Scutellaria floridana

(Florida skullcap)

5-Year Review:
Summary and Evaluation

Photos by Vivian Negron-Ortiz

U.S. Fish and Wildlife Service
Southeast Region
Panama City Field Office
Panama City, Florida

5-YEAR REVIEW
***Scutellaria floridana* (Florida skullcap)**

I. GENERAL INFORMATION

A. Methodology used to complete the review

This review was accomplished using information obtained from the plant's 1994 Recovery Plan, unpublished field survey results, reports of current research projects, peer reviewed scientific publications, unpublished field observations by Service, State, and other experienced biologists, and personal communications. These documents are on file at the Panama City Field Office. A *Federal Register* notice announcing the review and requesting information was published on April 16, 2008 (73 FR 20702). No part of this review was contracted to an outside party. Comments and suggestions from peer reviewers were incorporated as appropriate (see Appendix A). This review was completed by the Service's lead Recovery botanist in the Panama City Field Office, Florida.

B. Reviewers

Lead Field Office: Dr. Vivian Negrón-Ortiz, Panama City Field Office, 850-769-0552 ext. 231

Lead Region: Southeast Region: Kelly Bibb, 404-679-7132

Peer reviewers:

Dr. Jean Huffman, Ecologist, St. Joseph Bay State Buffer Preserve, 3915 County Road 30A, Port Saint Joe, Florida 32456-7542

Ms. Louise Kirn, District Ecologist, Apalachicola National Forest, P.O. Box 579, Bristol, Florida 32321

Ms. Lisa Keppner, 4406 Garrison Road, Panama City, Florida 32404

C. Background

1. FR Notice citation announcing initiation of this review: 73 FR 20702 (April 16, 2008)

2. Species status: Unknown (Recovery Data Call 2008); the species status is unknown until all the Element Occurrences[1] (EOs) are revisited. See section II.C.1.a for current information.

[1] Element Occurrence (EO): an area of land and/or water in which a species or natural community is, or was, present. For species, it corresponds with the local population (portion of a population or a group of nearby populations). It is also referred to as occurrence, location, or site.

3. Recovery achieved: 2 (26-50% recovery objectives achieved); see section II.B.3 for details on recovery criterion and actions, and how each action has or has not been met.

4. Listing history

Original Listing
FR notice: 57 FR 19813
Date listed: May 8, 1992
Entity listed: species
Classification: threatened

5. Associated rulemakings*:* Not applicable

6. Review History

2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, and 2008 – Recovery Data Call.
1994 Recovery Plan

7. Species' Recovery Priority Number at start of review (48 FR 43098): The Florida skullcap is assigned a recovery priority of 2 because the degree of threat to its persistence is high, it is a species, and has a high recovery potential.

8. Recovery Plan

Name of plan: Recovery Plan for four plants of the lower Apalachicola Region, Florida: *Euphorbia telephioides* (telephus spurge), *Macbridea alba* (white birds-in-a-nest), *Pinguicula ionantha* (Godfrey's butterwort), and *Scutellaria floridana* (Florida skullcap).
Date issued: June 22, 1994

II. REVIEW ANALYSIS

A. Application of the 1996 Distinct Population Segment (DPS) policy

The Act defines species as including any subspecies of fish or wildlife or plants, and any distinct population segment of any vertebrate wildlife. This definition limits listing DPS to only vertebrate species of fish and wildlife. Because *S. floridana* is a plant, the DPS policy is not applicable and is not addressed further in this review.

B. Recovery Criteria

1. Does the species have a final, approved recovery plan containing objective, measurable criteria?

The recovery plan includes a recovery objective for delisting the species as well as the criterion. The objectives are to guarantee that the populations in Apalachicola National Forest (ANF) are secure, and to conserve the species outside the ANF by protecting habitat through land acquisition, and changes in management practices on government land, rights-of way (ROW), and private

landowners. For delisting the species, the goal is to adequately protect and manage 15 populations distributed throughout the species' historical range for 10 years. The plan states that these goals are by necessity only preliminary, and they will be refined.

2. Adequacy of recovery criteria.

a. Do the recovery criteria reflect the best available and most up-to-date information on the biology of the species and its habitat?

