Council has opened DFARS Case 97– D033 to revise DFARS Subpart 204.70, Uniform Procurement Instrument Identification Numbers, to address various issues associated with the use of Procurement Instrument Identification Numbers (PIINs) and Supplemental Procurement Instrument Identification Numbers (SPIINs).

a. Among the revisions under consideration is one to increase the length of SPIINs used to identify call or order numbers under contracts awarded by another activity from 4 characters to 13, or possibly 15, characters. This revision is similar to a revision included in an earlier proposed rule, DFARS Case 92-D044, that was published in the Federal Register on August 18, 1994 (59 FR 42566), and that was withdrawn on December 28, 1994 (59 FR 66884), in response to public comments addressing the significant cost impact it would have on existing automated systems. The notice withdrawing the proposed rule stated that ". . . both industry and Government should ensure that these proposed revisions can be accommodated in any future automated systems." The DAR Council is interested in hearing from industry and Government activities with respect to their ability to accommodate such a change at this time. The Council asks that respondents specifically address whether assignment of a unique 13 (or possibly 15) character SPIIN for every order (i.e., every call or order would have a completely unique SPIIN, and, therefore, could be tracked by reference to its SPIIN only) would improve the potential benefits of the contemplated revision.

b. Other issues under consideration include:

1. To ensure compatibility with automated systems that use contract numbers, should there be a uniform contract numbering system, or an agreed upon maximum number of characters, for basic contract numbers assigned to all contracts subject to the Federal Acquisition Regulation or, at least, to any such contracts that may have calls or orders issued under them by other agencies?

2. Is there a need to use more than two digits to designate the fiscal year within PIINs, and possibly SPIINs, to avoid potential Year 2000 problems in automated systems?

Michele P. Peterson,

Executive Edtior, Defense Acquisition Regulations Council.

[FR Doc. 97-32757 Filed 12-15-97; 8:45 am] BILLING CODE 5000-04-M DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AE48

Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for Catesbaea Melanocarpa

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The Service proposes to determine Catesbaea melanocarpa (no common name) to be an endangered species pursuant to the Endangered Species Act of 1973, as amended (Act). *Catesbaea melanocarpa* is known from Puerto Rico, St. Croix in the U.S. Virgin Islands, Barbuda, Antigua, and Guadeloupe. In Puerto Rico, it is currently known from only one location in Cabo Rojo, and in the U.S. Virgin Islands, it is known from one location near Christiansted, St. Croix. Both populations are located on privately owned land subject to intense pressure for development for residential, tourism and industrial purposes. This proposal, if made final, would implement the Federal protection and recovery provisions afforded by the Act for C. melanocarpa. The Service seeks data and comments from the public on this proposal.

DATES: Comments from all interested parties must be received by February 17, 1998. Public hearing requests must be received by January 30, 1998.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Field Supervisor, Boquerón Field Office, U.S. Fish and Wildlife Service, P.O. Box 491, Boquerón, Puerto Rico 00622. Comments and materials received will be available for public inspection, by appointment, during normal business hours at this office.

FOR FURTHER INFORMATION CONTACT: Ms. Susan Silander, Botanist, at the Boquerón Field Office (see ADDRESSES section) (787/851–7297, facsimile 787/851–7440).

SUPPLEMENTARY INFORMATION:

Background

Catesbaea melanocarpa (no common name) was first discovered in the midnineteenth century on the British island of Antigua by the German collector Hienrich Rudolph Wullschlaegel. It was found in St. Croix, U.S. Virgin Islands, in about 1881 by the Danish collector Baron H. F. A. von Eggers and in Guánica, Puerto Rico, by the German collector Paul Sintenis in 1886. Although duplicate specimens are maintained at other herbariums, the original collections were in the herbarium at Berlin-Dahlem and were destroyed by the bombing during World War II.

The species has also been reported from Barbuda and Guadeloupe, islands of the Lesser Antilles (Howard 1989, Proctor 1991). While little is known about the plant's status on these islands, the Center for Plant Conservation (1992) describes it as rare on Antigua. It was not rediscovered in St. Croix until 1988 and to date, it has not been relocated in the Guánica, Puerto Rico, area. The St. Croix population, located near Christiansted, consists of about 24 individual plants (Breckon and Kolterman 1993). In 1995, a small population, consisting of one individual, was located in Cabo Rojo, Puerto Rico (Puerto Rico Planning Board 1995). One specimen, collected in 1974, located in the herbarium in San Juan apparently originated from the Susúa Commonwealth Forest. However, this specimen is sterile and in depauperate condition; therefore, its identification cannot be confirmed.

