

**FLORIDA  
GOLDEN  
ASTER**

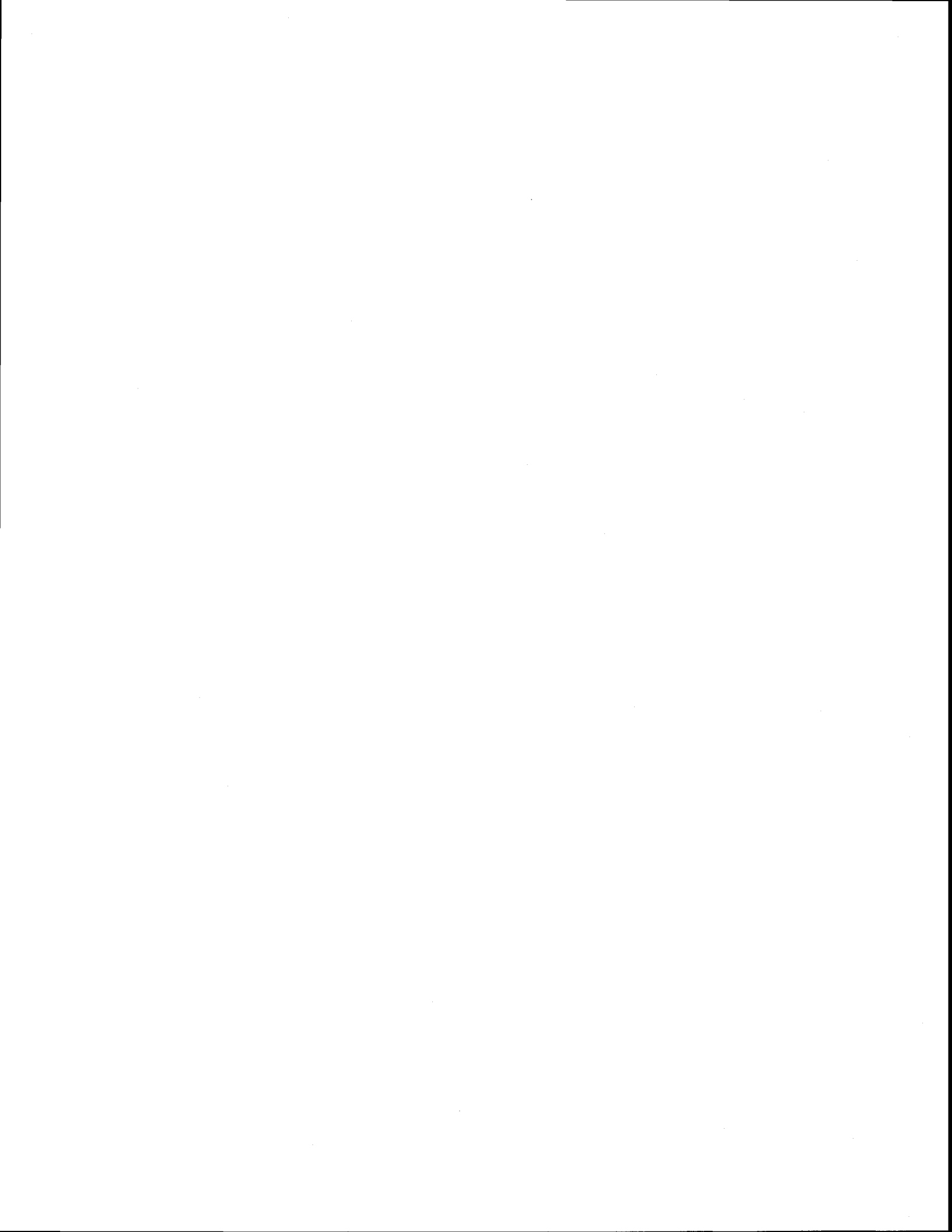


**RECOVERY  
PLAN**



U.S. FISH AND WILDLIFE SERVICE  
ATLANTA, GEORGIA





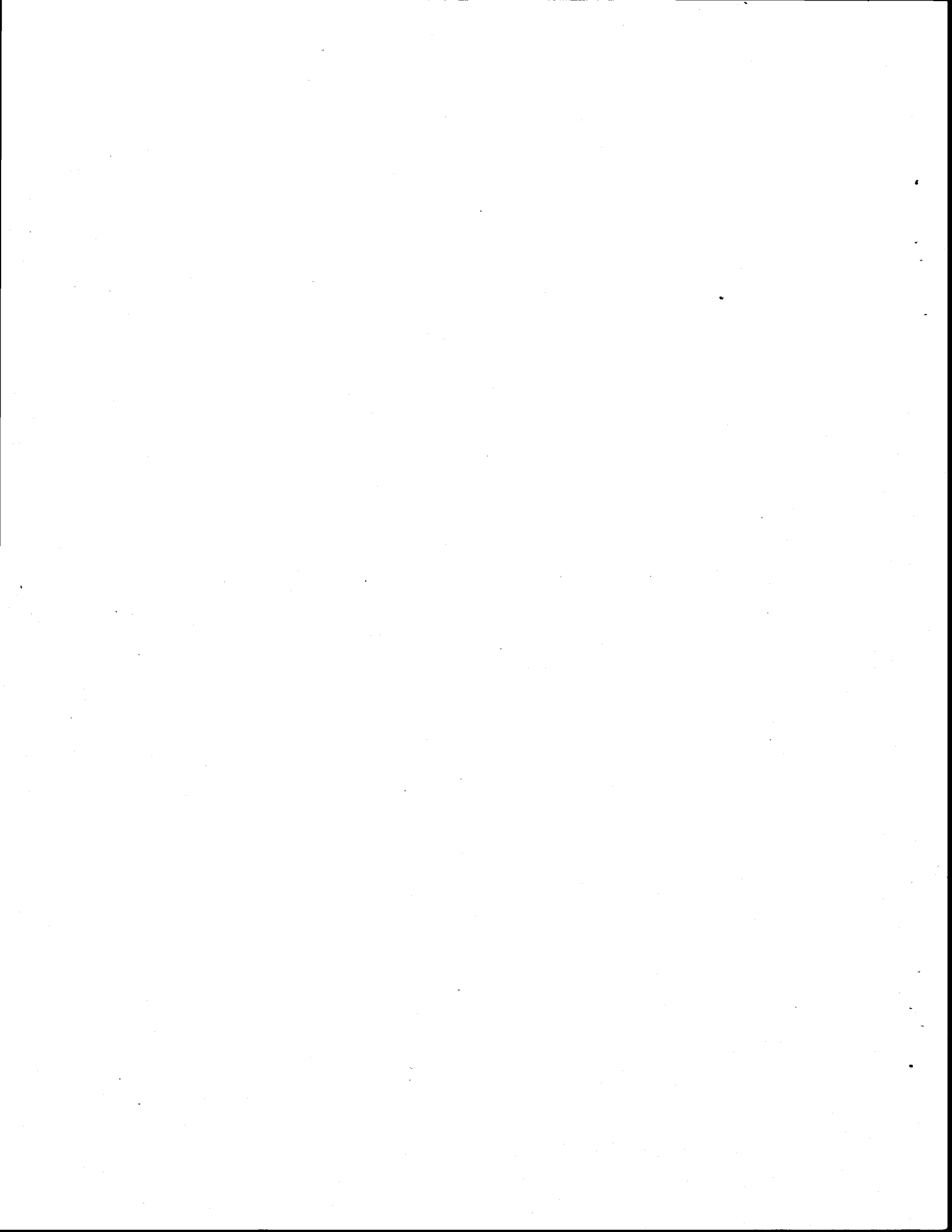
RECOVERY PLAN FOR  
FLORIDA GOLDEN ASTER  
(Chrysopsis floridana)

Prepared by

U.S. Department of the Interior  
Fish and Wildlife Service  
Southeast Region  
Atlanta, Georgia

Approved:   
Regional Director

Date: August 29, 1988



THIS IS THE COMPLETED RECOVERY PLAN FOR THE FLORIDA GOLDEN ASTER. IT HAS BEEN APPROVED BY THE U.S. FISH AND WILDLIFE SERVICE. IT DOES NOT NECESSARILY REPRESENT OFFICIAL POSITIONS OR APPROVALS OF COOPERATING AGENCIES, AND IT DOES NOT NECESSARILY REPRESENT THE VIEWS OF ALL INDIVIDUALS INVOLVED IN FORMULATING THE PLAN. THIS PLAN IS SUBJECT TO MODIFICATION AS DICTATED BY NEW FINDINGS, CHANGES IN SPECIES STATUS, AND COMPLETION OF TASKS DESCRIBED IN THE PLAN. GOALS AND OBJECTIVES WILL BE ATTAINED AND FUNDS EXPENDED CONTINGENT UPON APPROPRIATIONS, PRIORITIES, AND OTHER CONSTRAINTS.

