

Florida Golden Aster (*Chrysopsis floridana*)

**5-Year Review:
Summary and Evaluation**



**U.S. Fish and Wildlife Service
Jacksonville Ecological Services Field Office
Southeast Region
Jacksonville, Florida**

5-YEAR REVIEW
Florida golden aster/*Chrysopsis floridana*

I. GENERAL INFORMATION

A. Methodology used to complete the review: In conducting this 5-year review, we relied on available information pertaining to historic and current distributions, life history, and habitat of this species. The Service lead recovery biologist for this species conducted the review. Our sources include the final rule listing this species under the Act; the recovery plan; peer reviewed scientific publications; unpublished field observations by the Service, State, and other experienced biologists; unpublished survey reports; and notes and communications from other qualified biologists. The public notice for this review was published on April 16, 2008, with a 60-day public comment period. No comments were received for this species.

B. Reviewers

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

Lead Field Office - Jacksonville, FL, Ecological Services: Annie Dziergowski, 904-731-3089

Cooperating Field Office(s) - Vero Beach, FL, Ecological Services: Marilyn Knight, 772-562-3909

C. Background

1. **FR Notice citation announcing initiation of this review:** 73 FR 20702, April 16, 2008
2. **Species status:** Improving (2008 Recovery Data Call). *Chrysopsis floridana* is a Florida endemic only known to occur in Hillsborough, Hardee, Manatee, and Pinellas Counties, Florida. The status has been listed as improving since 2008 because additional surveys conducted in 2004, 2006, and 2008 found additional *C. floridana* on conservation lands in Hillsborough, Manatee, and Pinellas Counties and on private lands in Hardee County. Management has continued to occur on properties in these counties and additional sites with *C. floridana* are being reported. In June 2008, 410 plants grown from seeds were transplanted to the Southwest Florida Water Management District's (SWFWMD) Cordell site in Manatee County. Approximately 600 more plants are scheduled to be planted at this site in 2009, as well as 500 plants on land acquired by Pinellas County through Florida's Preservation 2000 program. The Partners for Fish and Wildlife program has been working with landowners and has helped to fund additional plantings that will help expand the historic range of this species.

3. **Recovery achieved:** 3 (50-75% recovery objectives achieved), 2008 Recovery Data Call.

4. **Listing history:**
Original Listing
FR notice: 51 FR 17974
Date listed: May 16, 1986
Entity listed: Species
Classification: Endangered

5. **Associated rulemakings:** None

6. **Review History:**

A previous 5-year review for this species was noticed on November 6, 1991 (56 FR 56882). In this review, the status of many species was simultaneously evaluated with no in-depth assessment of the five factors, threats, etc. as they pertained to the individual species. The notices summarily listed these species and stated that no changes in the designation of these species were warranted at that time. In particular, no changes were proposed for the status of the species in this review.

Final Recovery Plan - 1988

Recovery Data Call - 2008, 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, and 1998.

7. **Species' Recovery Priority Number at start of review (48 FR 43098):**
5. The "5" indicates a high degree of threat and low recovery potential.

8. **Recovery Plan:**

Name of plan: Recovery Plan for Florida Golden Aster

Date issued: August 29, 1988

II. REVIEW ANALYSIS

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

1. **Is the species under review listed as a DPS?** No. The Act defines species as including any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate wildlife. This definition limits listing DPS to only vertebrate species of fish and wildlife. Because the species under review is a plant, the DPS policy is not applicable.

B. Recovery Criteria

1. **Does the species have a final, approved recovery plan containing objective, measurable criteria?** Yes
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. New information on this species has been collected since the recovery plan was written in 1988. As a result, the recovery goals and criteria should be revised to address the recovery actions needed to reduce threats to this species.
 - 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. Factor A (present or threatened destruction, modification, or curtailment of its habitat or range) was identified as the primary threat affecting the species when the recovery criteria were developed.
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. For threats-related recovery criteria, please note which of the 5 listing factors are addressed by that criterion. If any of the 5-listing factors are not relevant to this species, please note that here.**

In 1988, the recovery criteria for *Chrysopsis floridana* were:

Reclassification to threatened status when 10 geographically distinct self-sustaining populations of the plant are protected in Hardee, Hillsborough, Manatee, and Pinellas Counties, Florida. Delisting can be considered when 20 geographically distinct self-sustaining populations of the plant are protected in one or more of the same four counties.