No. The recovery criteria were based on the available data at the time the plan was published 15 years ago.

b. Are all of the 5 listing factors that are relevant to the species addressed in the recovery criteria (and is there no new information to consider regarding existing or new threats)?

Yes. The recovery plan addressed factors 1, 4, and 5. See section II.C.2 for description of current information and threats.

3. List the recovery criteria as they appear in the recovery plan, and discuss how each criterion has or has not been met, citing information.

The recovery plan lists a delisting criterion to adequately protect and manage 15 populations distributed throughout the species' historical range for 10 years. At present, we have about 14 protected and managed populations (one population at Lathrop Bayou, three at SBSBP, three in THSF, and possibly seven in ANF). We summarize our progress below under existing recovery actions. Additional detail on all EOs can be found below in II. C. 1.

Thes recovery criterion addresses factors 1, 4, and 5. Factors 2 and 3 are not relevant to *S. floridana*. Recovery actions 1 (1.1, 1.3), 2, and 3 address factors 4 and 5. Recovery actions 1-5 address factor 1.

Recovery action 1: Protect population in Apalachicola National Forest and on other public lands

This recovery action is ongoing.

1.1. Management/general monitoring in Apalachicola National Forest
Management is an ongoing action conducted by the U.S. Forest Service (Forest Service). The ANF has a yearly 120,000^{+} acre prescribed burning program (L. Kirn, 2009, pers. comm.). According to L. Kirn (2009, pers. comm.), two to three compartments are burned every year during the growing and dormant seasons, or both.

1.2. Conduct population biology studies
Pollinators are critical to the long-term persistence of many flowering plant species because they provide a mechanism for ensuring seed set. Pitts-Singer et al. (2002) studied the pollinator-plant relationship of *S. floridana* at two

sites in ANF. Ten inflorescences were observed for six hrs over two days in 1999, and 10 flowers were monitored for six hrs in 2000. Only megachilid bees and possibly halictid bees displayed behavior that may have resulted in pollination of the flowers.

Other population biology studies such as genetic and demography, have not been carried out (see section IV, actions 2 and 4).

1.3. Conduct botanical inventories on public land, possible purchase areas, and selected private land.

This recovery action is ongoing and conducted primarily by the Forest Service, FWS botanist, and FNAI.

No land acquisition has been accomplished for specific protection of *S. floridana*.

Recovery action 2: Manage rights-of-way

This recovery action is ongoing and conducted primarily by the Florida Department of Transportation (FDOT). Mowing is the common practice to maintain ROWs in Florida, and FDOT has implemented a program of reduced mowing along state highways in order to decrease costs for maintenance roadsides and to encourage the growth of native wildflowers (Keppner, 2009, pers. comm.). In addition, the Forest Service only allows spot treatment application of herbicide in the ANF.

Recovery action 3: Protect and manage these plants outside Apalachicola National Forest.

This recovery action has been partially met.

3.1. Secure protection

To date, about 7 protected populations have been secured: three populations on the St. Joseph Bay State Buffer Preserve (SJBSBP), Gulf County; one population at Lathrop Bayou, Bay County; and three populations at Tate's Hell State Forest (THSF), Franklin County.

3.2. Develop and implement management and monitoring plans for protected sites

Management plans have been developed and implemented by the: 1) Bureau of Land Management (BLM) and the St. Joe Timberland Company (Timberland Company) for the Lathrop Bayou (BLM 2003), and 2) Florida Department of Environmental Protection for the SJBSBP. Recently, the Plant Conservation Program of the Florida Division of Forestry provided management recommendations, i.e., application of prescribed fire, to assist THSF land managers in prioritizing stands that contain federally listed threatened plant species (FDF 2009).

Recovery action 4: Systematics and other studies

This recovery action has not been met.

Recovery action 5: Garden propagation and reintroduction
This recovery action is ongoing. Plants are being held in a botanical garden and the following work has been done with them. Seed germination and plant transplantation experiments were conducted at Historic Bok Sanctuary (Bok Sanctuary), Lake Wales, Florida during 2006 and 2007. Three whole plants, 18 stem cuttings, seven rhizomes, and 16 seeds were collected from the ANF, Liberty County; 95 seeds were collected from SJBSBP, Gulf County; and 764 seeds were collected from Lathrop Bayou, Bay County (Peterson and Campbell 2007). While whole plant survival was high, stem cuttings and rhizomes were not optimal propagation techniques for *S. floridana*. Seed germination was 1) high for seeds collected in October and sown five weeks post-collection, and 2) low for seeds collected in May and sown eight weeks post-collection. Currently, the Bok Sanctuary has 664 seeds in cold storage and 24 plants in a collection bed; additional work has not been done (Campbell, 2009, pers. comm.).

