



United States Department of the Interior FISH AND WILDLIFE SERVICE

Panama City Field Office
1601 Balboa Avenue
Panama City, Florida 32405

Tel: (850) 769-0552
Fax: (850) 763-2177

July 26, 2017

Memorandum

To: Assistant Regional Director, Ecological Services, FWS, Atlanta, GA

From: Project Leader, FWS, Panama City Field Office, Panama City, FL

Subject: Amendment to Biological Opinion: Incidental Take Permit for the Choctawhatchee Beach Mouse (*Peromyscus polionotus allophrys*) for the Angelos Condominium (now known as Azzurro) (TE206010) in Walton County, Florida.

The U.S. Fish and Wildlife Service (USFWS) is amending the Biological Opinion (BO) for the Angelos Condominium Habitat Conservation Plan (HCP) pursuant to the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). This amendment letter does not change the existing jeopardy analysis and conclusion stated in the original BO, dated April 4, 2010. The applicant has submitted a minor amendment to the Angelos Condominium HCP (Appendix A). The new project name is Azzurro Condominium and is largely within the previously permitted footprint. This BO amendment addresses the HCP amendment emailed April 4, 2017.

Per the Incidental Take Permit (ITP) issued May 17, 2010, the applicant was allowed take for 0.42 acre of permanent impacts and 0.10 acre of temporary impacts (total 0.52 acre) of Choctawhatchee beach mouse (CBM) habitat. The entire project site was initially permitted as 2.65 acres, now is calculated as 3.11 acres (due to the mean high water line setting the southern boundary). The new Azzurro Condominium design proposes 0.39 acre of permanent impacts and 0.08 acre of temporary impacts, for a total of 0.47 acre of impacts to CBM habitat. Approximately 1.18 acres of CBM habitat will remain, although with the natural changing of the primary dunes, it is likely more acreage is now considered suitable CBM habitat. The primary dune will remain intact and undeveloped per the initial permitted design. The following measures and features are what the applicant has proposed or agreed to as part of this permit modification:

1. Removed the pool from the ground level, which pushed the development footprint back away from the gulf-front.

2. Agreed to allow his parcel to become part of a research project we have ongoing with the University of Florida that is testing the feasibility of restoring specific beach mouse forage plants back into the landscape on private lands.
3. Agreed to stabilize the large dune adjacent to the building footprint to preserve the integrity of the dune.
4. Agreed to have USFWS field verify the silt fence prior to construction to ensure proper placement and accuracy with the permit. Permit conditions require the applicant to inform the contractor and subcontractors of the sensitive nature of the project and presence of endangered species habitat.
5. Install non-raised curbing where the development abuts the natural habitat to allow for passage of CBM as well as other species.
6. Restore all remaining habitat to a variety of native coastal dune plants to provide a north-south connection through the project site.
7. Install a post-and-rope barrier to prevent pedestrian access to the most waterward foredune. USFWS will help delineate. This will allow new coastal dune habitat to develop over time in this dynamic environment. Educational signage will be displayed to inform the public of restoration efforts.

In addition to the already permitted Terms and Conditions from the BO and Conditions and Authorizations for Service permit TE206010-0 (attached), the applicant will agree to the following conditions as part of the redesigned Azzurro Condominium:

1. A lighting plan shall be designed in compliance with the State of Florida requirements or Walton County ordinance, whichever is more protective to federally listed species. This lighting plan shall be reviewed by the Service in addition to other review requirements imposed by the State and/or County. The Service supports the approach from the International Dark-Sky Association (www.darksky.org). Dark skies are best for our nocturnal trust resources within the coastal ecosystem. Outdoor lights should only be installed where absolutely needed.
2. No nighttime construction.
3. Absolutely no feeding or harboring feral or outdoor cats. They will be trapped and removed from the property at the applicant's expense, if they become a problem to the surrounding coastal environment from the proposed project.

Written correspondence from the applicant stating that these new conditions, as well as the previous conditions, are understood and will be followed is required within 30 days of receiving this amended BO. Non-compliance can result in law enforcement action, stopping of the project, or revocation of the Service permit. Additionally, no construction shall begin until the lighting plan has been approved by the Service.

This letter constitutes the first amendment to the April 4, 2010 BO (attached) and incorporates all the additional information described above per the Act. If you have any questions or comments, please contact Kristi Yanchis of the Panama City Field Office at extension 252.

Sincerely,



Catherine Phillips, PhD.
Project Leader

Enclosure:

Appendix A - The Azzuro Condominium/Angelos Permit Modification Request

Appendix B – The Angelos (Will & Sikes Inc) Permit TE206010

Appendix C – The Angelos Condominium Biological Opinion

Appendix D – The Angelos Development Habitat Conservation Plan

Cc: David Dell, USFWS Region 4, Atlanta, GA. (david_dell@fws.gov)
Melinda Gates, Walton County, FL. (gatmelinda@co.walton.fl.us)
Scott Caraway, Walton County, FL. (carscott@co.walton.fl.us)
Kristi Yanchis, PCFO File, Panama City, FL. (Kristi_Yanchis@fws.gov)
Jeff Gore, FWC, Panama City, FL. (jeff.gore@myfwc.com)
Jennifer Manis, FWC, Panama City, FL (Jennifer.manis@myfwc.com)
Jeremy Reiser, E-Tech Consulting, Destin, FL. (geauxgreen@mac.com)

Appendix A

E-Tech Consulting
981 U.S. Highway 98 East
Suite 3224
Destin, Fl. 32541
850-974-0137
geauxgreen@mac.com

Ms. Kristi Yanchis
Ecologist
U.S. Fish and Wildlife Service
Panama City Field Office
1601 Balboa Ave.
Panama City, FL 32405

**RE: Azzurro Condominium
Angelos Permit Modification Request
Permit TE206010-0**

Dear Ms. Yanchis:

Pursuant to our recent meeting, this letter requests to modify permit TE206010-0 in order to construct the Angelos Condominium. The original permit called for temporary and permanent impacts to suitable Choctawhatchee Beach Mouse (CBM) habitat. Since permit issuance, the property has changed ownership resulting in a modified building footprint.

The new permittee's name is Mr. Cliff Harbour and the new condominium name is Azzurro. Mr. Harbour has agreed to the previous terms of the aforementioned permit; however, requests a modification to the building footprint.

The previous building footprint required ± 0.10 -acre of temporary impacts to suitable CBM habitat and ± 0.42 -acre of permanent impacts to suitable CBM habitat. The new building footprint proposes ± 0.10 -acre of temporary impacts to suitable CBM habitat and ± 0.43 -acre of permanent impacts to suitable CBM habitat.

Permanent revisions to the siteplan are as follows: the entire building footprint has moved 15 feet north; the restrooms associated with the pool were moved to the landscape buffer area; the pool, pool deck and associated wall and boardwalk leading to the pool have been removed. This revision removes 3,413.65 square feet (± 0.08 -acre) of suitable CBM habitat from permanent impacts. The pool has been moved to the rooftop of the condominium. In addition, proposed impacts located south of the CCCL have been reduced from 2,270.08 square feet (4.94%) to 1,773.07 square feet (3.85%).

The ± 0.10 -acre increase in proposed permanent impacts is the result of moving the footprint north 15 feet, into a more disturbed area of the back dune.

E-Tech Consulting
981 U.S. Highway 98 East
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850-974-0137
geauxgreen@mac.com

Mr. Harbour has requested the engineers, architect and environmental consultant make every effort to minimize impacts to wildlife and their suitable habitat while planning this development. It is our professional opinion, that together, we have achieved his goal with this revised siteplan. Our efforts may have resulting in a slight increase in proposed permanent impacts; however, more suitable wildlife habitat will remain natural where the previous pool deck, associated wall, access boardwalks and associated restrooms were removed from the previous siteplan.

Should you have any questions regarding this request, please do not hesitate to contact me at 850-974-0137 or by email at Geauxgreen@mac.com.

Respectfully,



Jeremy J. Reiser
Owner/Operator
E-Tech Consulting
981 U.S. Highway 98 East
Suite 3224
Destin, Florida 32541

Yanchis, Kristi <kristi_yanchis@fws.gov>
To: Jeremy Reiser <geauxgreen@mac.com>
Cc: Dean Burgis <Dean@eca-fl.com>, CB <a409@earthlink.net>, Scott Caraway <carscott@co.walton.fl.us>, Melinda Gates <gatmelinda@co.walton.fl.us>

Thu, Jul 13, 2017 at 4:03 PM

Jeremy and Dean-
Thanks for getting back so quickly with answers to my questions.

1) The engineer has verified the acreages are accurate and they were calculated using Auto Cad. The new drawing depicts the permanent impact acreage as well as the temporary impact acreage. The 0.01 or 1/100th (I believe I mistyped as 1/10th in my previous email) of an acre increase is negligible and was determined ok during a site visit because the development had been pushed further back from the Gulf and the pool removed from the ground level impacts. The design allows for more contiguous gulf-frontage habitat than the previous permitted design. The applicant has also offered to allow his parcel to become part of a plant research project that the USFWS and University of Florida are conducting. This will include monitoring success of a variety of plants currently not available in the local landscape market, therefore the applicant will be including more CBM food plants in their design. This feature makes the extra 1/100th of an acre of permanent impact negligible. The applicant has also agreed to continue to work with the USFWS to improve their restoration area from the previously permitted design should this be necessary during installation.

2) There was concern with stabilizing the remaining dune during the construction process. The engineer has stated that sheet piling will be used to stabilize the dunes on the south side of the structure. This will prevent more temporary impacts from occurring during the construction process.

3) To ensure the permanent and temporary impacts do not exceed those already permitted, the applicant will require all contractors are aware of the endangered species issues, install silt fence to indicate the no-construction area, and install temporary signage during construction and permanent signage afterwards indicating conservation area. The USFWS will field verify the installation of the silt fence to ensure accuracy with the permit.

4) The engineer has also confirmed that ribbon (non-raised) curbing will be used along the entrance road. It will transition from the raised curbing within the development. The non-raised curbing will allow beach mice as well as other native animals to cross the entrance road to access the dune habitat on the north side of the development. All the remaining habitat at the entrance will be restored to native habitat to further provide a connection from north to south.

This should be enough information for me to complete the modification to the existing permit. I understand there are neighbors in the area that do not want this site to be developed, however, from an endangered species standpoint, the project has undergone an extensive permitting process during the initial design and the current owner has included those parameters plus some additional measures in the new design. The impacts to CBM should be accounted for by the conservation measures included in the original design as well as the new conservation measures and commitments to continue working with the USFWS during the construction and operation of the site. Additionally, the applicant will contribute to the CBM fund that the USFWS is setting up.

Thanks. I will get back to you as soon as the modification is signed by my office.

[Quoted text hidden]

Jeremy Reiser <geauxgreen@mac.com> Thu, Jul 13, 2017 at 4:42 PM
To: "Yanchis, Kristi" <kristi_yanchis@fws.gov>
Cc: Dean Burgis <Dean@eca-fl.com>, CB <a409@earthlink.net>, Scott Caraway <carscott@co.walton.fl.us>, Melinda Gates <gatmelinda@co.walton.fl.us>

Thank you Kristi. This should be very helpful tonight.

Sent from my iPhone
[Quoted text hidden]



<p>Plant Imagery and Descriptions</p> <p>Sea Purslane - <i>Sesuvium portulacastrum</i> Perennial evergreen groundcover preferring sandy, well-drained soils. Glossy green leaves. Pink flowers bloom throughout the year. Plant flowers on the opposite side of the stem. The plant helps build dunes by catching sand in between its stems and leaves. Zones 9+.</p> <p>Plant Characteristics: Sun/Salt/Tolerant • Zones 9+ • Small Pink Flowers • Groundcover</p> 		<p>Beach Morning Glory-<i>Pomoea imperati</i> A sprawling vine up to 120 ft. with a brilliant purple flower. Vine is tall, woody, poor soil and drought tolerant. Grows in 1.5 ft. Landscapes like dunes, beach, parking lots, and salt-marshes. Commonly identified by its two-lobed, lance-shaped leaves. Spreads vegetatively and by seed. Attracts butterflies. Thick clusters are common. Excellent for dune restoration. Attractive to butterflies.</p> <p>Plant Characteristics: Zones 8+ • Salt/Sun/Poor Soil Tolerance • Coastal Beaches • Salt Stability • Low Height</p> 		<p>Beach Elder - <i>Na imbricata</i> Woods shrub that it salt, poor soil, and drought tolerant. Grows up to 1.5 ft. Landscapes like dunes, beach, parking lots, and salt-marshes. Commonly identified by its two-lobed, lance-shaped leaves. Spreads vegetatively and by seed. Attracts butterflies. Thick clusters are common. Excellent for dune restoration. Wildlife food source.</p> <p>Plant Characteristics: Salt/Sun/Wind/Tolerant/Poor Soil Tolerance • Landscapes • Zones 8+</p> 		<p>Blanket Flower - <i>Gaillardia pulchella</i> Low growing, up to 1.5 feet, coastal wildflower with bright reddish-orange flowers. Grows best with full sun on sandy soil. Flowers are extremely fragrant and have a sweet, citrus-like scent. Found in Zones 7+ on beaches, plain coast areas, roadsides, fields, and salt marshes. Often grows in areas around sea oats and other beach plants. Bloom period: Zones 7+.</p> <p>Plant Characteristics: Sun/Drought/Poor Soil/Salt Tolerance • Zones 7+ • Coastal • Butterflies • Salt Tolerant</p> 		<p>Sea Oats - <i>Uniola paniculata</i> Perennial grass known for its extensive root mass, which can reach over 15 ft. Commonly referred to as sand stabilizers after being used in coastal stabilization projects. Found in Zones 7-10. Salt, over wash, drought, and sun tolerance. Grows and reseeds quickly in warm weather. Landscape value for coastal communities. Reaches 5-7 ft. at height. Grass becomes dense and reduces wave velocity. Seedlings emerge from Spring through Fall. Leaves similar in pale green color and upright to Prairie Grass but thinner. Protected by Florida statutes. Seed is a wildlife food source.</p> <p>Plant Characteristics: Salt/Sun/Poor Soil/Drought Tolerance • Dune Landscapes • Coastal Landscapes • Zones 7+</p> 	
<p>Dune Planting Notes and Requirements</p> <p>1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY PERMIT OR APPROVAL FROM THE FEDERAL, STATE OR LOCAL GOVERNMENT REQUIRED FOR CONSTRUCTION IN THIS CONTRACT AND ON THESE PROPERTY OWNINGS. 2. LOCATE ALL UNDERGROUND UTILITIES, ELECTRICAL WIRING, WATER, SEWER, TELEPHONE, CABLE, ETC. PRIOR TO LANDSCAPE OR RELOCATION OF EXISTING PLANT MATERIALS. 3. STAKE OUT THE IMPACT AND EXTENT OF ALL NEW DUNE PLANTING LOCATIONS FOR FUTURE LANDSCAPE OR FIELD ADJUSTMENT BY THE LANDSCAPE ARCHITECT.</p> <p>4. INSTALL OWN PLANTS GRADED FLORIDA NO. 1 OR BETTER AS SET FORTH IN THE FLORIDA DEPARTMENT OF AGRICULTURE GRADES AND STANDARDS FOR MATURE PLANTS 2015 EDITION INCLUDING REVISIONS AND WHICH MEET OR EQUAL THE REQUIREMENTS OF THE STATE'S SPECIFIC PLANTING SYSTEM.</p> <p>5. THE COSTS OF ALL NEW PLANTINGS, THE TEMPORARY IRRIGATION SYSTEM, AND MINIMUM 6-12 MONTH PLANTING DEPTH.</p> <p>6. ALL PLANTS SHALL BE PLANTED WITH GROWDIE PRO 125110-2MG-AFTZ RELEASED OVER 12-14 MONTHS AT A MAXIMUM PLANTING RATE OF 100 FT. LINEAR FEET PER DAY.</p> <p>7. PLANT PIT SIZE SHOULD BE APPROXIMATELY 12 INCHES IN DIAMETER AND 12 INCHES IN DEPTH. PLANTING DENSITY SHOULD BE 1 PLANT PER 12 INCHES LINEAR FEET.</p> <p>8. PLANTS SHALL BE INSTALLED USING A RANDOM MATTERING TECHNIQUE, SPACING PLANTS 12 INCHES APART IN SPADING ROWS, AS SPECIFIED IN THE PLANTING SCHEDULE.</p> <p>9. THE CONTRACTOR SHALL WATER THE NEWLY PLANTED AREA AT THE RATE EQUIVALENT TO ONE INCH OF RAINFALL, SEVERAL TIMES DURING THE FIRST GROWING SEASON FOR A MINIMUM OF 15% COVERAGE OF ALL NEW PLANTINGS. THE TEMPORARY IRRIGATION SYSTEM SHALL REMAIN IN USE FOR A MAXIMUM DURATION OF ONE YEAR.</p> <p>10. THE APPLICANT SHALL REMOVE THE TEMPORARY IRRIGATION SYSTEM AT ONE FULL GROWING SEASON OR ONE-YEAR, LEAVING GROUNDS CLEAR AND UNDISTURBED.</p> <p>11. ONE YEAR AFTER THE INSTALLATION IS COMPLETE, THE APPLICANT WILL PROVIDE A LETTER OF CERTIFICATION TO THE LANDSCAPE ARCHITECT AND OWNER, INDICATING THAT ALL PLANTS HAVE SURVIVED.</p> <p>12. PLANT MATERIALS AND PLANTING METHODS SHALL BE SUBJECT TO THE REVIEW OF THE MINIMUM OF 65% OF THE PLANTS HAVE SURVIVED.</p> <p>13. PLANT MATERIALS AND PLANTING METHODS SHALL BE SUBJECT TO THE REVIEW OF THE LANDSCAPE ARCHITECT AND OWNER, PRIOR APPROVAL BY THE LANDSCAPE ARCHITECT AND OWNER.</p> <p>14. DUNE PLANTING INCLUDES INCULCATING WATERING, LAND FIRMING, ACCEPTANCE OF THE PLANTS.</p> <p>15. THESE DRAWING DOCUMENTS AND ALL CONTENTS ARE THE PROPERTY OF THE APPLICANT, LANDSCAPE ARCHITECT AND OWNER.</p> <p>16. DUNE PLANTING DOCUMENTS ARE RESERVED UNAUTHORIZED USE OR REPRODUCTION, PART OR WHOLE, ERAS, ANY PURPOSES.</p> <p>17. UNLAWFUL AND PROHIBITED EXCEPT BY EXPRESS WRITTEN CONSENT.</p>		<p>NUISANCE SOURCES SUBJECT TO GRANULARITY FROM COMMERCIAL MANUFACTURER TO CONTRACTOR IN SITES OF THINNING/WEAKNESS IN TIME FOR PLANTING. IF FIVE GALLON SEAS ARE NOT AVAILABLE FOR PLACEMENT, THE CONTRACTOR MUST SUBSTITUTE 4-INCH POTS. IF FIVE GALLON SEAS ARE NOT AVAILABLE SUBSTITUTE FULL GALLONS.</p> <p>TRIANGULAR SPACING PER SCHEDULE</p> <p>SHRUB PLANTING NOTES</p> <p>PLANTING NOTES</p> <p>NATIVE SOIL —————</p> <p>A H.T.S.</p> <p>B H.T.S.</p>		<p>GROUNDCOVER PLANTING DETAIL</p> <p>SPREADER</p> <p>FERTILIZER LAYER</p> <p>CONTINUOUS RIM</p> <p>4" NATIVE SOIL</p> <p>SPECIFIED PLANTING MIX. WATER & TAMP TO REMOVE AIR POCKETS</p> <p>COMPACTED NATIVE SOILS</p>		<p>SHRUB PLANTING DETAIL</p> <p>H.T.S.</p>			
<p>DUNE RESTORATION - PLANTING NOTES & DETAILS</p> <p>COSTA BLANCA</p> <p>COUNTY ROAD 20A WALTON COUNTY, FLORIDA</p>									

L103
SHEET 3 OF 3

DESIGNED
DRAWN
CHECKED
DATE
Sept. 20, 2016



Appendix B



DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

3-201
(1/97)

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

WILL & SIKES, INC.
P.O. BOX 959
MADISON, FL 32341
U.S.A.

2. AUTHORITY-STATUTES
16 USC 1539(a)

REGULATIONS
50 CFR 17.22

50 CFR 13

3. NUMBER
TE206010-0

4. RENEWABLE

YES

NO

5. MAY COPY

YES

NO

6. EFFECTIVE

05/17/2010

7. EXPIRES

05/31/2040

8. NAME AND TITLE OF PRINCIPAL OFFICER (If #1 is a business)

WILLIAM N. WILSON, II
PRESIDENT

9. TYPE OF PERMIT

NATIVE ENDANGERED SP. HABITAT CONSERVATION PLAN - E
WILDLIFE

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

Wilson Property: Approximately 2.65 acres of land, consisting of the south 125 feet of lot 16, and lot 33, Section 19, Township 3 South, Range 18 West, parcel number 19-3S-18-16080-000-0162, Walton County, Florida.

11. CONDITIONS AND AUTHORIZATIONS

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE

Also valid for use by permittee's authorized agents.

D. Acceptance of this permit serves as evidence that the permittee and its authorized agents understand and agree to abide by the terms of this permit and all sections of title 50 code of federal regulations, parts 13 and 17, pertinent to issued permits. Section 11 of the endangered species act of 1973, as amended, provides for civil and criminal penalties for failure to comply with permit conditions.

BLOCK 11 OF THIS PERMIT CONSISTS OF CONDITIONS A - O (11 PAGES), AND TWO APPENDICES (3 PAGES).

13. ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS

Reports will be provided to the U.S. Fish and Wildlife Service offices appearing in Conditions N and O of this permit.

ISSUED BY

TITLE

DEPUTY REGIONAL DIRECTOR

DATE

05/17/2010

TE206010-0

BLOCK 11

- E. The Permittee owns a 2.65-acre tract (Project Site), as described in Block 10 above, on which it proposes to construct a mid-rise beachfront condominium complex in Walton County, Florida ("Project"). The Project and the areas pertinent to this permit are shown on the site plan attached hereto as Appendix A. This Permit authorizes the incidental take of the Choctawhatchee beach mouse *Peromyscus polionotus allophrys* (CBM) associated with the construction of the Project and associated infrastructure, and subsequent human use and occupancy of the Project site, as detailed in the Habitat Conservation Plan (HCP) submitted as part of the ITP application and further conditioned herein subject to the continued validity of the Permit.
- F. The Permittee is a limited liability company that will develop the Project and establish a condominium association, which is an incorporated entity pursuant to Chapter 617, Florida Statutes. Through its Board of Directors, the association, which comprises individual property owners with title to specific units of the condominium (Owners), will manage and maintain the Project site during and after construction of the Project. The Permittee shall incorporate this Permit as an attachment or exhibit to the Association's declaration of condominium so that the terms and conditions of this Permit shall be incorporated in the Declaration. The Declaration of condominium with the appended Permit shall be duly filed and recorded in the records of Walton County, Florida in accordance with Florida law. The Permittee shall be defined as the "Angelos Condominium owners association."

The Permittee shall upon or prior to the sale or conveyance by Permittee of title to any condominium unit within the Association deliver to each transferee a copy of this Permit and any other educational documents or information the Permittee is required to provide to unit owners in accordance with this Permit and the associated HCP. Through the Association's Declaration of Condominium, the terms and conditions of this Permit shall run with the land comprising the Condominium development, and each Owner shall be subject to the terms and conditions of the Permit upon the purchase of property in the Condominium.

- G. Subject to the terms and conditions of this Permit, the Permittee is authorized to engage in the following forms of take of the CBM incidental to the site preparation, development, construction, occupation and operation of the Project site, including the driveway, swimming pool, dwellings, and, as shown in Appendix A:

Harassment, harm, injury, and/or death of CBM resulting from the temporary loss of 0.10 acre and permanent loss of 0.42 acre of habitat on the Project site, and for take resulting from indirect impacts to the species due to the development, construction and human use of the Project site.

Continued...

TE206010-0

BLOCK 11

- H. The Permittee shall allow personnel of the U.S. Fish and Wildlife Service, State of Florida Fish and Wildlife Conservation Commission, or other properly permitted and qualified persons designated by these agencies to enter the Project boundaries at reasonable hours and times for the general purposes specified in Part 50 Code of Federal Regulations §13.21(e)(2).
- I. The following measures must be employed by the Permittee to ensure that take of the CBM is minimized and fully mitigated:

Project Design and Construction

1. The use of trapping or other methods to capture CBM prior to the Project construction for purposes of relocation is not authorized.
2. Construction of all the Project's components (parking, driveway, and walkover) shall conform to the configuration/design plans specified in Appendix A. Permanent alteration of the Project site (building, pool, parking, and walkover) shall not exceed the proposed 0.42 acre Project footprint.
3. Buffers, a minimum of 10 feet wide and planted with native vegetation, along the east and west sides of the proposed buildings shall be maintained to provide potential corridors to connect CBM habitat onsite with off-site habitat to east or west, if present.
4. Hand-rails shall be installed on the decks as a deterrent to pedestrians from entering the dune habitat from the deck area.
5. No permanent fences or privacy walls may be constructed that would restrict CBM movements.
6. A single dune walkover shall be constructed to provide access over the dune habitat to the beach. The walkover shall include handrails to minimize future habitat impact on the property. The walkover on the property shall be constructed using top-down techniques and would have a minimum elevation of 3 feet above grade.
7. Educational signs shall be installed on the decks and walkover providing natural history information about CBM, sea turtles, piping plovers and other shorebirds, and habitat conservation.
8. Animal-proof waste receptacles shall be provided and used for trash collection on the Project site.

Continued...

TE206010-0

BLOCK 11

I. Continued.

9. A summary of the applicable provisions of the HCP and the terms and conditions of this Permit shall be provided to the general contractor responsible for constructing the parking lot and walkover and included in all sub-contracts for the project. The construction contract documents, particularly any contract between the general contractor and a subcontractor, must include a provision that the general contractor has communicated the conservation objectives of the HCP and the terms and conditions of this Permit to the sub-contractor and provided the sub-contractor with the above-referenced summary of the HCP and terms and provisions of this Permit and that the sub-contractor agrees to be bound by such and to communicate such information to its employees and/or contractors.
10. Limits of construction shall be clearly marked on all construction plans and clearly indicated onsite with silt fence or other barrier fence for the project.
11. No barriers may be placed water ward of the proposed structure that would limit CBM and other wildlife movement to and from adjacent properties.
12. The lighting plan and design for the Project shall comply with Walton County ordinance 2009-03, "Wildlife Conservation Ordinance (Turtle Lighting)". Turtle Lighting shall be utilized for the parking lot, common areas and exterior of the structure. All windows and glass doors shall have the appropriate glass or window tint that only allows 45 percent light transmittance from inside to outside.
13. All areas temporarily impacted during construction shall be restored to ambient or design grade and planted with native vegetation.
14. The final landscape plan for the Project shall be reviewed and approved by the Service. The landscape plan shall be provided to the Service for review no later than 120 days prior to the landscape installation. The development shall be planted with coastal dune vegetation native to Walton County as provided in Appendix C. Any changes to the plant list will be considered upon written request to the Service. Requests for changes must provide information to verify that the plant is a coastal native dune species in Walton County, Florida.
15. Restoration of undeveloped and temporarily impacted habitat shall be completed within one hundred and twenty (120) days following issuance

Continued...