Of the five listing factors, habitat loss from development due to urbanization and the lack of management (prescribed fire or limited

disturbance) (Factor A) was the only factor addressed in the recovery plan. Currently, 12 sites (Rhodine Scrub, Balm-Boyette Scrub, Alafia Scrub, Goldenaster Scrub, Bell Creek Scrub, Bullfrog Creek Mitigation Park, Little Manatee River State Park, Moody Branch Mitigation Park, Lake Manatee State Park, Fort Desoto County Park, Boyd Hill Nature Preserve, and Cordell) meet the recovery criteria of being protected in Hillsborough, Manatee, and Pinellas Counties. These sites have been managed by either prescribed fire or mechanical treatments. Two additional sites with this species occur on private lands in Hardee County where efforts are underway to establish agreements with the landowners to protect these sites. In the late 1980s, this species was reintroduced at several sites in Pinellas County; however, only two sites, Fort Desoto County Park and Boyd Hill Nature Preserve, have been actively managed and still support plants. In 2008, plants were reintroduced at the SWFWMD's Cordell site. Most of the plants have reproduced and further reintroduction at other areas at this site is planned for summer of 2009. In 2009, additional reintroduction will take place on Pinellas County park. Factors B, C, D, and E have not been documented as threats at this time.

C. Updated Information and Current Species Status

1. Biology and Habitat

- a. **Abundance, population trends, demographic features, or demographic trends:** *Chrysopsis floridana* was first documented in Manatee County in 1901, and additional sites were found in Pinellas County in 1921 and Hillsborough County in 1924 (Wunderlin et al. 1981). Historically, there are no estimates as to the abundance of this species since most of the sites were impacted by extensive urbanization. Surveys conducted by Wunderlin in 1981 found plants along Bradenton Beach in Manatee County and at several sites in Hillsborough County. Most of these areas were on private land. In the 1988 recovery plan, the Service determined that *C. floridana* was extirpated at sites in Manatee and Pinellas Counties, but in the late 1980s, *C. floridana* was introduced at several sites in Pinellas County. Additional surveys by Wunderlin in 1987 found plants further inland in both Manatee and Hardee Counties (USFWS 1988).

In 2000, there were 20 known sites throughout Hillsborough County where the plant occurred. Florida Natural Areas Inventory (FNAI) conducted surveys in 2004 in Hillsborough County on Environmental Lands Acquisition and Protection Program (ELAPP) lands. During the 2004 surveys, FNAI was able to survey 13 of the 20 sites (Cox et al. 2004). Of the 13

sites, seven had *C. floridana*, one had suitable habitat but no plants, and habitat was either cleared or destroyed at the remaining five sites. Of the seven occupied sites, there was an estimated 850 plants. Since the surveys took place in November when the species would be flowering, most of the plants appeared to be reproducing with seedlings and flowering adults.

In 2006, FNAI resurveyed most of the previous sites on ELAPP lands as well as additional sites in Hardee and Manatee Counties. FNAI had received reports of plants occurring on 30 sites in 2006, but was only able to survey 25 of these sites (Johnson et al. 2006). The estimated number of plants at all these sites was approximately 7,900 individuals. The sites surveyed in Hardee County were all located on private lands with an estimated 200-300 plants found at two of these sites. Two sites (Lake Manatee State Park and Moody Branch Mitigation Park) in Manatee County, both on public lands, had an estimated 300 plants.

Follow-up surveys in 2007 and 2008 by Bok Towers Garden (BTG), Hillsborough County staff, and FNAI found that many of the managed and protected lands in Hillsborough County have $\pm 1,000$ plants. Sites surveyed included Rhodine Scrub, Balm-Boyette Scrub, Alafia Scrub, Goldenaster Scrub (all ELAPP lands), and The Florida Fish and Wildlife Conservation Commission's Bullfrog Creek Mitigation Park. Additional sites in Hillsborough County (Little Manatee State Park), Manatee County (Moody Branch Mitigation Park and Lake Manatee State Park), and Pinellas County (Boyd Hill Nature Preserve and Fort Desoto County Park) all have ± 100 plants (Campbell 2008).