C. Updated Information and Current Species Status

1. Biology and Habitat

a. Abundance, population trends

Scutellaria floridana is endemic to the Florida Panhandle, and occurs in Bay, Gulf, Franklin, and Liberty counties (Fig. 1). Several locations appear to be extirpated by development, and/or habitat modification. We have poor information regarding trends because surveys were conducted irregularly and based on either presence/absence and/or qualitative visual estimate of the density of Florida scullcap (Jenkins et al. 2007, Kirn, 2009, pers. comm.); most sites were visited only once; and the actual counts of plants were rarely provided. Many data points could be counted in more than one EO. Points within 1 km should all be associated with one EO (A. Jenkins, 2008, pers. comm.; Fig. 1). The information below is organized by county.

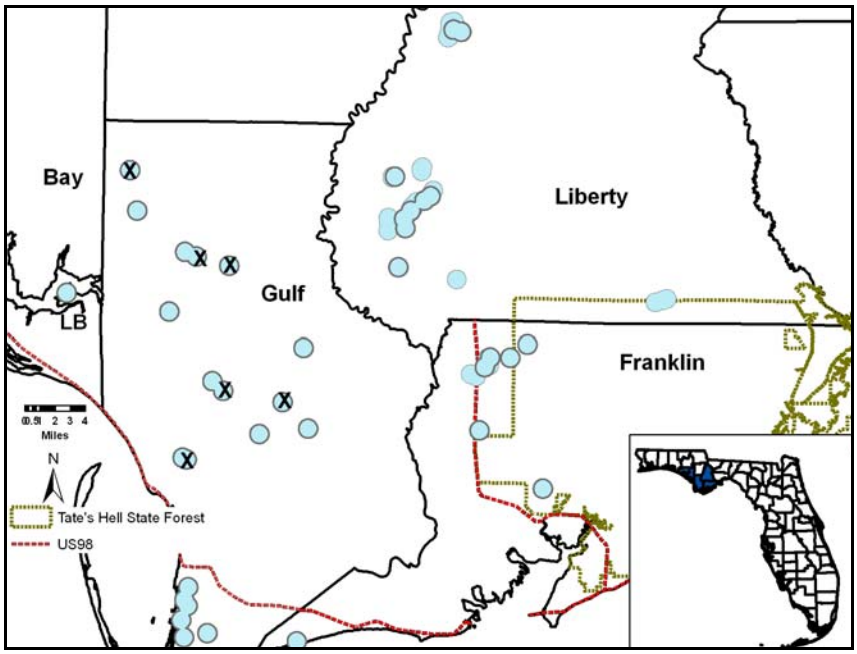

Fig. 1. Map of Florida (inset) showing the counties and locations of *S. floridana*. LB= Lathrop Bayou; X = EOs with populations or plants not found during FNAI 2000 survey.

Bay County

A population of three plants was first reported in 1997 for the BLM property at the Lathrop Bayou (Fig. 1). This site was surveyed on 2008 by a FWS botanist and about 550+ plants in different reproductive stages (flowering, fruiting, vegetative) were counted. According to L. Keppner (2009, pers. comm.), with the implementation of management more than 2,000 plants have been found.

Gulf County

Twenty FNAI populations were documented between 1954 and 2003. However, several data points, found within 1 km, could be associated with one EO. Thus, technically we consider 14 EOs to be present (Fig. 1). Estimated counts were only stated for 13 of the occurrences, ranging from 587 to 1,851+ plants. Plants for six occurrences located on private land and documented between 1954 and 1989 were not found during FNAI 2000 and 2001 surveys (FNAI 2008). Most sites were referred to as 'possibly extirpated', and a few sites were found in a dense slash pine plantation or disturbed areas. Two of the six possibly extirpated sites were left highly fragmented. Four of these occurrences were re-surveyed in 2008 and 2009, but plants were not found by the FWS botanist. The occurrences were found in disturbed areas, near railroads, in ditches, or destroyed (V. Negrón-Ortiz, 2008 and 2009 surveys). Three sites are protected and well managed with prescribed fire at the SJBSBP (Fig. 1).

