



IN REPLY REFER TO:

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

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July 7, 2003

D. Blair Spitzberg, Ph.D, Chief  
Fuel Cycle and Decommissioning Branch  
U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 400  
Arlington, Texas 76011-4005

Re: FWS No. 4-P-03-202  
NRC Docket No. 030-28641  
Reclamation and Decommissioning  
Uranium Munition Site, Area C-74L  
Eglin AFB, Walton County, Florida

Dear Dr. Spitzberg:

Thank you for your letter of June 9, 2003, requesting our review of the project referenced above. This response is provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and Section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.).

The Nuclear Regulatory Commission (NRC) is preparing an Environmental Assessment (EA) for the decommissioning of a depleted uranium munitions site on Eglin Air Force Base (AFB) located on Test Area C-74L. We understand that NRC proposes to release the site from an NRC materials license. If approved, the Air Force could use or sell the site without restriction by the NRC.

To assist you with your project studies, we are enclosing tables of threatened, endangered, and other species of concern likely to occur in Walton County, Florida. The table is a combination of species occurrence and habitat information developed by the Florida Natural Areas Inventory (FNAI), and species status data compiled by the Florida Fish and Wildlife Conservation Commission (FWCC). Regardless of the status of the species in the table, we encourage their conservation in project planning. Conservation now may help avoid a need to list them in the future.

The FNAI is a statewide database housing extensive information on the occurrence and quality of rare and endangered species and high quality natural communities in Florida. The FNAI can be contacted at 1018 Thomasville Road, Suite 200-C, Tallahassee, Florida 32303, (850) 224-8207. The FWCC may have additional information on state-listed species and important habitats. The FWCC Environmental Services Division is at 620 South Meridian Street, Tallahassee, Florida 32399-1600, (850) 488-6661. In cooperation with the Natural Resources Branches, FNAI has conducted extensive surveys and inventories on Eglin Air Force Base.

Eglin AFB Natural Resources Branch has extensive knowledge and records of the presence of rare, threatened, and sensitive species. We suggest coordinating with the Natural Resources Branch. The Eglin Natural Resources Branch can be contacted at Eglin AFB Natural Resources Branch, Jackson Guard, 107 Highway 85 North, Niceville, Florida 32542, (850) 882-4164.

We wish to offer the following comments on your project: Your letter of June 9, 2003, indicates that the snail darter occurs in a stream adjacent to the uranium munitions site. Actually, this species is the Okaloosa darter (*Etheostoma okaloosae*). The Okaloosa darter is federally listed as endangered and occurs in only six stream systems which are located in Okaloosa and Walton counties, Florida. Approximately 90 percent of the watershed drainage area in which the Okaloosa darter occurs is under the management of Eglin AFB. Three reaches of Okaloosa darter stream are located in the area of proposed activities.

To aid in our review of your determination of potential impacts to the Okaloosa darter the following information would be helpful. Maps of the work area showing the area's proximity to any streams should be included in your analysis. Photographs of the site and adjacent stream areas may also be helpful. Also a description of the reclamation activities should be included in your discussion. A discussion of the baseline, or the actual presence and amount of contaminated materials believed to be on the site (as well as adjacent areas), should be included. Threshold values for effects to fish and wildlife should be examined and documented in your analysis. Furthermore, monitoring should take place to ensure that no contaminated materials are transported from the site (into adjacent watersheds) during remediation activities, and no off-site transport occurs during Air Force use of the site after decommissioning.

Section 7(a)(2) of the Act requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. The federal agency responsible for implementing an action is required to determine whether listed species, proposed species, critical habitat, or proposed critical habitat may be present in the area that would be influenced by that action. If such species or habitat may be present, the federal agency is required to determine whether the action may directly, indirectly, and/or cumulatively affect such species or habitat.

To make such a determination, the following information should be considered and summarized in a biological information report:

1. The results of an on-site inspection of the areas affected by the action.
2. The views of recognized experts on the species at issue.
3. A review of the literature and other information.
4. An analysis of the effects of the action on the species and habitat, including consideration for the cumulative effects, and the results of any related studies. For additional discussion on "effects of the action" please refer to topic #'s 6 and 7 in the enclosed *Suggested Contents for Biological Evaluations and Biological Assessments.*"
5. An analysis of alternative actions considered by the federal agency for the proposed action.