Reintroduction Efforts

In 1986 and 1987, projects to reintroduce *C. floridana* at several sites in Hillsborough and Pinellas Counties took place using seeds collected from Summertime Lake Estates (now ELAPP Bell Creek Scrub) and Shadow Run Subdivision in Hillsborough County. Reintroduction took place at two sites in Hillsborough County (Lithia Springs and Alderman's Ford Park); however, plants have not been found subsequently at either site (Campbell 2008). There were seven sites (Clearwater Nature Center, Boyd Hill Nature Preserve, Fort Desoto County Park, Taylor Lake Park, Anderson Park, Magnolia Falls, and Joe's Creek) in Pinellas County where *C.*

floridana was reintroduced. Plants were reintroduced at Boyd Hill Nature Preserve in 1989 with plants cultivated at BTG. Plants were successfully reintroduced at Fort Desoto County Park from wild-collected seeds from Shadow Run Subdivision (USFWS 1999). In November 2008, a Service biologist conducted site visits to several of these sites in Pinellas County and determined that only three sites (Boyd Hill Nature Preserve, Fort Desoto County Park, and Magnolia Falls) supported plants. The habitat at Magnolia Falls was severely degraded and only two plants were found (Campbell 2008).

The Service funded BTG in 2007 to collect *C. floridana* seed from existing donor sites, propagate, and eventually reintroduce the plants to suitable recipient sites. Although several reintroduction sites were considered, the first planting occurred at SWFWMD's Cordell Site in June 2008. The donor sites for the seed collection were on protected lands (Rhodine Scrub, Alafia Scrub, Bell Creek, and Goldenaster Scrub) all owned and managed by Hillsborough County. Two additional sites owned and managed by the FWC (Bullfrog Creek Mitigation Park in Hillsborough County and Moody Branch Mitigation Park in Manatee County) were used as donor sites for seeds (Campbell 2008).

BTG undertook an analysis of seeds that were harvested in 2001, 2003, and 2005 from various sites in Hillsborough and Manatee Counties and stored at BTG with those collected in 2007 (Campbell 2008). Two hundred seeds from each site were tested to see if they were "empty" (soft, gave when lightly squeezed) or "full" (hard, did not give when lightly squeezed). All of the seed sets were found to have 50-55% full seeds (Campbell 2008). Additional seeds were collected in December 2008 at several sites in Hardee, Hillsborough, and Manatee Counties. Additional germination trials conducted in 2008 found that seeds older than two years are more prone to fungal outbreaks than younger seed and are less likely to germinate.

The full seeds were germinated in a warm and cold growth chamber as well as in the greenhouse. Total germination rates for the growth chambers averaged 50% while rates in the greenhouse were 21%. The total germination mortality in the warm chamber was 9% compared to 2% in the cool chamber; however, the greenhouse had the highest rate of mortality at 19%. Overall, the cool chamber resulted in rapid germination rates, and the highest seedling survivorship, both in trays and

after being moved to larger pots and/or moved to the greenhouse environment. The warm chamber had the quickest germination rates but suffered the greatest loss once moved to larger pots and/or moved to the greenhouse (Campbell 2008).

In June and August 2008, 410 seedlings were planted at two sites at SWFWMD Cordell East. Both sites had been hydro axed and burned in July of 2006. The first site was planted with 297 seedlings and the second site was planted with 113 seedlings (Campbell 2008). An additional 86 plants will be introduced in 2009 for a total of 496 plants for Cordell East. Five hundred more plants will be introduced at the Cordell West site in 2009 for a total of 996 plants introduced at the Cordell property by the end of 2009.

On November 4, 2008, BTG, USFWS, and SWFWMD completed the first demographic monitoring of the newly introduced plants at Cordell East. All plants were located and data was collected on plant survival, life stage, and reproductive status. Total mortality at both sites was a low 4% (1% from the first planting and 3% from the second planting). Over 59% of the total number of plants had reproductive stalks (buds, flowers, and seedlings) (Campbell 2008). Budding and flowering percentages seem to be consistent with other sites including Balm-Boyette Scrub and the Hardee County sites. Seeds have been collected from these sites and are now being propagated at BTG for future reintroductions (C. Campbell, BTG, personal communication, 2009).