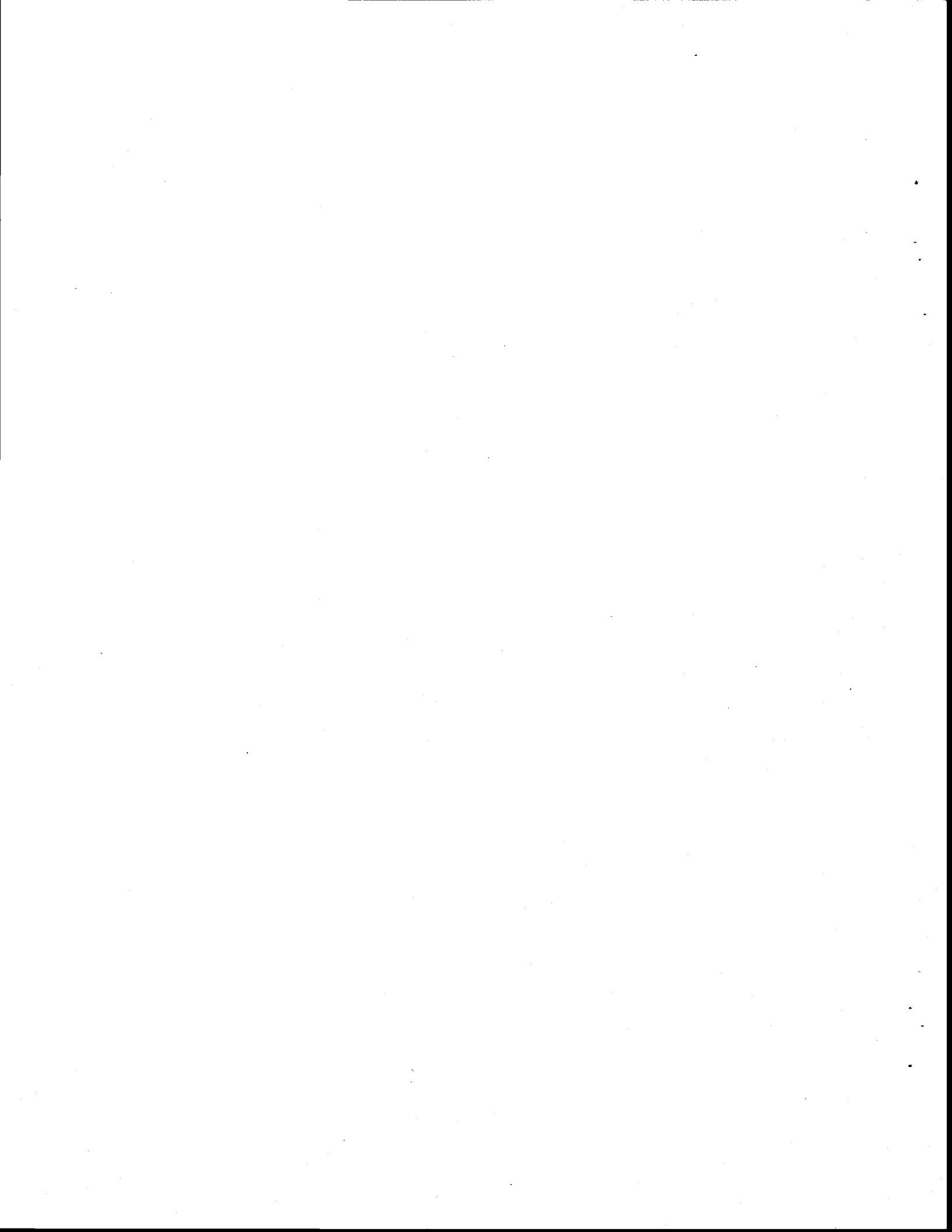
LITERATURE CITATIONS SHOULD READ AS FOLLOWS:

U.S. Fish and Wildlife Service. 1988. Recovery Plan for Florida Golden Aster. U.S. Fish and Wildlife Service, Atlanta, Georgia. 15 pp.

Additional copies may be purchased from:

Fish and Wildlife Reference Service  
6011 Executive Boulevard  
Rockville, Maryland 20852

301/770-3300  
1-800-582-3421



## RECOVERY PLAN EXECUTIVE SUMMARY

1. Point or condition when the species can be considered recovered?

The primary objective of the recovery plan is to provide sufficient habitat for the Florida golden aster, both through protection of the sites and proper vegetation management. Establishment of new populations of the species will be necessary.