Catesbaea melanocarpa, of the family Rubiaceae, belongs to a genus which consists of ten or more species of spiny shrubs. Most are confined to the Antilles but some may extend into the Bahamas and the Florida Keys. In Puerto Rico, two species are known-C. melanocarpa and C. parviflora. These two species are differentiated by the size and color of the fruits, black and larger, 5 to 6 millimeters (mm) (.19 to .23 inches (in)) in diameter. in the former and white and smaller 2 to 4 mm (.07 to .15 in) in diameter, in the latter (Breckon and Kolterman 1993, Britton and Wilson 1925). Some authors note that C. melanocarpa may be a synonym or variant of C. parviflora (Howard 1989, Proctor 1991) and recommend further review. However, Breckon and Kolterman (1993) and the Center for Plant Conservation (1992) recommend its protection due to the extremely small number of individuals currently known, the intense pressure for development in these areas, and the potential for an appreciable loss of the species' genetic diversity.

Catesbaea melanocarpa is a branching shrub which may reach approximately 3 meters (9.8 feet) in height. Spines are borne at every internode and are from 1 to 2 centimeters (.39 to .78 in) long. Leaves are small, from 5 to 25 mm (.19 to 1.0 in) long and 2 to 15 mm (.07 to .58 in) wide, often fascicled (clustered), and the small stipules are deciduous. The flowers are white, solitary or paired, and almost sessile in the axils. The corolla is funnelform and from 8 to 10 mm (.31 to .39 in) long. The fruit is globose, 5 to 6 mm (.19 to .23 in) in diameter, and black with a crustaceous pericarp. The two-celled fruit contains five to seven seeds in each cell (Proctor 1991).

Previous Federal Action

Catesbaea melanocarpa was identified as a category 2 candidate species in Notices of Review published in the Federal Register on February 21, 1990 (55 FR 6184), and September 30, 1993 (58 FR 51144). Prior to 1996, a category 2 species was one that was being considered for possible addition to the Federal List of Endangered and Threatened Plants, but for which conclusive data on biological vulnerability and threats were not available to support a proposed rule. Designation of category 2 species was discontinued in the February 28, 1996, Notice of Review (61 FR 7956). Catesbaea melanocarpa was approved as a candidate by the Service on September 6, 1995, and identified as a candidate in the 1996 Notice of Review. A candidate species is a species for which the Service has sufficient information to propose it for protection under the Act. This small shrub is considered a "critical" plant species by the Natural Heritage Program of the Puerto Rico Department of Natural and Environmental Resources. The Center for Plant Conservation (1992) has assigned the species a Priority Status of A (a species which could possibly go extinct in the wild in the next 5 years).

Because of budgetary constraints and the lasting effects of a congressionally imposed listing moratorium, the Service is processing listing actions according to the listing priority guidance published in the Federal Register on December 5, 1996 (61 FR 64475). The guidance clarifies the order in which the Service will process listing actions during fiscal year (FY) 1997. The guidance calls for giving highest priority to handling emergency situations (Tier 1) and second highest priority (Tier 2) to resolving the status of outstanding proposed listings. Third priority (Tier 3) is given to resolving the conservation status of candidate species and processing administrative findings on petitions to add species to the lists or reclassify threatened species to endangered status. The processing of this proposed rule falls under Tier 3. At this time, the Southeast Region has no pending Tier 1 actions and is near completion of its pending Tier 2 actions. Additionally, the guidance states that "effective April 1, 1997, the Service will

concurrently undertake all of the activities included in Tiers 1, 2, and 3" (61 FR 64480). The Service announced an extension on October 23, 1997, (62 FR 55268) of the guidance for FY 1997. The guidance will remain in effect until the FY 1998 appropriations bill for the Department of the Interior becomes law and new final guidance is published in the **Federal Register**.