BTG also worked with three private landowners in Hardee County at sites where *C. floridana* is found, and seeds were successfully collected at these sites in December 2008 (C. Campbell, BTG, personal communication, 2009). Seeds were also collected from plants at additional sites in Hillsborough County at Balm-Boyette Scrub. These seed collections will provide additional genetic variability for reintroduction at other sites.

Reintroduction of 500 *C. floridana* at a Pinellas County park is scheduled to take place in the summer of 2009. The Service's Partners for Fish and Wildlife program is working with Pinellas County Parks and Recreation to restore the habitat prior to the reintroduction. Monitoring of this site and the Cordell sites will take place in November or December 2009.

Additional reintroduction at sites within the historic range of *C. floridana* is possible at several additional sites in Manatee and Pinellas Counties. These include Duette Park (Manatee County Park and Recreation) and Gilley Creek (SWFWMD) in Manatee County and several sites on Pinellas County lands.

- b. Genetics, genetic variation, or trends in genetic variation:**
In 1998, a study was conducted to compare genetic variation of *C. floridana* from nine different sites in Hillsborough County. Markham (1998) found that there were little genetic differences between sites. Based on these findings, it was determined that seeds from different sites could be used without loss of genetic information. Thus, a recommendation was made to evaluate the recovery potential of this species based on the number of individuals and not the number of populations (Markham 1998). Currently BTG is using various seed sources from Hillsborough and Manatee Counties for the reintroduction at the Cordell sites located in Manatee County. Additional genetic testing will occur once new plants are established, but we do not believe that there will be any major genetic differences between these plants and those at the source sites.
- c. Taxonomic classification or changes in nomenclature:**
None. The Integrated Taxonomic Information System (ITIS 2009) was checked while conducting this review.
- d. Spatial distribution, trends in spatial distribution, or historic range:** Historically, *C. floridana* was considered an endemic to the Tampa Bay region of central Florida, which includes Hillsborough, Hardee, Manatee, and Pinellas Counties. The historic distribution of this species could not be determined accurately since most of the suitable habitat in this region had been lost to development by the late 1980s (USFWS 1988, 1999). When the species was listed in 1988, it was thought to occur only in Hillsborough County and extirpated throughout the rest of its range. However, in the past 20 years, conservation lands have been acquired in Hillsborough, Manatee, and Pinellas Counties, and the *C. floridana* sites on these lands are now protected.

Past surveys conducted in 2000, 2004, and 2006 found *C. floridana* on many of the Hillsborough County conservation lands purchased through ELAPP since the program began in 1987. There are five sites acquired through ELAPP that have large populations (± 1000 plants). These include Rhodine Scrub, Balm-Boyette Scrub, Alafia Scrub, Goldenaster Scrub,

and Bell Creek. Management plans for the county properties have incorporated best management practices for *C. floridana* including prescribed fire, ground disturbance, and eradication of invasive non-native vegetation. Hillsborough County continues to apply prescribed burning or mechanical treatments at most of these sites and the plants have responded extremely well. Only Alafia Scrub has not been actively managed with prescribed fire since it is located within close proximity to a major road (I-75) and several homes.

Two other sites found in Hillsborough County that contain large populations are Bullfrog Creek Mitigation Park managed by FWC and Little Manatee River State Park managed by the Florida Department of Environmental Protection. Bullfrog Creek Mitigation Park has had a prescribed burn in the past 5 years. Little Manatee River State Park has a 2004 management plan that recommends prescribed burning to benefit this species.

Several sites in Manatee County that support *C. floridana* are currently being actively managed. These include the SWFWMD's Cordell site, FWC's Moody Branch site, and Lake Manatee State Park. In 2006, Cordell was hydro-axed and prescribed burned to reduce the oak canopy and minimize the competition from other ground cover. In 2008, plants were reintroduced at the Cordell site, and further reintroductions will take place at additional areas at this site in 2009. Reintroduction has also been considered at Manatee County's Duette Park and SWFWMD's Gilley Creek. Both of these sites are being actively managed and provide suitable habitat for this species.