TE206010-0

BLOCK 11

- I. 15. Continued.

of a certificate of occupancy by Walton County, Florida for any unit in the Project.

16. All construction staging and storing of equipment shall occur off site or within the construction boundary on site. No equipment shall be allowed waterward of the Coastal County Construction Line at any time, with the exception of the building of the pool. At no time shall equipment be allowed on dunes.
17. Silt/ Construction fence shall be installed along the east and west property boundaries and from the building to the property boundaries to allow movement of CBM, but prevent pedestrian access to CBM habitat during construction. The fence shall be removed after construction is complete.
18. The use of mulch and landscape fabric is prohibited in the dune habitats and the native landscaped areas.
19. Irrigation of planted dune vegetation shall be by backpack only. (No buried irrigation in native landscaped areas.)
20. All dune restoration material shall meet State of Florida requirements for beach quality material.

Operation and management

21. The body of the Declaration of Condominium shall include a provision stating this Permit, including the Permit number, has been issued to the Association, a statement that the conditions and terms of the Permit are intended to protect and conserve the PKBM and a brief description of the reason such protection and conservation of the species is needed. The body of the Declaration also shall stipulate that no changes shall be made to the Declaration that would result in noncompliance with the terms and conditions of this Permit or with the Conservation Easement that will be granted in accordance with this Permit, including but not limited to any provisions regarding the Association's responsibility to provide funding for activities required to occur in accordance with this Permit and the Conservation Easement (see Condition 11.J.17, below). Within 90 days of receipt of this Permit, Permittee shall ensure that this Permit is incorporated as an attachment or exhibit to the Association's declaration of condominium in order that the terms and conditions of this Permit shall become part of the Declaration. The Declaration with the appended

Continued...

TE206010-0

BLOCK 11

I. 21. Continued.

Permit shall be duly filed and recorded in the records of Walton County, Florida in accordance with Florida law. The Permittee shall provide certification of compliance with this requirement, along with a copy of the filed and recorded Declaration, to the U.S. Fish and Wildlife Service no later than 180 days after receipt of this Permit.

22. Cats shall be prohibited on the interior and exterior of all premises. All other pets must be restricted to the inside of the condominium units. Dogs may be allowed only on 6-foot leashes.
23. Only two waste receptacles shall be provided, one in the pool area and one at the top of the dune walkover. These receptacles shall be animal-proof.
24. The use of exterior rodenticides shall be prohibited. Any captured exotic or non-native rodents (house mice, Norway rats, black rats) shall be humanely euthanized and disposed of properly.
25. All beach chairs and umbrellas or similar items shall be removed from the beach each night during the sea turtle nesting season from May 1 through October 31.
26. Access to the site shall be granted to the U.S. Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission, U.S. Department of Agriculture - Wildlife Services, and their representatives to conduct CBM population monitoring, and predator control.
27. General guidance provided in the covenants and restrictions for the condominium units shall provide reference and information about the Endangered Species Act and the presence of the endangered CBM, prohibit littering on the beach or common areas, prohibit cats from the property, limit all other pets to inside the units, and prohibit access to the conservation easement and other natural areas on the site.

Mitigation and monitoring

28. After Project completion 1.23 acre of CBM habitat shall be protected, restored, managed, and maintained on the Project site.
29. Permittee shall contribute a one-time sum of \$67,500 to the Wildlife Foundation of Florida fund, or such other entity as is designated by the U.S. Fish and Wildlife Service for such purpose. This initial contribution

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I. 29. Continued.

shall be provided in full to Florida Fish and Wildlife Conservation Commission prior to any Project-related land disturbance. The purpose of the Fund is to implement compensation and mitigation of development impacts on CBM. Furthermore, this fund would be perpetually augmented by a \$201 annual assessment of each unit owner in the development, providing an 'occupied fee.' The fund would be spent in accordance with the conservation strategy prepared for the CBM. Annual conservation effort priorities would be determined by an interagency committee including the Service. The first annual assessment shall be provided within ninety (90) days of the date of this Permit issuance. Proof of payment shall be submitted to the Service by January 31st of each following year that the permit is valid.

30. Before any land is disturbed for the Project, the applicant shall provide evidence to the U.S. Fish and Wildlife Service that funds have been placed in escrow, sufficient to finance 12 CBM monitoring events at the property. These 5-night trapping events would be conducted by a qualified biologist four times a year (quarterly) for the first two years after project completion. The data collected from this effort would be provided in an annual report to the U.S. Fish and Wildlife Service. Any undesirable mouse or rat species captured during the trapping events would be humanely destroyed, thus reducing competitive stress on the CBM. Further, authorization and access to natural areas would be granted to the U.S. Fish and Wildlife Service and Florida Fish and Wildlife Conservation Commission, or their representatives, to conduct additional monitoring of their own any time within the duration of this permit.
31. The final CBM monitoring design shall be determined by the U.S. Fish and Wildlife Service in coordination with Florida Fish and Wildlife Conservation Commission, based on the best available scientific data. The final design and schedule shall be provided to the Permittee ninety (90) days prior to initiation of the monitoring program. The monitoring program is to begin within one-hundred and twenty (120) days following issuance of a certificate of occupancy by Walton County, Florida for any unit in the Project.
32. The Permittee shall grant a perpetual Conservation Easement to the Florida Fish and Wildlife Conservation Commission on the 0.91 acres of CBM habitat on the Project site that is completely avoided by the Project. The Conservation Easement shall be in accordance with the Florida Statute governing the creation of conservation easements. The boundaries

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I. 32. Continued.

of the area to be covered by the Conservation Easement shall be surveyed by a licensed certified land surveyor. The Permittee shall work with the Florida Fish and Wildlife Conservation Commission to draft the Conservation Easement. The Conservation Easement shall, among other things, contain a provision granting the Service a right of third party enforcement and entry into the area covered by the easement. A draft copy of the Conservation Easement shall be provided to the U.S. Fish and Wildlife Service for review and approval prior to execution and acceptance by the grantee. The Conservation Easement shall be recorded in the lands records of Walton County within six (6) months following issuance of a certificate of occupancy. A copy of the survey and recorded Conservation Easement shall be provided to the U.S. Fish and Wildlife Service within ninety (90) days after the Conservation Easement is recorded.

J. The Permittee and the U.S. Fish and Wildlife Service agree that modification and amendments to the Permittee's HCP and this Permit may occur through the effective term of the Permit. The Permit is based upon the Permittee's expected compliance with the provisions and commitments established in the HCP and the stated terms and conditions set forth herein. Where a conflict occurs between the HCP and this Permit, the Permit shall control. The following procedures shall govern the modification and amendment process:

1. Either the Permittee or the U.S. Fish and Wildlife Service may propose modifications and/or amendments to the HCP or this Permit by providing written notice to the other. Such notice shall include a statement of the reason for the proposed modification and an analysis of its effects on the environment, the covered species, and operations under the HCP. This analysis shall be conducted jointly by the Permittee and the contact office of the U.S. Fish and Wildlife Service identified in Condition 11.P, below. The U.S. Fish and Wildlife Service or the Permittee will use best efforts to respond to a proposed modification or amendment within sixty (60) days of receipt of such notice. Provided the U.S. Fish and Wildlife Service determines that such proposed modification or amendment would not result in any of the conditions identified in Condition 11.L.2, and absent any objection from the U.S. Fish and Wildlife Service or the Permittee, the proposed modification and/or amendment will be determined to be minor and will become effective upon written approval by the U.S. Fish and Wildlife Service.

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2. The U.S. Fish and Wildlife Service will not propose or approve modifications or amendments to the HCP or this Permit if the U.S. Fish and Wildlife Service determines that such modifications would result in operations under the HCP and Permit that are significantly different from those analyzed in connection with the HCP, that would adversely affect the environment in new or significantly different ways than those analyzed in connection with the HCP or that would result in additional take of the covered species. If, for any reason, the U.S. Fish and Wildlife Service determines that a proposed amendment or modification is not minor, it must be processed in accordance with the U.S. Fish and Wildlife Service's permit regulations at 50 C.F.R. § 13 and § 17.
3. Any amendment or modification must conform with all applicable legal requirements, including but not limited to the Endangered Species Act, the National Environmental Policy Act, and the U.S. Fish and Wildlife Service's permit regulations at 50 C.F.R. § 13 and § 17.
4. The U.S. Fish and Wildlife Service reserves the right to amend this Permit for just cause at any time during its term in accordance with 50 C.F.R. § 13.23

K. Unforeseen and/or changed circumstances may become apparent either to the Permittee, authorized agents or to personnel of the U.S. Fish and Wildlife Service. For the purposes of implementation of this condition, unforeseen circumstances are defined as changes in circumstances affecting a species or geographic area covered by the HCP that could not reasonably have been anticipated by the HCP developers and the U.S. Fish and Wildlife Service at the time of the HCP's negotiation and development, and that result in a substantial and adverse change in the status of the covered species. Changed circumstances are defined as changes in circumstances affecting a species or geographic area covered by the HCP that can reasonably be anticipated by HCP developers and the U.S. Fish and Wildlife Service, and that can be planned for. The process for addressing such circumstances will be governed by the U.S. Fish and Wildlife Service's policy regarding changed and unforeseen circumstances contained in the final "No Surprises" rule published on February 23, 1998 (63 FR 8859) and codified at 50 C.F.R. §§ 17.22(b)(5), 17.32(b)(5), 222.22(g). Provided, however, that should either unforeseen or changed circumstances arise, the Permittee and the contact office of the U.S. Fish and Wildlife Service will meet within twenty (20) working days following notice. The U.S. Fish and Wildlife Service and Permittee will together agree upon appropriate and reasonable measures for addressing such circumstances, within the rule of applicable law, and the Permittee will implement

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appropriate and reasonable measures within an additional thirty (30) working days, unless a longer period of time is agreed to by the U.S. Fish and Wildlife Service.

L. Reports submitted in compliance with this Permit must include the following certification from a responsible official who supervised or directed the preparation of the report:

“Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.”

M. Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the U.S. Fish and Wildlife Service Law Enforcement Office, Clermont, Florida at 352/429-1037 within 24 hours. Additional notification must be made to the U.S. Fish and Wildlife Service's Field Office at Panama City, Florida at 850/769-0552 within 48 hours. Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

N. For purposes of monitoring compliance and administration of the HCP and the terms and conditions of this Permit, receipt of reports, and review and approval of site plans, lighting plans, landscape and dune restoration plans the contact office of the U.S. Fish and Wildlife Service is:

Field Supervisor
U.S. Fish and Wildlife Service
1601 Balboa Avenue
Panama City, Florida 32405
Telephone: 850/769-0552
Facsimile: 850/763-2177

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ANGELOS CONDOMINIUM
WILL AND SIKES, INC.
P.O. BOX 959
MADISON, FLORIDA 32341

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- O. Reports and any other correspondence generated from implementation, modifications, or administration of the Permit shall also be provided to the following office of the U.S. Fish and Wildlife Service:

Section 10 Permit Coordinator
U.S. Fish and Wildlife Service
1875 Century Boulevard, Suite 210
Atlanta, Georgia 30345
Telephone: 404/679-7313
Facsimile: 404/679-7081

END

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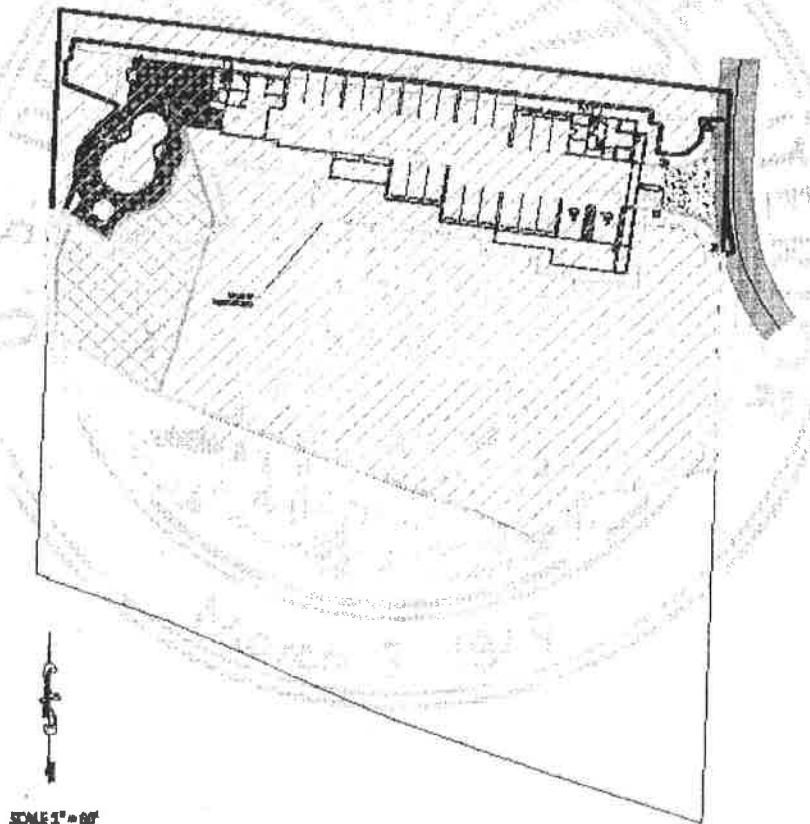
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APPENDICES

Appendix A
Angelos Condominium Design Plans

- [Hatched Box] SUITABLE CHOCATWAHATCHEE - 1.65 AC.
- [Cross-hatched Box] OVERWASH AREA TO BE RE-VEGETATED - 0.13 AC. *
- [Solid Black Box] AREA OF BEACH MOUSE HABITAT IMPACT - 0.42 AC.
- [White Box] EXISTING NON-SUITABLE BEACH MOUSE HABITAT - 1.0 AC. / OPEN BEACH AREA - 1.0 AC.

Conservation Easement Area 0.91 ac*



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APPENDICES

Appendix B
Species Plant List for Coastal Dune and Beaches in Walton County, Florida

Scientific Name	Common Name	Height	Container	Primary Dune	Inter-dunal	Scrub dune
Trees						
<i>Magnolia grandiflora</i>	Southern Magnolia	60'-90'*	1gTP,3gTP,D			X
<i>Osmanthus americanus</i>	Wild Olive	70"	1gTP,3gTP,D			X
<i>Pinus clausa</i>	Sand Pine	20"	1gTP,3gTP,D			X
<i>Pinus elliottii</i>	Slash Pine	80'-100"	1gTP,3gTP,D			X
<i>Quercus geminata</i>	Sand Live Oak	30"	1gTP,3gTP,D			X
<i>Quercus myrtifolia</i>	Myrtle Oak	40"	1gTP,3gTP,D			X
<i>Quercus virginiana maritima</i>	Sand Live Oak	40'-50"	1gTP,3gTP,D			X
Medium to Large Shrubs & Small Trees						
<i>Callicarpa americana</i>	Beautyberry	5'	1gTP,TB,D			X
<i>Ilex vomitoria</i>	Yaupon Holly	20'	1gTP,TB,D			X
<i>Iva frutescens</i>	Marsh-Elder	11'	1gTP,TB,D		X	
<i>Rhus copallina</i>	Winged Sumac	10' (30')	1gTP,TB,D		X	X
<i>Serenosia repens</i>	Saw Palmetto	10' (30')	1gTP,TB,D			X
Small Shrubs & Ground Covers						
<i>Schizachyrium</i> (formerly <i>maritimum</i>)	Bluestem		LT,TB	X		X
<i>Asclepias humistrata</i>	Sandhill Milkweed		LT,TB			X
<i>Bignonia capreolata</i>	Cross Vine		LT,TB			X
<i>Cakile constricta</i>	Sea Rocket		LT,TB	X		
<i>Ceratiola ericoides</i>	Seaside Rosemary		LT,TB			X
<i>Chrysosoma pauciflosculosa</i>	Seaside Goldenrod		LT,TB	X		X
(T) <i>Chrysopsis gossypina cruiseana</i>	Cruise's Golden-Aster		LT,TB	X		X
<i>Conradina canescens</i>	Beach Heather		LT,TB	X		X
<i>Cyperus</i> sp.	Sedge		LT,TB		X	
<i>Heterotheca subaxillaris</i>	Aster (Camphor weed)		LT,TB	X		X
<i>Hydrocotyle bonariensis</i>	Pennywort		LT,TB	X	X	X
<i>Ipomoea pes-caprae</i>	Railroad Vine		LT,TB	X		
<i>Ipomoea imperati</i> (formerly <i>stolonifera</i>)	Beach Morning Glory		LT,TB	X		
<i>Licania michauxii</i>	Gopher Apple		LT,TB			X
<i>Panicum amarum</i>	Beach Grass		LT,TB	X	X	
(E) <i>Polygonella macrophylla</i>	Large-leaved Jointweed		LT,TB			X

The use of installed irrigation, mulch, regardless if artificial or natural material, and landscape fabric is prohibited.

T & E = State of Florida protected plant. Planting is strongly encouraged to help recover the species. Make sure the nursery you purchase the plant from is in the Association of Florida Native Plants; they follow all State regulations to grow and sell protected species.

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APPENDICES

*Trees living in coastal dunes do not reach "normal heights." They tend to be stunted and "pruned" by the wind, sand, and salt spray. Small specimens should be planted in protected areas such as on the landward side of the dunes.

References:

- Moyers, J.E. 1996. Food habits of Gulf coast subspecies of beach mice (*Peromyscus polionotus* spp.). M.S. Thesis, Auburn University, Alabama. 84 pp.
- Clewel, A. F. 1993. Guide to the vascular plants of the Florida panhandle. University Presses of Florida, Florida State University Press, Tallahassee, Florida 605 pp.
- Sneckenberger, S.I. 2001. Factors influencing habitat use by the Alabama beach mouse (*Peromyscus polionotus ammobates*). Master's thesis. Auburn University, Auburn, Alabama.
- Wunderlin, R. P., and B. F. Hansen. 2004. *Atlas of Florida Vascular Plants* (<http://www.plantatlas.usf.edu/>). [S. M. Landry and K. N. Campbell (application development), Florida Center for Community Design and Research.] Institute for Systematic Botany, University of South Florida, Tampa.
- Wunderlin, R.P. 1998. Guide to the vascular plants of Florida. University Presses of Florida, Gainesville, Florida 806 pp.

Appendix C

**Angelos Condominiums
Walton County, Florida**

**Biological Opinion
April 4, 2010**

**Prepared by:
U.S. Fish and Wildlife Service
1601 Balboa Avenue
Panama City, FL**



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United States Department of the Interior
FISH AND WILDLIFE SERVICE

Tel: (850) 769-0552
Fax: (850) 763-2177

April 4, 2010

Memorandum

To: Assistant Regional Director, Habitat Conservation, FWS, Atlanta, GA

From: Assistant Field Supervisor, FWS, Panama City Field Office, Panama City, FL
//s//Donald Imm

Subject: Biological Opinion for Incidental Take Permit for the Choctawhatchee Beach Mouse (*Peromyscus polionotus allophrys*) for the Angelos Condominiums in Walton County, Florida

INTRODUCTION

This document represents the Fish and Wildlife Service's (Service) biological opinion based on our review of all information pertaining to the proposed development of one Gulf of Mexico beachfront condominium complex, referred to as the Angelos Condominiums, in Walton County, Florida, and submitted for a section 10(a)(1)(B) Incidental Take Permit (ITP) by Will and Sikes, Inc. (Applicant). The effects of their actions on Choctawhatchee beach mice (*Peromyscus polionotus allophrys*) (CBM) and CBM critical habitat have been evaluated per section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The Service's approval of an ITP is a Federal action subject to consultation under section 7(a)(2) of the Act.

The Service has determined that the project would not likely adversely affect nesting sea turtles and piping plover and would not likely adversely modify critical habitat designated for the piping plover based on the inclusion of conservation measures in the Habitat Conservation Plan (HCP) (Table 1).

This biological opinion is based on information from the HCP provided by the Applicant and their consultant, Garlick Environmental Associates, Inc (GEA, Inc.), and from meetings, discussions, correspondence, and project site inspections. This biological opinion is also based on the experience of Service biologists and an extensive literature search on beach mice, other *Peromyscus* species, and other small mammals. A complete administrative record is on file in the Service's Panama City Field Office, Florida.

Table 1. Species and critical habitat evaluated for effects from the proposed action but not discussed further in this biological opinion.

SPECIES OR CRITICAL HABITAT	PRESENT IN ACTION AREA	PRESENT IN ACTION AREA BUT “NOT LIKELY TO ADVERSELY AFFECT”
Loggerhead sea turtle (<i>Caretta caretta</i>)	Yes	Yes
Green sea turtle (<i>Chelonia mydas</i>)	Yes	Yes
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Yes	Yes
Kemp’s ridley sea turtle (<i>Lepidochelys kempii</i>)	Yes	Yes
Piping plover (<i>Charadrius melanotos</i>)	Yes	Yes

Consultation History

- October 2006 A site visit conducted by GEA, Inc. and the Service determines the presence of suitable CBM habitat on the project site.
- August 27, 2008 The Service receives final version of HCP from GEA, Inc.
- January 20, 2009 The Panama City Field Office submits completed application package to the regional office.
- November 27, 2009 HCP begins public comment period.
- December 28, 2009 Public comment period closes.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed project consists of one mid-rise condominium with 13 total residential units, amenities (pool and deck), and 26 parking spaces to be located on property fronting the Gulf of Mexico. Photos of the sites including views of the adjacent properties are provided in the HCP Appendix. The property is in south-central Walton County, Florida, located on the Gulf of Mexico beachfront in Seagrove Beach, Florida, just west of Deer Lake State Park (Figure 1 and 2).



Figure 1. Project site general location.



Figure 2. Immediate area around Project site.

The property is an undeveloped 2.65 acre beachfront parcel in Section 19 of Township 3 South, Range 18 West, in Walton County. The parcel is bounded to the north by San Roy Road and a single family residence, to the east by Beachside Drive, a condominium unit, and a Walton

County public beach access point, to the west by single family residences, and to the south by the Gulf of Mexico. Development in the general vicinity of the property is dominated by single family homes and mid-rise condominiums. The project construction will be located to the north of the primary dune feature on the property, landward of the Coastal County Construction Line with the exception of amenities (Figure 3).

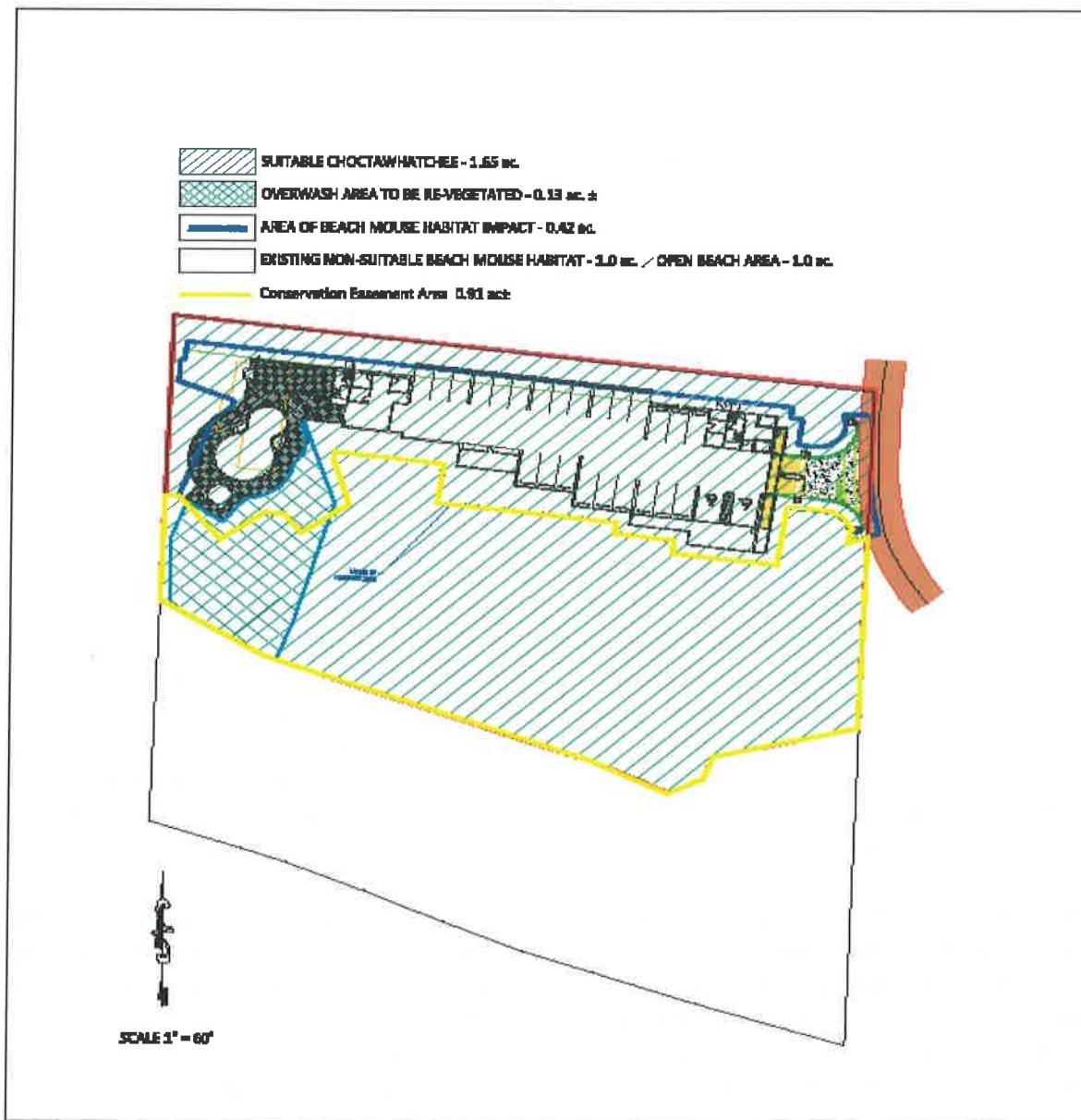


Figure 3. Site plan of the proposed Angelos project.

The impact area of the building footprint to CBM habitat is 0.42 acre, with an additional 0.10 acre that will be temporarily impacted during construction of the facilities (Table 2). Temporary impacts will be restored upon project completion, and landscaping the area will be accomplished with native vegetation. The total parcel is made up of ± 2.65 acres of land.