Franklin County

Nine FNAI populations were documented between 1987 and 2007. Several data points, found within 1 km, could be associated with one EO. Thus, technically we consider seven EOs to be present. Total estimated counts for the seven EOs range from 1,670 to 2,609+ plants.

Three of the seven EOs known to occur in Franklin county are in THSF and were examined in the peak of flowering season in 2008 (FDF 2008, Negron-Ortiz 2008 survey). Two populations were located, each with several individuals. The population that was not found was in an area historically fire suppressed and disturbed by feral hogs (FDF 2008).

Liberty County

Ten FNAI populations were documented between 1954 and 2007. In 2007, FNAI re-surveyed two EOs and found six new EOs at the ANF. Data points found within 1 km could be associated with one EO. Thus, technically we consider seven EOs to be present. Total estimated counts for the seven EOs range from 6,816 to 7,282+ plants. These populations are protected and well managed with prescribed fire in ANF.

b. Genetics, genetic variation, or trends in genetic variation:
Genetic studies have not been conducted for this species.

c.Taxonomic classification or changes in nomenclature:

Kingdom:	Plantae
Division:	Magnoliophyta
Class:	Magnoliopsida
Order:	Lamiales
Family:	Lamiaceae
Genus:	*Scutellaria*
Species:	*floridana* Chapman
Common name:	Florida skullcap

Description: The Florida skullcap is a perennial herb with quadrangular stems and opposite leaves. The flowers are solitary, with a bell shaped calyx and bright lavender-blue corolla. The corolla has two lips, the lower one being white in the middle. The stigma sticks out from under the flower hood with the anthers residing inside. Bumblebees, megachilids and halictids are probably important pollinators. Plants flower from mid-April through early July and are most prolific after a fire.

Recent taxonomic or phylogenetic studies have not been conducted on this species.

d. Spatial distribution, trends in spatial distribution, or historic range

To date, S. *floridana* is still found in the same four counties in which it was previously found. Based on information provided by FNAI (2008) and recent surveys, there were 40 historically documented occurrences. However, points within 1 km should all be associated with one EO, therefore we technically consider 29 EOs to be present. Habitat modification, i.e., understory without ground cover, dense slash pine plantation, or habitat completely destroyed, has resulted in (or potentially resulted in) extirpation of four populations and has left two sites highly fragmented (Fig. 1).

Locations of nine populations were revisited by FNAI, FDF, and FWS botanist during 2007 and 2008 surveys. Plants were present at five of these populations.

Based on the EOs evaluation, this species appears to be declining in population and plant number (see sections C1a, and D for details).

e. Habitat or ecosystem conditions (e.g., amount, distribution, and suitability of the habitat or ecosystem):

The primary habitat of Florida skullcap is wet longleaf pine flatwoods and wet prairie, within the grassy seepage bog communities at the edge of forested or shrubby wetlands, a habitat defined as a fire-dependent community. It is also found in the ecotones between mesic flatwoods and swamps sites or grassy margins of wetland habitats, and somewhat disturbed wetland savanna. Florida skullcap can be found growing in full sun or light shade, and in low nutrient, acid, or sandy soil (USFWS 1994, Jenkins et al. 2007).

It is locally abundant in the ANF and the SJBSBP, where fire management is maintained. This species has a strong flowering response to recent burns (Negron-Ortiz, 2009, pers. observ.), blooming most abundantly the spring or summer following a fire.