Historically *C. floridana* was found in Pinellas County prior to urbanization. Plants currently exist at two sites (Fort Desoto County Park and Boyd Hill Nature Preserve) as a result of a reintroduction in the late 1980s. Both of these sites have been managed with prescribed fire and mechanical treatments. Future reintroductions will take place at a Pinellas County park. Management of this site is slated to take place in early 2009 with reintroduction possible by the summer of 2009.

The sites with *C. floridana* in Hardee County are all found on private lands. Most of these sites are agricultural lands used to graze cattle. BTG has been working with several of these landowners to collect seed and monitor these sites. The

Service's Partner for Fish and Wildlife program may be able to assist these landowners with protection of these sites.

- e. **Habitat or ecosystem conditions:** *Chrysopsis floridana* prefers open, sandy areas within the sand pine scrub community (USFWS 1999). They have been found growing in the ecotone between scrub and other communities. This species does not compete well with other plants such as saw palmetto (*Serenoa repens*), scrub oaks (*Quercus spp.*), and invasive exotic grasses, such as natal grass (*Rhynchelytrum repens*) and bahia grass (*Paspalum notatum*) (Cox et al. 2004). Species frequently found growing with *C. floridana* and that could be considered indicator species include narrowleaf silkgrass (*Pityopsis graminifolia*), coastal plain honeycomb (*Balduina angustifolia*), cup lichen (*Cladonia leporina*), and wiregrass (*Aristida stricta*) (Johnson et al. 2006). Most of the sites where this species is found are on excessively drained soils characteristic of sand pine scrub, such as Archbold fine sands, St. Lucie fine sands, Lakewood fine sands, Duette fine sands, and Pomello fine sands (Wunderlin et al. 1981). All of these soils are extremely nutrient-poor and well-drained and are composed primarily of siliceous sand.

Historically, *C. floridana* was known to occur in scrub habitat on coastal dunes, and was reintroduced to this habitat type at Fort Desoto County Park. The dominant vegetation at this site includes scrub live oak (*Quercus geminata*), slash pine (*Pinus elliotii*), and rosemary (*Ceratiola ericoides*) (USFWS 1999). In 2008, a prescribed burn was conducted at this site. A site visit in November 2008 found that the fire seemed to have stimulated flowering in mature plants.

Prescribed fire is an important management tool for recovery of *C. floridana* because plants that occupy open sandy areas in scrub habitat rely on periodic fire to prevent canopy closure. Fire should mimic the natural cycle of the cover type being managed, with frequent burns (1 to 10 years) in transitional or sandhill areas and burns every 10 or more years in scrub areas (Lambert and Menges 1996). Lambert and Menges (1996) also recommended burning in late spring and summer, when lightning-generated fires tended to occur naturally, and when *C. floridana* seeds already would have dispersed. Prescribed burning has taken place at most of the sites in Hillsborough, Manatee, and Pinellas Counties. Even with the small size and dense urban development surrounding Boyd Hill Nature

Preserve (245 acres), managers have been able to maintain an urban interface burn regime that has benefited this species.

Invasive nonnative grasses, such as cogon grass (*Imperata cylindricata*) and bahia grass (*Paspalum notatum*), which can invade and outcompete *C. floridana*, has become a concern for land managers (USFWS 1999). This species have been lost along roadsides where routine maintenance, such as mowing, has created enough disturbance that aggressive invasive species (bahia grass) have grown into the open sandy areas (Cox et al. 2004). An effective treatment of these invasive grasses needs to be developed for the long-term management of scrub habitat.

- f. **Other:** No new information.

2. **Five-Factor Analysis**

- a. **Present or threatened destruction, modification or curtailment of its habitat or range:** Habitat destruction remains the greatest threat to *C. floridana*. The loss of scrub habitat to urbanization resulted in this species becoming listed. Other threats that impact its habitat, such as mowing, intense grazing, and heavy use of off-road vehicles, have impacted this species throughout its range. At the time of listing, *C. floridana* was only found on private property and plants on these sites were eventually lost to urban development. It is unknown how much occupied habitat for this species has been lost to development since a complete survey of the historic range was not completed prior to much of the development. Since the time of this species' listing, additional conservation lands have been acquired in Hillsborough and Manatee Counties. In addition, reintroduction of this species also occurred in the late 1980s on protected lands in Pinellas County. BTG and the Service's Partners for Fish and Wildlife are working together with private landowners in Hardee County to establish agreements to protect *C. floridana* on their properties by fencing off areas where this species is found from cattle or other potential impacts. Since *C. floridana* was listed, land acquisition for conservation purposes has resulted in the expansion of the species' range. Thus, a sufficient number of sites are now adequately managed and protected to meet the recovery criteria for reclassification to threatened status. Although habitat loss has been reduced, there are still private lands and conservation lands throughout the species' range that could be lost due to habitat destruction or lack of management.