Reclassification of this species to threatened could be considered if 10 viable populations were established in its three native counties. Delisting could be considered if 20 such populations were secured. This goal is subject to revision as protected populations are established and monitored.

2. What must be done to reach recovery?

Recent discoveries of populations inland from its previously-known range in the Tampa Bay area show that continued exploration for new populations is worthwhile. This species has no protected populations, and few sites are available to be protected. Therefore, protection of existing populations and establishment of new populations is essential.

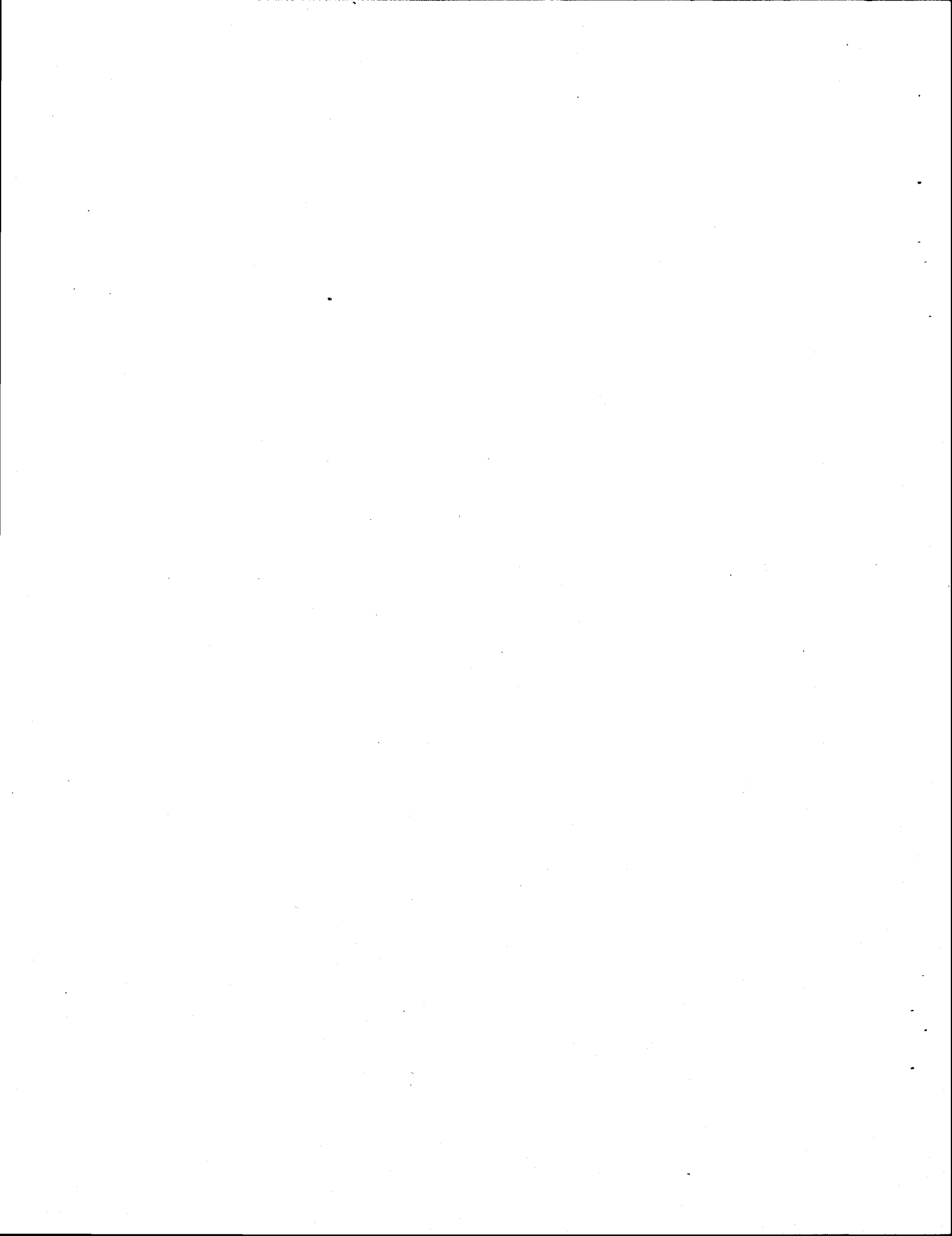
3. What specifically must be done to meet the needs of #2?