Summary of Factors Affecting the Species

Section 4 of the Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Catesbaea melanocarpa* (Krug and Urban) are as follows:

A. The present or threatened destruction, modification, or curtailment of its habitat or range. Catesbaea melanocarpa is known only from Puerto Rico, St. Croix, Barbuda, Antigua, and Guadeloupe. Available information indicates that it is rare on Antigua (Center for Plant Conservation 1992). In Puerto Rico, it is known from a single individual on privately owned land. In St. Croix it is known from only one population consisting of about 24 individuals, also on privately owned land. The known individual from Cabo Rojo, Puerto Rico, is located on land currently proposed for a residential/ tourism development consisting of a hotel, condo-hotel, residential villas and lots, a golf course, and other associated facilities. In St. Croix, the population is located near Christiansted on land also subject to pressure for development.

B. Overutilization for commercial, recreational, scientific, or educational purposes. The use of the species for such purposes has not been documented as a factor in its decline.

C. *Disease or predation*. Disease and predation have not been documented as factors in the decline of this species.

D. The inadequacy of existing regulatory mechanisms. The Commonwealth of Puerto Rico has adopted a regulation that recognizes and provides protection for certain Commonwealth listed species. However, *Catesbaea melanocarpa* is not yet on the Commonwealth list. Federal listing would provide immediate protection under the Act and, by virtue of an existing section 6 agreement with the Commonwealth, listing will also assure the addition of this species to the Commonwealth list and enhance possibilities for funding needed research. The Territory of the U.S. Virgin Islands has amended an existing regulation to provide for protection of endangered and threatened wildlife and plants. *Catesbaea melanocarpa* is considered by the U.S. Virgin Islands to be endangered (see "Available Conservation Measures" for discussion of prohibitions). As with the Commonwealth, the existence of a section 6 Cooperative Agreement with the Service will increase possibilities for funding needed research with this plant.

E. Other natural or manmade factors affecting its continued existence. One of the most important factors affecting the continued survival of this species is its limited distribution. Because so few individuals are known to occur, the risk of extinction is extremely high. Catastrophic natural events, such as hurricanes, may dramatically affect forest species composition and structure by felling large trees and creating numerous canopy gaps. Breckon and Kolterman (1993) documented the loss of individuals in St. Croix following the passing of hurricane Hugo in 1989.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the preferred action is to list Catesbaea *melanocarpa* as endangered. Within the United States, the species is known from only one locality in Puerto Rico and one in St. Croix, U.S. Virgin Islands. Deforestation for residential and tourism development are imminent threats to the survival of the species. Therefore, endangered rather than threatened status more accurately describes the species' condition. The reasons for not proposing critical habitat for this species are discussed below in the "Critical Habitat" section.

Critical Habitat

Critical habitat is defined in section 3 of the Act as: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. "Conservation" means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary shall propose critical habitat at the time the species is proposed to be endangered or threatened. Service regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when one or both of the following situations exist—(1) the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. The Service finds that designation of critical habitat for Catesbaea melanocarpa is not prudent because such designation would not be beneficial to the species.

Critical habitat designation, by definition, directly affects only Federal agency actions through consultation under section 7(a)(2) of the Act. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat. Neither of the two known populations of Catesbaea melanocarpa occur on Federal land. However, Federal involvement with this species may occur through the use of Federal funding for rural housing and development on non-Federal lands. The use of such funding for projects affecting occupied habitat for this species would be subject to review under section 7(a)(2), whether or not critical habitat was designated. The precarious status of C. melanocarpa is such that any adverse modification or destruction of its occupied habitat would also jeopardize its continued existence. This would also hold true as the species recovers and its numbers increase. In addition, the Service believes that notification of Federal agencies of the areas where these plants occur can be accomplished without the designation of critical habitat. All involved parties and landowners have been notified of the location and importance of protecting this species' habitat. For these reasons, the Service believes that designation of currently occupied habitat of this species as critical habitat would not result in any additional benefit to the species and that such designation is not prudent.