Table 2. Impacts associated with the proposed Angelos development.

<i>Angelos Project Site</i>	Current Condition (Acres)	Proposed Project (Acres)
CBM habitat	1.65	1.23
Open beach	0.87	0.87
Over-washed dune	0.13	0.0
Developed	0.0	0.42
Restored dune	NA	0.13
Total acres	2.65	2.65
CBM habitat in conservation easement	NA	0.91
Native dune landscaping	NA	0.32

Action Area

The Service has described the Action Area to include all areas which would be affected directly or indirectly by this Federal action and not merely the immediate area involved in the proposed work as indicated in the general site location for this project. The Action Area for this biological opinion is described as the Deer Lake Area. The Deer Lake Area consists of approximately 123 acres of suitable CBM habitat in Walton County, Florida. This area extends about 2.5 miles along the Gulf of Mexico coastline and includes suitable beach mouse habitat between Eastern Lake and Camp Creek Lake. This area is delineated on the north by maritime forest or residential development. The CBM habitat on the development site accounts for 1.65 acre or roughly 1.3% of the Deer Lake Area.

Beach mouse habitat in the Action Area consists of frontal, secondary, and scrub dunes. Habitat fragmentation due to development exists to varying degrees. The Deer Lake Area is dominated by Deer Lake State Park and the Watersound residential development, which are both presently occupied by CBM. No trapping of CBM has been allowed or conducted on the project site, though burrows and small mammal tracks were seen on adjacent parcels as recently as 2006. The Action Area includes areas within the geographic range occupied by the subspecies at the time of listing, and provides habitat for natural movements, behaviors, and long-term persistence of CBM.

Conservation Measures

The Applicant has incorporated measures to avoid, minimize and mitigate to the maximum extent practicable for CBM losses from the proposed project. The following information identifies the proposed measures.

Site plan amendments to avoid and minimize take (as provided in the HCP):

1. Buffers along the east and west sides of the proposed buildings would be maintained to provide potential corridors to connect CBM habitat onsite with off-site habitat to east or west, if present. These corridors, originally designed as landscape buffers with sod and ornamental plants, would be a minimum of 10-feet wide and would be planted with native vegetation.
2. The proposed project has been designed to include the number of parking spaces that can be accommodated within the building footprint (26), without the need for an extra parking area. The proposed footprint of the parking areas represents the minimum area needed to accommodate the required number and size of the parking spaces. The parking lot design was devised to maximize area underneath the proposed condominium.
3. Hand-rails would be installed on the decks as a deterrent to pedestrians from entering the dune habitat from the deck area.
4. No permanent fences or privacy walls would be constructed that would restrict beach mouse movements.
5. A single dune walkover would be constructed to provide access over the dune habitat to the beach. The walkover would provide the only access to the beach, and would feature handrails, minimizing future habitat impact on the property. The walkover on the property would be constructed using top-down techniques and would have a minimum elevation of 3 feet above grade.
6. Educational signs would be installed on the decks and walkovers providing natural history information about CBM, sea turtles, shorebirds including piping plovers, and habitat conservation. These signs are intended to increase awareness resulting in beneficial behavior modification of residents and guests of the facility.
7. Animal-proof waste receptacles would be provided and used for trash collection on the Project site.

Project Construction to minimize impacts to PKBM during construction of the development.

1. A summary of the applicable provisions of the HCP and the terms and conditions of the Permit would be provided to the general contractor responsible for constructing the parking lot and walkover and included in all sub-contracts for the project. The construction contract documents, particularly any contract between the general contractor and a sub-contractor, must include a provision that the general contractor has communicated the conservation objectives of the HCP and terms and conditions of the Permit to the sub-contractor and provided the sub-contractor with the above-referenced summary of the HCP and terms and provisions of the Permit and that the sub-contractor agrees to be bound by such and to communicate such information to its employees and/or contractors.
2. Limits of construction will be clearly marked on all construction plans and would be clearly indicated onsite with silt fence or other barrier fence for the project.
3. No barriers would be placed waterward of the proposed structure that would limit wildlife movement to and from adjacent properties.
4. Wildlife lighting would be utilized for the parking lot, common areas and exterior of the structure consistent with the lighting ordinance for Walton County. All windows and glass doors would have the appropriate glass or window tint that only allows 45 percent light transmittance from inside to outside.
5. All areas temporarily impacted during construction would be restored to ambient or design grade and planted with native vegetation. The Service must approve of the restoration landscape plans for the development.
6. All construction staging and storing of equipment shall occur off site or within the construction boundary on site. No equipment shall be allowed waterward of the Coastal County Construction Line at anytime, with the exception of the building of the pool. At no time shall equipment be allowed on dunes.
7. Silt/ Construction fence would be installed along the east and west property boundaries and from the building to the property boundaries to prevent access to beach mouse habitat during construction. The fence would allow movement of beach mice, but prevent pedestrian trespass, and be removed after construction is complete.

Operation and Management

1. Cats would be prohibited on the interior and exterior of all premises. All other pets would be restricted to the inside of the condominium units, except dogs, which would be allowed only on 6 foot leashes.

2. Waste receptacles have been eliminated from all outdoor common areas in the project with the exception of one in the pool area and one at the top of the dune walkover. These receptacles would be animal-proof.
3. Pesticide and herbicide application would be prohibited outside the units at the development.
4. All beach chairs and umbrellas or similar items would be removed from the beach each night during the sea turtle nesting season from May 1 through October 31.
5. Access to the site would be granted to the U.S. Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission (FWC), U.S. Department of Agriculture - Wildlife Services, and their representatives to conduct CBM population monitoring, and predator control.
6. General guidance provided in the covenants and restrictions for the condominium units would provide reference and information about the Endangered Species Act and the presence of the endangered CBM, prohibit littering on the beach or common areas, prohibit cats from the property, limit all other pets to inside the units, and prohibit access to the conservation easement and other natural areas on the site.

Mitigation

Construction of the *Angelos* condominium will include a three story, thirteen unit condominium building, under building parking, one swimming pool and pool deck, and a dune walkover. Though a number of minimization efforts were incorporated into the design, construction, and operation of these facilities, 0.42 acre of the total 2.65 acre site would be permanently altered. Impacts to CBM habitat consist entirely of secondary dune habitat. Approximately 1.23 acres of CBM habitat, consisting of primary and secondary dunes, would remain on site after completion of the project of which 0.91 acre will be conserved in a conservation easement (see below and HCP). The dunes outside of the conservation easement (0.32 acre) will be managed and maintained with native dune species suitable for CBM use. This resource loss is partially offset by minimization of impacts on the site, minimization of building specifications, and mitigation efforts (revegetation, as described in Section 2.3.1 of the HCP). In addition, an in lieu fee of \$67,500 would be made to the Wildlife Foundation of Florida fund, which will be allocated to the CBM. This fund is to be used to provide funds for activities that would enhance species survival of the CBM, as fully detailed in the FWC ITP application and the HCP. Furthermore, this fund would be perpetually augmented by a \$201 annual assessment of each unit owner in the development, providing an ‘occupied fee.’ Annual conservation effort priorities would be determined by an interagency committee including the Service.

Other Measures to be incorporated:

Construction (and site demolition and site preparation)

1. Permanent alteration of the project site (building, pool, parking, and walkover) shall not exceed the proposed 0.42 acre project footprint.
2. The 0.10 acre of scrub dunes temporarily impacted by construction activities shall be restored upon completion of the construction.
3. Restoration of undeveloped and temporary impacted habitat shall be completed within one hundred and twenty (120) days following issuance of a certificate of occupancy by Walton County, Florida for any unit in the Project. The coastal dune vegetation shall be native to Walton County as provided in Appendix C.
4. The use of mulch and landscape fabric is prohibited in the dune habitats and the native landscaped areas.
5. Irrigation of planted dune vegetation shall be by backpack only. (No buried irrigation in native landscaped areas.)
6. All dune restoration material shall meet State of Florida requirements for beach quality material.

Monitoring

1. The applicants shall place in escrow funds sufficient to finance 12 CBM monitoring events at the property. These 5-night trapping events would be conducted four times a year (quarterly) for the first three years after project completion. The data collected from this effort would be provided upon completion of each trapping session and also submitted in an annual report to the Service. Any undesirable species captured during the trapping events would be destroyed, thus reducing competitive stress on the CBM. Further, authorization and access to natural areas would be granted to the Service and FWC to conduct additional monitoring of their own.
2. The final CBM monitoring design shall be determined by the Service in coordination with FWC, based on the best available scientific data. The final design and schedule shall be provided to the development ninety (90) days prior to initiation of the monitoring program. The monitoring program is to begin within one-hundred and twenty (120) days following issuance of a certificate of occupancy by Walton County, Florida for any unit in the Project.

Operation and Maintenance

1. Permanent impact to the site shall be limited to the 0.42 acre as indicated in Appendix A. After project completion 1.23 acre of CBM habitat shall be protected, restored, managed, and maintained on the Project site.
2. The use of exterior rodenticides shall be prohibited. Any captured exotic or non-native rodents (house mice, Norway rats, black rats) shall be humanely euthanized and disposed of properly.
3. A perpetual Conservation Easement will be granted to the Florida Fish and Wildlife Conservation Commission on the 0.91 acre of CBM habitat on the project site that is completely avoided by the project. The Conservation Easement shall be in accordance with the Florida Statute governing the creation of conservation easements. The boundaries of the area to be covered by the Conservation Easement shall be surveyed by a licensed certified land surveyor. The Permittee shall work with the Florida Fish and Wildlife Conservation Commission to draft the Conservation Easement. The Conservation Easement shall, among other things, contain a provision granting the Service a right of third party enforcement and entry into the area covered by the easement. A draft copy of the Conservation Easement shall be provided to the U.S. Fish and Wildlife Service for review and approval prior to execution and acceptance by the grantee. The Conservation Easement shall be recorded in the lands records of Walton County within six (6) months following issuance of a certificate of occupancy. A copy of the survey and recorded Conservation Easement shall be provided to the U.S. Fish and Wildlife Service within ten (10) days after the Conservation Easement is recorded.
4. A one-time contribution of \$67,500 to the Wildlife Foundation of Florida. These funds have been slated to provide CBM habitat enhancement and are under control of the FWC. This contribution must be received in full by FWC prior to any Project-related land disturbance. Furthermore, this fund would be perpetually augmented by a \$201 annual assessment of each unit owner in the development, providing an 'occupied fee'. The first annual assessment shall be provided within ninety (90) days of the date of the permit issuance. Proof of payment shall be submitted to the Service by January 31st of each following year that the permit is valid. The fund would be spent in accordance with the conservation strategy prepared for the CBM. Annual conservation effort priorities would be determined by an interagency committee including the Service.

Biological Goal of Issuing the Incidental Take Permit

The biological goal for issuing the ITP is to adequately minimize and mitigate the impacts of the proposed project on CBM to the maximum extent practicable. We have determined this can be accomplished by following the guidance in the Recovery Plan for the subspecies (1987) and the critical habitat designation (71 Federal Register (FR) 60238). Specifically, we refer to the following guidance which has been applied to minimize and mitigate the impacts of the Angelos Condominium project.

From the Recovery Plan (1987)

Task 1213 – Maintain predator control programs focused on feral cats and red foxes, where needed.

Task 1216 – Install additional boardwalks as needed to protect habitat from pedestrian traffic.

Task 1217 – Evaluate location of parking areas and access trails to beaches, and relocate them if advantageous to preservation of beach mouse habitat.

Task 1218 – Install scavenger-proof receptacles in heavily used areas, and ensure frequent trash pickup service.

Task 131 – Obtain easements to allow beach habitat to be preserved wherever possible.

Task 1311 – Encourage private landowners to maintain habitat.

Task 1312 – Negotiate to protect intervening habitat on privately-owned lands between inhabited beach mouse areas.

Task 31 – Provide public with information about life history and distribution of beach mice.

Task 32 – Inform public about need for careful sanitation around dwellings to reduce beach mouse predators.

From the Critical Habitat Designation (2006)

Based on our current knowledge of the life history, biology, and ecology of the species, and the requirements of the habitat to sustain the essential life history functions of the species, we have determined that the CBM's primary constituent elements include:

1. A contiguous mosaic of primary, secondary, and scrub vegetation and dune structure, with a balanced level of competition and predation and few or no competitive or predaceous nonnative species present, that collectively provide foraging opportunities, cover, and burrow sites.
2. Primary and secondary dunes, generally dominated by sea oats, that, despite occasional temporary impacts and reconfiguration from tropical storms and hurricanes, provide abundant food resources, burrow sites, and protection from predators.

3. Scrub dunes, generally dominated by scrub oaks, that provide food resources and burrow sites, and provide elevated refugia during and after intense flooding due to rainfall and/or hurricane induced storm surge.
4. Functional, unobstructed habitat connections that facilitate genetic exchange, dispersal, natural exploratory movements, and recolonization of locally extirpated areas.
5. A natural light regime within the coastal dune ecosystem, compatible with the nocturnal activity of beach mice, necessary for normal behavior, growth and viability of all life stages.

STATUS OF THE SPECIES/CRITICAL HABITAT

The Choctawhatchee beach mouse (CBM) was listed with the Perdido Key (PKBM) and Alabama beach mouse (ABM) as endangered species under the ESA in 1985 (50 Federal Register [FR] 23872). The CBM is also listed as an endangered species by the State of Florida. Critical habitat was designated for the CBM, PKBM, and the ABM at the time of listing (50 CFR § 17.95), and revised October 12, 2006 (71 FR 60238). The proposed project is not within the area designated as critical habitat for the CBM.

Recovery Criteria for the United States

The Recovery Plan for the CBM, PKBM, and ABM identifies the primary recovery objectives to be the stabilization of present populations by preventing further habitat deterioration, and the re-establishment of populations in areas where they were extirpated. For each of the subspecies to be considered for down listing to threatened, it is required that there be a minimum of at least three distinct self-sustaining populations in designated critical habitat with at least 50 percent of the critical habitat being protected and occupied by beach mice (U.S. Fish and Wildlife Service 1987).

Choctawhatchee beach mice (CBM) were once present along 53 miles of coastal dunes between Choctawhatchee Bay and St. Andrew Bay (Figure 4).

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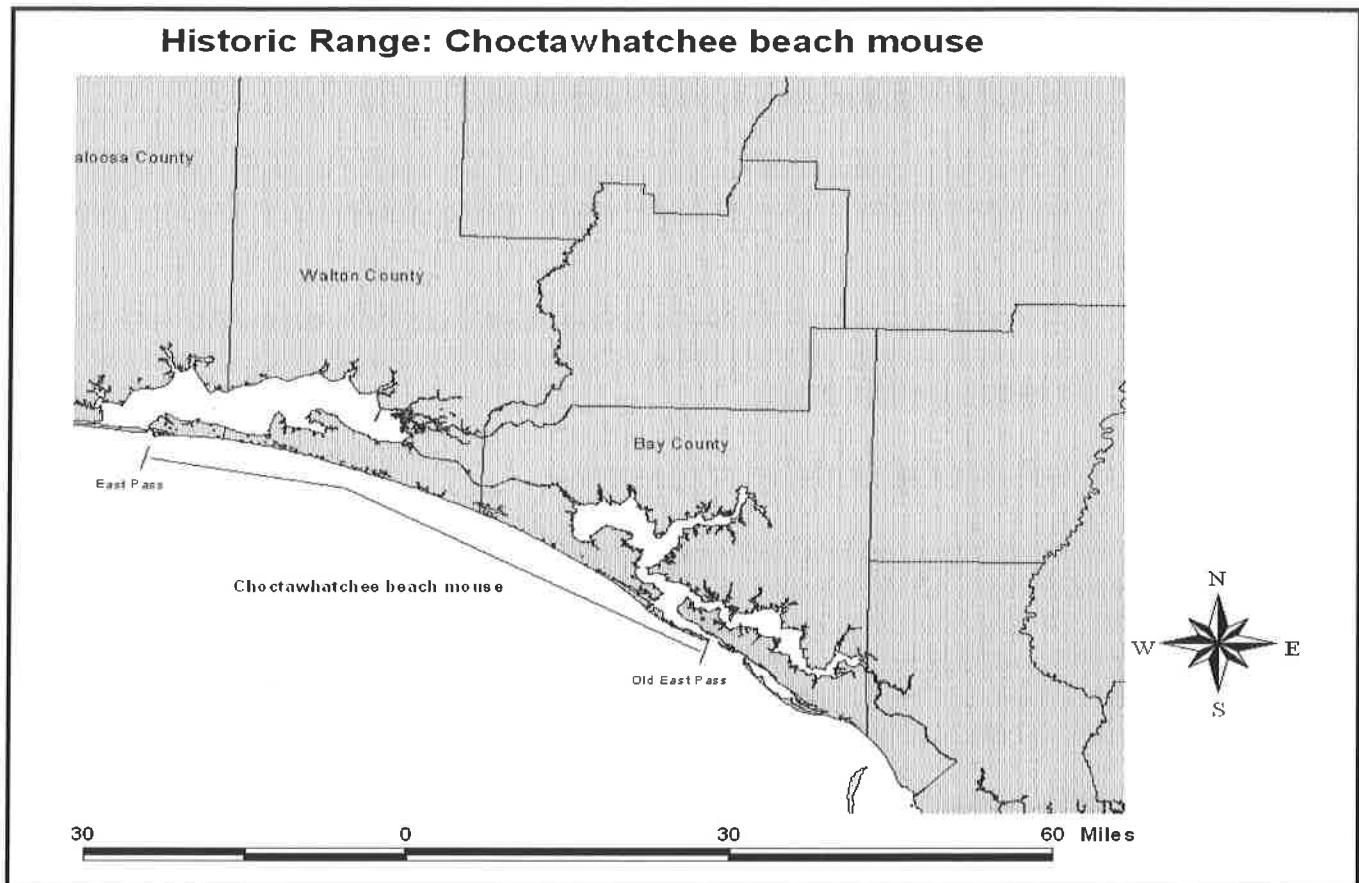


Figure 4. Historic range of the Choctawhatchee beach mouse.

Life history (growth, life span, survivorship, and mortality)

The Choctawhatchee beach mouse is one of five subspecies of the oldfield mouse that inhabit coastal dune communities along the northern Gulf coast of Florida and Alabama. The beach subspecies form a monophyletic group that diverged from other *P. polionotus* subspecies in the range of 150,000 – 300,000 years before present (Van Zant and Wooten 2007). All beach mice are visually differentiated from one another and the inland subspecies by the variety of unique fur patterns on the head, shoulders, and rump (Hoekstra et al. 2006). The overall dorsal coloration is more reduced in coastal subspecies, is lighter in color, and is less extensive than on those of the inland subspecies (Bowen 1968). The CBM is distinctly more orange-brown to yellow-brown than the other Gulf coast beach mouse subspecies (Bowen 1968). Head and body length of the CBM ranges from 2.7 to 3.5 inches (Holler 1992a).

Like other beach mice, CBM are nocturnal and forage for food throughout the dune system. Beach mice feed primarily upon seeds and fruits, but have been shown to prey on insects. Beach mice appear to forage on food items based on availability and have shown no preferences for particular seeds or fruits (Moyers 1996). Research suggests that the availability of food resources fluctuates seasonally in Gulf Coast coastal dune habitat, specifically that food resources may be limited during winter and spring in the scrub habitat and limited in the frontal dunes in the summer and fall (Sneckenberger 2001). Nutritional analysis of foods available in

each habitat revealed that seeds of plant species in both habitats provide a similar range of nutritional quality. The frontal dunes appear to have more species of high quality foods, but these sources are primarily grasses and annuals that produce large quantities of small seeds in a short period of time. Foods available in the scrub consist of larger seeds and fruits that are produced throughout a greater length of time and linger in the landscape.

Foraging activities and other natural behaviors of beach mice are influenced by many factors. Artificial lighting alters behavior patterns causing beach mice to avoid otherwise suitable habitat and decreases the amount of time they are active (Bird et al. 2004). The presence of vegetative cover reduces predation risk and perceived predation risk of foraging beach mice, and allows for normal movements, activity, and foraging patterns. Foraging in sites with vegetative cover is greater and more efficient than in sites without cover (Bird 2002). Beach mice have also been found to select habitat for increased percent cover of vegetation, and decreased distance between vegetated patches (Smith 2003).

Since the listing of the CBM, research has refined previous knowledge of beach mouse habitat requirements and factors that influence their use of habitat. The findings most pertinent involve the role of scrub dune habitat. Coastal dune habitat is generally categorized as: primary dunes (characterized by sea oats [*Uniola paniculata*] and other grasses), secondary dunes (similar to primary dunes but also frequently include such plants as woody goldenrod [*Chrysoma pauciflosculosa*], false rosemary [*Conradina canescens*]), and interior or scrub dunes (often dominated by scrub oaks [*Quercus geminata* spp.] and yaupon holly [*Ilex vomitoria*]). Contrary to the early belief that beach mice were restricted to (Howell 1909, 1921; Ivey 1949), or preferred the frontal dunes (Blair 1951; Pournelle and Barrington 1953; Bowen 1968), more recent research has shown that scrub habitat serves an invaluable role in the persistence of beach mouse populations (Swilling et al. 1998; Sneckenberger 2001). Beach mice occupy scrub dunes on a permanent basis and studies have found no detectable differences between scrub and frontal dunes in beach mouse body mass, home range size, dispersal, reproduction, survival, food quality, and burrow site availability (Swilling et al. 1998; Swilling 2000; Sneckenberger 2001). The transition from scrub habitat to maritime forest, which is characterized by large trees (pines and oaks), thick leaf litter and dense understory, frequently serves to delineate the northern or landward extent of suitable beach mouse habitat.

While seasonally abundant, the availability of food resources in the primary and secondary dunes fluctuates (Sneckenberger 2001). In contrast, the scrub habitat provides a more stable level of food resources which becomes crucial when food is scarce or nonexistent in the primary and secondary dunes. This suggests that access to primary, secondary and scrub dune habitat is essential to beach mice at the individual level.

In addition to providing burrow sites, food resources, and cover, scrub dune habitat also serves as a high-elevation refuge during storm events and as a population source as the frontal and secondary dunes recover (Swilling et al. 1998; Sneckenberger 2001). Hurricanes can severely effect beach mice and their habitat, as tidal surge and wave action overwash habitat, leaving a flat sand surface denuded of vegetation; sand is deposited inland, completely or partially covering vegetation; blowouts between the Gulf of Mexico and bays and lagoons leave patchy landscapes of bare sand; primary dunes are sheared or eroded; and habitat is completely

breached, creating channels from the Gulf of Mexico to bays and lagoons. Until frontal dune topography and vegetation redevelop, scrub habitat maintains beach mice populations and provides the majority of food resources and potential burrow sites (Lynn 2000; Scheckenberger 2001). While storms temporarily reduce population densities (often severely), this disturbance regime maintains open habitat and retards succession, yielding a habitat more suitable for beach mice than one lacking disturbance. The low-nutrient soil of the coastal dune ecosystem often receives a pulse of nutrients from the deposition of vegetative debris along the coastline (Lomascolo and Aide 2001). Therefore, as the primary and secondary dunes recover, beach mice recolonize this habitat readily as food plants develop to take advantage of the newly available nutrients. Recovery times vary depending upon factors such as hurricane characteristics (i.e., severity, amount of associated rain, directional movement of the storm eye, storm speed), successional stage of habitat prior to hurricane, elevation, and restorative actions post hurricane. Depending on these factors, recovery of habitat may take from one year to over 40 years.

Beach mice along the Gulf Coasts of Florida and Alabama generally live about nine months (Swilling 2000). Field trapping research indicates that 68 percent (average) of mice alive in one month will survive to the next month. Actual survival rates indicate that 18.5 to 87 percent of individuals survive no more than four months and some mice live between 12 and 20 months (Blair, 1951; Rave and Holler 1992). Holler et al., (1997) found that 44.26 percent of beach mice captured for the first time survived to the next season (winter, spring, summer, and fall). The mean survival rate for mice captured for a second time to subsequent capture was higher (53.90 percent). More than ten percent of mice survived three seasons after first capture, and four to eight percent survived more than one year after initial capture. Mice held in captivity by Blair (1951) and at Auburn University (Holler 1995) have lived three years or more.

Beach mice are generally monogamous (Foltz 1981; Smith 1966). While a majority of individuals appear to pair for life, paired males may sire extra litters with unpaired females. Male beach mice are capable of breeding at an age of 25 days. Female beach mice are able to begin breeding at 35 days of age. Gestation averages 24 days and litter sizes average three to four with extremes of one and eight individuals. Littering intervals may be as short as 26 days. Peak breeding season for beach mice is autumn and winter, declining in spring, and falling to low levels in summer. However, pregnant and lactating beach mice have been caught during summer trapping periods (Moyers et al. 1999). In essence, female beach mice can produce a litter every month once mature and live about eight months being able to reproduce. Thus, on an annual basis a pair of beach mice could produce an average of 24 to 32 young per year.

Body weights of adult beach mice have been reported by various researchers (Rave and Holler 1992; Hill 1989). Moyers et al., (1999) indicated that weights of CBM were significantly different from other reported weights for adult males, adult non-pregnant females, and sub-adult females. However, it should be noted that the sample sizes in the Moyers et al., (1999) were small and included trapping data immediately following and three years after a severe hurricane (Hurricane Opal, 1995). Long-term historical weight data for all beach mouse subspecies are lacking.

Movement and home range determinations have completed for the most beach mouse subspecies. Swilling et al., (1998) found ABM to move at least 328 feet during nightly forays. Moyers and Shea (2002) trapped a male and female CBM on the WaterColor property that had been previously caught on the adjacent Grayton Beach State Park; the mice had moved approximately 636.5 feet and 2,720 feet, respectively (The St. Joe Company 1999). Using radio telemetry, Lynn (2000) documented an ABM that traveled one mile within a 30-minute period. Novak's (1997) study of the home range of CBM on Shell Island indicated males had a mean home range of 1.0 ± 4.1 acres and females had a mean home range of 0.81 ± 2.18 acres. Lynn (2000) found male and female radio-tagged ABM had a mean home range of 1.68 ± 0.27 acres and 1.73 ± 0.40 acres, respectively.

Population dynamics

Population size

Estimating animal abundance or population size is an important and challenging scientific issue in wildlife biology (Otis et al. 1978; Pollock *et al.* 1990). A number of different census methods are available to estimate wildlife populations, each with particular benefits and biases. Beach mouse surveys involve relatively standardized scientific methods, common to the study of small mammals. The basic census method for beach mice involves mark-recapture by live trapping. Mice are captured at night in live traps placed along lines or grids. Each captured animal is checked to determine if it has been captured for the first time (unmarked) or if it is a recapture (marked). A five-night minimum trapping period has been standard practice since 1987. Data from such surveys have been analyzed using various methods with differing degrees of accuracy and bias, as number of individuals captured, minimum number known alive, number captured per 100 trap nights, or a mathematically modeled statistical population estimate (program CAPTURE).