Remaining fragments of sand pine scrub or of coastal dune scrub must be identified and managed to support populations of this species. The vegetation is maintained by infrequent prescribed fire, which is very difficult in this vegetation type, especially in an urban area. Alternately, mechanical disturbance of the vegetation can substitute for fire. Garden propagation and reintroduction of this species will be necessary.

4. What management/maintenance needs have been identified to keep this species recovered?

Without occasional fire or mechanical clearance, sand pine scrub vegetation becomes a thicket of relatively tall evergreen oaks and other shrubs and small trees, eliminating the areas of bare sand that support the golden aster and other herbs, grasses, and lichens.

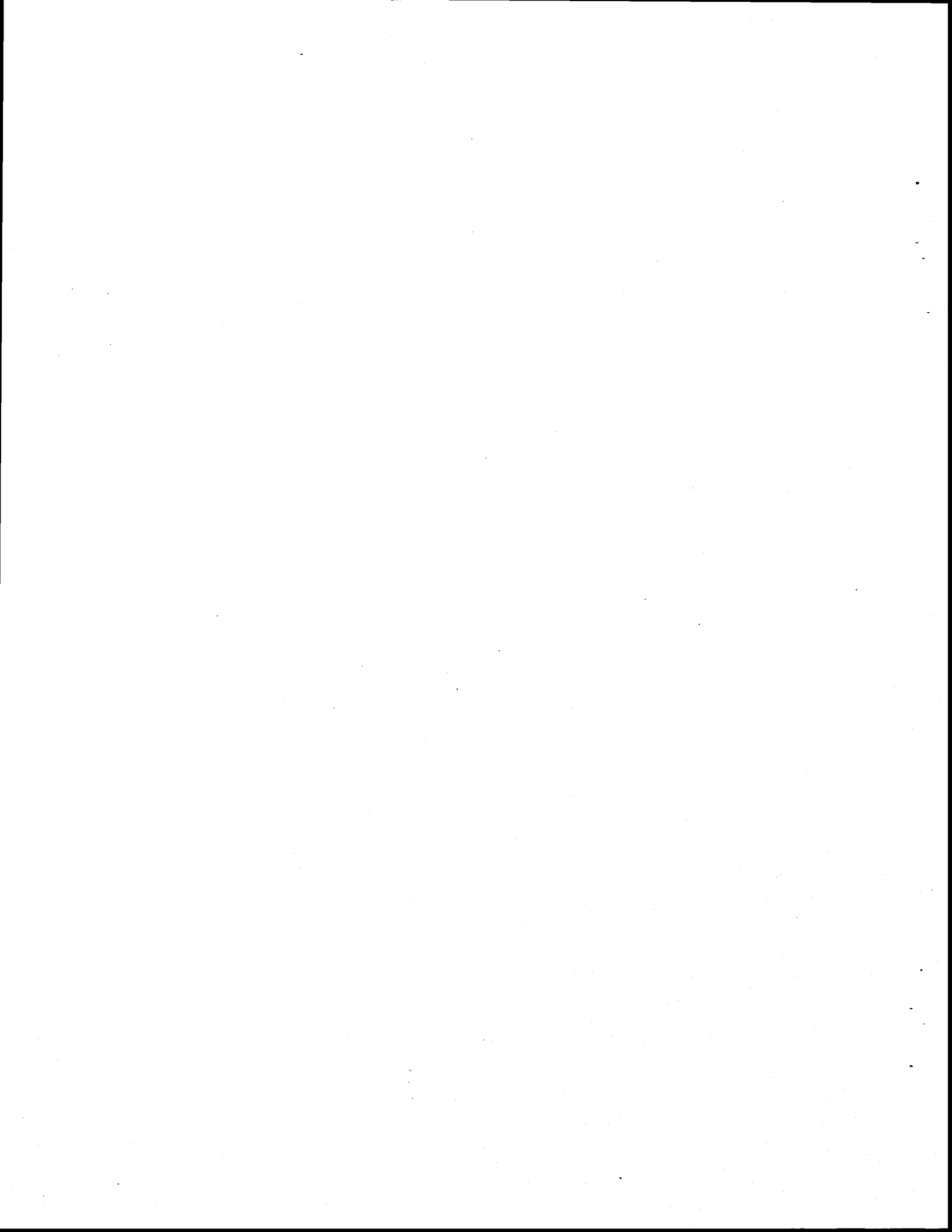
Periodic monitoring of the protected sites and occasional management actions will be needed. Because the area is densely populated, constant vigilance will be needed to monitor intrusions on the sites.