Potential introduction sites within unoccupied lands occur on lands under Federal management (Cabo Rojo, Laguna Cartagena and Sandy Point National Wildlife Refuges) and Commonwealth management (Guánica Commonwealth

Forest). As managers of these subtropical dry forest lands, the Service and the Puerto Rico Department of Natural and Environmental Resources are actively involved in conservation activities. Both agencies are committed to the protection of these forested areas and would minimize or avoid any impacts to such habitat. Any introduction would be closely coordinated with the area's managers. Introduction of this species onto unoccupied private lands likely would not be pursued because suitable habitat under private ownership occurs only in very small patches which are interspersed among developed areas and are too small for introduction. For these reasons, the Service believes that designation of currently unoccupied habitat of this species as critical habitat would not result in any additional benefit to the species and, therefore, such designation is not prudent.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, Commonwealth, Territory and private agencies, groups and individuals. The Act provides for possible land acquisition and cooperation with the Commonwealth and/or Territory and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is subsequently listed, section 7(a)(2)requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or to destroy or adversely modify its critical

habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. No critical habitat is being proposed for this species, as discussed above. Federal involvement may include Federal funding for rural housing and development (for example, funding by agencies such as the Rural Development or Housing and Urban Development).

The Act and its implementing regulations set forth a series of general trade prohibitions and exceptions that apply to all endangered plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export any endangered plant, transport it in interstate or foreign commerce in the course of a commercial activity, sell or offer it for sale in interstate or foreign commerce, or remove and reduce to possession the species from areas under Federal jurisdiction. In addition, for plants listed as endangered, the Act prohibits the malicious damage or destruction on areas under Federal jurisdiction and the removal, cutting, digging up, or damaging or destroying of endangered plants in knowing violation of any Commonwealth or Territorial law or regulation, including Commonwealth or Territorial criminal trespass law. Certain exceptions can apply to agents of the Service and Commonwealth and Territorial conservation agencies.

The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered plants under certain circumstances. Such permits are available for scientific purposes and to enhance the propagation and survival of the species. It is anticipated that few trade permits for this species will ever be sought or issued, since the species is not known to be in cultivation and is uncommon in the wild.

It is the policy of the Service, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable those activities that would or would not constitute a violation of section 9 of the Act at the time of listing. The intent of this policy is to increase public awareness of the effect of listing on proposed or ongoing activities. The only known populations of *Catesbaea melanocarpa* are located on privately owned land. Since there is no Federal ownership, and the species is not currently in trade, the only potential section 9 involvement would relate to removing or damaging the plant in knowing violation of Commonwealth or Territorial law, or in knowing violation of Commonwealth or Territorial criminal trespass law. Section 15.01(b) of the Commonwealth "Regulation to Govern the Management of Threatened and Endangered Species in the Commonwealth of Puerto Rico'' states: "It is illegal to take, cut, mutilate, uproot, burn or excavate any endangered plant species or part thereof within the jurisdiction of the Commonwealth of Puerto Rico." The U.S. Virgin Island regulation states that "no person may harass, injure or kill, or attempt to do the same, or sell or offer for sale any specimen, or parts or produce of such specimen, of an endangered or threatened species." The Service is not aware of any otherwise lawful activities being conducted or proposed by the public that will be affected by this listing and result in a violation of section 9.

Questions regarding whether specific activities will constitute a violation of section 9 should be directed to the Field Supervisor of the Service's Caribbean Field Office (see **ADDRESSES** section). Requests for copies of the regulations on listed species and inquiries regarding prohibitions and permits should be addressed to the U.S. Fish and Wildlife Service, Ecological Services, 1875 Century Boulevard, Atlanta, Georgia 30345–3301 (404/679–7313).

Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning any aspect of this proposed rule are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to *Catesbaea melanocarpa*; (2) The location of any additional populations of this species and the reasons why any habitat should or should not be determined to be critical habitat pursuant to section 4 of the Act;

(3) Additional information concerning the range, distribution, and population size of this species; and

(4) Current or planned activities in the subject areas and their possible impacts on this species.

Final promulgation of the regulation on *Catesbaea melanocarpa* will take into consideration the comments and any additional information received by the Service, and such communications may lead to a final regulation that differs from this proposal.

The Act provides for one or more public hearings on this proposal, if requested. Requests must be filed within 45 days of the proposal. Such requests must be made in writing and addressed to the Supervisor, Boquerón Field Office (see ADDRESSES section).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment and Environmental Impact Statements, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Required Determinations

The Service has examined this regulation under the Paperwork Reduction Act of 1995 and found it to contain no information collection requirements.

References Cited

Breckon, G. and D. Kolterman. 1993. *Catesbaea melanocarpa* Krug & Urban [Rubiaceae]. Final Report under Cooperative Agreement No. 14–16–0004– 92–970 between the U.S. Fish and Wildlife Service and the University of Puerto Rico, Mayaguez Campus.