Attempts to explain population dynamics have revealed an incomplete understanding of the species and its population cycles. It is clear that beach mice, like all rodents, are known for high reproductive rates and experience extreme highs and lows in population numbers. Tropical storms and drought may be associated with depressed beach mouse populations, perhaps resulting from elimination of habitat and food supply reduction.

Generally, population density of beach mice reaches peak numbers in the late autumn into spring (Rave and Holler 1992; Holler *et al.* 1997). Peak breeding period occurs in fall and winter, apparently coinciding with the increased availability of seeds and fruits from the previous growing season. Seasonal and annual variation in size of individual populations may be great (Rave and Holler 1992; Holler *et al.* 1997). Food supplementation studies showed that *P. polionotus* mouse populations increased when foods were abundant; thus, populations of *P. polionotus* and beach mice appear to be food-limited (Galindo-Leal and Krebs 1998; Smith 1971).

In 1979, Humphrey and Barbour (1981) estimated about 515 CBM existed on Topsail Hill and Shell Island. That estimate was used during the Federal listing of the CBM in 1985. Population estimates using CAPTURE on Shell Island from February 1993 to March 1994, ranged from 105

to 338 CBM on a 23-acre study area (Novak 1997). Just prior to Hurricane Opal in 1995, it was estimated that Shell Island supported 800 to 1,200 CBM (Gore 1999). Three years following Hurricane Opal in June 1998, one trapping effort at six different sites on Shell Island resulted in a cumulative population estimate of 195 CBM (164 CBM captured) (Moyers et al. 1999). More recently, the east portion of the island has been trapped from 2000 to 2003. Population estimates have ranged between 24 and 67 CBM (Lynn 2004). At Topsail Hill Preserve State Park, trapping conducted in March of 2003 yielded a population estimate of 250 CBM (Lynn 2003). Population estimates from trapping at Grayton Beach State Park, main unit from 1995 to 2000, ranged from 25 to 116 CBM (Moyers et al. 1999). The central unit was trapped for 3 nights in August 2002, however, no mice were captured (Lynn 2002). The western area, although providing CBM habitat, has not been documented to be occupied by CBM (Moyers et al. 1999;). The population estimates for the WaterColor development for the two years prior to and one year following development ranged from 3 to 7 CBM (The St. Joe Company 1999). CBM were last captured in February of 2001 at WaterColor; quarterly trapping has continued on the site in 2003 (St. Joe/Arvida 2003). Auburn University trapped West Crooked Island in October 2000 and the Service in 2001 to 2003. The population estimate ranged from a low of 174 to a high of 244 CBM (Lynn 2000, 2002, 2003). Results from trapping conducted by the Service in 2005 at Topsail Hill Preserve State Park has illustrated a healthy population in the spring and early summer, but possibly a reduced population in the fall (U.S. Fish and Wildlife Service 2005a). Trapping has ceased at Watercolor and Watersound, but burrows and tracks were seen in all available habitat at Watersound during surveys in 2009 (Moyers 2010).

Population variability

Beach mouse populations fluctuate on a seasonal and annual basis. These fluctuations can be a result of reproduction rates, food availability, habitat quality and quantity, catastrophic events, disease, and predation (Blair 1951; Bowen 1968; Smith 1971; Hill 1989; Rave and Holler 1992; Swilling et al. 1998; Swilling 2000). A method of determining population dynamics as well as estimating population size includes evaluating catch per unit effort. For beach mice, it is based on the number of mice captured per 100 trap nights (Table 3).

Table 3. Choctawhatchee beach mice captured per one-hundred trap nights.

Subspecies	Location	Reference	Dates of trapping	Number of mice per 100 trap nights	Range
CBM	Shell Island	Humphrey and Barbour (1981)	1979	8.60	NA
CBM	Shell Island	Meyers (1983)	1982	3.20	NA
CBM	Shell Island	Moyers et al., (1999)	1996	9.11	5.33 - 15.33
CBM	Topsail Hill Preserve State Park	Moyers et al., (1999)	1995 - 1998	0.68	0.23 - 2.21

Subspecies	Location	Reference	Dates of trapping	Number of mice per 100 trap nights	Range
CBM	Grayton Beach State Park - central unit	Moyers et al., (1999)	1995 - 1998	1.87	0.67 - 2.13
CBM	WaterColor	St. Joe Company (1998)	1998	2.0	NA
CBM	WaterSound	St. Joe Company (1998)	1998	0.17	NA
CBM	WaterColor	St. Joe Company (1999)	1999 (Sept & Nov/Dec)	02.0	NA
CBM	WaterSound	St. Joe Company (1999)	1999 (Sept & Nov/Dec)	0	NA
CBM	WaterColor	St. Joe Company (2002)	2000	0	NA
CBM	WaterColor	St. Joe Company (2002)	2001 winter	2.13	NA
CBM	WaterColor	St. Joe Company (2002)	2001 spring & summer)	0	NA
CBM	Shell Island	Auburn	2002	1.06	NA
CBM	WaterColor	St. Joe Company (2003)	2002	0	NA
CBM	West Crooked Island Tyndall AFB	Lynn (2002a)	2002	0.72	0.13 - 1.86
CBM	Topsail Hill Preserve	Lynn (2002b, c)	2002	0.89	0.7 - 1.08
CBM	WaterSound	St. Joe Company (2004)	2003	1.66	1.66
CBM	WaterColor	St. Joe Company (2004)	2003	0	NA
CBM	WaterColor	St. Joe Company (2005)	2004	0	NA
CBM	WaterSound	St. Joe Company (2005)	2004	0	NA
CBM	Topsail Hill Preserve	US FWS (2005a, b, c)	2005	2.35	0.9 – 4.5
CBM	WaterColor	St. Joe Company (2006)	2005	0	NA
CBM	WaterSound	St. Joe Company (2006)	2005	0	NA

Population stability

Population viability analysis (PVA) is essentially a demographic modeling exercise to predict the likelihood a population will continue to exist over time (Groom and Pascual 1997). From 1996 to 1999, the Service funded Auburn University to develop a PVA for beach mice (Holler et al. 1999). Four subpopulations of Gulf coast beach mice subspecies were modeled. They consisted of two subpopulations of PKBM, one at GINS-Perdido Key Area and one at Florida Point, and two sub-populations of ABM, one at Bon Secour NWR and one at Ft. Morgan State Park. The model, known as a stochastic (random) exponential growth (SDE) model, used data on the observed change in the beach mouse population sizes between successive census periods. The model is “stochastic” because it incorporates the variable effects of the environment upon population change. However, it did not model the effects of hurricanes on the habitat or population of beach mice.

A specific PVA has not been conducted for the CBM because necessary life history data or adequate long-term data are not available. Reasons for extinction include habitat loss, fragmentation, or degradation from natural (hurricanes) or human (development and recreation) causes, genetic viability, and native and non-native depredation. Holler et al., (1999) noted that the PVA presented further evidence that habitat fragmentation will continue to increase the risk of extinction.

Status and Distribution

Reasons for Federal listing as an endangered species

The CBM was listed as an endangered species primarily because of the fragmentation, adverse alteration, and loss of habitat due to coastal development. The threat of development-related habitat loss continues to increase. Additional contributing factors include low population numbers, habitat loss from other causes (including hurricanes), predation (fox, coyotes, cats), competition by animals associated with human development (house mice), and lack of regulatory controls on coastal development.

Coastal development

Habitat loss and fragmentation associated with residential and commercial real estate development is the single most important factor contributing to the endangered status of beach mice (Holler 1992a, 1992b; Humphrey 1992; James 1992). Beachfront development along the Gulf coast of Florida and Alabama began in the 1950s. Coastal development has fragmented all the subspecies into subpopulations. These factors, along with the influx of development-related predators such as the domestic cat and competition with house mice, probably caused the extinction of the Pallid beach mouse (Humphrey 1992).

Habitat loss and fragmentation associated with residential and commercial real estate development is the primary threat contributing to the endangered status of beach mice (Humphrey 1992). Coastal development has fragmented all the subspecies into disjunct populations. Isolation of habitats by imposing barriers to species movement is an effect of

fragmentation that equates to reduction in total habitat (Noss and Csuti 1997). Furthermore, isolation of small populations of beach mice reduces or precludes gene flow between populations and can result in the loss of genetic diversity. Selander et al., (1971) found that allozyme variation in beach mouse populations (Perdido Key, Choctawhatchee, and Alabama beach mice) was significantly lower than the variation detected in adjacent inland populations. Correlations between genetic variation (heterozygosity) and other factors have been well-researched with old-field mice. Lower levels of heterozygosity has been linked to less efficient feeding, fewer demonstrations of social dominance and exploratory behavior, and smaller body size (Garten 1976; Teska et al. 1990). Research focused on inbreeding depression in old-field mice (including one beach mouse subspecies), determined that the effects of inbreeding negatively influenced factors such as litter size, number of litters, and juvenile survivorship (Lacy et al. 1995). Demographic factors such as predation (especially by domestic cats), diseases, and competition with house mice, are intensified in small, isolated populations which may be rapidly extirpated by these pressures. Especially when coupled with events such as storms, reduced food availability, and/or reduced reproductive success, isolated populations may experience severe declines or extirpation (Caughley and Gunn 1996). The strength of influence these factors have on populations or individuals is largely dependent on the degree of isolation.

The conservation of multiple large, contiguous tracts of habitat is key to the persistence of beach mice. At present, large parcels exist mainly on public lands. Protection, management, and recovery of beach mice on public areas have been complicated by increased recreational use by humans as public lands are rapidly becoming the only natural areas left on the coast. Public lands and their staff are now under pressure to manage for both the recovery of endangered species and recreational use by humans. Where protection of large contiguous tracts of beach mouse habitat along the coast is not possible, establishing multiple independent populations is the best defense against local and complete extinctions due to storms and other stochastic events (Danielson 2005). Protecting multiple population increases the chance of at least one population within the range of a subspecies will survive episodic storm events and persist while vegetation and dune structure recover.

Distribution

Based on trapping data, four disjunct populations currently exist: 1) Topsail Hill Preserve State Park (and adjacent eastern and western private lands), 2) St. Andrew State Park (includes Shell Island, Tyndall Air Force Base, and private land inholdings), 3) Grayton Beach (and adjacent eastern private lands), and 4) West Crooked Island (Tyndall AFB) and adjacent private lands. Approximately 96 percent of the lands known to be occupied by CBM are public lands. Translocations to establish a fifth population of CBM on private lands at Camp Creek/WaterSound in Walton County, Florida began in March of 2003, and the population was supplemented in March 2005 (USFWS 2003a, 2005a). Topsail Hill Preserve State Park served as the source for the translocations (total of 36 CBM, 18 pairs). Furthermore, as the viability of beach mouse populations on the St. Andrew State Park mainland and Henderson Beach State Park is uncertain at this time, these sites may be considered for future translocation projects.

Topsail Hill Preserve State Park consists of 1,637 acres of which 262 acres provide CBM habitat—the majority being occupied by CBM. The Florida Park Service prepared a Unit Management Plan for the Preserve that explicitly plans for conservation and protection of CBM

habitats (FDEP 2000). Private lands on the east side consist of approximately 9.63 acres. Of that, seven acres consist of the development known as the Stallworth Preserve. The Service issued an ITP for CBM to the Stallworth Preserve development in 1995; an amendment to the permit was issued in 1999. The remaining 2.63 acres has been purchased by Walton County with a grant from the Service. Private lands on the west side of the Preserve consist of 24 acres and include Four-Mile Village, a low density single family development, and the Coffeen Nature Preserve managed by the Sierra Club.

Shell Island consists of lands within the St. Andrew State Park, Tyndall Air Force Base, and private lands. The Unit Management Plan for the State Park was completed in 1999. The plan identifies the need for protection and management of the CBM. Tyndall Air Force Base manages their portion of Shell Island under the installation's Integrated Natural Resources Management Plan. The Service has joined with the State Park and Tyndall AFB since 1995 by providing funding to protect and restore CBM habitats on Shell Island.

The St. Andrew State Park mainland consists of 1,260 acres of which 123 acres are beach mouse habitat. Several tracking efforts looking for signs of CBM on the mainland were made between 1995 and 1998; no evidence was found that indicated the presence of the beach mouse (Moyers et al. 1999; Moyers et al. 1996). This absence is probably a result of the small size of the area and its isolation due to development from other areas occupied by CBM (Moyers et al. 1999). Natural recolonization of this area is not feasible because of the distance or barrier (water/development) from occupied areas. Because of its small size, this area would not support a CBM population in the long term. However, it could provide recovery support by being a source for CBM in case of a catastrophic event or for increasing genetic viability. Reintroduction of this area is considered an action to support recovery of CBM.

The Grayton Beach sub-population consists of two units in Grayton Beach State Park. The Park is divided into a central and western unit and is currently connected by a narrow band of primary dunes. Total acreage of the Park is 2,236 acres with 153 acres providing suitable CBM habitat. The Unit Management Plan for the Park identified the protection of the CBM as an important component. The Park has requested and received funds from the Service to implement CBM habitat restoration and protection. Private lands (WaterColor and Seaside developments) on the east side of the central unit are occupied by CBM or provide suitable habitat.

The West Crooked Island sub-population resulted from its connection to Shell Island in 1998 - 1999. The construction of the St. Andrew Pass navigation inlet in the early 1930s severed Shell Island from the mainland on its western end. Since then, the original pass, East Pass (or Old Pass) began to close. After passage of Hurricane Opal in 1995, East Pass temporarily closed and reopened; however, after passage of hurricanes Earl and Georges in 1998, the pass closed (Middlemas 1999). CBM dispersed onto West Crooked Island from Shell Island colonizing most of the island within two years (Lynn 2002; 2000). East Pass was reopened as a joint venture between Tyndall Air Force Base and Bay County in December of 2001. West Crooked Island consists of 1,558 acres of which 730 acres provide CBM habitat and remains occupied by CBM (Lynn 2002).

Status

Hurricane Ivan, a Category 3 hurricane, made landfall on Gulf Shores, Alabama, on September 16, 2004. The passage of the hurricane resulted in CBM sub-populations being affected by impacts resulting from a category 1 hurricane. The 2005 hurricane season brought another 4 hurricanes (Cindy, Dennis, Katrina and Wilma) and tropical storm Arlene in the northern Gulf of Mexico. While there were no direct passage of the storms over Walton County the combined impacts of the storms resulted in extreme shoreline erosion. Erosion of the beach and dunes left exposed bluffs of 15 feet of more height.

Following both the 2004 and 2005 storm season, surveys were conducted to ascertain the status of CBM on public and private lands. Trapping conducted on private lands indicate CBM survived on the WaterSound property in Walton County, Florida and reproduction was ongoing (Moyers 2005). Tracking and trapping surveys on Topsail Hill State Park State Parks indicated that CBM survived the storm season (Sudan 2005; USFWS 2005a).

Prior to the 2004 and 2005 storm season, CBM sub-populations persisted along approximately 15 miles of Gulf of Mexico shoreline consisting of four isolated areas along 11 miles of beachfront within its former range. Another four miles outside of the CBM's known historic range were colonized in 1999 (Lynn 2000, 2003). Of the total 15 miles occupied by CBM, 12 of the 15 miles are publicly owned lands.

Common threats beach mice in Northwest Florida

Coastal development

Loss of nesting habitat related to coastal development has had the greatest impact on nesting sea turtles in this region. Beachfront development not only causes the loss of suitable nesting habitat but can result in the disruption of powerful coastal processes accelerating erosion and interrupting the natural shoreline migration (National Research Council 1990b). This may in turn cause the need to protect upland structures and infrastructure by armoring, groin placement, beach berm construction, and beach nourishment which cause changes in, additional loss or impact to the remaining sea turtle habitat.

Long-term trapping data has shown that beach mouse densities are cyclic and fluctuate by magnitudes on a seasonal and annual basis. These fluctuations can be a result of reproduction rates, food availability, habitat quality and quantity, catastrophic events, disease, and predation (Blair 1951; Bowen 1968; Smith 1971; Hill 1989; Rave and Holler 1992; Swilling et al. 1998; Swilling 2000; Scheckenberger 2001). Without suitable habitat sufficient in size to support the natural cyclic nature of beach mouse populations, subspecies are at risk from local extirpation and extinction, and may not attain the densities necessary to persist through storm events and seasonal fluctuations of resources.

Western Lake is a system comprised of two main lakes connected through a wetland marsh system. The majority of the lake is surrounded by State Park lands (Grayton Beach State Park) and high and low density residential developments including the town of Grayton Beach, Old

Miller subdivision, and WaterColor. Land use acreages within the Lake drainage sub-basin is 680 acres. The development within the sub-basin does not have septic tanks. Restriction of flows within the sub-basin are created by two highway crossings on CR 30A and a bridge crossing in the State Park.

Hurricanes

Hurricanes were probably responsible for maintaining coastal beach habitat upon which sea turtles and beach mice depend through repeated cycles of destruction, alteration, and recovery of dune habitat. Hurricanes generally produce damaging winds, storm tides and surges, and rain and can result in severe erosion of the beach and dune systems. Overwash and blowouts are common on barrier islands. Hurricanes and other storms can result in the direct or indirect loss of sea turtle nests, either by erosion or washing away of the nests by wave action or inundation or “drowning” of the eggs or hatchlings developing within the nest or indirectly by loss of nesting habitat. Hurricanes can impact beach mice either directly (e.g., drowning) or indirectly (e.g., loss of habitat). Depending on their frequency, storms can affect sea turtles on either a short-term basis (nests lost for one season and/or temporary loss of nesting habitat) or long term, if frequent (habitat unable to recover). Additionally, hurricanes can affect beach mice on either a short-term basis (e.g., temporary loss of habitat) or long term (e.g., loss of food, which in turn may lead to increased juvenile mortality, resulting in a depressed breeding season). How hurricanes affect sea turtle nesting and beach mice also depends on its characteristics (winds, storm surge, rainfall), the time of year (within or outside of the nesting season), and where the northeast edge of the hurricane crosses land.

Because of the limited remaining nesting habitat, frequent or successive severe weather events could compromise the ability of certain populations of sea turtles or beach mice to survive and recover. Sea turtles and beach mice evolved under natural coastal environmental events such as hurricanes. The extensive amount of pre-development coastal beach and dune habitat allowed sea turtles and beach mice to survive even the most severe hurricane events. It is only within the last 20 to 30 years that the combination of habitat loss to beachfront development and destruction of remaining habitat by hurricanes has increased the threat to sea turtle and beach mice survival and recovery. On developed beaches, typically little space remains for sandy beaches to become re-established after periodic storms. While the beach itself moves landward during such storms, reconstruction or persistence of structures at their pre-storm locations can result in a major loss of habitat for sea turtles and beach mice.

The 2004 hurricane season was the most active storm season in Florida since weather records began in 1851. Hurricanes Charley, Frances, Ivan, and Jeanne, along with Tropical Storm Bonnie, damaged the beach and dune system, upland structures and properties, and infrastructure in the majority of Florida’s coastal counties. The cumulative impact of these storms exacerbated erosion conditions throughout the state. The 2005 season (Dennis, Cindy, Karina, and Wilma) added 42.6 miles (roughly a 13.2% increase) to the statewide total of critically eroded beaches. That brought the total to 365.1 miles of critically eroded beach. Additional miles are likely to be added in the 2006 update, especially in Walton County (FDEP 2005).

Hurricane Dennis, like Hurricane Ivan 2004 and Hurricane Opal in 1995, was one of the most destructive hurricanes to impact Florida’s Panhandle coast in recorded history. After reaching

Category 4 strength in the northern Gulf of Mexico as it approached the Florida Panhandle coast, Dennis made landfall east of Pensacola Beach, Florida, near Navarre Beach in the early afternoon of July 10, 2005, as a Category 3 hurricane with wind speeds reported at 115-120 m.p.h. As Dennis made landfall, the greatest convection and strongest winds associated with the hurricane were located east-northeast of the storm center. This aspect of the storm coupled with the higher, onshore-directed winds and associated storm surge and accompanying breaking waves resulted in much of Dennis' most destructive impact occurring in areas east of its point of landfall. As a result, coastal areas from Navarre Beach through Wakulla County sustained severe impact from Dennis.

Beachfront Lighting

Artificial beachfront lighting may cause disorientation (loss of bearings) and misorientation (incorrect orientation) of sea turtle hatchlings. Visual signs are the primary sea-finding mechanism for hatchlings (Witherington and Bjorndal 1991). Artificial beachfront lighting is a documented cause of hatchling disorientation and misorientation on nesting beaches (Mann 1977). The emergence from the nest and crawl to the sea is one of the most critical periods of a sea turtle's life. Hatchlings that do not make it to the sea quickly become food for ghost crabs, birds, and other predators or become dehydrated and may never reach the sea. Some types of beachfront lighting attract hatchlings away from the sea while some lights cause adult turtles to avoid stretches of brightly illuminated beach. Research has documented significant reduction in sea turtle nesting activity on beaches illuminated with artificial lights; relative to adjacent areas (Witherington 1992). During the 2003 sea turtle nesting season in Florida, over 79,000 turtle hatchlings were disoriented. In 2002, lighting associated with condominiums had the greatest impact causing disorientation/misorientation of 35 percent. Other causes included street lights, parking lot lights, single family residences, and sky glow.

Artificial lighting increases the risk of predation and influences beach mouse foraging patterns and natural movements as it increases their perceived risk of predation. Beach mice avoid areas with artificial lighting or reduce the time spent foraging in lighted areas (Bird et al. 2004).

Predation

Depredation by a variety of predators can considerably decrease sea turtle nest hatching success. Depredation and harassment or both of nesting turtles, eggs, nests and hatchlings by native and non-native species, such as raccoon, coyote, fox, feral hog, cats, birds, and ghost crab, have been documented on the Atlantic and Gulf coasts of Florida (Daniel et al. 2002; National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991). As nesting habitat dwindles, it is essential that nest production be naturally maximized so the turtles may continue to exist in the wild.

Other non-native predators such as the red fox (*Vulpes vulpes*) and coyote (*Canis latrans*) are also of concern for sea turtle nest and hatchlings. Red fox are not native to the coastal habitats of the Florida panhandle and have been introduced to the area by fox hunters. They also compete with the native gray fox (*Urocyon cinereoargenteus*) for habitat. Tracks of coyote and fox have been observed around marked (for identification) sea turtle nests throughout northwest Florida

(Daniel et al. 2002). Sea turtle nest survey groups have observed fox waiting at sea turtle nests and picking up hatchling turtles as they emerged (Maxwell 1998).

In response to increasing depredation of sea turtle nests by coyote, fox, and raccoon, a multi-agency cooperative effort was initiated in northwest Florida in 1996. Ten Federal and State agencies have provided funding and/or inkind services to implement a control program on coastal public lands across northwest Florida. The program is ongoing, and a permanent USDA position was established in northwest Florida to conduct the control work (Daniel et al. 2002; Northwest Florida Partnership 2000). The program has been successful and in the first year, sea turtle predation losses on one nesting beach were reduced to 6.3 percent, an 88 percent reduction of losses from the previous year (Leland 1997). Continued low predation rates of sea turtle nests throughout northwest Florida were documented until 2002 when minor increases were noted across the region (Daniel et al. 2002).

Beach mice have a number of natural predators including coachwhip and corn snakes, pygmy, and diamondback rattlesnakes, short-eared and great-horned owls, great blue heron, harrier, fox, skunk, weasels, and racoon (Novak 1997; Blair 1951; Bowen 1968; Moyers et al. 1999; Van Zant and Wooten 2003). Predation in beach mouse populations that have sufficient recruitment and habitat availability is natural and not a concern. However, predation pressure from natural and non-native predators may result in the extirpation of small, local populations of beach mice.

Free-roaming and feral pets are believed to have a devastating effect on beach mouse persistence (Bowen 1968; Linzey 1978) and are considered to be the main cause of the loss of at least one population of beach mice (Holliman 1983). Cat tracks have been observed in areas of low trapping success for beach mice (Moyers et al. 1999). The Population and Habitat Viability Analysis for the Alabama beach mouse indicated that if each population had as few as one feral cat which ate one mouse a day, rapid extinction occurred in over 99% of all iterations (Conservation Breeding Specialist Group 2005).

Climate Change

The varying and dynamic elements of climate science are inherently long term, complex and interrelated. At present, the science is not exact enough to precisely predict when and where climate impacts will occur. Although we may anticipate the direction of change it may not be possible to predict its precise timing or magnitude. These impacts may take place gradually or episodically in major leaps.

According to the Intergovernmental Panel on Climate Change Report (IPCC 2007), warming of the earth's climate is "unequivocal," as is now evident from observations of increases in average global air and ocean temperatures, widespread melting of snow and ice, and rising sea level. The IPCC report (2007) describes changes in natural ecosystems with potential wide-spread effects on many organisms, including marine mammals and migratory birds. Scientific evidence indicates a rapid and abrupt climate change, rather than the gradual changes that have been currently forecasted (IPCC 2007), posing a significant challenge for fish, wildlife, and plant conservation. Species' abundance and distribution are dynamic, relative to a variety of factors, including climate. As climate changes, the abundance and distribution of fish and wildlife will also change. Highly specialized or endemic species are likely to be most susceptible to the

stresses of changing climate. Based on these findings and other similar studies, the U.S. Fish and Wildlife Service (2009 a, b) will incorporate potential climate change effects as part of their long-range planning activities.

Climate change at the global level drives changes in weather at the regional level, although weather is also strongly affected by season and by local effects (e.g., elevation, topography, latitude, proximity to the ocean). Temperatures are predicted to rise from 2°C to 5°C for North America by the end of this century (IPCC 2007). Other processes to be affected by this projected warming include rainfall (amount, seasonal timing, and distribution), storms (frequency and intensity), and sea level. The 2007 IPCC report found a 90 percent probability of 7 to 23 inches of sea level rise by 2100. The exact magnitude, direction, and distribution of these changes at the regional level are not well understood or easy to predict. Seasonal change and local geography make prediction of the effects of climate change at any location variable. Current models project a wide range of regional changes.

Florida is one of the areas most vulnerable to the consequences of climate change. Climatic changes in Florida could amplify current land management challenges involving habitat fragmentation, urbanization, invasive species, disease, parasites, and water management (Pearlstine 2008). Global warming will be a particular challenge for endangered, threatened, and other “at risk” species. It is difficult to estimate, with any degree of precision, which species will be affected by climate change or exactly how they will be affected. The Service will use Strategic Habitat Conservation planning, an adaptive science-driven process that begins with explicit trust resource population objectives, as the framework for adjusting our management strategies in response to climate change (USFWS 2006).