Lack of management (i.e., prescribed fire) has led to habitat degradation of *C. floridana* throughout its range. *C. floridana* occurs mainly in open sandy patches that have been controlled under natural conditions with fire. Without natural-caused or prescribed fires, the habitat can become overgrown and may lead to the establishment of exotic grasses, thus making the habitat unsuitable for *C. floridana*. Management techniques need to be considered when restoring this habitat. At most of the sites where this species occurs or where suitable habitat exists, management techniques including prescribed burning are occurring to maintain or enhance habitat.

- b. Overutilization for commercial, recreational, scientific, or educational purposes:** Not known as a threat at the time of listing or at present.
- c. Disease or predation:** Not known as a threat at the time of listing or at present.
- d. Inadequacy of existing regulatory mechanisms:** The Florida Administrative Code 5B-40 (Preservation of Native Flora in Florida) provides the Florida Department of Agriculture and Consumer Services with limited authority to protect these plants (primarily from the standpoint of illegal harvest) on state and private lands. *C. floridana* is located on state and county Conservation Lands in Hillsborough, Manatee, and Pinellas Counties where they have been or are currently being managed. In 1987, Hillsborough County passed the Environmentally Sensitive Lands Ordinance that established the foundation for ELAPP (Environmental Lands Acquisition and Protection Program). This ordinance has been amended and approved by increasing county tax for another 20 years to allow additional funds to acquire conservation lands. ELAPP has worked with SWFWMD and Florida Forever to jointly fund the acquisition of lands. Some of this money is also used for ELAPP to actively manage their properties to benefit *C. floridana*.

Several of the sites where *C. floridana* has been found occur on private lands in Hardee County have little to no protection. The Service's Partners for Fish and Wildlife program plans to work with these landowners to better manage and protect these sites.

In the absence of protections provided under the Endangered Species Act, we believe existing regulatory mechanisms as described above would be adequate to protect this species.

- e. **Other natural or manmade factors affecting its continued existence:** None are known.

Of the five listing factors, habitat loss and degradation (Factor A) is the main threat to *C. floridana*. Factors B, C, D, and E are not considered threats at this time.

D. **Synthesis**

The current recovery criteria for *C. floridana* are objective and measurable and all currently known threats are addressed by the recovery criteria. However, the recovery plan should be revised to include more updated information about the species and its management needs.

C. floridana is known to occur on land in Hillsborough, Manatee, and Pinellas Counties where they are protected and have some level of land management occurring. Proper management of these protected sites will provide long-term benefits to this species. Regular monitoring over the past five years has provided accurate information on the distribution of this species throughout its historic range. The sites where *C. floridana* is found in Hardee County are on private property and are susceptible to habitat degradation and destruction due to land use changes. These sites need to be protected and efforts to work with these landowners are underway.

C. floridana has been affected by fire suppression in the sand pine scrub communities. However, most of the public lands where this species is found are being actively managed using prescribed burning or mechanical treatment. Additional treatments should be used to eliminate the spread of invasive nonnative vegetation.

Past attempts to reintroduce this plant within its historic range in Hillsborough and Pinellas counties were partially successful. Three sites in Pinellas County still support plants. However, recent projects to reintroduce *C. floridana* within its historic range in Manatee County have been very successful. Additional reintroduction of this species at a Pinellas County park in 2009 will help increase the number of protected areas that support this species.