If the proposed action potentially involves listed species or critical habitat, the federal agency must consult with the U. S. Fish and Wildlife Service (Service). Consultation can be informal or formal. It may be concluded informally if an action can be implemented in a way that is not likely to adversely affect listed species or critical habitat. Coordination with the Service to explore this possibility is encouraged.

If a determination is made that listed species or critical habitat may be adversely affected, the federal agency must request, in writing, formal consultation with the Service. If the proposed action is likely to jeopardize the continued existence of proposed species or result in the destruction or adverse modification of proposed critical habitat, the federal agency must confer with the Service.

If the federal agency determines that no listed species, proposed species, critical habitats or proposed critical habitats occur in the area of project influence, the project is not likely to adversely affect such species or habitats, or there would be no effect on such species or habitats, this office requests the opportunity to review the information on which a determination is based, and to concur with that determination.

Section 7(d) of the Act underscores the requirement that the federal agency and permit or license applicant shall not make any irreversible or irretrievable commitment of resources during the consultation period which, in effect, would deny the formulation or implementation of reasonable alternatives regarding their actions on listed species.

We hope this assists you in your studies of the project. Please contact Stan Simpkins of this office at extension 234 for additional information and coordination.

Sincerely yours,



for

Gail A. Carmody  
Project Leader

Enclosures:  
Guidelines for BA's and BE's  
Walton County Species List

cc:  
Mr. Steve Steiber, Acting Chief, Eglin NRB, Niceville, FL

PCFO:S.Simpkins:sks:kh:07-7-03:850-769-0552[c:stan\4p03202.wpd]

## Suggested Contents for Biological Evaluations and Biological Assessments

When you prepare a Biological Evaluation (BE) or Biological Assessment (BA), keep in mind that the people who read or review this document may not be familiar with the project area or what you are proposing. Your BE or BA should present a clear line of reasoning that explains the proposed project and how you determined the effects of the project on each threatened or endangered species in the project area. Try to avoid technical jargon that is not readily understandable to people outside your agency or area of expertise. Remember, this is a **public document**. Some things to consider and include (if appropriate) in your BE or BA follow.

### **1. What is the difference between a Biological Assessment and a Biological Evaluation?**

By regulation, a Biological Assessment is prepared for "major construction activities" considered to be Federal actions significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act of 1969 (NEPA) [(42 U.S.C. 4332(2)(C)]. A BA is required if listed species or critical habitat may be present in the action area. A BA also may be recommended for other activities to ensure the agency's early involvement and increase the chances for resolution during informal consultation. Recommended contents for a BA are described in 50 CFR §402.12(f).

Biological Evaluation is a generic term for all other types of analyses. Although agencies are not required to prepare a Biological Assessment for non-construction activities, if a listed species or critical habitat is likely to be affected, the agency must provide the Service with an evaluation on the likely effects of the action. Often this information is referred to as a BE. The Service uses this documentation along with any other available information to decide if concurrence with the agency's determination is warranted. Recommended contents are the same as for a BA, as referenced above.

The BAs and BEs should not be confused with Environmental Assessments (EA) or Environmental Impact Statements (EIS), which may be required for NEPA projects. These EISs and EAs are designed to provide an analysis of multiple possible alternative actions on a variety of environmental, cultural, and social resources, and often use different definitions or standards.

### **2. What are you proposing to do?**

- Describe the project. A project description will vary, depending on the complexity of the project. For example, describing the placement and construction of a new microwave tower may be relatively simple, but describing an alternative for improving range management likely would be more detailed and complex. Include sketches if they will help others understand your proposed action and its relationship with the species' habitat.