Increased sea levels, resulting from global warming, have accelerated shore line erosion rates in the Gulf of Mexico (Twilley et al. 2001). As the coastal shore line of Perdido Key erodes gradually or rapidly during storm events, the frontal dune habitat of PKBM can be significantly degraded and reduced. A diminished frontal dune enables a hurricane storm surge to inundate secondary dunes and swales, killing vegetation and any burrowed mice. Perdido Key has relatively few high elevation dunes to provide refugia for PKBM during (and in the aftermath of) storms. The ability of PKBM to re-populate Perdido Key after a destructive hurricane is predicated on the successful re-establishment of dune vegetation. If late-succession dune species that occupy the higher elevation scrub dunes and provide refuge for beach mice during hurricanes (Pries et al. 2009) are damaged during an intense hurricane, it is unlikely they will have time to re-establish themselves between narrowing hurricane cycles (Feagin et al. 2005).

Driving on the Beach

The operation of motor vehicles on the beach affects sea turtle nesting by interrupting a female turtle approaching the beach; headlights disorienting or misorienting emergent hatchlings; vehicles running over hatchlings attempting to reach the ocean; and vehicle tracks traversing the beach interfere with hatchlings crawling to the ocean. Apparently, hatchlings become diverted not because they cannot physically climb out of the rut (Hughes and Caine 1994), but because the sides of the track cast a shadow and the hatchlings lose their line of sight to the ocean horizon (Mann 1977). The extended period of travel required to negotiate tire tracks and ruts may increase the susceptibility of hatchlings to dehydration and depredation during migration to the

ocean (Hosier et al. 1981). Driving directly above or over incubating egg clutches or on the beach can cause sand compaction which may result in adverse impacts on nest site selection, digging behavior, clutch viability, and emergence by hatchlings, decreasing nest success and directly killing pre-emergent hatchlings (Mann 1977; Nelson and Dickerson 1987; Nelson 1988).

The physical changes and loss of plant cover caused by vehicles on dunes can lead to various degrees of instability, and therefore encourage dune migration. As vehicles move either up or down a slope, sand is displaced downward, lowering the trail. Since the vehicles also inhibit plant growth, and open the area to wind erosion, dunes may become unstable, and begin to migrate. Unvegetated sand dunes may continue to migrate across stable areas as long as vehicle traffic continues. Vehicular traffic through dune breaches or low dunes on an eroding beach may cause accelerated rate of overwash and beach erosion (Godfrey et al. 1978). If driving is required, the area where the least amount of impact occurs is the beach between the low and high tide water lines. Vegetation on the dunes can quickly reestablish provided the mechanical impact is removed.

In most cases driving on the beach has minor effects on beach mice provided no driving or beach driving access is allowed on or through dune habitats. In most areas that allow driving on the beach, driving is restricted to the lower (seaward) portions of the beach and outside of vegetated areas. However, where shoreline erosion is an issue, drivers may be forced to drive more landward on the beach which may result in vegetation or dunes being destroyed. The continual need to drive landward could cause significant erosion on the dunes.

Erosion

In 1970, Florida established control of construction along the beach on private property after it became apparent that private excavation and construction was accelerating erosion of the beach on neighboring properties, increasing the risk of storm damage to upland properties, and hurting tourism.

Prior to 2004, 322.5 miles of Florida's sandy beaches were designated as critically eroded. The 2004 hurricane season was the most active storm season in Florida since weather records began in 1851. The cumulative impact of these storms exacerbated erosion conditions throughout the state. The 2005 update added 42.6 miles (roughly a 13.2% increase) to the statewide total of critically eroded beaches. That brought the total to 365.1 miles of critically eroded beach. Additional miles are likely to be added in the 2006 update, especially in Walton County (FDEP 2005).

Analysis of the species likely to be affected

The property encompassing the project site contains healthy coastal dunes that are suitable habitat for the CBM. A stable population of CBM occurs less than 0.5 miles to the east at Deer Lake State Park. No formal trapping surveys for CBM have occurred within the project site or on other private parcels that separate the project site from Deer Lake State Park. However, burrows and small mammal tracks have been observed on the project site from the beach. The Action Area includes areas within the geographic range occupied by the subspecies at the time of listing, provides habitat for natural movements, behaviors, and long-term persistence of CBM.

ENVIRONMENTAL BASELINE

Status of the species within the action area

The Action Area is dominated by Deer Lake State Park and the WaterColor development. Neither area has been trapped for a population estimate recently, but tracking efforts indicate suitable habitat in both areas is mostly occupied (Moyers 2010). The unit management plan for Deer Lake State Park and the Watersound HCP (permit # TE020830-1) provide protection measures for CBM. Other private lands west of Deer Lake State Park, including the project site, have not been trapped to confirm the presence of CBM, but burrows and small mammal tracks have been observed in the frontal dunes.

Other activities that have affected the conservation of CBM are included in the Service's evaluation of the subspecies current status (Table 4).

Table 4. Previous formal consultations completed for Choctawhatchee beach mice.

CONSULTATION	YEAR completed	MONITORING REPORTS		PROJECT ACTIVE YES/NO
		Received	Not Received	
CHOCTAWHATCHEE BEACH MOUSE				
Stallworth Preserve Development FWS issuance of incidental take permit	1995	Yes Annual reports provided by permittee		Yes
Navy Panama City Beach site 4 construction	2000	None required		completed
Destin Dome OCS offshore oil and gas drilling	2000	None required		Yes
Tyndall AFB Driving on the beach	2000	Yes Annual reports provided Tyndall NRB		Yes
East Pass Re-opening	2001	Yes final report provided Tyndall NRB		completed
WaterColor and WaterSound Developments FWS issuance of incidental take permit	2000	Yes Annual reports provided by permittee		Yes
CBM FWS scientific collecting permit program	2004- 2005	Yes Annual reports provided by permittees		Yes
FEMA beach berms post Hurricane Ivan emergency consultation	2005	Final project reports required from FEMA grantees		ongoing

Factors affecting species environment within the action area

As stated in the previous section, CBM are relatively abundant in the Action Area. However, there are threats that continue to present challenges to the population.

The greatest threat to the beach mouse in the Action Area is predation by cats and other non-native species and storm events. The domestic cat *Felis catus* is not native to North America and is considered a separate species, from its wild ancestral species, *Felis silvestris*. Cats are hunters, retaining this behavior from their ancestors. However, wildlife in the western Hemisphere did not evolve in the presence of a small, abundant predator like the domestic cat, and thus did not develop defenses against them. Cats were introduced to North America a few hundred years ago.

While cats may instinctively hunt wildlife, it is clear that they are not adapted to life in the wild as are our native wild cats like the bobcat, panther, and mountain lion. Outdoor domestic cat populations are most commonly found in and around human settlements; most do not survive without direct or indirect support by humans. They are in this way very different from native predators.

Free-ranging pet and feral cats prey on small mammals, birds, and other native wildlife. In the U.S., on a nationwide basis, cats kill over a billion small mammals and hundreds of millions of birds each year. Worldwide, cats are second only to habitat destruction in contributing to the extinction of birds. Cats have been documented to take beach mice, sea turtle hatchlings, shorebirds, and migratory birds. A significant issue in the recovery of beach mice is predation by free-ranging pet and feral cats. Beach mice have a number of natural predators including snakes, owls, herons, and raccoons. Predation is part of the natural world. However, predation pressure from both natural and non-native predators may result in the extirpation of small, local populations of beach mice in a very short time.

Individual pet owners can be at fault by allowing their pet cats to roam freely. Individuals or groups contribute to the adverse effects by providing food for feral cats. Placing food in or adjacent to undeveloped areas frequently create cat colonies. Supplemental feeding of feral cats results in high densities of cats because food is not a limiting factor. The presence of feral cat trap, neuter and release (TNR) groups in coastal Walton County has exacerbated the impacts to beach mice from cats. Cat tracks are routinely observed in CBM habitat (Moyers 2010). These TNR programs have not proven themselves to control or reduce the population of feral cats (Hatley and Ankerson 2003; The Wildlife Society 2006; American Bird Conservancy 1999). In fact the programs encourage the “dropping off” of unwanted pets.

In addition, cats spread diseases to native wildlife including rabies, feline immunodeficiency virus, and feline leukemia to name a few. Cats also spread zoonotic diseases (animal diseases that are naturally communicable to humans) such as rabies, ringworm, cat scratch disease, or toxoplasmosis by contact with cat feces or cat bites or scratches (Humane Society of the US 2002).

Impacts to the beach mouse from hurricanes are similar to sea turtles where habitat is either altered severely by overwash, covered by sand or washed away. Dune restoration, predator control and supplemental feeding with sun flower seeds helps restore beach mouse populations.

Dune habitat restoration and maintenance is an important component of beach mouse conservation. Providing a healthy and continuous dune system assures mouse population

stability. Integral to this is keeping beach goers off the dunes and replanting as necessary when impacts occur or are observed.

EFFECTS OF THE ACTION

Factors to be considered

The CBM is found throughout its historic range in areas of suitable habitat and where other threats have been managed, controlled or ameliorated. Our recent estimates indicate that about 2,400 acres of suitable habitat exists. While various population estimates have been attempted for beach mouse populations and in select areas, differing sample methods and data gaps have rendered a total population estimate difficult. Similarly, because of fluctuations in CBM populations, loss of a specific habitat area will represent different numbers of CBM depending on season of the year, recent storm events, food supply, and other factors. Since impacts cannot be assessed accurately in fluctuating populations on the sole basis of number of CBM affected, a corresponding measure is the amount of CBM habitat lost due to a project, and subsequently the CBM that depend on that habitat. Because of this population fluctuation, the exact number of CBM will not be precisely determined during the project analysis. However, since the impact to CBM will be determined by loss of habitat, the direct impact to habitat will be provided.

The proposed project will occur within habitat that is used by beach mice. Long-term and permanent impacts from the development could include loss of beach mice and/or their habitats. Short-term and temporary impacts could include altering beach mouse movement and dispersal. The proposed development and the subsequent human use of the development are anticipated to have direct and indirect impacts to beach mice.

The proposed work would result in heavy site demolition, site preparation and construction of condominiums, parking area and driveway access, associated amenities, and a dune walkover. Direct impacts may consist of crushing individual beach mice, excavating or burying a beach mouse burrow, and loss of CBM habitat. Indirect impacts may consist of artificially altering the behavior of beach mice on and near the property.

Proximity of action: The development project would occur in habitat occupied or used by CBM. Beach mice spend their entire life cycle within the coastal dune system with peak reproduction periods occurring during late winter and early spring.

Distribution: CBM would be found in suitable habitats on the development site covering about 1.65 acres of coastal dunes.

Timing: The development activities may occur at any time of year. Beach mice reproduce year round with a peak in the late winter and early spring. Activities impacting habitat during peak breeding season could have a greater immediate impact on the mice than other times of year, but the long-term effect on beach mice populations would be the same, as carrying capacity and habitat connectivity would be diminished on a permanent basis.

Nature of the effect: The direct loss of individual beach mice may be detrimental to the remaining population because population numbers are still low from the 2004 and 2005 hurricanes. When population numbers are as low as they are now, the subspecies becomes more vulnerable to catastrophic events, such as hurricanes. Properly identifying and managing functional habitat connections and areas for expansion provide a greater opportunity for the mouse's recovery than simply protecting all available habitat. However, the habitat on the project site that will be permanently altered as a result of this project (0.42 acre) is much less than the amount to be permanently protected in a conservation easement (1.35 acres). Additionally, the location of the conserved habitat will continue to provide a corridor for movement through the frontal dunes of the project site. Therefore, while the project may reduce overall CBM habitat, connectivity will not be appreciably reduced. The contribution of monies to the Wildlife Foundation of Florida and earmarked for CBM conservation will allow for additional conservation activities.

Duration: The ITP would be in effect for 30 years. Following the initial impacts to CBM during project construction, the need for long-term maintenance of the habitat would be essential to recovery of the CBM.

Disturbance frequency: Following the initial impacts to CBM during project construction the remaining habitat onsite would be permanently protected. Therefore, the proposed action would only result in a one-time direct disturbance to the CBM within the Action Area.

Disturbance intensity and severity: The proposed action would permanently alter 0.42 acre of beach mouse habitat within the Action Area consisting of a total of 123 acres of habitat, or less than one percent (0.3%) of the habitat available in the Action Area. Additionally, an increase in recreational use of the beach may occur from the pedestrian occupation of the site which may result in additional disturbance or behavior modification of individual mice. Temporary impacts would be limited to the construction phase of the project, which is less than 6 months. Any temporary impacts would be restored with native plants along with the rest of the preserved conservation area. The severity of the impacts would be reduced by implementing many of the conservation measures in the proposal, including but not limited to, maintenance and restoration of dune habitats, construction of a dune walkover, the installation of educational signs, and installation of silt fencing to clearly mark limits of impact during construction.

Analyses for effects of the action

Coastal habitats in the Action Area consist of the gulf frontage including intact coastal dune systems, wetland vegetation and open beach. The coastal dune system (frontal, secondary, scrub) would be inhabited by CBM and occupied on a daily basis for foraging and movement. A total of 0.42 acre of CBM habitat in the footprint of the proposed project would be permanently

impacted (Table 1). A total of 0.13 acre of CBM habitat on site would be restored and added to another 1.23 acres of CBM habitat that will be avoided. Of this habitat, 0.91 acre of CBM habitat would be protected and maintained within a recorded conservation easement. Thus, 0.42 acre of habitat used by CBM for burrowing, feeding, shelter, or dispersal would be lost by the development. This loss of CBM habitat amounts to less than one percent (0.3%) of the Action Area.

The permittee would provide for long-term assurances of CBM conservation by implementing the HCP which would result in the minimization of impacts to CBM habitats and mitigation of impacts from the condominiums, amenities, dune walkover construction, and use of the site. Minimization efforts include size of the project, a dune walkover, and protection and connection of habitat during and after construction. Post construction mitigation includes restoration of existing dune areas disturbed by past hurricanes and, possibly, the project construction. Mitigation includes monitoring of the beach mouse population onsite following construction completion, banning free-roaming pets on the premises, native landscaping, a one-time endowment to the Florida Wildlife Fund, and permanent protection of remaining habitat onsite through a conservation easement. However, even with these measures, impacts to beach mice are expected to occur from the project construction and use by humans.

Direct and indirect effects

All project activities have the potential to adversely affect beach mice of any life stage including those able to leave their burrows and search for food as well as those still in the burrow and dependent on a lactating female. Beach mice disturbed and able to leave the immediate area are subject to increased pressures from predation while they search out a new territory or move from one burrow to another. Pregnant and lactating females that are disturbed may abort their current litter or leave young in burrows. Loss of CBM individuals may occur. In addition to direct impacts to individual mice, the permanent loss of CBM habitat from the development reduces the amount of habitat available to support the subspecies on the project sites.

The quality of and connectivity between CBM habitats is an important factor in facilitating beach mouse conservation. This is particularly true for species under stress from habitat loss and fragmentation (Fahrig and Merriam 1994). Functional pathways allow for natural behavior such as dispersal and exploratory movements, as well as gene flow to maintain genetic variability of the population within fragmented or isolated areas. To that end, contiguous tracts or functionally connected patches of suitable habitat are essential to the conservation of the CBM.

The CBM habitat on the proposed project site is contiguous with CBM habitat found on the adjacent properties to the east and west. Research has shown that beach mice will travel long distances within one night in a natural landscape (Swilling et al. 1998; Lynn 2000; Moyers and Shea 2002), but travel distances and use of linear areas of habitat within commercial or residential development is unknown. Development is proposed for the northern most portion of the parcel and connectivity along the frontal dunes will be maintained. Additionally, all of the CBM habitat areas to be restored onsite will be planted/landscaped with native dune vegetation assuring suitable cover and food sources will be available to beach mice.

In addition to the direct effects of the proposed project, indirect affects to beach mice may occur due to the increased human presence. Human activity particularly during the evening, (i.e., vehicle head lights, parking lot illumination, pool area illumination, ambient lighting from the condominiums, etc.) are expected to have some effect on CBM. However, the proposed project would: install a dune walkover to access the beach and protect beach mouse habitats from trampling; control predators on the project site including domestic pets; and use native dune vegetation to restore and maintain dune habitats. Injury or death to individual beach mice may occur incidentally during construction activities. Effects to beach mice are expected to be a result of the following: (1) direct loss or injury of adult and sub-adult beach mice from physical injury caused by use of heavy equipment and placement of building materials during construction activities; (2) adult female beach mice aborting litters caused by physical injury or stress from heavy equipment use and placement of building materials during construction activities; (3) the loss of newly born or juvenile beach mice left alone in the burrow resulting from the loss or abandonment of a lactating adult female; and (4) temporary and/or permanent destruction or damage to habitat used by the CBM for foraging, nesting, dispersal, and refuge. In addition, beach mouse habitat may be affected by foot traffic from workers present onsite during construction. No mortality data is available to document the effects of similar construction work in beach mouse habitat.

The temporary loss of habitat due to demolition and construction activities may result in the loss of individuals and this is of concern as the population has already been seriously impacted by the 2004 and 2005 storms. While the CBM has evolved to adapt to catastrophic weather events, additional factors such as surrounding development pressure and non-native predators may affect the species' ability to recover from further loss of individuals. Even though there would be a permanent loss of 0.42 acre of habitat, 0.91 acre of CBM habitat will be protected in a conservation easement as a result of this project. The indirect impacts of greater recreational use on the development would be reduced by construction of the dune walkover on the property. Commitments related to trash and garbage storage and maintenance, and pesticide use would also contribute to the maintenance of CBM on the project site and within the Action Area population. Therefore, while minor impacts to dune habitats may occur intermittently, the level of function and conservation role of the remaining CBM habitat is not expected to be altered significantly.

The Applicants have also committed to provide one-time contributions (totaling \$67,500) to the Wildlife Foundation of Florida fund, which will be allocated to the CBM. This fund is to be used to provide funds for activities that would enhance species survival of the CBM, as fully detailed in the FWC ITP application and the HCP. Furthermore, this fund would be perpetually augmented by a \$201 annual assessment of each unit owner in the development, providing an 'occupied fee.' Annual conservation effort priorities would be determined by an interagency committee including the Service. Activities that may be funded with these contributions are those identified in the federal recovery plan and include, but are not limited to: conducting surveys to determine the current status and distribution of CBM; predator control; establishment of educational programs to inform beach users of the importance of the dune habitats for beach mice and property protection; beach mouse habitat land acquisition, restoration and/or enhancement; creation and maintenance of a captive colony of CBM; protection of beach mouse habitat through permanent easement or purchase of important properties; translocation of mice to

reestablish additional populations; construction of dune walkovers to funnel recreational beach users to the beachfronts; protecting the dune systems; or research to develop the information necessary to achieve conservation.

Species response to the proposed action

As noted above, the permanent loss of 0.42 acre of CBM habitat in the Deer Lake (Action Area) population will not appreciably reduce the carrying capacity of the population. The Permittee has minimized the project footprint such that about 75% of the CBM habitat on the development would be restored or maintained (either in a conservation easement or as native landscaping).

Habitat connectivity important to sustaining the beach mice during and after storm events would not be appreciably reduced. Thus, the ability of the population to survive storm events that inundate the primary dune system would not be eliminated. Except where permanently lost, impacts to the secondary dunes would be expected to be minimized because of the conservation measures included in the project (dune walkover, fencing, conservation easement, native landscaping, and restoration). The protection of the remaining habitat following project construction would be assured through the conservation easement and dune walkover.

The temporary loss of habitat due to construction activities may result in the loss of individuals. Additionally, the proposed action would result in only a one-time disturbance to the CBM within the Action Area. Temporary impacts are expected to be limited to the construction phase of the project, which would be expected to be completed within 6 months. As a beach mouse can reproduce every 30 days or so, the temporary impacts of the proposed action may affect 5 or 6 generations of CBM. Colonization or recolonization of the restored and protected habitat remaining onsite would be expected within several months/generations if populations nearby were healthy.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, 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 project are not considered in this opinion because they require separate consultation pursuant to section 7 of the Endangered Species Act. Existing land uses to the west and east are primarily related to coastal development for human recreation and habitation. The northern boundary consists of single family residences. The Gulf of Mexico makes up the southern boundary of the Action Area. The effects of human recreation and habitation have been considered in the baseline. We are not aware of any future non-federal actions (or non-federal actions that require federal permits) that are reasonably certain to occur within the Action Area.

CONCLUSION

The Endangered Species Act provides that a federal agency must ensure that any action it authorizes or funds is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat (16

U.S.C. § 1536(a)(2). **Jeopardize the continued existence of** is defined as to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Adverse effects on individuals of a species generally do not result in jeopardy unless the loss, when added to the Environmental Baseline, is likely to result in significant adverse effects throughout the species range.

After reviewing the current status of the CBM, the Environmental Baseline for the proposed Angelos Condominium, the effects of the project related activities, proposed protective, avoidance, and minimization measures, and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of CBM.

The proposed project would directly and indirectly affect about 0.42 acre of CBM habitat. Approximately 99.7% of CBM habitat will remain within the Action Area (Deer Lake) and 64% of the habitat within the project site will be permanently protected through a conservation easement, with an additional 11% of CBM habitat being maintained outside of the easement.

As discussed in the Effects of the Action section of this opinion, we would not expect the carrying capacity of the Action Area to be appreciably reduced. While permanent impacts of the action would occur from a loss of 0.42 acre of habitat, this loss is mitigated by permanent protection of important habitat connections and the removal of threats to beach mouse habitat on the undeveloped portion of the sites in the form of conservation easements for 0.91 acre of beach mouse habitat. The CBM habitat on the project site will continue to provide for the biological needs of the species as demonstrated below:

1. The CBM habitat on the project site will continue to provide a contiguous mosaic of habitats onsite and with adjacent properties.
2. Coastal dunes will remain on the site and will be maintained and restored following storm events.
3. On-site habitat will be contiguous with habitat to the east and west of the project site.
4. The development has proposed conservation measures to install appropriate lighting for coastal areas, will prohibit cats and free ranging dogs, and will be responsible for contacting County animal control to handle predator issues.
5. The development will permanently protect 0.91 acre of habitat through a conservation easement, removing future threats to these critical habitat areas.
6. The additional human and recreational use of the property would not result in additional habitat degradation. The development has proposed conservation measures that would funnel residential access across the dunes through the installation of a dune walkover.

Temporary impacts are expected to be limited to the construction phase of the project, which would be expected to be completed in six months. As a female mouse can reproduce every 30 days, the temporary impacts of the proposed action may affect five or six generations of CBM. Colonization or recolonization of the restored and protected habitat remaining onsite would be expected within several months/generations if neighboring populations are healthy.

INCIDENTAL TAKE STATEMENT

Section 9 of the Endangered Species Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The proposed Angelos Condominium HCP and associated documents clearly identify expected impacts to affected species likely to result from the proposed taking and the measures that are necessary and proper to minimize those impacts. All conservation measures described in the proposed HCP, and any section 10(a)(1)(B) permit[s] issued with respect to the proposed HCP, are hereby incorporated by reference as Reasonable and Prudent Measures and Terms and Conditions within this Incidental Take Statement under 50 CFR §402.14(I). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take expected under the Applicant's proposed HCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the HCP and its accompanying section 10(a)(1)(B) permits.

AMOUNT OR EXTENT OF TAKE ANTICIPATED

The Service has reviewed the biological information and other information relevant to this action. Based on this review, incidental take is anticipated for: (1) all CBM that may be within the 0.42 acre of CBM habitat that will be permanently lost; (2) all CBM that may be within the 0.10 acre of CBM habitat that will be temporarily impacted by construction activities and restored upon completion; (3) behavior modification of all CBM on the development site due to the changes onsite from the site preparation and construction, resulting in altered interactions with other beach mice, foraging or dispersal activities, and potential population expansion, and increased predation; and (4) behavior modification of CBM due to the occupancy of the

residential dwellings, resulting in altered interactions with other beach mice, foraging or dispersal activities, and potential population expansion, and increased predation.

Incidental take is anticipated from the project including site preparation and construction for six months and for the occupation and use of the development for the life of the permit. The Service anticipates incidental take of beach mice would be difficult to detect for the following reasons: (1) the inability to predict the timing of the project activities to occur during the peak beach mouse reproduction and dispersal seasons, (2) beach mice are nocturnal and are outside of their burrows only at night and consequently, mice affected by the project may not be found as a result of predation, or death within a burrow, and (3) an unknown number of beach mice may not be able to disperse for population expansion and may have reduced life spans. Therefore, the level of take is instead measured by the permanent loss of 0.42 acre of CBM habitat and temporary loss of 0.10 acre of CBM habitat.

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 CBM. Incidental take of CBM is anticipated to occur during the life of the 30 year permit. However, measures to reduce potential impacts to beach mice have been incorporated into the activities and project plans for the development.

REASONABLE AND PRUDENT MEASURES

The Service believes the following Reasonable and Prudent Measure is necessary and appropriate to minimize impacts of the incidental take to the CBM:

- Issue the incidental take permit under section 10(a)(1)(B) with provisions to ensure full implementation of the HCP for the Angelos Condominiums.

TERMS AND CONDITIONS

All conservation measures described in the HCP are hereby incorporated by reference as terms and conditions within this Incidental Take Statement pursuant to 50 CFR § 402.14(I). In order to be exempt from the prohibition of section 9 of the Act, the Applicant must comply with these terms and conditions, which implement the reasonable and prudent measures. These terms and conditions are non-discretionary.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities 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 that minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help carry out recovery actions, or to develop information.

The Recovery Plan for the Gulf coast subspecies of beach mice (including the CBM), published in 1987, identified the following recovery objectives for the Gulf coast beach mouse species: stabilize populations by preventing further habitat deterioration, re-establish populations in areas from which they have been extirpated, and education of the general public. Efforts to achieve these objectives have been only moderately successful depending on the location, effects of weather events, land management and regulations, and funding. The Service will be revising the Recovery Plan in the future. However, the following conservation recommendations will serve as the Service's long-term conservation strategy for the CBM.

1. Complete revision of the 1987 Recovery Plan for the CBM.
2. Continue to participate in the Northwest Florida Interagency Partnership to protect endangered and threatened species on public lands.
3. In coordination with FWC, complete valuation of current management practices and their appropriateness for conservation and recovery of CBM.
4. Continue to fund and participate in the FDEP Greenhouse project to provide beach mouse food source plants for dune restoration and maintenance.

REINITIATION NOTICE

This concludes formal consultation on the Service's issuance of an ITP for the Angelos Condominium Project. As written in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Service involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is later modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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Appendix D

Habitat Conservation Plan for the Choctawhatchee Beach Mouse
for the proposed *Angelos* Development

Prepared by:
Garlick Environmental Associates, Inc. (KB)

Final draft:
July 2008

ABSTRACT

Garlick Environmental Associates, Inc (GEA, Inc.) has been retained by Applicant Will and Sikes, Inc. to prepare a Habitat Conservation Plan (HCP) and Incidental Take Permit (ITP) application for the Choctawhatchee beach mouse (CBM) (*Peromyscus polionotus allophrys*) involving a parcel of land located in Walton County, Florida fronting the Gulf of Mexico.