2. Five-Factor Analysis (threats, conservation measures, and regulatory mechanisms)

a. Present or threatened destruction, modification or curtailment of its habitat or range

Habitat modification is the primary threat identified in the Recovery Plan for *S. floridana*, and remains the main threat to date for this plant. Timbering, urban development, and fire management and suppression in this region have changed the ecosystems. The threats are discussed in more detail below:

1. Pulpwood production in the outer Coastal Plain in the Apalachicola Basin
The timber industry in North Florida became well established in the 1850s (FNAI 2005). It started in Franklin County in the 1870s and continued to be a prominent

industry until the mid-1990s (Howell and Hartsell 1995). The St. Joe Timberland Company had close to a million acres in timber in the eastern region of the panhandle and they plan to continue to harvest and replant indefinitively. The Company also owned a paper mill in Port St. Joe until it was sold and shut down in 1999. According to J. Huffman (2009, pers. comm. to Negron-Ortiz) tree farming, i.e., privately owned forest managed (clearcutting, mechanical site preparation, and pine plantations) for timber production, is a primary threat since there still is a mill in Panama City (Bay County) and there are many thousands of acres of tree farms that are smothering out *S. floridana* (as in around the SJBSBP). Therefore, tree farming is a threat to this species.

2. Coastal real estate and road development

Urban development continues to threaten Florida skullcap. The St. Joe Timberland Company still owns the former extensive timber land in Northwest Florida, and now focuses on commercial and residential development along roadways and near or within business districts in the region. Urbanized land in Florida, statewide, is projected to double by 2060 along with doubling of the population to 36 million (http://www.1000friendsofflorida.org/PUBS/2060/01-Northwest-Florida).

Several *S. floridana's* locations are found along U.S. and state roads. Construction activity may directly kill individual plants or convert habitat to unsuitable space; widening may convert native habitat to managed roadside; and culvert modification may change drainage patterns, which may change seasonal hydrology. Therefore, development, road widening and new roads continue to pose a threat to the species from direct habitat loss to severe habitat modification. As explained under C.1.e, this plant has unique habitat characteristics. Working together with partners on road maintenance activities, we can find possible alternatives that will support or maintain *S. floridana.*

3. Fire suppression

Suppression of fire continues to threaten the pineland and savanna's flora since fire is essential for the maintenance of flatwoods (Abrahamson and Hartnett 1990). Fire influences community structure and composition (Abrahamson and Hartnett 1990), and with insufficient frequency in longleaf pine communities, a woody midstory quickly develops (Glitzenstein et al. 1995), negatively affecting the understory diversity.

Thus, fire suppression continues to be a threat to *S. floridana*. Lack of fire, and subsequent growth of shrubs (particularly encroachment of *Cyrilla racemiflora* L., commonly known as swamp titi) and saplings in the understory, in addition to shading by planted pines, inhibits this species emergence (Negrón-Ortiz, 2008, pers. observ.; FNAI 2008). Declining fire frequency reduces *S. floridana* abundance in areas where it was previously observed in great quantities (FNAI 2008). In recently burned areas, however, plant emergence is prolific within one year of the fire event (L. Keppner, 2008, pers. comm.).

Several studies have shown that frequent prescribed fire regimes are important for maintenance of flatwoods diversity (Hiers et al. 2007). Therefore, frequent

prescribed burnings, i.e., 1-3 yr interval, are needed to maintain optimal *S. floridana* populations. At present, the ANF utilizes a 3-5 yr interval burn rotation, Lathrop Bayou uses a 2-7 yr interval, and SJBSBP uses a 2-5 yr interval.

b. Overutilization for commercial, recreational, scientific, or educational purposes:

There is no evidence to suggest that this factor is a threat.

c. Disease or predation:

There is no evidence to suggest that this factor is a threat.

d. Inadequacy of existing regulatory mechanisms

Section 7(b)(4) and 7(b)(2) of the Act generally do not apply to listed plants species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of Federally listed threatened and endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of endangered plants on non-Federal areas in violation of state law or regulations or in the course of any violation of a state criminal trespass law. Several populations of *S. floridana* occur on private timberland and ROWs. While the Act requires Federal agencies to carry out programs for the conservation of endangered and threatened species, no such programs are stipulated for private landowners. Neither section of the Act provides protection for plants on private lands as long as the activity is permissible under state/local laws. The State requires permission of private landowners for collecting of state-listed plants from their property.

Scutellaria floridana is protected under Florida State Law, chapter 85-426, which includes preventions of taking, transport, and the sale of the plants listed under the State Law. The rule Chap. 5B-40, Florida Administrative Code, contains the "Regulated Plant Index" (5B-40.0055) and lists endangered, threatened, and commercially exploited plant species for Florida; defines the categories; lists instances where permits may be issued; and describes penalties for violations (http://www.virtualherbarium.org/EPAC).