- How are you (or the project proponent) planning on carrying out the project? What tools or methods may be used? How will the site be accessed?
- Describe the project area. Always include a map (topographic maps are particularly helpful). Provide photographs including aerials, if available. Describe the project area (i.e., topography, vegetation, condition/trend).
- Describe current management or activities relevant to the project area. How will your project change the area?
- Supporting documents are very helpful. If you have a mining plan, research proposal, NEPA or other planning document or any other documents regarding the project, attach them to the BE or BA.

### **3. What threatened or endangered species may occur in the project area?**

A request for a species list may be submitted to the Service, or the Federal action agency or its designated representative may develop the list. If you have information to develop your own lists, the Service should be contacted periodically to ensure that changes in species' status or additions/deletions to the list are included. Sources of information include, but are not limited to, the Forest Service, National Park Service, Bureau of Land Management, or other Federal agencies; State Game and Fish Departments; members of the public or academic community; scientific journals, books and various informational booklets; and the Internet. Due to budget constraints and loss of personnel, some Ecological Services Field Offices only provide general, county-wide species lists.

**Use your familiarity** with the project area when you develop your species lists. Sometimes a species may occur in the larger regional area near your project, but the habitat necessary to support the species is not in the project area (including areas that may be beyond the immediate project boundaries, but within the area of influence of the project). If, for example, you know that the specific habitat type used by a species does not occur in the project area, it does not need to appear on the species list for the project. However, documentation of your reasoning is helpful for Service biologists or anyone else that may review the document.

### **4. Have you surveyed for species that are known to occur or have potential habitat in the proposed project area?**

The "not known to occur here" approach is a common flaw in many BA/BEs. The operative word here is "known." Unless adequate surveys have been conducted or adequate information sources have been referenced, this statement is difficult to interpret. It begs the questions "Have you looked?" and "How have you looked?" Always reference your information sources.

Include a clear description of your survey methods so that the reader can have confidence in your results. Answer questions such as:

- How intensive was the survey? Did you look for suitable habitat or did you look for individuals? Did the survey cover the entire project area or only part of it? Include maps of areas surveyed if appropriate.
- Who did the surveys and when? Was the survey done during the time of year/day when the plant is growing or when the animal can be found (its active period)? Did the survey follow accepted protocols?
- If you are not sure how to do a good survey for the species, the Service recommends contacting species experts. Specialized training is required before you can obtain a permit to survey for some species.
- *Remember that your evaluation of potential impacts from a project does not end if the species is/are not found in the project area. You still must evaluate what effects would be expected to the habitat, even if it is not known to be occupied.*

**5. Provide background information on the threatened or endangered species in the project area.**

Describe the species in terms of overall range and population status. How many populations are known? How many occur in the project area? What part of the population will be affected by this project? Will the population's viability be affected? What is the current habitat condition and population size and status? Describe the related items of past management for the species, such as stocking programs, habitat improvements, or loss of habitat or individuals caused by previous projects.

**6. How will the project affect the threatened or endangered species or critical habitat that occurs in the project area?**

- If you believe the project will not affect the species, explain why.
- If you think the project may affect the species, explain what the effects might be. The Endangered Species Act requires you to consider all effects when determining if an action funded, permitted, or carried out by a Federal agency may affect listed species. Effects you must consider include direct, indirect, and cumulative effects. Effects include those caused by interrelated and interdependent actions, not just the proposed action. Direct effects are those caused by the action and occur at the same time and place as the action. Indirect effects are caused by the action and are later in time but are reasonably certain to occur. Interrelated actions are part of a larger action and depend on the larger action for their justification. Interdependent actions have no significant independent utility apart from the

action under consideration. Cumulative effects are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.

- Describe measures taken to avoid, reduce, or eliminate adverse effects or enhance beneficial effects to the species. Refer to conversations you had with species experts to achieve these results.
- Consider recovery potential if the project area contains historic range for a species.
- Evaluate designated critical habitat areas by reviewing the physical or biological features essential to the conservation of the species. *Even if no critical habitat has been designated for a species, the evaluation of the project effects must include effects to the habitat, not just the species.*

**7. What is your decision? The Federal action agency must make a determination of effect.**

Quite frequently, effect determinations are not necessarily *wrong*; they simply are not justified in the assessment. The assessment should lead the reviewer through a discussion of effects to a logical, well-supported conclusion. Do not assume that the Service biologist is familiar with the project and/or its location, and there is no need to fully explain the impact the project may have on listed species. If there is little or no connection or rationale provided to lead the reader from the project description to the effect determination, we cannot assume conditions that are not presented in the assessment. Decisions must be justified biologically. The responsibility for making the determination of effect falls on the Federal action agency; however, the Service may ask the agency to revisit its decision or provide more data if the conclusion is not adequately supported by biological information.