In October, 2006, the United States Fish and Wildlife Service (USFWS) reviewed, by request, the potential occurrence of the CBM on property (“Property”) owned by the Applicant in Seagrove Beach, Walton County. The Applicant proposes to construct a multi-family residential development (*Angelos Project*) on the Property. The USFWS concluded it “would expect beach mice to inhabit this property” because of the occurrence of suitable habitat on site. Therefore, GEA, Inc. is pursuing an ITP under Section 10 of the Endangered Species Act and has prepared this Habitat Conservation Plan proposal for the Applicant.

Onsite minimization, mitigation and preservation efforts are offered as mechanisms to aid in the long-term protection of habitat on the Property, even if the protected species are not utilizing the Property or abandon the Property. The attached information describes the site’s location, illustrates critical habitat and potential habitat of the CBM, and details the Applicant’s proposal for the ITP/HCP.

The HCP for the CBM is intended to minimize the impact of *Angelos Project* on potential CBM habitat, provide mitigation measures, and to state the responsibilities the Applicant will have in implementing the HCP. These responsibilities include: (1) maintaining an existing undisturbed dune area during construction to minimize any disturbance associated with these activities; (2) implementing coastal construction best management practices put forth by the U.S. Fish and Wildlife Service (May 2004); (3) provide homeowners’ covenants to govern lighting, outside activities, and other potential harassing activities to listed species, including pet restrictions (i.e. cats and dogs); (4) create a pedestrian boardwalk, and provide informational signage on the Property; (5) provide a conservation easement in perpetuity for the protection of potential habitat; (6) provide mitigation through revegetation of storm impacted areas, and (7) provide an in lieu fee of \$67,500 to the Wildlife Foundation of Florida fund, which will be allocated to CBM enhancement.

1.0 INTRODUCTION

This HCP addresses potential impacts to habitat for state and federally listed species which may occur due to development of the *Angelos Project*. (Attachment A).

A single species has prompted the submission of the ITP and preparation of the HCP, although other listed species may occur in the habitats addressed by this plan. The “trigger” species is the CBM, which may or may not be present on the property.

It is the ultimate responsibility of the USFWS to determine whether issuance of the ITP will jeopardize the continued existence of a species, whereas the Florida Fish & Wildlife Conservation Commission’s (FWC) purpose is to ensure that such a permit is issued only when the permitted activity will clearly enhance the survival potential of the species. The intent of this HCP is to provide the information necessary for the agencies to make such determinations.

The Applicant is voluntarily seeking an ITP from the USFWS pursuant to section 10(a)(1)(B) of the Endangered Species Act of 1973 (ESA) as amended, and the FWC regulated “take” under the Florida Administrative Code 68A-27.003. The ITP would authorize the incidental take of the federal and state listed CBM within the project area in Walton County, Florida were such a take to occur, although that is unlikely.

The proposed taking would be incidental to the development of the *Angelos* Project consisting of one mid-rise (three story, plus underground parking area) 13 unit condominium to be sited within an approximate 71, 874 sq/ft (± 1.65 acres) of area of suitable CBM habitat.

1.1 Impacts to Listed Species

The habitat impacted by the *Angelos* Project includes primary and secondary dunes with herbaceous beach dune habitat and woody beach dune habitat (together with limited coastal scrub, Attachment B). Animal and plant species that may potentially inhabit the coastal dunes and scrub habitat of the *Angelos* Project area designated as endangered or threatened by the USFWS or the FWC are referred to hereafter as Listed Species.

The HCP addresses these and other species, which may potentially occur or are likely to occur in the *Angelos* Project area. Some species are limited to the north Florida Gulf coast in contrast with wide ranging distributions of other species. Further, species not endemic to the habitats addressed in the HCP will benefit due to the proposed conservation measures to be implemented as a result of the HCP.

1.2 HCP Development

This HCP is prepared in accordance with Section 10(a)(1)(B) of the ESA. The *Habitat Conservation Planning Handbook* (Handbook), published by the USFWS and the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA-Fisheries, November 1996) was also used to guide the preparation of the HCP as was the template *Habitat Conservation Plan for the Perdido Key Beach Mouse, USFWS* (February 2007, Available through the Panama City Field Office upon request).

This HCP addresses the four mandatory elements required by ESA and Code of Federal Regulations [50CFR 17.22(b)(1), 17.32 (b)(1), and 222.22]. According to these regulations, an HCP submitted in support of an ITP application must detail the following information (corresponding section numbers in this HCP are noted in parentheses).

- I. Impacts likely to result from the proposed taking of the species for which permit coverage is requested (sections 1.2, 1.4, 2.1, 2.2.). There are four steps to determine the likely effects of a project or activity on federally listed or candidate species. These are:
 - A. Delineation of the HCP boundaries or plan area;
 - B. Collection and synthesis of biological data for species to be covered by the HCP;
 - C. Identification of activities proposed in the plan area that are likely to result in incidental take;
 - D. Quantification of anticipated take levels;

- II. Measures the applicant will take to monitor, minimize, and mitigate such impacts, including the funding that will be made available to undertake such measures, and the procedures to deal with unforeseen circumstances (sections 2.3 and 2.4)
- III. Alternative actions the applicant considered that would not result in take, and The reasons why such alternatives are not being utilized (section 2.1)
- IV. Additional measures required USFWS /FWC (to be addressed in subsequent meetings with USFWS & FWC).

1.3 Project Location and Delineation of Habitat Boundaries

The *Angelos* Project area, development footprint, and HCP boundaries are presented in Attachment A. The HCP involves ± 2.65 acres of gulf front property in Walton County, which is currently undeveloped (maps located in the Appendix). The *Angelos* Project is proposed within approximately ± 1.65 acres of suitable CBM habitat.

Because of biological needs of the CBM and other Listed Species addressed herein, the primary focus of the HCP will be primary and scrub dune habitats within the *Angelos* Project area, which provide potential habitat for the CBM. The Applicant will focus conservation and mitigation activities on the suitable habitat in the *Angelos* Project area.

1.3.1 Critical Habitat

The Federal Register (50 CFR, Part 17 (October 2006 edition)) identifies CBM critical habitat to be located in five units: Henderson Beach, Topsail Hill, Grayton Beach, Deer Lake and West Crooked Island/Shell Island. In September 2000, the USFWS announced a revision of the (then) current critical habitat for all listed beach mice to include primary and scrub dune habitats, because these areas were found to be essential to the survival and recovery of the subspecies. The *Angelos* Project is not located within or directly adjacent to any of the designated critical habitat units. The nearest such unit is located just over one-half mile to the east (Deer Lake State Park). Grayton Beach State Park is the next nearest CBM critical habitat, 2 miles to the west. There are no continuous, sheltered corridors between these two designated critical habitat areas and *Angelos* Project area due to intense coastal development, hydrologic obstacles (ephemeral), and the elimination of habitat by storms. Between Deer Lake State Park and the proposed development, there are a minimum of 23 homes and 3 multi-family units generally found within suitable CBM habitat (2004 DOQQ photo and 2005 satellite imagery; FDEP and Google, respectively). The amount of development to the west of the project site is as intense, if not more so, than development to the east. Furthermore, there are at least two maintained ‘inlets’ from the Gulf of Mexico and lakes within Grayton Beach State Park that are regularly maintained, by either locals or the park itself (Matt Allen, FDEP, personal communication). Traversing these inlets would require either exposure along the open beach or crossing the tributary if dry (swimming is possible). Ephemeral inlets also occur periodically with storm events and/or spring tides in Deer Lake State Park, presenting the same limitations during those periods, which generally occur 1-4 times per year (Deer Lake State Park Unit Management Plan, 2004; FDEP personal communication). Two such tributaries were present in the imagery in 2004 and 2005 from Deer Lake, and an additional tributary was located just off of Eastern Lake, ± 0.25 miles to the west. Finally, areas of wash over were severe during the 2004-2005 storm events; much primary dune habitat was lost along the entire beach front area in Walton and Okaloosa counties, removing dune fronts and vegetation required for the CBM, especially in areas already

developed. Points off of Beachside Drive and Beach Front Trail have lost nearly all vegetation and significant dune height. These areas may, or may not, be restored to conditions conducive for the CBM (storm damage may be viewed on the FDEP web site). They do however present an obstacle, in terms of nutrition and exposure, for a corridor. At best the corridor is ephemeral, making the property itself geographically isolated from the referenced critical habitat.

1.3.2 Angelos Proposed Multi-family Development

The *Angelos* Project area is located in south-central Walton County, Florida (Section 19, Township 3 South, Range 18 West). The project includes 300 linear feet of moderate and high dunes and open beach on the Gulf of Mexico as measured parallel to the shoreline.

There are two general categories of dune habitat or coastal strand on site; herbaceous and woody. Herbaceous habitat (mostly along the primary dune and the eastern boundary) consists of sea oats (*Uniola paniculata*), beach grasses (*Panicum amarum*), woolly golden aster (*Chrysopsis gossypina*), railroad vine (*Ipomoea pes-caprae*), fiddle leaf morning glory (*Ipomoea stolonifera*), paspalum (*Paspalum spp*), beach sand spur (*Cenchrus spinifex*), and gulf blue stem (*Schizachyrium scoparium*) in moderate to light densities. The woody dune habitat dominated by sand live oak (*Quercus geminata*), Chapman's oak (*Quercus chapmanii*), and myrtle-leaved oak (*Quercus myrtifolia*), magnolia (*Magnolia grandiflora*) with American sea rocket (*Cakile edentula*), sky-blue lupine (*Lupinus diffusus*), tread-softly (*Cnidoscolus stimulosus*), sand hill blueberry (*Vaccinium tenellum*), woody goldenrod (*Chrysoma pauciflosculosa*), October flower (*Polygonella polygama*), square flower (*Paronychia erecta*), saparilla vine (*Smilax officinalis*) and reindeer moss (*Cladonia rangiferina*) as shrub or ground cover. Some species are found in both habitat types (e.g. woody goldenrod, wooly golden aster) and in transition areas. Locations of the habitat types are found in Attachment B. Topographic features of the Property are shown in Attachment A.

1.4 Biological Overview of Species Addressed by this Plan

Several faunal species are addressed in this HCP due to their listed status and their reliance upon suitable habitat within the project area. The listed species addressed in the HCP include:

- CBM;
- Atlantic loggerhead , leatherback, Kemp's ridley, and green sea turtles;
- Piping plover

Biological overviews for these species are provided in the following sections. Certain additional species listed by the State of Florida are also protected by this HCP due to similarity of habitat with the species listed above. These species may include several species of marine sea turtles, snowy plover (*Charadrius alexandrinus*), peregrine falcon (*Falco peregrinus*), tricolored heron (*Egretta tricolor*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), least tern (*Sterna antillarum*), black skimmer (*Rynchops niger*), American oystercatcher (*Haematopus pallaitus*), and plant species such as Cruise's golden aster (*Chrysopsis cruseana*), large-leaved jointweed (*Polygonella macrophylla*), and coastal lupine (*Lupinus westianus*). Potential habitat impacts, conservation mitigation intents, and habitat management programs are addressed in Section 2.

1.4.1 Choctawhatchee beach mouse

The CBM is a subspecies of the old field mouse (*Peromyscus polionotus*) and is endemic to Florida (Humphrey, 1992). The CBM is one of several subspecies of beach mouse that inhabit the coastal areas and barrier islands of Alabama and Florida. These subspecies differ from the old field mouse in color, markings, and size. The CBM mouse is a small bodied, hairy-tailed, relatively large eared mouse with a generally pale body with upper parts colored orange brown to yellow brown, and under parts white. There is also a variable dorsal stripe on the tail. The mouse generally ranges from 2.5 to 3.5 inches in length.

The historic range of the CBM included coastal dune areas from Okaloosa, Walton and Bay Counties in Florida. Its current distribution is apparently limited to disjunct populations distributed in these three counties. It generally depends upon wide areas of undeveloped dune. Populations of CBM may also occur on privately owned, developed and undeveloped areas within the historic range.

1.4.1.2. ‘Core’ Populations

The habitat types described above for the CBM are found in coastal dune habitats of northwest Florida along Okaloosa and Walton counties in disjunct populations. Currently, it is theorized that four ‘core’ populations of the CBM exist along an estimated 20-25 miles of coastline, with one additional area that may or may not currently contain the species (Figure 1). Each of these populations is described below. The use of the word core, when referring to CBM populations, refers to the potential of mice being located at the designated site with relevant habitat features.

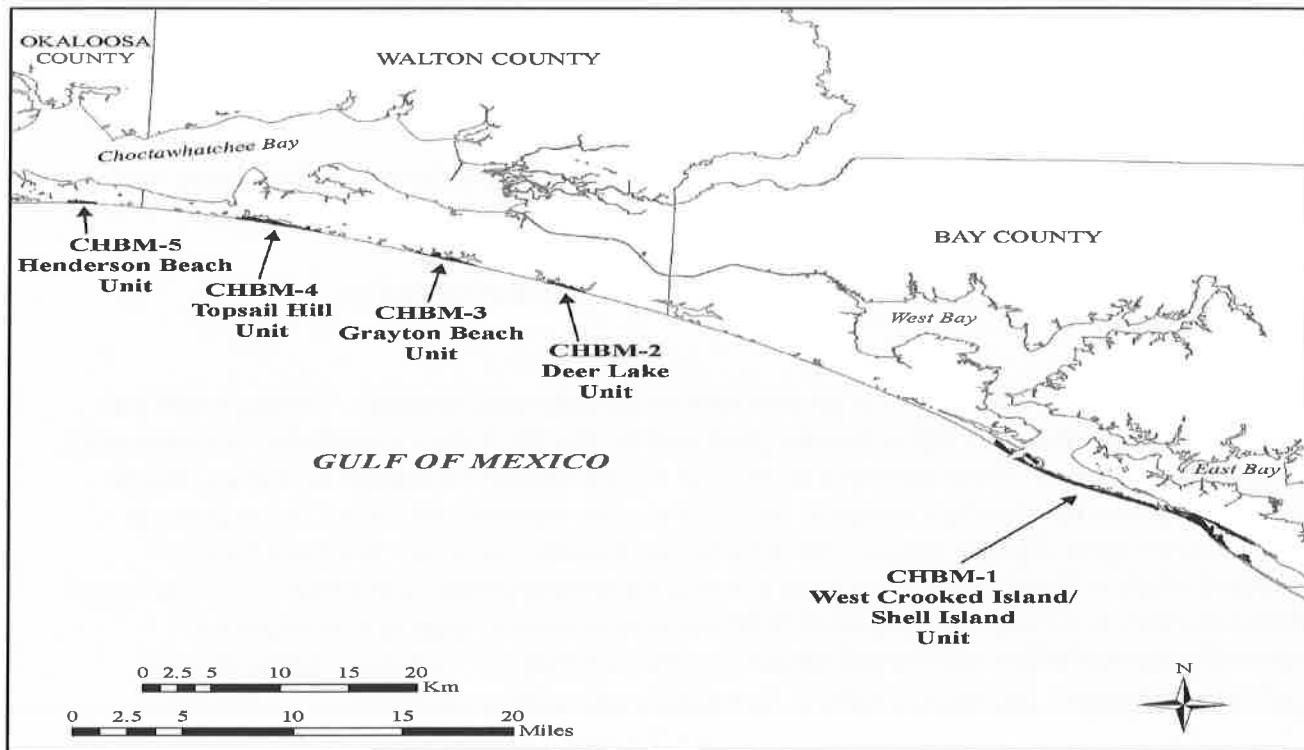


Figure 1. Map of core CBM populations in Okaloosa and Walton Counties, FL (USFWS 2006)

The Henderson beach consists of 96 acres in Okaloosa County, Florida and encompasses the boundary of Henderson Beach State Park from 0.5 mi east of the intersection of Hwy 98 and Scenic Hwy 98 to 0.25 miles west of Matthew Blvd and the area from the MHWL north to the seaward extent of the maritime forest. These areas provide primary, secondary and scrub dune habitat, and is within the historic range of the species; this area is also essential to the conservation of the species because it includes protected, high elevation scrub habitat that acts as refuge during storms. However, as of 2006, it is unknown whether or not the CBM occupy this unit (USFWS, 2006).

Topsail Hill consists of 309 acres in Walton County, Florida and includes Topsail Hill Preserve State Park as well as adjacent private lands from 0.1 miles east of Gulf Pines to 0.6 miles west of the inlet of Oyster Lake and the area from the MHWL north to the seaward extent of human development or maritime forest. Topsail also includes all three habitat types; the mice in this area appear to have unique genetic variation and display a relatively high degree of genetic divergence to other populations.

Grayton Beach consists of 179 acres in Walton County, Florida and includes Grayton Beach State Park as well as adjacent private lands from 0.3 miles west of the inlet of Alligator Lake east to 0.8 miles west of Seagrove Beach and the area from the MHWL north to the seaward extent of human development or maritime forest. Grayton Beach also includes all three habitat types and is considered essential to the conservation of the species because it contains a population needed for recovery, as well as habitat connectivity. This area is not considered in historic populations since it was not discovered until after Hurricane Opal.

Deer Lake consists of 49 acres in Walton County, Florida and includes Deer Lake State Park as well as adjacent private lands from approximately 1 mi east of the Camp Creek Lake inlet west to approximately 0.5 miles west of the inlet of Deer Lake and the area from the MHWL north to the seaward extent of maritime forest or human development. Additional acreage (80) occurs but is not addressed here. This area also provides all three habitat types and is considered essential to the conservation of the species, and is closest to the proposed *Angelos* Project (0.5 miles to east). This area was considered unoccupied by the USFWS at the time of listing (1998), but relocated CBM to adjacent private lands have since moved to this habitat (USFWS 2006) and now occupy the area.

West Crooked Island/Shell Island consists of 1,771 acres in Bay County, Florida and includes St. Andrew State Park mainland from 0.1 miles east of Venture Blvd east to the entrance channel of St. Andrew Sound, Shell Island east of the entrance of St. Andrew Sound east to East Pass and West Crooked Island southwest of East Bay and east of the entrance channel of St. Andrew Sound, and areas from the MHWL north to the seaward extent of the maritime forest. Shell Island contains state lands, Tyndall AFB lands and private holdings. Hurricanes Opal and Georges split the original population in 1998/1999. Again, all habitat types are present, as well as connectivity.

1.4.1.3 Life History

CBM are nocturnal omnivores, foraging primarily on seeds and fruits of bluestem, sea oats, and evening primrose (*Oenothera humifusa*); however, insects are also an important component of their diet (Moyers 1996). These foods are often stored in burrows excavated by the mouse. The CBM is

likely preyed upon by a variety of larger animals such as foxes, raccoons (*Procyon lotor*), herons, and coyotes (*Canis latrans*), as well as domestic cats (*Felis cattus*). CBM are nocturnal foragers in part to avoid predation; feral and domestic cats are a serious concern in areas where they are found (FWC 2003).

The CBM constructs intricate burrows. Entrances to the burrows are typically on the sloping side of a dune at the base of vegetation, where the burrow is both stabilized and concealed. No such burrows are known to exist on the Property. The burrows usually have secondary exits, which provide escape from predators but are sealed at the top (i.e., not seen). The beach mouse burrow consists of an entrance tunnel, usually descending obliquely for some distance before continuing straight into the dune bank, where there is typically a nesting chamber, 2 to 3 feet in depth, and an escape tunnel rising steeply to within an inch from the surface. Beach mouse home ranges may include numerous burrows for safe refuge from predators and shelter for food storage and nesting. Their home range is up to 1.2 sq miles, and do overlap (University of Florida, 2006). They form monogamous pairs, and peak mating time is December, although they do mate year round.

1.4.2 Sea Turtles*

Sea turtles are globally distributed. However, in most cases, sea turtles return to the same beaches on which they were hatched to lay their eggs each summer. While the beaches of Okaloosa and Walton counties (both discussed due to proximity of Okaloosa county to project site) are not home to the larger populations which nest on Florida east coast beaches and the southern Gulf coast, the conditions of the area may provide nesting habitat for four species of sea turtles. Of the four species of sea turtles that may occur along the north Florida Gulf coast, three are listed as endangered at both the state and federal levels (FNAI, 1999). The sea turtles which may nest along the Gulf coast in Okaloosa and Walton Counties include the Atlantic loggerhead turtle (*Caretta caretta*), which is listed as threatened with both the USFWS and the FWC; the Atlantic green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and Kemp's ridley (*Lepidochelys kempii*) turtles, which are listed as endangered by both the USFWS and FWC. Of these, only two species are listed to occur in Deer Lake State Park or Topsail Hill Preserve State Park, the nearest areas to the proposed development site: the loggerhead and green. While the Kemp's ridley and leatherback turtles may occupy other areas throughout the Florida panhandle, these species are generally not found to occur within 2 miles of the proposed site (Florida State Park Unit, Management Plans).

The green and loggerhead turtles (family Chelonidae) are characterized by heart-shaped, scute-covered carapaces, paddle-like limbs with one or two claws, and with the exception of the leatherback, are the largest living aquatic turtles. These marine turtles typically forage and breed offshore in shallow water and the sandy beaches along the Gulf coast provide important nesting habitat. Sea turtles live mostly in warm waters and are graceful swimmers, with limbs modified into long flippers that enable them to migrate long distances. The green turtle, for example, migrates from the coast of Brazil to breed on the small island of Ascension, some 1400 miles out in the Atlantic.

The sandy beaches along the coastal portions of the *Angelos* proposed project area may be potential nesting habitat for sea turtles. Reaching sexual maturity, females of most species of marine turtles return to the beaches where they were hatched (Behler 1978; McDiamic 1978). At night they crawl

on to the beach, dig a hole in the sand, and deposit their eggs. This may occur from one to several times in a season, depending on the species. After filling the nest with eggs they return to sea.

When female sea turtles crawl above the tide line to bury their eggs, they and their large egg clutches are easy prey to shoreline predators, including humans. Many hatchlings never reach the water and still fewer survive their first year. In the past, drowning of turtles in fishing trawls and diminished nesting grounds due to shore development have led to the endangered status of most sea turtles.

The Florida Fish and Wildlife Service Conservation Commission (FWC) Fish and Wildlife Research Institute (FWRI; formally Florida Marine Research Institute, FMRI) coordinates and maintains the state Sea Turtle Stranding and Salvage Network (STSSN). The Florida STSSN is part of the national STSSN, which was established in 1980 and is responsible for gathering data on all stranded sea turtles in the United States. Stranding data are often used to monitor mortality rates and may sometimes be used as an indicator of relative distributions and abundances of different species and sizes of sea turtles (FMRI 1998). The number of strandings of sea turtles in Okaloosa and Walton Counties, by species, provides some indication of the relative abundance of sea turtles species on the project sites (about 20 for 2006). It is important to note that absence of a stranding may not indicate the absence of the species.

A general description of the four sea turtle species potentially found within the project area is provided below. Also provided are physical descriptions, geographical distribution, and habitat requirements of the sea turtles.

1.4.2.1 Loggerhead

The loggerhead occurs in temperate and subtropical waters worldwide, with major nesting beaches in eastern Australia, southeastern Africa, and the southeastern United States, and Japan (Moler 1992). The loggerhead is the most common sea turtle in the United States and nesting occurs on suitable beaches from North Carolina through Florida and to a lesser extent on islands off the Gulf States. Five different subpopulations/nesting aggregations have been identified based on genetic work: of relevance here is the Northwest Florida Subpopulation occurring at Eglin Air Force Base and beaches near Panama City (Bowen 1994), where over 99 percent of the nests are from loggerhead sea turtles (USFWS Sea Turtle Information 2007). The major nesting beaches are on the east coast of Florida between Cape Canaveral and Palm Beach. In the Southeastern region, nesting is also reported for the Culebra Island area of Puerto Rico. The loggerhead appears to be the most common sea turtle in the region and the nesting and stranding reports indicate the project area contains likely locations for sea turtle nests (10 average strandings per year for the 1995-2005 period). In fact, loggerheads do continue to nest along Walton and Okaloosa county beaches; with an average of 36 nests per year throughout the 1995-2005 period (FWC 2006). Loggerheads can be found within a variety of habitats, including: hundreds of miles out to sea, inshore areas such bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers

The loggerhead is considered threatened throughout its range. Threats to the loggerhead include loss of nesting beaches to various types of human encroachment (including the problem of hatchling disorientation arising from excessive artificial light), excessive natural predation in some areas, and marine pollution from oil, plastics, and Styrofoam. Furthermore, beach erosion, armoring and

nourishment, and recreational beach equipment hinders nesting activities. The major threat to these turtles used to be drowning in fishing and shrimp trawlers, but now appears to have switched to long liners (Moler 1992; USFWS Sea Turtle Information 2007). Nesting occurs mainly on open beaches or along narrow bays having suitable soil and it is often in association with other species of sea turtles (FNAI 1999). From laying to hatching, the nesting season for the loggerhead runs from April through September. Females typically nest at 2 to 4 year intervals and nesting occurs nocturnally (Moler 1992). Three or four clutches may be deposited in a season and incubation requires 50 to 75 days, each with 110 to 120 eggs. The hatchlings generally emerge at night. Adult females typically reach sexual maturity around 35 years of age (20-50; NOAA 2007). Following the nesting season, most of the population disperses. Nesting turtles tagged in Florida have been recovered in South Carolina, Georgia, Alabama, Louisiana, Cuba and the Bahama Islands; this turtle nests farther from the equator than any other marine turtle. Overall nesting appears to have dropped in the last decade-about a 40% decline from 1998-2005 in the Florida Index Nesting Beach Survey areas; overall state totals have shown a declining trend as well (numbers not available).

Loggerhead sea turtles nest within the continental U.S. from Louisiana to Virginia. Major nesting concentrations in the U.S. are found on the Atlantic and Gulf coasts of Florida and on the coastal islands of North Carolina, South Carolina, and Georgia (Hopkins and Richardson 1984). From a global perspective, the southeastern U.S. nesting aggregation is of primary importance to the survival of the species because it is second in size only to nesting on islands in the Arabian Sea off Oman (Ross, 1982; Ehrhart, 1989; NMFS and Service 1991a). The status of the Oman colony has not been evaluated recently, but its location in a part of the world that is vulnerable to disruptive events (e.g. political upheavals, wars, catastrophic oil spills) causing considerable concern (Meylan *et al.* 1995). The loggerhead nesting groups in Oman, the southeastern U.S., and Australia account for about 88 percent of nesting worldwide (NMFS and Service, 1991a). Total estimated nesting in the southeastern U.S. is approximately 50,000 to 90,000 nests per year (Florida FWC statewide nesting database 2004; Georgia DNR statewide nesting database 2004; SCDNR statewide nesting database 2004; NCWRC statewide nesting database 2004). About 80 percent of loggerhead nesting in the southeastern U.S. occurs in six Florida Atlantic coast counties- Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward counties (NMFS and Service, 1991a).