Bay County code of ordinance (chapter 19- Environmental Standards), under sections 1907 and 1909, provides restrictions, constraints and requirements to protect and preserve designated habitat conservation areas for rare, threatened, or endangered species, and wetlands (http://www.municode.com/Resources/gateway.asp?pid=14281&sid=9). Gulf, Franklin, and Liberty Counties do not have such regulations.

Highway ROW maintenance activities are not always reviewed for threatened and endangered species impact. However, if there is an activity (e.g., construction, mowing, or maintenance projects) affecting protected species, then the Service can recommend consultation under the Act to the FDOT (M. Mittiga, 2009, pers. comm.). The FDOT routinely consults with the Service on all major road construction activities. Currently, these protections are inadequate; see section IV, action 5.

e. Other natural or manmade factors affecting its continued existence

Herbicide. While the Recovery Plan mentioned that the use of herbicide or the wrong type of herbicide is a threat when it is used to control vegetation on power line ROWs, we no longer consider this a threat to Florida skullcap because mowing is now the common practice to maintain ROWs in Florida. Franklin County allows only "spot treatment" due to impacts concerning the ANF and waters within Apalachicola Bay and River basin.

D. Synthesis

Florida skullcap is presently located in four Florida panhandle counties (Fig. 1). It is extremely vulnerable because of its limited distribution within its historic range and low numbers. The main threat for this species is habitat loss and modification. Conversion of much of the forest land to pulpwood plantations (clearcutting, mechanical site preparation, and pine plantations) has possibly extirpated some populations. Development pressures in the Florida panhandle are extreme; urbanized land is projected to increase two-fold in the near future. Overcollection is not a threat, and no problems have been detected with disease and predation.

Land conversion coupled with disruption of fire regimes of the longleaf pine ecosystem is responsible for the rapid decline of the ecosystems where *S. floridana* is found. Where frequent fire is implemented, it stimulates the emergence of individuals and maintains healthy, stable populations (e.g., populations at ANF, Lathrop Bayou, and SJSBP). While either dormant or growing season fires can maintain *S. floridana* populations, lightning or growing- season burns help reduce woody competition in wetland edges and appear to be more effective in restoring *S. floridana* habitat and populations than dormant season fires alone.

Current survey information indicates a decline in the number of populations. 29 EOs distributed throughout this species range were documented between 1954 and 2007 with an estimated 10,073 to 12,742 plants for 28 of these EO's. Based on current survey information, four (14 %) of these 29 EOs appear to be extirpated by development and/or habitat modification, and two additional EOs were left highly fragmented. The estimated maximum counts of plants were also affected, with a decrease of 13 % in numbers; only an estimated 11,101 plants are now reported for those EOs. However, since surveys were conducted irregularly and based on either presence/absence and/or qualitative visual estimate of the density of Florida skullcap (Bridges and Orzell 2005, Jenkins et al. 2007, Kirn, 2009, pers. comm.); with most sites visited only once; and the actual counts of plants rarely provided, a comprehensive population survey is needed in order to update the current classification of this species.

Consequently, *S. floridana* continues to meet the definition of a threatened species as a result of habitat destruction or modification due to development and fire suppression, and the effect of these threats into this plant's present narrow distribution and low population numbers. Studies have demonstrated that very small populations face a considerable risk of extinction, while the risk for populations with more than 1000 individuals is quite

small (Given 1994, Matthies et al. 2004, Menges 1990). As a result, since most of the *S. floridana* populations have less than 1000 individuals, any impact to existing populations could cause loss of these populations. Since there are about 13 protected populations some implemented management under less than 10 years, the criterion for delisting the species, i.e., protect and manage 15 populations distributed throughout the species' historical range for 10 years, has not been met.

III. RESULTS

A. Recommended Classification**:**
__X_ No change is needed

B. New Recovery Priority Number: 2c
As the species is in conflict with development and growth, the conflict category 'c' has been added to the Recovery Priority number.