You have three choices for each listed species or area of critical habitat:

1. "No effect" means there are absolutely no effects of the project, positive or negative. "No effect" does not include a *small* effect or an effect that is *unlikely* to occur. If effects are insignificant (in size) or discountable (extremely unlikely), a "may affect, but not likely to adversely affect" determination is appropriate.
2. "May affect - is not likely to adversely affect" means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat (i.e., there can not be "balancing," wherein the benefits of the project would be expected to outweigh the adverse effects - see #3 below). Insignificant effects relate to the size of the impact (and should not reach the scale where take occurs). Discountable effects are those extremely unlikely to occur. These determinations require written concurrence from the Service. Based on best

judgement, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.

3. "May affect - is likely to adversely affect" means that all adverse effects can not be avoided. A combination of beneficial and adverse effects is still "likely to adversely affect," even if the net effect is neutral or positive. Adverse effects do not qualify as discountable simply because we are not certain they will occur. The probability of occurrence must be extremely small to achieve discountability. Likewise, adverse effects do not meet the definition of insignificant because they are less than major. If the adverse effect can be detected in any way or if it can be meaningfully articulated in a discussion of the results, then it is not insignificant, it is likely to adversely affect. This requires formal consultation with the Service.

A fourth finding is possible for proposed species or proposed critical habitat:

4. "Is likely to jeopardize/adversely modify proposed species/critical habitat" is the appropriate conclusion when the action agency identifies situations in which the proposed action is likely to jeopardize the proposed species, or destroy or adversely modify the proposed critical habitat. If this conclusion is reached, conference is required.

List the species experts you contacted when preparing the BE or BA but avoid statements that place the responsibility for the decision of "may affect" or "no effect" on the shoulders of the species experts. Remember, this decision is made by the Federal action agency.

Provide supporting documentation, especially any agency reports or data that may not be available to the Service. Include a list of literature cited.

Prepared by:  
U.S. Fish and Wildlife Service  
Arizona Ecological Services Field Office  
January 1997

Revised by:  
U.S. Fish and Wildlife Service  
New Mexico Ecological Services Field Office  
April 1997

Edited by:  
U.S. Fish and Wildlife Service  
National Conservation Training Center  
Environmental Conservation Branch  
February 1999

**OUTLINE EXAMPLE  
FOR A  
BIOLOGICAL ASSESSMENT OR BIOLOGICAL EVALUATION**

- A. Cover letter - **VERY IMPORTANT** - Include purpose of consultation, project title, and consultation number (if available). A determination needs to be made for each species. You have three options: 1) a "no effect" determination; 2) requesting concurrence with an "is not likely to adversely affect" determination; 3) a "may affect, is likely to adversely affect" determination, and a request for formal consultation. If proposed species or critical habitat are included, state whether the project is likely to result in jeopardy to proposed species, or the destruction or adverse modification of proposed critical habitat.
- B. Project description - Describe the proposed action and the project area. Be specific and quantify whenever possible.
- C. For Each Species
  - 1. Description of affected environment (quantify whenever possible)
  - 2. Description of species biology
  - 3. Describe current conditions for each species
    - a. Rangelwide
    - b. In project area
    - c. Cumulative effects of State and private actions in project area
    - d. Other consultations of Federal action agency in area to date
  - 4. Describe critical habitat (if applicable)
  - 5. Describe effects of proposed action on each species and/or critical habitat.
    - a. Direct
    - b. Indirect
    - c. Interrelated and interdependent actions
    - d. Incidental take
- D. Conservation measures (protective measures to minimize effects for each species)
- E. Conclusions (effects determination for each species)
- F. Literature Cited
- G. List of Contacts Made/Preparers
- H. Maps/ Photographs