Genetic research (mtDNA) has identified five loggerhead nesting subpopulations in the western North Atlantic: (1) the Northern Subpopulation occurring from North Carolina to around Cape Canaveral, Florida (about 29 degrees North); (2) South Florida Subpopulation occurring from about 29 degrees North on Florida's east coast to Sarasota on Florida's west coast; (3) Dry Tortugas, Florida Subpopulation; (4) Northwest Florida Subpopulation occurring at Eglin Air Force Base and the beaches near Panama City; and (5) Yucatan Subpopulation occurring on the eastern Yucatan Peninsula, Mexico (Bowen *et al.* 1993; Encalada *et al.* 1998). These data indicate that gene flow between these five regions is very low. If nesting females are extirpated from one of these regions, regional dispersal would not be sufficient to replenish the depleted nesting subpopulation.

1.4.2.2 Green Sea Turtle

While once probably abundant in Florida, the population of green sea turtles is now greatly reduced, with breeding females of primary concern. About 150 to 3,000 females are estimated to nest on beaches in the continental U.S. annually (USFWS Sea Turtle Information 2007). The *Angelos* Project area is located in Walton County, where only 2 green sea turtles stranded during the

1995-2005 period (FWC personal communication 2007), but they do occasionally nest here. During the same 10 year period, 27 nests were found in the county (FWRI 2006). The species, like all sea turtles, is now legally protected within Florida waters, but an active fishery may still exist in the Caribbean. Breeding populations of the green turtle in Florida and along the Pacific coast of Mexico are listed as endangered; all other populations are listed as threatened.

Sexual maturity takes 20-50 years for a female green sea turtle (NOAA 2007). The turtle nests every 2-3 years and the Florida season is May through August. As many as seven clutches of eggs, with an average of 136 eggs per clutch, may be laid in a season (FNAI 1999). Mature females measure from 37 to 44 inches (0.94 to 1.12 meters) in carapace length and can weigh 250 to 285 pounds (113.6 to 129.5 kg). Adult green sea turtles eat only plants, primarily sea grasses, although they will consume mangrove leaves as well. Younger turtles will eat fish, jellyfish, crustaceans and algae. Green sea turtles are generally found inside reefs, bays and inlets when not migrating.

The major nesting grounds existing for the green sea turtle in the Atlantic are confined to Costa Rica and Aves Island in the east Caribbean, with dispersal from these sites throughout much of the Caribbean. Sites also occur on Ascension Island and Surinam. Nesting in the U.S. is generally confined to the east coast of Florida between Cape Canaveral (Kennedy Space Center) and Palm Beach. Nesting has been documented in Escambia County since 1994 and specifically in 2000 on Perdido Key (State of Florida nesting database). Total population estimates for the green turtle are unavailable, and trends based on nesting data are difficult to assess because of large annual fluctuations in numbers of nesting females. For instance, in Florida, where the majority of green turtle nesting in the southeastern U.S. occurs, estimates range from 150 to 2,750 females nesting annually (FWC 2003). Populations in Surinam and in Tortuguero, Costa Rica may be stable, but there is insufficient data for other areas to confirm a trend.

Threats to the green sea turtle include commercial harvest in undeveloped areas of the world for eggs and food. In addition, fibropapillomatosis, a disease affecting the turtles by promoting tumor growth on the skin and internal organs, has also seriously impacted green turtle populations in Florida and other parts of the world. Loss of nesting habitat, inappropriate lighting, degradation of habitat, and commercial operations also remain a concern.

1.4.2.3 Leatherback Turtle

The leatherback turtle (*Dermochelys coriacea*, family Dermochelyidae) is the largest of the marine turtles. The leatherback inhabits open seas, bays, and estuaries and occurs along the Florida Gulf coast. Like other sea turtles, the leatherbacks feed and breed at sea, but require sandy beaches like those along the project areas for nesting. Nesting grounds are distributed worldwide, with the Pacific coast of Mexico supporting the largest known concentration of nesting leatherbacks. However, there has not been a recorded leatherback nesting since 1990 in Walton County (FWRI 2006).

The leatherback is the most specialized aquatic turtle (Behler 1979). The carapace has a rubber-like texture, about 4 cm thick, and is made primarily of tough, oil-saturated connective tissue. Its ribs and vertebrae, unlike those of other turtles, are not attached to the carapace. Its carapace is elongated and triangular and slate to blue-black in color. The turtle reaches a total length of about 8 feet and a weight of 1200 pounds. Sexual maturity generally occurs early around 6-10 years, with clutch size

between 70-80 eggs (NOAA 2007; USFWS 2007). Adult females require sandy nesting beaches backed with vegetation and sloped sufficiently, and generally prefer beaches having proximity to deep water and rough seas.

Like the loggerhead and green sea turtles, the leatherback may nest along the Florida Gulf coast; a nesting of a leatherback in Escambia County has been documented. The estimated world population of nesting leatherbacks is approximated to be 26,000 to 43,000 females annually (Spotila et al. 1996). The largest nesting populations occur in French Guiana and Colombia in the western Atlantic.

The leatherback occasionally nests on the east and west coasts of Florida. It nests nocturnally and may nest several times a season. Nests may number 10 per season with 80 to 85 healthy eggs, although two seasons often intervene between nesting seasons (Moler 1992). Undisturbed beaches with no obstructions, little human activity, and no lights to interfere with hatchling orientation are necessary for the females to successfully nest. Leatherbacks subsist on primarily jellyfish, although seaweed and mollusks are also included on their diet. Threats to the population include harvesting for eggs. Other anthropomorphic threats are as above.

1.4.2.4 Kemp's Ridley Sea Turtle

The Kemp's ridley is the most seriously endangered of the sea turtles. Its numbers have precipitously declined since 1947, when over 40,000 nesting females were estimated in a single *arribada*. The nesting population produced a low of 702 nests in 1985; however, since the mid-1980s, the number of nests laid in a season has been increasing primarily due to nest protection efforts and implementation of regulations requiring the use of turtle excluder devices in commercial fishing trawls. During the 1999 and 2000 nesting seasons, more than 3,600 nests and 6,000 nests, respectively, were deposited in the Mexico nesting beaches. The range of the Kemp's ridley includes the Gulf coasts of Mexico and the U.S., and the Atlantic coast of North America as far north as Nova Scotia and Newfoundland. Sexual maturity is believed to occur around 7-15 years, with a mean clutch size of 110 eggs. Outside of nesting, Kemp's ridleys are believed to spend most of their time in the Gulf of Mexico. The solitary nesting habitats and wide range of the Kemp's ridley make adequate census difficult, and these turtles rarely nest on Florida beaches (Behler 1978), though Kemp's ridleys have nested on Perdido Key. Most nesting occurs on the coastal beaches of the Mexican states of Tamaulipas and Veracruz, although some nest along the Texas coast (Frey et al 2007). No information is available from the FWC Fish and Wildlife Research Institute for the more critically endangered sea turtles in Walton and Okaloosa Counties, presumably because there are no recordings of these species (FWC 2006). Threats to the turtle initially were direct harvesting; current threats include induced mortality during nest relocation, disease vectors, predator concentration, and catastrophic events (USFWS Sea Turtle Information 2007).

*Citations for the above sea turtle population discussion are available through the USFWS Panama City Field Office by request; 2007 data is available in the Appendix of EA associated with this HCP.

1.4.3 Piping Plover*

The piping plover (*Charadrius melodus*) is a small, American shorebird. It breeds in three distinct areas (the Northern Great Plains, Great Lakes, and Atlantic Coast) and winters in coastal areas of the United States from North Carolina to Texas. On December 11, 1985, the Great Lakes

population of piping plovers was listed in the Federal Register (50 FR 50720) as endangered, while all other populations were listed as threatened under the ESA. All populations are considered threatened when on their wintering grounds. Critical habitat for wintering piping plovers was designated July 10, 2001 (66 FR 36038). Migratory patterns for the plover are not well understood. Piping plovers generally migrate to their wintering areas from late July through September, returning to their breeding grounds beginning in late February.

Habitat used by piping plovers for foraging, roosting and shelter include intertidal beaches and flats (between annual low tide and annual high tide), and associated dune systems and flats above annual high tide. The sand or mud flats possess no or minimal emergent vegetation. Important features of the beach and dune systems include surf-cast algae, sparsely vegetated back beach, spits, and wash-over areas. In addition, adjacent non- or sparsely vegetated sand, mud, or algal flats above high tide are important habitat for roosting piping plovers, and are primary constituent elements. These roost sites may have debris and detritus that provide shelter from high winds and cold.

Approximately 35 percent of the total breeding population of piping plover winters along the gulf coast from Florida to Texas and represents 56 percent of the Great Lakes/Great Plains population (The Nature Conservancy, 1999). Wintering piping plover may be found in the Florida panhandle from July to April (Hinterland, 2008). Areas used by piping plovers are ephemeral habitats that due to their nature change over time. Hurricanes and episodic storm events increase over-wash processes that transport sediment (sand) across barrier islands and form inlets and sand and mud flats. Wash-over areas are created by the flow of water through the primary dune line with deposition of sand on the barrier flats, marsh, or into a lagoon, depending on the storm magnitude and the width of the beach. On developed beaches, structures may prevent or minimize this occurrence. Wash-over passes are used by migrating and wintering piping plovers for feeding and roosting. Dredging projects and shoreline manipulations in wintering areas can have an effect on the piping plover's food base, and result in habitat loss and direct disturbance of individual birds. The current use of this area by piping plovers post recent hurricane events is currently unknown.

There is no Florida critical habitat designated for Walton or Okaloosa Counties, the nearest critical habitat is located in Santa Rosa county to the west and Bay county to the east. If suitable habitat is found on the project site, piping plovers may be using the project area sometime during the non-breeding season. Regular surveys would be needed to confirm their presence, although they are listed as occurring the Topsail Hill State Park and the Deer Lake State Park (both within 2 miles of project location).

*Citations for the above piping plover population discussion are available through the USFWS Panama City Field Office by request.

1.4.4.1 Additional Species

Although the ESA does not generally prohibit the incidental taking of listed plants on private property in accordance with State Law, plants listed by the State of Florida may be protected by this HCP due to the similarity of habitat needs. Listed plant species are Cruises golden aster, large-leaved jointweed, and coastal lupine. Because these species are tolerant of high-energy dune systems, they may also occur in locally disturbed areas where other plant species have not yet been established or re-established. An inventory and survey was conducted during April 2006 (BRA, Inc) and September 2006 (GEA, Inc.). No listed species were observed during those periods. An

additional survey was conducted during the April 2006 flowering period for asters and lupines by GEA, Inc no additional species were found.

2.0 PROPOSED ACTIVITIES

Development of the *Angelos* Project may result in an incidental take of the CBM. The first mandatory element of the HCP (USFWS 1996) related to the potential incidental take requires that:

- Activities proposed in the plan area that are likely to result in incidental take must be identified, and;
- Anticipated take levels be quantified.

2.1 Development Intent: Proposed Activities Which May Result in Incidental Take

Since there is no practical way to develop this site without impacting potential CBM habitat, proposed activities, which may result in an incidental take, are described in the following paragraphs.

2.1.1 *Angelos*

Development of the *Angelos* Project is planned to occur upon receipt of all applicable State, Federal and County permits. Build out is expected within two years after receipt of all permits. An elevated boardwalk will also be provided controlled pedestrian access to the beach.

2.1.2 Impact on Habitat: Quantifying Anticipated Incidental Take

Anticipated incidental take levels (for habitat) have been quantified for the *Angelos* Project and are presented below. Quantifying the anticipated take of the CBM is directly dependent upon impacts to the potential suitable habitat, although actual take of the CBM remains in question due to absence of sightings or other direct evidence that the Property is utilized by CBM. Suitable, non-suitable, and open beach habitats are quantified to better evaluate potential incidental take.

The *Angelos* Project site consists of open beach, frontal dune and scrub habitat and temporarily impacted over-wash areas landward of the beach. The primary dune has been identified by Schulke, Bittle and Stoddard, LLC (SBS, LLC; Attachment C). There exists 1.65 acres of frontal dune and scrub habitat, identified by GEA, Inc., in the *Angelos* Project area, making up 100 percent of the potential suitable habitat. The frontal dune and scrub habitat includes herbaceous, shrubs and stunted tree species. Altered areas created by storm over-wash occur along/near the western property boundary line and the eastern property line adjacent to the County's beach access point; these are included as CBM habitat by request of the USFWS. The remainder of the parcel consists of open beach habitat (1.0 acres).

Permanent impacts to suitable CBM habitat due to pavement, buildings, and amenities amount to 0.42 acre, of which nearly all impact is contained landward of the Coastal County Construction Line (CCCL; Attachment A, C). Those areas that currently have a minimum coverage of vegetation (i.e., over-wash area to the west) will be used for amenities, are water ward of the CCCL, and do not

include impacts to the primary dune. Recent survey adjustments (July 2007) have reduced the overall acreage to 2.65; updated engineer plans and surveys are found in attachments C-E. Impacts are summarized below.

<i>Angelos</i> proposed Development Acres	Current Condition	Preferred Alternative
Total Acres	2.65	2.65
CBM habitat remaining on site	1.65	1.23
CBM habitat to be permanently impacted	NA	0.42
Undeveloped non-CBM habitats (not including wash-over and unvegetated areas)	1.0	1.0
Proposed dune revegetation to suitable CBM habitat	NA	0.13

Due to storm damage that has occurred to the primary dune system, and the proposed developmental impacts, a revegetation plan will be implemented for mitigation for the *Angelos* project. Dune vegetation will be planted along the wash out areas in the western part of the property, all the way to the site of the amenities (Attachment B).

In addition to direct impacts of habitat loss, indirect impacts due to increased human activity may occur. These include increased pedestrian traffic resulting in disturbance, introduction of house pets, attraction of feral animals, increased trash, disturbance due to lighting, and habitat fragmentation. Many of these secondary impacts will be reduced or eliminated by the initiation of the HCP. A summary table is provided below. Note that the ‘scrub’ habitat contains areas that are not considered by GEA, Inc. to be suitable habitat for the CBM (i.e., unvegetated and/or wash-over areas, Attachment B). These areas completely lack vegetation and have suffered severe erosion, at places to sea level. They do occur within the suitable habitat zone as defined by USFWS; therefore, these areas were placed in the ‘scrub’ habitat in the table below.

<i>Angelos</i> proposed development	Open Beach	Frontal Dunes	Scrub Habitat	Habitat Type Totals
Parcel Total	1.0	0.60	1.05	2.65
Permanently Impacted (including non-suitable habitat)	0	0	0.42	0.42
Temporarily Impacted	0	0	.18	0.18
Unimpacted (including suitable habitat not developed)	1.0	0.60	0.63	2.23
Post development total CBM habitat on site	0	0.60	0.63	1.23

Based on habitat and local distributions, impacts to the CBM, the piping plover, and sea turtles as a result of the *Angelos* Project are addressed in the following sections. The *Angelos* Project will impact 0.42 acres of potential suitable CBM habitat, down from the initial request of 1.0 acres of habitat to be used in development.

2.2.1 Angelos Project Impact

The *Angelos* project area contains a total of +2.65 acres. Of this, 1.65 acres are considered as suitable CBM habitat. Although much of the area has been impacted by storms, we included that habitat as CBM habitat by request of USFWS staff. See above.

2.2.2 Habitat Types

Three general habitat types make up the potential suitable habitat for the CBM and other listed species that may occur in the *Angelos* Project. The first two-- primary dune and scrub habitat-- are described below (as well as over-wash areas). The third type of habitat found within the *Angelos* Project area is the open beach seaward of the dune system which could be utilized by the piping plover and sea turtles, and is also described below.

2.2.2.1 Open beach habitat

Open beach habitat includes those areas of uniformly flat to gentle sloping open sand between the shoreline and the toe of the primary dune. The beaches have little to no vegetation and are subjected to periodic tidal and storm surge inundation. Open beach habitat constitutes 1.0 acre of the Property. There will be no loss of beach habitat in the project area. Beach habitat provides:

- Essential wintering habitat for the piping plover; and
- Essential nesting habitat for the four sea turtles listed and described earlier;

Habitat used by piping plovers for foraging, roosting and shelter include intertidal beaches and flats (between annual low tide and annual high tide), and associated dune systems and flats above annual high tide. Piping plover generally migrate to their wintering areas from late July through September, returning to their breeding grounds beginning in late February. All populations are considered threatened when on their wintering grounds. Snowy plover breeding habitat is relatively undisturbed dry or sandy ground near to water (Richards, 1988) where they nest on open, dry white sand out of reach of extensive pedestrian traffic and without dogs (FWC, Breeding Bird Atlas, 2007). For this and other reasons, these birds are not currently known to nest in the area of the proposed site.

While sea turtles feed and live in offshore waters, the nesting females must come ashore to nest and lay their eggs, returning to the same beaches on which they were hatched. Soft, sandy beaches provide the habitat in which the females dig the nest, deposit their eggs, and return to the ocean. Hatchlings will later dig through the sand before racing to the ocean amid predation, disturbance, and possible disorientation. Development on these beaches results in direct loss of nesting habitat,

as well as decreased nesting success due to disturbance, increased predation, and disorientation of hatchlings due to lighting. Impacts which preclude nesting by a sea turtle are considered adverse.

Indirect impacts might occur as a result of the project. These may include disturbance of nesting activities or physical disturbance of nests by increased pedestrian traffic; predation on adult, young or hatchling species of interest due to pets; predation due to increased feral animals; competition with invasive species (e.g. house mice) due to construction of dwellings and accessible trash; erosion of habitat due to increased pedestrian traffic; and disturbance due to increased artificial lighting.

2.2.2.2 Frontal Dune and Scrub Habitat

Frontal dune habitat consists of primary and secondary dunes. The primary dunes support vegetation communities of sea oats, grasses, herbs, and small shrubs as described in Section 1.32, and generalized below.

Scrub habitat is characterized as stabilized, wind-deposited coastal undulations that are vegetated with salt-tolerant shrubs. Typical plants include sand live oak, myrtle oak, yaupon (*Ilex vomitoria*), southern magnolia, sand pine (*Pinus clausa*), beach heather (*Conradina canescens*), marsh elder (*Iva frutescens*), greenbrier (*Smilax* spp.), woody goldenrod, and Florida rosemary (*Ceratiola ericoides*). Typical animals include gopher tortoise (*Gopherus polyphemus*), six-lined racerunner (*Cnemidophorus sexlineatus*), southern hognose snake (*Heterodon simus*), coachwhip snake (*Masticophis flagellum*), diamondback rattlesnake (*Crotalus adamanteus*), and beach mice.

Scrub habitat is generally quite stable, but it is also susceptible to wind induced erosion if the vegetation is disturbed. Shrubs in the coastal strand are frequently dwarfed and pruned as a result of the salt spray-laden winds that kill twigs on the seaward side, producing a smooth dense upward-slanting canopy resembling a sheared hedge. This site exhibits some elevations landward of the primary dune up to 30 ft. This dune will be preserved, in its present condition, in perpetuity (with the exception of future storm damage).

The *Angelos* Project areas include 1.65 acres of frontal dune and scrub habitat of which the Applicant is proposing impacting 0.42 acres of suitable CBM habitat. Impacts to sea turtle nesting success as a result of loss of dune habitat are similar to those described for the beach habitat. The seaward portions of the sand dunes along the project areas also make up the edge habitat along which sea turtles nest. Since the building is to be situated entirely in back dune scrub habitat, direct impacts to sea turtle nests should not occur.

Vegetated dunes do not provide habitat for piping plover or other shorebirds, which prefer bare, sandy beaches (snowy plovers however, do use dune habitat for brooding their chicks when access to back dunes is not limited by large bluffs). However, piping plovers may feed, shelter and nest (Atlantic Coast only) on wash-over areas. Replanting of this area on site will decrease potential usage of this habitat by piping plover. However, the Project location is directly adjacent to Walton County's public beach access point, which maintains strong pedestrian traffic (often with dogs) throughout the year. Furthermore, there is ample piping plover habitat to the east and west of the project site (Deer Lake and Grayton Beach State Parks), and along the open beach habitat on the site itself. We put forth that the revegetation effort will not adversely affect piping plover habitat.

Other passerine birds and gulls may occasionally inhabit these dunes. In addition, gull colonies, oyster catchers, and willets (*Catoptrophrus semipalmatus*) often nest in or along the edge of dune vegetation. Indirect impacts to each of these species are similar to those described for the beach habitat.

2.3 Conservation and Mitigation Intent and Alternative Actions

This section specifically addresses the conservation intent of the HCP, listed previously in section 1.1. These mandatory elements concern:

- Minimizing impacts and Conservation; and
- Alternative actions.

2.3.1 Conservation and Mitigation

Design features of the *Angelos* Project minimize impacts to natural habitat by reducing development from a potential 21 unit dwelling to that of a 13 unit dwelling. Such a reduction in building size constitutes a total reduction of 37% from initial plans, with an overall reduction of the building footprint by 28% and building width by 20.2 ft. Furthermore, the permanent vegetation impact will be reduced from the allowable 5% (Walton County Code) to only 2%, and all building construction has been moved beyond (landward) of the Coastal Construction Line (CCL). Therefore, the mitigation for development impact that is being offered is revegetation of the western areas that have experienced storm damage, as described below:

- The planting of native species on 0.13 acres of wash-over
- The species include: sea oats (*Uniola paniculata*) at 75%, and beach grass (*Panicum amaraum*) at 25%
- Planting will occur throughout the area according to Florida Department of Environmental Requirements.

The conservation portion of the plan contains the following:

- Management and conservation of remaining natural areas;
- The implementation of a monitoring program, commencing with construction, to determine the impact of the development on the CBM following USFWS protocols for beach mice (see section 2.4.4.2).

Furthermore, after much researching and several proposals, an in lieu fee of \$67, 500 is offered to be placed in Wildlife Foundation of Florida fund allocated to the CBM. This fee is to be used at the discretion of the FWC to provided funds for activities that would enhance species survival of the CBM.

In summary, permanent impacts to suitable habitat account for 25.5% of the suitable CBM habitat within *Angelos* Project area (0.42 acres of 1.65 acres of habitat; these figures include wash-over areas within the suitable habitat). Unsuitable CBM habitat accounts for the remaining 74.5%. Temporary impacts include 0.18 acres around the construction area (Attachment B). All un-

impacted areas will be placed under a conservation easement. Furthermore, a large monetary loss (approximately 7 million dollars at minimum) has been incurred by the owner in fulfilling the requirements of this HCP.

2.3.1.1 Dune Replanting

Eroded areas of beach/dune system (which are not known to support beach mice) located in the south-westerly portion of the Property will be replanted with native vegetation known to support beach mice (0.13 acres). To provide conditions appropriate for the replanting of the dune area, the following measures will be employed:

- Acquisition of sea oats and other appropriate species which are of sufficient quality, health and genetic integrity, planted on a ratio of 75% sea oats (*Uniola paniculata*) and 25% beach grass/ bitter panicum (*Panicum amarum*);
- Planting of native salt tolerant plants in a way that ensures their success;
- Maintenance of the plants to ensure their continued success;
- Monitoring of the plants for two years to ensure initial success;
- Protection of plants to avoid disturbance from human activities.

The Applicant will follow all permitting requirements put forth by Florida Department of Environmental Protection and Walton County to vegetate these areas as part of the ITP/HCP process.

The objective of this enhancement is to achieve rapid and effective dune stabilization through plantings of sea oats and other native plants. The habitat to be restored in the *Angelos* project area is made up of the wash-over areas from past storm/hurricane damage. Other species which occasionally occur on the fore dune include blue stem, beach panic grass, beach morning glory, and railroad vine. The CBM forages and nests among beach grasses and sea oats, although typically along dune slopes. However, the addition of plantings will help stabilize the area, provide erosion protection, help protect current dune area from further wash-outs, and provide structure to the habitat for the CBM to utilize.

2.3.1.2 General Planting Design

The wash-over vegetation will be restored using container plants. Sea oats and beach grasses will be planted in western wash-over area (Attachment B). The plantings will be arranged on eighteen-inch (18) centers in linear patterns. The plants will be planted six inches deep with a small amount of slow release fertilizer and a hydrated biodegradable polymer placed in each planting hole.

The planting will be patterned after the species composition in the adjacent native community. To insure acceptable survival rates of these plants, temporary irrigation will be used in the initial establishment of appropriate herbaceous plantings. It is usually considered that more planting units tend to solicit higher survival rates and will provide habitat (forage and cover) more quickly. Post and rope fences and appropriate signs will be used to deter pedestrian traffic from the newly restored areas, as well as to keep off the current dune system.

2.3.1.3 Conservation Intent in the *Angelos* Project Area

The conservation intent in the *Angelos* project area includes several components:

- Conservation of suitable habitat areas (0.91 acres);
- Recording of a conservation easement;
- Development of appropriate covenants and restrictions; and
- A prescriptive management program (described in section 2.4).

Each of these components is intended to conserve and manage habitat for the CBM and to benefit other species with similar habitat requirements.

2.3.2 Alternative Action

Alternative actions considered included:

- No development (no action alternative);
- Dune Restoration;
- Mitigation for impacts within the project area, as conditioned in this HCP; and
- Minimization of impacts and mitigation both inside and outside the *Angelos* Project area (proposed action), as conditioned by this HCP.

2.3.2.1 No Action

The applicant is seeking to develop the *Angelos* Project on the Property, which is now an undeveloped coastal area. The development will be designed to comply with the Walton County Land Development Code, including building setbacks (6.05.08.E.4), parking requirements (7.02.00.C.1), Pool Deck Design (Florida Building Code Section 1004), design maintenance, and treatment of storm water as regulated by the Florida Department of Environmental Protection. Additionally, the new development will maintain sanitary garbage collection, prohibit cats, as well as develop a State approved lighting plan, all within the building footprint. If the Applicant were to take no action, development of the Property would be severely restricted, the *Angelos* Project could not be constructed and, as a result, the Applicant would suffer a severe financial hardship.

2.3.2.2 Development with All Mitigation Activity On-site

Under this alternative, the proposed projects will be developed and impacts will be minimized and mitigated on-site through compliance with the HCP. Additionally, there is a large area of disturbed dune and open beach to be re-vegetated to enhance potential habitat for the beach mouse, as well as stabilize the area against future damage. The elevated dune walkover is to be constructed to extend out from the amenities, and placed at the furthest point away from currently established potential CBM habitat. The elevated walkovers will protect the vegetation communities on the dunes and control access to the beach, as well as keep the re-vegetated areas clear of traffic.

The restoration of 0.13 acres of coastal dune habitat is offered as additional mitigation for the impacts of development. Other mitigation actions proposed by the Applicant include the conservation of 1.7 acres of primary dune field and open beach. The natural areas will provide

protections for the Choctawhatchee beach mouse, as well as habitat for federally listed birds and sea turtles. This is in addition to the extreme minimization of the Project, as described above.