We are recommending reclassification of *C. floridana* from endangered to threatened. The recovery criteria for *C. floridana* indicates that the species may be considered for reclassification from endangered to threatened when 10 geographically distinct, self-sustaining populations are protected and appropriately managed. The major threat to *C. floridana* is habitat destruction, which has been greatly reduced since it was listed. The number of plants found on conservation lands and private lands has been increasing since the time of listing. Loss of habitat due to development is no longer a major factor affecting

the species; however, habitat loss is still occurring on private lands throughout the range either by habitat destruction or lack of management. Twelve conservation sites (mentioned in Section B.3.) in three Counties (Hillsborough, Manatee, and Pinellas) have self-sustaining populations with six sites in Hillsborough County having ± 1000 plants. As long as proper management continues at these sites, populations should continue to increase. In addition, efforts are underway to establish agreements with private landowners in Hardee County to protect sites occupied by *C. floridana* and further decrease the loss of this species on private lands. Additional augmentation and reintroduction of plants within the species' historic range will provide further expansion of its range with the possibility of delisting in the future.

III. RESULTS

A. Recommended Classification: Threatened

B. New Recovery Priority Number: 8

This recommendation represents a change in the recovery priority number from 5 to 8 based on our listing and recovery priority guidance for threatened and endangered species (48 FR 43098). *C. floridana* is a species with a moderate degree of threat and high recovery potential and, therefore, is now being assigned a recovery priority number of 8. Since this species is now found mostly on publicly owned land, there will be little to no conflict with economic development.

C. If a reclassification is recommended, indicate the Listing and Reclassification Priority Number:

Reclassification (from Endangered to Threatened) Priority Number: 6.

We believe that a low level of management burden occurs since the plant is located primarily on public property. Although there are several sites where this species occurs on private land, there are no Federal prohibitions on the taking of listed plants on private lands and limited State prohibitions that are primarily related to the harvest of plants without prior permission of the landowner. Therefore, human activities on private lands are minimally restricted. The reclassification priority number was selected because this is an unpetitioned action and the management impact is low.

IV. RECOMMENDATIONS FOR FUTURE ACTIONS

1. Revise the current recovery plan to include updated objective and measurable recovery criteria for delisting that are related to reducing the threats identified in the recovery plan, as well as updated information on the species distribution and biology.

2. Support further research on:
 - a. The effects of prescribed burning and other management tools on *C. floridana*.
 - b. Life history needs.
 - c. Microhabitat requirements of this species.
3. Continue working with public land managers to increase management efforts to benefit *C. floridana* on their sites.
4. Encourage non-Federal agencies and private landowners to protect and manage habitat under the Service's Partners for Fish and Wildlife Program.
5. Continue conducting rangewide surveys to provide distribution information needed to determine where plants currently exist and to prioritize recovery actions.
6. Continue reintroduction and monitoring of *C. floridana* on additional publicly owned lands with suitable habitat. Reintroduction of *C. floridana* could help to increase the number of populations on protected sites and augment existing populations where needed.

V. REFERENCES

- Campbell, C. 2008. Florida golden aster (*Chrysopsis floridana*) population introduction project. Annual Report prepared for U.S. Fish and Wildlife Service. North Florida Field Office, Jacksonville, Florida.
- Cox, A.C., A.F. Johnson, S. Kane, and L.G. Chafin. 2004. Status survey for Florida goldenaster. Florida Natural Areas Inventory, Tallahassee, Florida.
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Wunderlin, R., D. Richardson, and B. Hansen. 1981. *Chrysopsis floridana*. Status report prepared for U.S. Fish and Wildlife Service. Jacksonville Field Office, Jacksonville, Florida.

U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of Florida golden aster (*Chrysopsis floridana*)

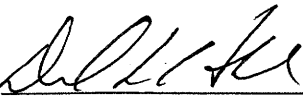
Current Classification: Endangered

Recommendation resulting from the 5-Year Review: Reclassify to threatened

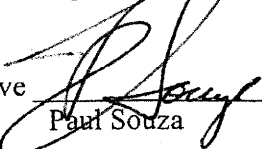
Review Conducted By: Annie Dziergowski

FIELD OFFICE APPROVAL:

Lead Field Supervisor, Fish and Wildlife Service

Approve  Date 5/14/09
David L. Hankla

Cooperating Field Supervisor, Fish and Wildlife Service

Approve  Date 5-11-09
Paul Souza

REGIONAL OFFICE APPROVAL:

Lead Regional Director, Fish and Wildlife Service

Approve  Date 4-29-09