## TABLE OF CONTENTS

	Page
I. INTRODUCTION	
Systematics and Identification.....	1
Reproductive and Population Biology.....	1
Habitat.....	2
Distribution and Population Status.....	2
II. RECOVERY	
A. Objective.....	3
B. Threats To Existence.....	3
1. Habitat Destruction.....	3
2. Management.....	3
3. Population Biology.....	4
C. Actions to Address Threats.....	4
1. Protect habitat of the Florida golden aster.....	4
2. Augment the existing populations.....	5
3. Enforce available protective legislation.....	5
4. Provide public information.....	6
5. Conserve germ plasm.....	6
D. Conservation efforts.....	6
E. References.....	6
III. IMPLEMENTATION SCHEDULE.....	7
IV. APPENDIX 1 - Ordinances and Policies.....	11
APPENDIX 2 - List of Reviewers.....	14



## PART I. INTRODUCTION

### SYSTEMATICS AND IDENTIFICATION

The genus Chrysopsis (goldenasters) belongs to the tribe Astereae (asters, goldenrods, and daisy fleabanes) of the family Compositae or Asteraceae (the aster family). Chrysopsis is closely related to the grass-leaf goldenasters (Pityopsis) and the prairie goldenasters (Heterotheca). Chrysopsis, as treated by Semple (1981) "consists of 10 species native to the southeastern United States, particularly Florida." Chrysopsis floridana (Florida golden aster) is endemic to the Tampa Bay area of Florida and to counties inland from the Bay (Map 1). Two golden asters of the Florida panhandle are also endemic to coastal areas: C. gossypina subspecies cruiseana (Cruise's golden aster) and C. godfreyi (Godfrey's golden aster).

Chrysopsis floridana is a perennial herb with stems that are woody toward the base and non-woody above. The plants have basal rosettes (clusters of leaves at ground level) with leaves 4-10 centimeters long, 1.5-2.0 centimeters wide, and densely short-wooly pubescent. The stems grow upright from the rosettes or the bases of old shoots and are usually 0.3-0.4 meter, up to 0.7 meter tall. The stem leaves are nearly the same size from the top to the bottom of the stem. They are obovate-elliptic, slightly clasping the stem, entire, and densely short-wooly pubescent. The flower heads are grouped into a more or less flat-topped cluster of 1-25 heads at the top of the stem. Each head is slightly over 2.5 centimeters in diameter. Both the central disc and the rays are golden yellow. The species is distinguished from other members of the genus by its perennial habit, the woodiness of its stems, the wooliness and the shape of the stem leaves, and the way the flower heads are arranged in a flat-topped cluster (Semple 1981, Wunderlin et al. 1981).

### REPRODUCTIVE AND POPULATION BIOLOGY

Florida golden aster flowers in late November and December, and sheds seed from December onward. The plants can spread by forming new basal rosettes at the ends of rhizomes, but reproduction is primarily by seed. The entire genus has an out-crossing breeding system. Semple (1981) notes that flower color is the same throughout the genus, but that foraging insects may be able to distinguish C. floridana from the inland C. scabrella by the dense wooly covering of the leaves and stems and by the heads being arranged in smaller clusters. Chrysopsis scabrella is common on vacant lots and road edges. The largest populations of C. floridana are also on vacant lots, but C. floridana seems to be a less effective

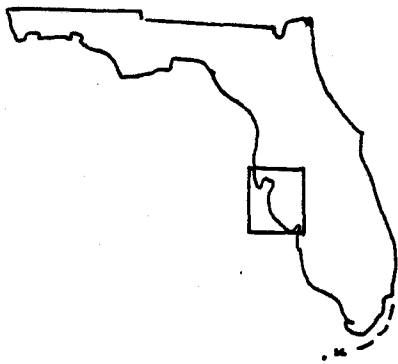
colonizer than C. scabrella, and may be unable to disperse across areas of unfavorable habitat. Florida golden aster is restricted to sand pine scrub vegetation. Within this vegetation, it behaves as a colonizing species by invading areas of sunny, bare sand. Florida golden aster seems well adapted to coastal dunes, where it was evidently present before the barrier islands of Pinellas County were urbanized. Semple (1981) notes that Chrysopsis floridana and C. godfreyi (native to barrier islands in the Florida panhandle) are both perennial, have compact few-headed clusters of flower heads, and have a dense wooly coating on the leaves and stems.