THREATENED, ENDANGERED, AND OTHER SPECIES OF CONCERN LIKELY TO OCCUR IN WALTON COUNTY, FLORIDA  
Compiled by U.S. Fish and Wildlife Service, June 2000

Common Name	Scientific Name	Status State	Status FWS	Natural Communities
<b>FISH:</b>				
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	SSC	T	ESTUARINE: various MARINE: various habitats RIVERINE: alluvial and blackwater streams
Okaloosa darter	<i>Etheostoma okaloosae</i>	E	E	RIVERINE: seepage stream
Blackmouth shiner	<i>Notropis melanostomus</i>	E	ce	RIVERINE: blackwater stream
Bluenose shiner	<i>Pteronotropis welaka</i>	SSC		RIVERINE: blackwater, alluvial, and spring-run streams
<b>AMPHIBIANS &amp; REPTILES:</b>				
American alligator	<i>Alligator mississippiensis</i>	SSC	T(s/a)	ESTUARINE: marshes, various habitats LACUSTRINE: marshes, swamps, various habitats PALUSTRINE: swamps, floodplains, marshes, various habitats RIVERINE: open water, shorelines, various habitats
Flatwoods salamander	<i>Ambystoma cingulatum</i>		T	PALUSTRINE: wet flatwoods, dome swamp, basin swamp, ruderal TERRESTRIAL: mesic flatwoods (reproduces in ephemeral wetlands within this community)
Loggerhead turtle	<i>Caretta caretta</i>	T	T	TERRESTRIAL: sandy beaches; nesting
Green turtle	<i>Chelonia mydas mydas</i>	E	E	TERRESTRIAL: sandy beaches; nesting
Leatherback turtle	<i>Dermochelys coriacea</i>	E	E	TERRESTRIAL: sandy beaches; nesting
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	ESTUARINE: tidal swamp PALUSTRINE: hydric hammock, wet flatwoods TERRESTRIAL: mesic flatwoods, upland pine forest, sandhills, scrub, scrubby flatwoods, rockland hammock, ruderal
Hawksbill turtle	<i>Eretmochelys imbricata imbricata</i>	E	E	MARINE: open water; no nesting
Coal skink	<i>Eumeces anthracinus</i>		ce	PALUSTRINE: seepage slope, baygall TERRESTRIAL: upland pine forest, upland hardwood forest, mesic flatwoods
Gopher tortoise	<i>Gopherus polyphemus</i>	SSC	ce	TERRESTRIAL: sandhills, scrub, scrubby flatwoods, xeric hammocks, coastal strand, ruderal

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Common Name	Scientific Name	Status State	Status FWS	Natural Communities
Pine barrens treefrog	<i>Hyla andersonii</i>	SSC		PALUSTRINE: seepage slope, baygall RIVERINE: seepage stream
Alligator snapping turtle	<i>Macrolemys temminckii</i>	SSC	ce	ESTUARINE: tidal marsh LACUSTRINE: river floodplain lake, swamp lake RIVERINE: alluvial stream, blackwater stream
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	SSC	ce	LACUSTRINE: ruderal, sandhill upland lake TERRESTRIAL: sandhill, scrubby flatwoods, xeric hammock, ruderal
Florida bog frog	<i>Rana okaloosae</i>	SSC	ce	PALUSTRINE: seepage slope, baygall RIVERINE: seepage slope, seepage stream
<b>BIRDS:</b>				
Bachman's sparrow	<i>Aimophila aestivalis</i>		ce	TERRESTRIAL: various, ruderal
Southeastern snowy plover	<i>Charadrius alexandrinus tenuirostris</i>	T	ce	ESTUARINE: exposed unconsolidated substrate MARINE: exposed unconsolidated substrate TERRESTRIAL: dunes, sandy beaches, and inlet areas
Piping plover	<i>Charadrius melodus</i>	T	T	ESTUARINE: exposed unconsolidated substrate MARINE: exposed unconsolidated substrate TERRESTRIAL: dunes, sandy beaches, and inlet areas. Mostly wintering and migrants.
Stoddard's yellow-throated warbler	<i>Dendroica dominica stoddardi</i>		ce	TERRESTRIAL: wooded habitats with spanish moss, various
Little blue heron	<i>Egretta caerulea</i>	SSC		ESTUARINE: marshes, shoreline PALUSTRINE: floodplains, swamps RIVERINE: shoreline
Snowy egret	<i>Egretta thula</i>	SSC		ESTUARINE: marshes, tidal swamps, shoreline LACUSTRINE: lake edges PALUSTRINE: swamp, floodplain, ruderal RIVERINE: shoreline