Britton, N.L. and P. Wilson. 1925. Scientific survey of Porto Rico and the Virgin Islands. Volume VI—Part 2. Botany of Porto Rico and the Virgin Islands. Descriptive flora— Spermatophyta (continued). New York Academy of Sciences, New York. 158 pp.

- Center for Plant Conservation. 1992. Report on the Rare Plants of Puerto Rico. Missouri Botanical Garden, St. Louis, Missouri.
- Howard, R.A. 1989. Flora of the Lesser Antilles. Leeward and Windward Islands. Volume 6. Dicotyledoneae—Part 3. Arnold Arboretum, Harvard University, Jamaica Plain, Massachusetts. 658 pp.
- Liogier, H.L. and L.F. Martorell. 1982. Flora of Puerto Rico and Adjacent Islands: a systematic synopsis. Editorial de la Universidad de Puerto Rico, Río Piedras, Puerto Rico. 342 pp.
- Proctor, G. R. 1991. Puerto Rican plant species of special concern. Status and recommendations. Publicacion Cientifica Miscelanea No. 2. Departamento de Recursos Naturales de Puerto Rico. San Juan, Puerto Rico. 197 pp.
- Puerto Rico Planning Board. 1995. Draft Environmental Impact Statement for Monte Carlo Resort and Boqueron Bay Site. San Juan, Puerto Rico. 88 pp.

Author. The primary author of this proposed rule is Ms. Susan Silander, Boquerón Field Office (see ADDRESSES section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, the Service hereby proposes to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17-[AMENDED]

1. The authority citation for Part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. Amend section 17.12(h) by adding the following, in alphabetical order under FLOWERING PLANTS, to the list of Endangered and Threatened Plants:

§17.12 Endangered and threatened plants.

* *

(h) * * *

Species		Listoria rongo	Family	Ctatua	When listed	Critical	Special
Scientific name	Common name	mistoric range	Family	Status	when listed	habitat	rules
FLOWERING PLANTS	*	*	*	*	*		*
Catesbaea melanocarpa.	None	U.S.A. (PR, VI) Anti- gua, Barbuda, Guadeloupe.	Rubiaceae	E		NA	NA
*	*	*	*	*	*		*

Dated: November 25, 1997. Director, Fish and Wildlife Service, Jamie Rappaport Clark, [FR Doc. 97–32738 Filed 12–15–97; 8:45 am] BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AE38

Endangered and Threatened Wildlife and Plants; Proposed Rule to List the Flatwoods Salamander as Threatened

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule and notice of petition finding.

SUMMARY: The U.S. Fish and Wildlife Service (Service) proposes to list the flatwoods salamander (Ambystoma *cingulatum*) as a threatened species under the authority of the Endangered Species Act of 1973, as amended (Act). This salamander occurs in isolated populations scattered across the lower southeastern Coastal Plain in Florida, Georgia, and South Carolina. Habitat loss and degradation from agriculture. urbanization, and silvicultural practices have resulted in the loss of over 80 percent of its pine flatwoods habitat. Surviving populations are currently threatened by the continued destruction and degradation of their habitat. This proposed rule, if made final, would extend the Act's protection to this species.

DATES: Comments from all interested parties must be received by February 17, 1998. Public hearing requests must be received by January 30, 1998. ADDRESSES: Comments and materials concerning this proposal should be sent to the Field Supervisor, U.S. Fish and Wildlife Service, 6578 Dogwood View Parkway, Jackson, Mississippi 39213. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Ms. Linda LaClaire at the above address, or telephone 601/965–4900, Ext. 26; facsimile 601/965–4340.

SUPPLEMENTARY INFORMATION:

Background

The earliest reference to the flatwoods salamander, *Ambystoma cingulatum*, was by Cope in 1867 from specimens he collected in Jasper County, South Carolina (referenced in Martof 1968). This salamander is a member of the family Ambystomatidae, the mole salamanders, which contains 15 North American species. A phylogenetic analysis of ambystomatid salamanders was used to determine that the flatwoods salamander is most closely related to the ringed salamander (*A. annulatum*), which occurs in portions of Arkansas, Missouri, and Oklahoma (Shaffer *et al.* 1991).