#### HABITAT

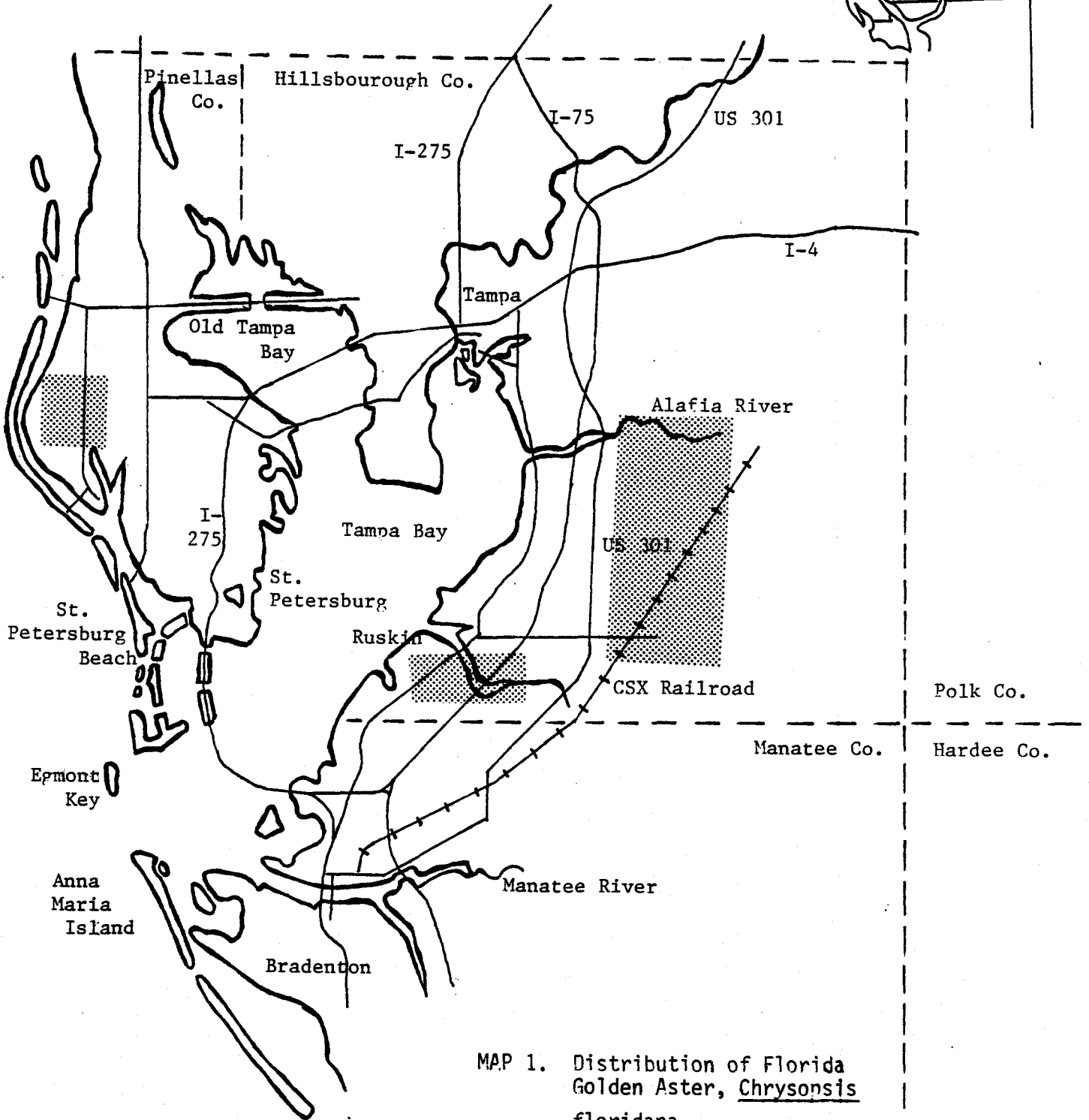
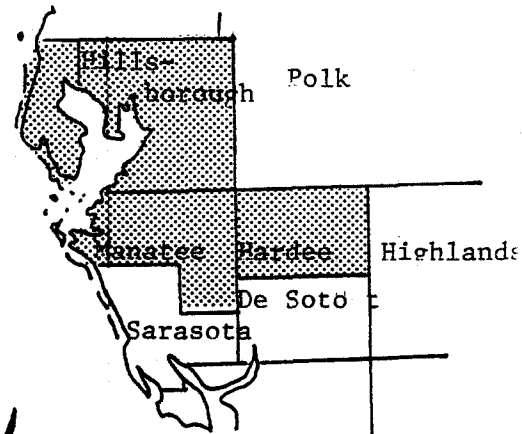
Florida golden aster is currently restricted to sand pine scrub vegetation dominated by sand pine (Pinus clausa) and scrubby evergreen oaks (Quercus geminata, Q. myrtifolia, and Q. incana). Smaller shrubs form thickets 1 to 2 meters high. These shrubs include tarflower (Befaria racemosa), rusty lyonia (Lyonia fruticosa), saw palmetto (Serenoa repens), pawpaw (Asimina reticulata), and hog plum (Ximenia americana). Sandy areas are occupied by lichens, wiregrass, and herbs including Polygonella ciliata, Liatris tenuifolia, Carphephorus corymbosus, Stillingia sylvatica, and Dalea feayi. All sites where the plant presently occurs have been disturbed by bulldozing, pedestrian traffic, grazing cattle, or fire. The sites are usually on the excessively drained St. Lucie Fine Sand or Lakewood Fine Sand soils (Wunderlin et al. 1981).