E = endangered, T = threatened, P = proposed, C = candidate, s/a = Similarity of appearance,  
SSC = Species of Special Concern, ce = Consideration encouraged, CH = Critical habitat

THREATENED, ENDANGERED, AND OTHER SPECIES OF CONCERN LIKELY TO OCCUR IN WALTON COUNTY, FLORIDA  
 Compiled by U.S. Fish and Wildlife Service, June 2000

Common Name	Scientific Name	Status State	Status FWS	Natural Communities
Tricolored heron	<i>Egretta tricolor</i>	SSC		ESTUARINE: marshes, tidal swamps, shoreline LACUSTRINE: lake edges PALUSTRINE: swamp, floodplain, ruderal RIVERINE: shoreline
Arctic peregrine falcon	<i>Falco peregrinus tundrius</i>	E	E(s/a)	ESTUARINE: winters along coasts LACUSTRINE: various PALUSTRINE: various TERRESTRIAL: various, ruderal
Southeastern kestrel	<i>Falco sparverius paulus</i>	T	ce	ESTUARINE: various habitats PALUSTRINE: various habitats TERRESTRIAL: open pine forests, clearings, ruderal, various
American oystercatcher	<i>Haematopus palliatus</i>	SSC		ESTUARINE: exposed unconsolidated substrate, exposed mollusk reef MARINE: exposed unconsolidated substrate, exposed mollusk reef TERRESTRIAL: beaches, ruderal areas
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	T	ESTUARINE: marsh edges, tidal swamp, open water LACUSTRINE: swamp lakes, edges PALUSTRINE: swamp, floodplain RIVERINE: shoreline, open water TERRESTRIAL: pine and hardwood forests, clearings
Wood stork	<i>Mycteria americana</i>	E	E	ESTUARINE: marshes LACUSTRINE: floodplain lakes, marshes (feeding), various PALUSTRINE: marshes, swamps, various
Brown pelican	<i>Pelecanus occidentalis</i>	SSC		ESTUARINE: islands for nesting, open water MARINE: open water
Red-cockaded woodpecker	<i>Picoides borealis</i>	T	E	TERRESTRIAL: mature pine forests
Least tern	<i>Sterna antillarum</i>	T		ESTUARINE: various LACUSTRINE: various RIVERINE: various TERRESTRIAL: beach dune, ruderal. Nests common on rooftops.
<b>MAMMALS:</b>				

