Nature Conservancy and Audubon of Florida.13pp.
- Toland, B.R. 1991. Nest site characteristics of a Florida scrubjay population in Indian River County. Abstract. Florida Scrub Jay Workshop.May 23, 1991. Ormond Beach, Florida.
- Toland, B.R. 1999. Current status and conservation recommendations for the Florida scrub-jay in Brevard County. Report to Brevard County Board of County Commissioners. Brevard County Natural Resources Management Office, Viera, Florida.September 1, 1999.
- U.S. Fish and Wildlife Service (USFWS). 2007. Florida Scrub-Jay (*Aphelocomaerulescens*)five-year review: summary and evaluation. North FloridaEcological Services Office, Jacksonville, FL.
- Wallace, G. 2001. Email, dated August 3, 2001, documenting presence of West Nile virus in Florida.
- Webber, H.J. 1935. The Florida scrub, a fire-fighting association. American Journal of Botany 22(3):344-361.
- Woolfenden, G.E. 1974. Nesting and survival in a population of Florida scrub jays. The Living Bird 12:25-49.
- Woolfenden, G.E. 1975. Florida scrub jay helpers at the nest. The Auk 92(1):1-15.
- Woolfenden, G.E. 1978. Growth and survival of young Florida scrub jays. Wilson Bulletin 90(1):1-18.
- Woolfenden, G.E. and J.W. Fitzpatrick. 1977. Dominance in the Florida scrub jay. The Condor 79(1):1-12.
- Woolfenden, G.E. and J.W. Fitzpatrick. 1978. The inheritance of territory in group-breeding birds. BioScience 28(2):104-108.
- Woolfenden, G.E. and J.W. Fitzpatrick. 1984. The Florida scrub jay: demography of a cooperative-breeding bird. Princeton University Press, Princeton, New Jersey.

- Woolfenden, G.E. and J.W. Fitzpatrick. 1986. Sexual asymmetries in the life history of the Florida scrub jay. Pages 87-107 *in* D.I. Rubenstein and R.W. Wrangham, eds. Ecological aspects of social evolution: birds and mammals. Princeton University Press, Princeton, New Jersey.
- Woolfenden, G.E. and J.W. Fitzpatrick. 1990. Florida scrub jays: A synopsis after 18 years of study. Pages 241-266 *in* P.B. Stacey and W.B. Koenig, eds. Cooperative breeding in birds: long term studies of ecology and behavior. Cambridge University Press, Cambridge.
- Woolfenden, G.E. and J.W. Fitzpatrick. 1991. Florida scrub jay ecology and conservation. Pages 542-565 *in*: Perrine, C.M., J.-D. Lebreton, and G.J.M. Hirons (eds.). Bird population studies: relevance to conservation and management. Oxford University Press; Oxford, United Kingdom.
- Woolfenden, G.E. and J.W. Fitzpatrick. 1996a. Florida scrub jay. Pages 267-280 *in* J.A. Rodgers, H.W. Kale, II, and H.T. Smith, eds. Rare and endangered biota of Florida, Volume V. Birds. University Press of Florida; Gainesville, Florida.
- Woolfenden, G.E. and J.W. Fitzpatrick. 1996b. Florida scrub-jay. Pages 1-27 *in* A. Poole and F. Gill, eds. The birds of North America, No.228. The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union; Washington, D.C.

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