The flatwoods salamander is a slender, small-headed mole salamander that rarely exceeds 13 centimeters (cm) (approximately 5 inches (in)) in length when fully mature (Means 1986, Conant and Collins 1991, Ashton 1992). Adult dorsal color ranges from black to chocolate-black with highly variable fine, light gray lines forming a netlike or cross-banded pattern across the back (Palis 1996). Undersurfaces are plain gray to black with a few creamy or pearl-gray blotches or spots. Sexual dimorphism is only apparent in breeding males (swollen cloacal region) or in gravid females. Adults most closely resemble Mabee's salamander, A. mabeei, with which it shares part of its range in South Carolina (Martof 1968). Mabee's salamanders are often more brownish; have light flecking concentrated on their sides rather than the overall pattern of the flatwoods salamander; and have a single row of jaw teeth as opposed to multiple rows in the flatwoods salamander (Conant and Collins 1991).

Flatwoods salamander larvae are long and slender, broad-headed and bushygilled, with white bellies and striped sides (Means 1986, Ashton 1992, Palis 1995d). They have distinctive color patterns, typically a tan mid-dorsal stripe followed by a grayish black dorsolateral stripe, a pale cream midlateral stripe, a blue-black lower lateral stripe and a pale yellow ventrolateral stripe (Palis 1995d). The head has a dark brown stripe passing through the eye from the nostril to the gills (Means 1986).

Optimum habitat for the flatwoods salamander is an open, mesic woodland of longleaf/slash pine (Pinus palustris/P. elliottii) flatwoods maintained by frequent fires. Pine flatwoods are typically flat, low-lying open woodlands that lie between the drier sandhill community upslope and wetlands down slope (Wolfe et al. 1988). An organic hardpan, 0.3 to 0.7 meters (m)(1 to 2 feet) into the soil profile, inhibits subsurface water penetration and results in moist soils with water often at or near the surface (Wolfe et al. 1988). Historically, longleaf pine generally dominated the flatwoods with slash pine restricted to the wetter areas (Wolfe

et al. 1988). Wiregrasses (*Aristida* sp.), especially *A. beyrichiana*, are often the dominant grasses in the herbaceous ground cover (Wolfe *et al.* 1988). The ground cover supports a rich herbivorous invertebrate community which serves as a food source for the flatwoods salamander.

Adult and subadult flatwoods salamanders are fossorial (adapted for living underground) (Mount 1975). They enlarge crayfish burrows (Ashton 1992) or build their own. Captive flatwoods salamanders have been observed digging burrows and resting at night with just the tip of their heads exposed (Goin 1950). Preliminary data indicate that flatwoods salamander males first breed at 1 year of age and females at 2 years of age (Palis 1996). There are no data on survivorship by age class for the species. The longevity record for their close relative, A. annulatum, is 4 years, 11 months; however, many Ambystomatidae live 10 years or longer (Snider and Bowler 1992).

Adult flatwoods salamanders move to their wetland breeding sites during rainy weather, in association with cold fronts, from October to December (Palis 1997). Breeding sites are isolated (not connected to any other water body) pond cypress (Taxodium ascendens), blackgum (Nyssa sylvatica var. biflora), or slash pine dominated depressions which dry completely on a cyclic basis. They are generally shallow and relatively small. Breeding sites in Florida have a mean size of 1.49 hectares (ha) (3.68 acres (ac)) and a mean depth of less than 39.2 cm (15.4 in) (Palis, in press). These wetlands have a marsh-like appearance with sedges often growing throughout and wiregrasses (Aristida sp.), panic grasses (Panicum spp.), and other herbaceous species concentrated in the shallow water edges. Trees and shrubs grow both in and around the ponds. A relatively open canopy is necessary to maintain the herbaceous component which serves as cover for flatwoods salamander larvae and their aquatic invertebrate prey. Flatwoods salamander larvae were not captured in sample plots with a high proportion of detritus or open water in a study on the Apalachicola National Forest in Florida (Sekerak et al., in press). Ponds typically have a burrowing cravfish fauna (genus Procambarus) and a diverse macroinvertebrate fauna, but lack large predatory fish (e.g., Lepomis (sunfish), Macropterus (bass), Amia calva (bowfin)).

Before the breeding sites become flooded, the males and females court and the females lay their eggs (singly or in clumps) beneath leaf litter, under logs