2.3.2.3 Off-site mitigation

As part of the requirements necessary to obtain an ITP from the Florida Fish and Wildlife Conservation Commission, it was necessary to provide mitigation and/or conservation measures for the species defined under the ITP application—the Choctawhatchee Beach Mouse. These measures were required to meet the mandate of the FWC directive: FAC 68A-27.003, which states that permits will be issued only when permitted activity clearly enhances survival potential of the species.

However, in this instance, many avenues to fulfill mitigation requirements were pursued, the results being severe penalties to the private land owner, primarily through monetary losses and developmental restrictions. Garlick Environmental Associates, Inc. provided a mitigation proposal to the FWC on July 16th 2008. This proposal put forth a mitigation plan outlining 0.82 acres of CBM habitat enhancement on state owned property, with a monetary contribution to the Wildlife Foundation of Florida (WFF; this proposal may be reviewed in FWC's file for complete details, as well as all the mitigation possibilities explored). On July 21st 2008, the mitigation plan put forth to the FWC was rejected. Other potential avenues were exhausted.

On July 16th, 2008 FWC approved an in lieu fee of \$67,500, through the Wildlife Foundation of Florida, to accommodate for off- site mitigation. These funds have been slated to provide CBM habitat enhancement, and are under control of the FWC. Furthermore, these funds fulfill the requirement of mitigation by the State of Florida.

In addition, the HCP as proposed will encumber seven million dollars of the Property. Therefore, no additional off-site mitigation is proposed.

2.3.3 Additional Measures that may be Required for the HCP

Section 10(a)(2)(B) of the ESA which describes issuance criteria for incidental take permits authorizes the USFWS to obtain “such other assurances as (they) may require that the plan will be implemented”. This provision allows the USFWS broad latitude to require measures as necessary to accommodate the wide variety of circumstances often encountered in HCPs. Because discussions with the USFWS regarding this issue have not yet occurred, it has not been determined whether additional assurances will be required or not.

2.4 Prescriptive Management Program

The prescriptive management program (PMP) (USFWS 1996) addresses the protection and management of the coastal beaches and secondary and primary dune habitat in the project area. Design and habitat management activities will be accomplished through appropriate:

- Design of facilities;
- Construction; and
- Operation, including potential long-term management of the project area.

The PMP will include installation of boardwalks and lighting compatible with management for coastal beach and dune habitat. There will also be allocation of responsibilities to a management association (e.g., homeowners association). The activities required for the management of these areas, as well as the entities responsible for the management, are specifically addressed in the following sections.

2.4.1 Design

The design of the *Angelos* Project to minimize impacts to beach and dune habitat through the scale and orientation of structures and the placement of associated facilities, such as dune walkovers, parking lots, recreation facilities, and landscaped areas. The facilities development is anticipated to impact 0.42 acre of suitable habitat for the Choctawhatchee beach mouse.

Other actions already proposed to minimize impacts to CBM habitat are specified in Section 2.3.1. Will and Sikes, Inc. intends to include a dune walk over for beach access, provide 0.91 acres of conservation area by placement in conservation easement, and rigorously restrict the building footprint area (with a monetary loss of at least 7 million dollars) to insure as much habitat is available as possible while still enabling property development. Furthermore, 0.13 acres will be re-vegetated on a currently un-vegetated area, providing stabilization and potential habitat to the CBM.

The remaining acres of dune and beach habitat will be managed as natural habitat areas and landscaping will be limited to native vegetation consistent with beach mouse foraging and shelter needs in the 0.10 acres of landscaping around the building. No invasive or exotic species shall be planted.

The design of the elevated dune walkovers is intended to minimize impacts to the existing habitat. The elevated walkovers will be placed at an elevation of a minimum 5 feet above grade, which will not inhibit plant growth beneath the walkway, and will contain handrail to discourage traffic off the boardwalk. This design elevation will not preclude foraging or nesting of the beach mouse.

2.4.2 Construction

Habitat management during the construction phase will include flagging habitat areas to restrict access and avoid incidental impact on the habitat. The general contractor's scope of services will stipulate avoidance of impacts to the delineated habitat areas during the construction process. Daily inspections by a qualified contractor offer an effort to identify and curtail unnecessary impacts on the habitat. Preconstruction conferences with the contractor will address methods to minimize impacts to natural areas. These construction methods are anticipated to include top down construction of the boardwalks dune walkovers and decking in sensitive habitat areas. Placement of construction materials and equipment will be restricted to appropriate staging areas and will be prohibited adjacent to delineated habitat areas. The contractor will be required to keep the construction site clean through periodic site inspections and clean-up efforts. Rubbish and construction debris will also be restricted to areas away from the delineated natural areas. Additional considerations are listed below.

2.4.2.1 Habitat Fencing

Fences to ensure the protection of adjacent habitat shall not be erected based on USFWS recommendation.

2.4.2.2 Revegetation of Temporarily Disturbed Areas

Areas designed for habitat protection, which are temporarily disturbed during construction grading, shall be re-vegetated to ensure habitat conditions compatible with the Choctawhatchee beach mouse. Areas included under the revegetation provision include road shoulders, boardwalk areas, and natural areas impacted by construction. Topographic restoration and revegetation efforts are expected to occur in conjunction with the construction sequencing. For instance, when areas are deemed to be outside and clear from potential future disruption, they will be cleared for restoration. Plants to be installed in these natural areas shall include only species native to coastal Walton County.

2.4.2.3 Turtle Lighting

Any lighting on permanent structures as well as lighting which may be used during the construction phase which occurs during turtles nesting and emergence seasons (May through September) shall follow the general guidelines presented in section 2.4.3.7 (Turtle Lighting). Additional guidelines have been implemented for the CBM, also noted in the above section.

2.4.3 Management Activities

Management and conservation activities proposed to provide for long term management of the coastal communities addressed in the HCP are presented in this section. These management activities will:

- Avoid and minimize impacts to suitable habitat through design consideration; Implement management actions designed to avoid impacts, maintain, and enhance the ecological integrity of habitat in the project area.

2.4.3.1 Conservation

Conservation of habitat shall be accomplished through a conservation easement- and/or deed restrictions applicable to the Property, and covenants and restrictions applicable to the future homeowners association. The specific language within the document will allow a right of entry for County, State, and Federal Wildlife agencies. These will insure that the responsible party will comply with the conditions of the HCP, on all portions of the Property under their ownership or control.

2.4.3.2 Dune Restoration

Replanting of the over-wash area along the western dunes within the Property will occur as described previously in Section 2.3.1.1.

2.4.3.3 Reporting

The ITP issued under Section 10 (a) requires an activities report submitted to the USFWS by 31 January of each year. The annual report shall be prepared by the responsible party and submitted to the USFWS and the FWC. The report shall contain a summary of development activities which took place on the project area and other information relevant to preservation of the habitat for the species of interest discussed in previous sections.

2.4.3.4 Control or Removal of Pests and/or Predators

Rodent control will include following USFWS guidelines for trapping on a quarterly basis. Any other species found during trapping will be removed to another location or destroyed. If house mice are found within the managed project area, a further trapping program may be implemented and the animals removed, depending on recommendations from the USFWS. No domestic cats shall be allowed on the property and feral cats will be removed. Dogs will be permitted outdoors only on a leash. Any feral animals will be captured and removed. The capture and removal of these species may be accomplished through contractual arrangements with permitted nuisance species trappers.

2.4.3.5 Litter and Trash Control

Litter and trash attract raccoons as well as feral pets and other animals. Raccoons especially are notorious turtle egg eaters and have been observed standing on a turtles back and catching and eating the eggs as they are deposited. Strict ordinances to conceal trash and litter are necessary if turtle eggs are to be protected from these animals.

A trash and rubbish control program will be incorporated into the deed restrictions and covenants of the condominium complex. This program will include consideration of control of trash generated during the use of the outdoor recreational amenities. Standard trash receptacles that are animal resistant will be installed to prevent trash exposure and subsequent attraction of pests.

This plan will require the placement and service of trash containers at the dune walkover and at the pool. Containers will be elevated above the ground, covered, and made “animal resistant” to limit wildlife scavenger access. Trash pickups will be scheduled to accommodate peak use of the beach and in late afternoons to avoid having full containers on the trails and beach overnight. Once collected, the solid waste will be deposited in a dumpster within a controlled area. Frequent pickup will be scheduled to remove waste from the project site.

Solid waste from the condominium complex will be collected and removed from the property periodically during construction. Solid waste collection points will be maintained on a regular bases according to above protocol in order to prevent attracting field mice into the area.

2.4.3.6 Identification and Protection of Turtle Nests

The maintenance of natural beach areas in the nesting territory of this species is recommended for species survival. Nesting sites, when they occur on-site, should also be closed to public access to minimize disturbance. The Applicant will work with the local State permitted sea turtle monitoring program concerning sea turtle nests on the project site.

2.4.3.7 Turtle and CBM Lighting

Many coastal counties and communities in Florida have developed lighting ordinances to reduce nesting adult and hatchling disorientation; Walton County is currently developing their lighting ordinance, but it has yet to be accepted as of January 2008. Specific lighting requirements for sea turtles are presented here, as well as light bulb recommendations designed to protect the CBM. Lighting restrictions will be implemented as part of the construction plans, and are listed below.

Lighting Guidelines to Reduce Impacts to Marine Turtles

General Information

The negative effects of beachfront lighting on marine turtle hatchlings and nesting females are well documented. Hatchlings emerge during hours of darkness, allowing them to make their journey to the sea when sand temperatures are low and terrestrial, avian, and aquatic predators are comparatively few. Proper hatchling orientation depends largely on a visual response to light. Under natural conditions, the ocean presents the brightest and most open horizon, and this serves as a cue to hatchlings in their new ocean finding behavior.

Artificial lights disrupt this behavior, and attract hatchlings as they emerge from their nests. Visible light sources and the reflection or “glow” resulting from the cumulative effects of coastal lights both contribute to this problem. Instead of making their way to the ocean, hatchlings become disoriented and may wander extensively on the beach. Even for those hatchlings that eventually reach the ocean, unnecessary wandering increases their vulnerability to predation and expend limited energy stores. In addition, hatchlings may wander landward through beachfront property or across parking lots and highways towards light sources. Most die from desiccation, direct exposure to the morning sun, or contact with vehicles. Furthermore, beachfront lighting has been documented to negatively affect nesting females and often results in reduced or abnormal nesting activity.

Lighting effects on the CBM may include decreased foraging and increased predation around artificial lighting. A study performed with the Santa Rosa Beach mouse (*Peromyscus polionotus leucocephalus*) shows that foraging area and harvesting amounts decrease with lighting, and that results are sensitive to lighting type (Bird et al., 2004).

General Guidelines

To prevent hatchling miss-orientation and adverse impacts to nesting turtles, installation of exterior lighting is strongly discouraged. If exterior lighting is proposed, the following guidelines will be followed. Adherence to these guidelines will help in developing an acceptable lighting plan. However, some cases may warrant more stringent restrictions. To reduce potential foraging impacts to the CBM, bug lighting and vapor lighting must be staggered at random intervals. Both vapor lighting and bug lighting present pitfalls to mouse behavior. By staggering the light placement, ‘mosaics’ of disturbance will allow for different allocation of mice utilization: that is, visitation and harvesting opportunities will be varied dependent on the light source. At no time will gulf side lighting consist entirely of vapor or bug lights.

1. Lights should not be placed on the seaward side of the subject property or in any location visible from the nesting beach.
2. Lights positioned seaward of the landward toe of the dune (or its equivalent) are prohibited.
3. The light source or any reflective surface of the light fixture must not be visible from any point on the nesting beach. Illumination of any area of the nesting beach, either through direct illumination, reflective illumination, or cumulative illumination is prohibited.
4. Down light shall be completely shielded without exterior reflective surfaces. All fixtures shall be appropriately shielded, louvered, and/or recessed.
5. Fixtures shall be low mounted through the use of low bollards, ground level fixtures, or low wall mounts.
6. Lights proposed for the seaward side of the property must incorporate shielded low pressure sodium lamps or low wattage (i.e. 50 W or less) bulbs. Bug lights must be 50 W or less.
7. Lights for purely decorative or accent purposes shall not be used on the seaward side of the property and, if proposed for the landward side, shall be limited in number and intensity. The use of up lights is strongly discouraged and in most cases cannot be approved.
8. High intensity lighting, such as that proposed for roadways, shall use shielded low pressure sodium lamps. The number of fixtures shall be kept to a minimum and shall be positioned and mounted in a manner such that the point source of light or any reflective surface of the fixture is not visible from any point on the nesting beach. Light emanating from these fixtures may not directly or indirectly illuminate the nesting beach.
9. Only low intensity lighting shall be used in parking areas that are visible from any point on the nesting beach. This lighting shall be set on a base which raises the source of light no higher than 48" from the ground and shall be positioned and shielded such that the point source of light or any reflective surface of the light fixture is not visible from any point on the nesting beach. The light emanating from such fixtures may not directly or indirectly illuminate the nesting beach.
10. Parking lots and roadways, including any paved or unpaved area upon which motorized vehicles will operate, should be designed or positioned such that vehicular headlights do not cast light toward or onto the nesting beach. Hedges, native dune vegetation, and/or other ground level barriers should be utilized to meet this objective.
11. During construction, temporary security lighting during the main portion of the sea turtle nesting season (May 1 to October 31) is strongly discouraged. Security lights shall be completely shielded and low mounted. Low pressure sodium vapor lamps or low wattage yellow "bug" type bulbs shall be utilized. Under no circumstances shall these lights directly or indirectly illuminate any area of the nesting beach.
12. Tinted glass or window film that meets a transmittance value of 45% or less (inside to outside transmittance) shall be used on all windows and glass doors visible from any point on the nesting beach.

Development of a Lighting Plan

The lighting plan shall be a plan view drawing or schematic plainly showing the location of all exterior lighting fixtures. Distinctive and clearly marked symbols shall be utilized to show the location of each type of proposed fixture. The plan shall include a table with the following column headings:

- Symbol

- Fixture (name or stock number)
- Total number of each fixture
- Bulb wattage and type (e.g. 40 watt yellow “bug” lamp)
- Type of mount (e.g. wall, pole, bollard)
- Mounting height

A detailed description (manufacturer's cut sheet) for each fixture shall be included. Two copies of the completed lighting plan shall be transmitted to:

Marine Turtle Coordinator
 Bureau of Beaches and Coastal Systems
 3900 Commonwealth Blvd., Mail Station 300
 Tallahassee, FL 32399

U. S. Fish and Wildlife Service
 Field Office
 1601 Balboa Avenue
 Panama City, FL 32405

2.4.3.8 Identification and Protection of Snowy Plover Nests

Snowy plover nest are not known to nest in this area due to the extensive development, pedestrian traffic and associated disturbances; therefore, they are not addressed in this HCP.

2.4.3.9 Storage of Beach Equipment During Nesting Season

Recreational beach equipment including beach chairs, umbrellas, and surf boards will be removed from the beach and stored in a centralized area during nesting season from May 1 through October 31. This beach equipment will be placed in storage facilities located adjacent to the dune walkovers for the condominium complex, and shall not be allowed to remain overnight on the beach.

2.4.3.10 Controlled Beach Access

Access to the beach from the condominium complex, as well as public access, will be controlled by a strategically placed dune walkover to the west of the facility to keep pedestrian traffic as far away as possible from potential CBM habitat. Fencing, signs, and information kiosks will direct pedestrian traffic along pathways and walkovers, plus inform the public of the sensitivity of the dune communities and the associated Choctawhatchee beach mouse, sea turtle, and shorebird habitat.

2.4.3.11 Education of Guests and Residents

An environmental education program will be developed, to inform the residents and guests, of the listed species that inhabit the coastal areas. This program will include the development of an information brochure regarding the listed species and the coastal habitat, the placement of an informational kiosk, and signs. It will particularly address the problem of pets as predators or instruments of disturbance.

2.4.3 Allocation of Management Responsibilities

Section 10 [50 CFR] regulations require the Applicant to provide legal and financial assurances that HCP obligations will be met for minimization, monitoring, and mitigation of project impacts. Allocation of management responsibilities and commitment to these elements are addressed below.

2.4.4.1 Minimization of Impacts

Minimization of impacts associated with the development of the project include protection measures accomplished through activities described previously, including conservation measures, construction setbacks, boardwalks and walkovers, environmental friendly lighting, as well as proposed activities associated with day to day operation and management of the project. The allocation of management responsibilities between the condominium complex and the homeowners association would occur via deed restrictions on the condominium complex and the covenants and restrictions for the homeowners association. Shared allocation of management responsibilities would also be addressed in these same documents. The responsible entities for individual management activities were identified previously in section 2.4.3.

2.4.4.2 Responsibilities for Beach Mouse Monitoring

Section 10 regulations require that an HCP specify the measures the Applicant will take to “monitor” the impacts of the taking resulting from the project actions [50 CFR 17.22(b)(1)(iii)(B) and 50 CFR 222.22 (b)(5)(iii)]. As recommended by the USFWS, the Applicant would commit to post construction monitoring of the Project for three years on a quarterly basis following their protocols, commencing with construction. Annual reports will be given to the USFWS Panama City Field Office on an annual basis, with the exception of immediate notification of the office if the CBM is found.

Funding for the 3 year monitoring will be accomplished by the Applicant by securing a Performance Bond (\$10,000 per year totaling \$30,000, commencing with construction), which will be transferred upon selling of the property to the new owner/s.

2.4.4.3 Mitigation

Implementation of the restoration requirements will be part of the construction plans and specifications. These plans will provide details of restoration and project associated landscaping. Funding for the restoration will be included as part of the construction budget for the development of the project’s land uses. The management and maintenance activities required for these restoration areas will be addressed in the covenants and restrictions. These provisions will provide a means of allocating responsibility for activities required for compliance with the ITP.

2.4.4.4 Unforeseen Circumstances

The HCP proposes all reasonable and demonstrated methods for protecting listed species and species of concern, including the Choctawhatchee beach mouse, piping plover, and sea turtles. Provisions for sea turtle protection include all measures recommended by the USFWS and FWC, including

appropriate lighting measures, nest protection, and proper storage of beach equipment. CBM and piping plover habitat protection measures are also addressed in the HCP.

Even though the Applicant has agreed to implement all necessary provisions for minimizing and mitigating impacts to the CBM, the sea turtle, and the piping plover as identified by the USFWS and set forth in this HCP, unanticipated circumstances may arise. In the unanticipated event of an incidental take of any of these species, the Applicant and wildlife agencies(USFWS/FWC) will review the available data and work together to determine the cause of such an incidental take and whether additional protective measures would be appropriate for the species in question. If either the Applicant or the USFWS becomes aware of circumstances which would result in an incidental take of one of these species or which would adversely affect in a material way the ability of the Applicant or its assigns to implement this Habitat Conservation Plan, that party will promptly notify the other. The Applicant and agencies will jointly evaluate those circumstances based on available data and discuss possible additional steps.

2.5 Regulatory Controls and Enforcement

The provisions of this HCP will be enforced through the terms and conditions of the Section 10(a)(1)(B) permit and the HCP as well as through provisions mandated by the State incidental take permit. Should any development disturbance take place outside the limits set by this HCP, the agencies can enforce provisions of the Endangered Species Act as they relate to the taking of an endangered species with respect to each individual lot. If general terms and conditions required under the HCP and the Section 10(a)(1)(B) permit are not carried out in a timely manner, the USFWS may suspend the Section 10(a)(1)(B) permit for the entire project.

After issuance of the incidental take permit and prior to the occupancy of land uses within the suitable habitat area, the Applicant will produce legally binding covenants and restrictions to implement the provisions of this HCP. These will include building restrictions, trash, and pest control regulations, as well as funding and enforcement to insure full compliance with the HCP. The ITP will be transferred to the property owners association.

2.5.1 Boundary Violations

A series of controls intend to reduce the chances that construction will damage habitat will be specified in the HCP and plans approved by Walton County. In general, the construction boundary will be delineated with a fence. Any construction related damage that extends across the construction boundary is a violation of the terms of the HCP and the Section 10(a)(1)(B) permit. Violation of the construction boundary will be followed by enforcement action including, but not limited to:

- Notification of the USFWS or FWC of the violation;
- Termination of work;
- Preparation and submission of a damage report;
- Restoration of damaged area; and
- Return to work once these steps have been completed.

Construction related damage is defined as direct damage, such as bulldozer activity through a fence, and indirect damage, such as slope failure in the construction area across the construction boundary, erosion, or unauthorized vehicle activity.

Enforcement action is taken against a property owner regardless of the actual agent of the damage in order to accelerate abatement and remediation and also because there is a direct link between the landowner and the Section 10(a)(1)(B) permit.

2.5.2 Failure to Revegetate or Restore Specified Areas

The HCP requires that the developer/landowner restore degraded sand dunes to enhance habitat for CBM. The principal means of enforcement for the restoration requirement is through permitting, inspections and as-built certifications by the developer. If the developer does not meet the obligation in a timely fashion, the USFWS or FWC will notice the developer and landowner of the deficiencies and request that remedial actions be taken to meet the intent of the HCP and ITP. Revegetation efforts will proceed in a manner consistent with the elimination of potential construction influences.

2.5.3 Post-Construction Enforcement

Once construction is completed, there must be long term assurances that the future homeowners association will maintain development boundaries and maintain the open space as habitat. In no case shall an individual homeowner or tenant encroach beyond the development boundaries set forth in the HCP. Any encroachments shall be fined an agreed upon amount and the homeowners association shall be responsible for restoring any habitat damage by unauthorized encroachment.

2.6 Amendment Procedures

The HCP includes a wide range of management efforts designed to limit and mitigate take of the CBM and develop the *Angelos* Project in a manner consistent with Walton County land use policies. If, over the usual thirty year life of the permit, there are unforeseen circumstances which change development or other conditions, HCP amendments may be needed. Amendments which may be included are listed and described below.

2.6.1 Administrative Amendments

Changes which would not appreciably alter the extent of incidental take, the mitigation prescribed for take, or the funding of the HCP, are primarily administrative and can be accomplished by amending the HCP text without modifying the underlying Section 10(a)(1)(B) permit. The determination of the administrative status of a change will be made by the USFWS and/or FWC with concurrence by other parties, and must take into account the cumulative effect of the proposed change and all preceding or pending administrative changes.

2.6.2 Permit Amendments

Changes which may appreciably alter the extent of the incidental take, the mitigation prescribed for take, and the funding of the HCP will require an amendment to the Section 10(a)(1)(B) permit as

well as to the HCP text. Only the permittee can request a permit amendment, and the request is processed by the USFWS and the FWC.

2.6.3 Minor Construction Boundary Adjustments

To accommodate conditions encountered during construction, an explicit provision is made for minor construction boundary adjustments. Upon request by the landowner, the USFWS and the FWC shall allow the construction boundary fence to be moved up to 50 feet from the approved location if there is a compelling reason to do so. The USFWS and FWC shall determine the appropriateness of fence movement on a case by case basis. Minor boundary adjustments cannot increase the cumulative extent of temporary disturbance of habitat by more than 5 percent. Construction boundary adjustments are not intended to allow a change in the permanent development footprint.

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Appendix: Location Maps of Angelos Project Development



Location of the Angelos Project Site in relation to the county line and nearest state parks (Google Earth 2007).



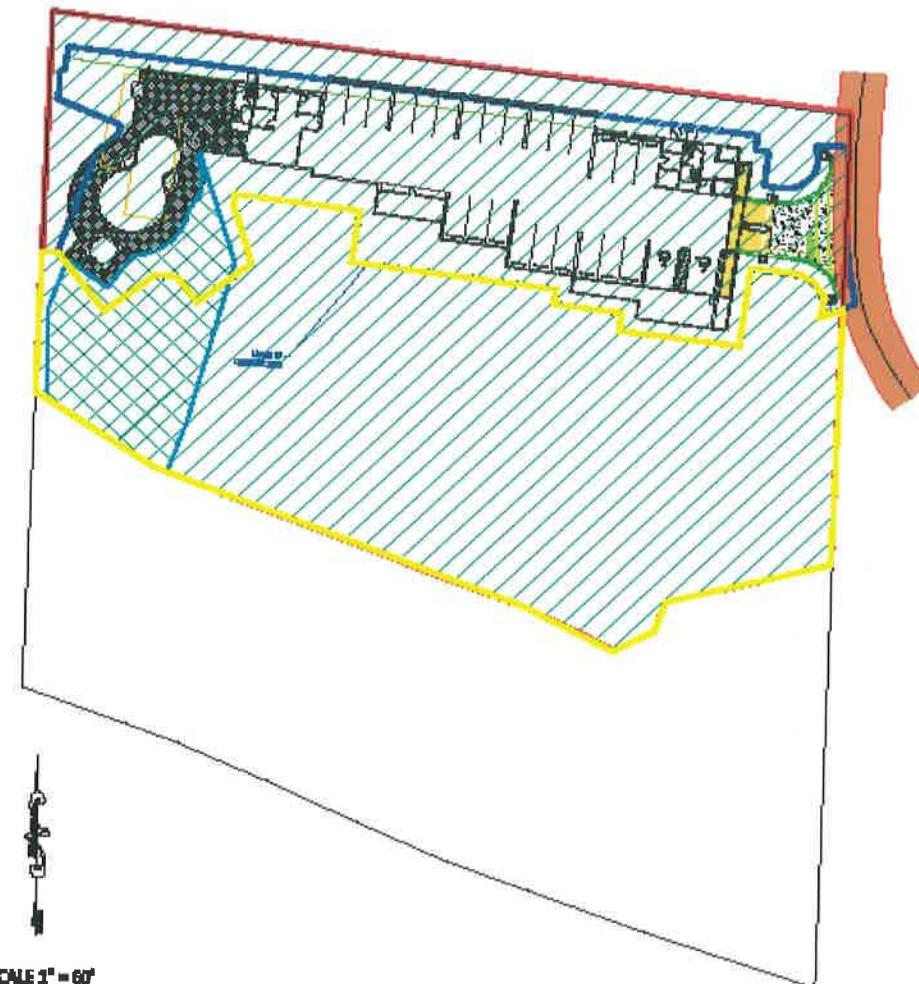
Parcel of proposed Angelos project with respect to adjacent land use (Walton County GIS Internet Mapping Application 2008: <http://maps.geocortex.net/imf-5.1.002/sites/walton/jsp/launch.jspTool>).



Aerial view of the *Angelos* Project Site in relation to surrounding development (photo property of Will&Sikes, Inc.).

	SUITABLE CHOCTAWHATCHEE - 1.65 ac.
	OVERWASH AREA TO BE RE-VEGETATED - 0.13 ac. ±
	AREA OF BEACH MOUSE HABITAT IMPACT - 0.42 ac.
	EXISTING NON-SUITABLE BEACH MOUSE HABITAT - 1.0 ac. / OPEN BEACH AREA - 1.0 ac.

Yellow line: Conservation Easement Area 0.91 ac.



Site plan of the preferred alternative transposed on current development (none) and condition of the Angelos project.