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Common Name	Scientific Name	Status State	Status FWS	Natural Communities
Choctawhatchee beach mouse	<i>Peromyscus polionotus allophrys</i>	E	E CH	TERRESTRIAL: beach dune, coastal scrub. Bay Co.: St. Andrew State Rec. Area mainland (CH) and Shell Island (CH), Tyndall Air Force Base Shell Island (CH). Walton Co.: Grayton Beach State Rec. Area (main CH & western units), Topsail Hill State Preserve (CH), Deer Lake State Park, Camp Creek, Four-Mile Village, Town of Grayton Beach and Seagrove Beach, Seaside. Okaloosa Co. historic range.
Southeastern big-eared bat	<i>Plecotus rafinesquii</i>		ce	PALUSTRINE: various, floodplains TERRESTRIAL: pine and hardwood forests, ruderal, various
Eastern chipmunk	<i>Tamias striatus</i>	SSC		TERRESTRIAL: slope forest, upland hardwood forest, upland pine forest
West Indian manatee	<i>Trichechus manatus latirostris</i>	E	E	ESTUARINE: submerged vegetation, open water MARINE: open water, submerged vegetation RIVERINE: alluvial stream, blackwater stream, spring-run stream
Florida black bear	<i>Ursus americanus floridanus</i>	T	ce	PALUSTRINE: titi swamps, floodplains TERRESTRIAL: pine and hardwood forests
<b>INVERTEBRATES:</b>				
<b>PLANTS:</b>				
Southern three-awned grass	<i>Aristida simpliciflora</i>		ce	PALUSTRINE: wet flatwoods TERRESTRIAL: sandhill, mesic flatwoods, old fields
Toothed savory	<i>Calamintha dentata</i>		ce	TERRESTRIAL: sandhill, roadsides
Curtiss' sandgrass	<i>Calamovilfa curtissii</i>	T	ce	PALUSTRINE: mesic and wet flatwoods, wet prairie, depression marsh TERRESTRIAL: mesic flatwoods
Sweet shrub	<i>Calycanthus floridus</i>	E		TERRESTRIAL: upland hardwood forest, slope forest, bluffs PALUSTRINE: bottomland forest, stream banks, floodplains

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 Compiled by U.S. Fish and Wildlife Service, June 2000

Common Name	Scientific Name	Status State	Status FWS	Natural Communities
Baltzell's sedge	<i>Carex baltzellii</i>	T	ce	TERRESTRIAL: slope forest, moist sandy loam; moist sandy loam
Godfrey's golden aster	<i>Chrysopsis godfreyi</i>		ce	TERRESTRIAL: beach dunes, coastal grassland
Cruise's golden-aster	<i>Chrysopsis gossypina cruiseana</i>	E	ce	TERRESTRIAL: coastal dunes, coastal strand, coastal grassland; openings and blowouts
Spoon-leaved sundew	<i>Drosera intermedia</i>	T		LACUSTRINE: sinkhole lake edges PALUSTRINE: seepage slope, wet flatwoods, depression marsh RIVERINE: seepage stream banks, drainage ditches
Wiregrass gentian	<i>Gentiana pennelliana</i>	E	ce	PALUSTRINE: seepage slope, wet prairie, roadside ditches TERRESTRIAL: mesic flatwoods, planted slash pine
Heartleaf	<i>Hexastylis arifolia</i>	T		RIVERINE: seepage stream bank TERRESTRIAL: slope forest
Panhandle spiderlily	<i>Hymenocallis henryae</i>	E	ce	PALUSTRINE: dome swamp edges, wet prairie, wet flatwoods, baygall edges, swamp edges TERRESTRIAL: wet prairies and flatwoods
Florida anise	<i>Illicium floridanum</i>	T		PALUSTRINE: floodplain forest, baygall RIVERINE: seepage stream bank TERRESTRIAL: slope forest, seepage slope
Mountain laurel	<i>Kalmia latifolia</i>	T		RIVERINE: seepage stream bank TERRESTRIAL: slope forest, seepage stream banks
Southern red lily	<i>Lilium catesbaei</i>	T		PALUSTRINE: wet prairie, wet flatwoods, seepage slope TERRESTRIAL: mesic flatwoods, seepage slope; usually with grasses
Panhandle lily	<i>Lilium iridollae</i>	E	ce	PALUSTRINE: baygall, dome swamp edges, mucky soil, seepage slope, edges of titi bogs, RIVERINE: blackwater stream banks

E = endangered, T = threatened, P = proposed, C = candidate, s/a = Similarity of appearance,  
 SSC = Species of Special Concern, ce = Consideration encouraged, CH = Critical habitat

THREATENED, ENDANGERED, AND OTHER SPECIES OF CONCERN LIKELY TO OCCUR IN WALTON COUNTY, FLORIDA  
 Compiled by U.S. Fish and Wildlife Service, June 2000