IV. RECOMMENDATIONS FOR FUTURE ACTIONS

1. Complete a comprehensive census (e.g., the total number of individuals, number of flowering vs. non-flowering plants, and whether seedling recruitment is occurring) throughout the present distribution including all the historical locations to determine the population numbers and range.
2. Determine the levels and distribution of genetic diversity. Knowledge of the levels and distribution of genetic variation in species of conservation concern can be important for the development of efficient and effective conservation practices. For example, the identification of populations with rare alleles or with elevated levels of genetic diversity may lead to greater efforts for their preservation relative to less genetically unique populations.
3. Conduct surveys/inventories on potentially new sites. This action can include the use of species distribution modeling methods to initially determine potential sites, with subsequent validation or inspection of the sites for plants.
4. Conduct population studies.
    a. Studies on the viability of dry-stored seeds, the timing of germination, and whether a persistent seed bank is present should be addressed.
    b. Establish and implement monitoring to address demography. Plants should be monitored several times during the first 12-month period to assess the best monitoring schedule (e.g. annually, biannually). Data from monitoring should be evaluated through 5-year reviews.
        - Establish permanent plots on protected locations throughout the species' historical range. Priority for populations should include those sites that can be managed with fire. For each plot:
            - Estimate the density, and abundance of individuals.

- If possible, investigate basic ecological questions (e.g., pollinators; flowering period; annual variability in flowering; seed production).
- Monitor the effect of fire (if the areas are burned) on density, fecundity, and size structure.

5. Manage ROWs

   Continue fostering conservation practices for utility and highway ROWs with the Forest Service, Talquin Electric, FDOT, and USFWS; a management plan should be developed and implemented.

6. The recovery plan should be updated to define objective measurable criteria and better address the five factors.

V. REFERENCES

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U.S. FISH AND WILDLIFE SERVICE 5-YEAR REVIEW
Scutellaria floridana (Florida skullcap)

Current Classification: Threatened

Recommendation resulting from the 5-Year Review
__x__ No change is needed

The review was completed by botanist Dr. Vivian Negrón-Ortiz, Panama City Field Office.

FIELD OFFICE APPROVAL:

Lead Field Supervisor, Fish and Wildlife Service

Approve _____ Date 6-3-09

REGIONAL OFFICE APPROVAL:

Acting
Lead Regional Director, Fish and Wildlife Service

Approve _____ Date 6-11-09

APPENDIX A
Summary of peer review for the 5-year review of
***Scutellaria floridana* (Florida skullcap)**

A. Peer Review Method

The document was peer-reviewed internally by Lorna Patrick and Janet Mizzi of the Panama City Field Office. Once the comments were added to the document, it was sent to three outside reviewers (see below). The outside peer reviewers were chosen based on their qualifications and knowledge of the species.

B. Peer Review Charge: The below guidance was provided to the reviewers.

1. Review all materials provided by the Service.
2. Identify, review, and provide other relevant data that appears not to have been used by the Service.
3. Do not provide recommendations on the Endangered Species Act classification (e.g., endangered, threatened) of the species.
4. Provide written comments on:
   - Validity of any models, data, or analyses used or relied on in the review.
   - Adequacy of the data (e.g., are the data sufficient to support the biological conclusions reached). If data are inadequate, identify additional data or studies that are needed to adequately justify biological conclusions.
   - Oversights, omissions, and inconsistencies.
   - Reasonableness of judgments made from the scientific evidence.
   - Scientific uncertainties by ensuring that they are clearly identified and characterized, and those potential implications of uncertainties for the technical conclusions drawn are clear.
   - Strengths and limitation of the overall product.
5. All peer reviews and comments will be public documents, and portions may be incorporated verbatim into our final document with appropriate credit given to the author of the review.

C. Summary of Peer Review Comments/Report

Ms. Kirn and **Dr. Huffman** provided a few editorial comments. Dr. Huffman provided a copy of a plant survey conducted in 2005 for the SJBSBP.

Ms. Keppner provided a careful review using the peer review guidance and several editorial comments related to ROW, St. Joe Timberlands Company forestry business, FDOT mowing program, and the section on population trends. In summary, she concluded that the review was well documented and used the best available data. She indicated that *S. floridana* was first observed at Lathrop Bayou in 1997 and the number of recorded individuals.

D. Response to Peer Review

All peer reviewer comments were evaluated and incorporated where appropriate.