Common Name	Scientific Name	Status State	Status FWS	Natural Communities
Gulf coast lupine	<i>Lupinus westianus</i>	T	ce	TERRESTRIAL: beach dune, scrub, disturbed areas, roadsides, blowouts in dunes
Hummingbird flower	<i>Macranthera flammea</i>	E		PALUSTRINE: seepage slope, dome swamp edges, floodplain swamps RIVERINE: seepage stream banks TERRESTRIAL: seepage slopes
Cucumber magnolia	<i>Magnolia acuminata</i>	E		TERRESTRIAL: slope forest, upland mixed forest
Ashe's magnolia	<i>Magnolia ashei</i>	E		TERRESTRIAL: slope and upland hardwood forest, ravines
Pyramid magnolia	<i>Magnolia pyramidata</i>	E		TERRESTRIAL: slope forest
Piedmont water-milfoil	<i>Myriophyllum laxum</i>		ce	LACUSTRINE: sandhill upland lake, submersed PALUSTRINE: floodplain and dome swamp RIVERINE: blackwater stream, roadside ditches
Purple cliff brake	<i>Pellaea atropurpurea</i>	E		TERRESTRIAL: upland glade
Yellow butterwort	<i>Pinguicula lutea</i>	T		PALUSTRINE: flatwoods, bogs
Chapman's butterwort	<i>Pinguicula planifolia</i>	T	ce	PALUSTRINE: wet flatwoods, seepage slopes, bog, dome swamp, ditches; in water
Primrose-flower butterwort	<i>Pinguicula primulifolia</i>	E		PALUSTRINE: bogs, pond margins, margins of spring runs
Yellow fringed orchid	<i>Platanthera ciliaris</i>	T		PALUSTRINE: bogs, wet flatwoods TERRESTRIAL: Bluff
Yellow fringeless orchid	<i>Platanthera integra</i>	E	ce	PALUSTRINE: wet prairie, seepage slope TERRESTRIAL: mesic flatwoods
Snowy orchid	<i>Platanthera nivea</i>	T		PALUSTRINE: bogs
Large-leaved jointweed	<i>Polygonella macrophylla</i>	T	ce	TERRESTRIAL: scrub, sand pine/oak scrub ridges
Panhandle meadowbeauty	<i>Rhexia salicifolia</i>		ce	LACUSTRINE: sandhill upland lake, shallow water

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Common Name	Scientific Name	Status State	Status FWS	Natural Communities
Orange azalea	<i>Rhododendron austrinum</i>	E		PALUSTRINE: bottomland forest RIVERINE: seepage stream bank TERRESTRIAL: slope forest, upland mixed forest
White-top pitcher plant	<i>Sarracenia leucophylla</i>	E	ce	PALUSTRINE: wet prairie, seepage slope, baygall edges, ditches
Parrot pitcher plant	<i>Sarracenia psittacina</i>	T		PALUSTRINE: wet flatwoods, wet prairie, seepage slope
Decumbant pitcher plant	<i>Sarracenia purpurea</i>	T		PALUSTRINE: Bogs
Red-flowered pitcher plant	<i>Sarracenia rubra</i>	T		PALUSTRINE: bog, wet prairie, seepage slope, wet flatwoods RIVERINE: seepage stream banks
Silky camellia	<i>Stewartia malacodendron</i>	E		PALUSTRINE: baygall PALUSTRINE: slope forest, upland mixed forest, TERRESTRIAL: slope forest, upland mixed forest; acid soils
Pineland hoary-pea	<i>Tephrosia mohrii</i>		ce	TERRESTRIAL: sandhill
Cooley's meadowrue	<i>Thalictrum cooleyi</i>	E	E	PALUSTRINE: seepage slope, edges of shrub bogs, disturbed areas; one site on Champion International Corp. land
Chapman's crownbeard	<i>Verbesina chapmanii</i>	T	ce	PALUSTRINE: seepage slope TERRESTRIAL: mesic flatwoods with wiregrass ( <i>Aristida stricta</i> )
Yellow-root	<i>Xanthorhiza simplicissima</i>	E		RIVERINE: seepage stream; sandy banks
Karst pond xyris	<i>Xyris longisepala</i>	E		LACUSTRINE: sandhill upland lake margins

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