#### DISTRIBUTION AND POPULATION STATUS

Florida golden aster was considered endemic to the Tampa Bay region of central Florida, where it presently occurs in southeastern Hillsborough County between Tampa and Bradenton on the east side of Tampa Bay (Map 1). In 1987, Wunderlin (pers. comm. 1988) discovered 5 populations farther inland, one in central Manatee County and four in eastern Hardee County. The plant's former distribution cannot be determined accurately because only a few specimens were collected before most of the region became urbanized. Known past occurrences from Manatee County are at Bradenton Beach (Wunderlin et al. 1981) and near Palma Sola Bay in west Bradenton (Andre Clewell, pers. comm. 1985). The latter site was in sand pine scrub vegetation. In Pinellas County, the plant was collected on the barrier island at St. Petersburg Beach in 1921, but can no longer be found there (Wunderlin et al. 1981 and pers. comm.). A more recent occurrence was near Seminole, north of St. Petersburg, in an area of scrubby flatwoods that has since been converted to housing (A. Burdett, pers. comm. 1985).



Right, distribution by county; below, detail of distribution in Tampa Bay vicinity (present/past occurrence).



MAP 1. Distribution of Florida Golden Aster, Chrysoasis floridana.

On the east side of Tampa Bay, Florida golden aster is restricted to sand pine scrub vegetation or disturbed areas at the edges of scrub. In this area, sand pine scrub occurs as small, discrete stands surrounded by other vegetation. Inspection of at least 16 stands showed that the golden aster was restricted to only a few sites. One small population of the golden aster is on a railroad embankment; the two largest populations are in residential subdivisions, where the plant thrives on vacant lots that were partially cleared of scrub vegetation when streets were built. These vacant lots are individually owned, and houses are being built relatively rapidly (Wunderlin et al. 1981).

Two populations of Florida golden aster appear to persist on public land, at a roadside park and at a county boat landing.

## PART II. RECOVERY

### A. OBJECTIVE

Florida golden aster can be considered for reclassification to threatened status when ten 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.

### B. THREATS TO EXISTENCE

#### 1. Habitat Destruction

Florida golden aster has been extirpated from most of the sites where it was known to occur prior to the 1970's, including Long Key (St. Petersburg Beach) and Bradenton Beach. The principal threat to this plant is further loss of habitat. Because most sites are on individually owned residential lots or other small tracts of land, most activities that would destroy these sites are not subject to regulation by government.

#### 2. Management

Although Florida golden aster benefits from limited disturbance (which can include fire, grazing by livestock, and limited mechanical disturbance), intense or frequent disturbance, including house construction and trash dumping, eliminates the species. Mowing may have greatly reduced one population in a highway rest area.

### 3. Population Biology

Inability of the plant to disperse into isolated suitable sites may pose an indirect threat to the long-term survival of this species. The inland species Chrysopsis scabrella is common on vacant lots and around buildings in urban areas, but C. floridana seems to be unable to play this role as a weed. Experience with cultivated C. floridana at Bok Tower Gardens will provide useful data on the colonizing ability of this species.

#### C. ACTIONS TO ADDRESS THREATS

1. Protect habitat of the Florida golden aster. Because most populations are on private property little of the habitat presently occupied by this plant can be protected through Federal government actions. Because the golden aster's habitat requirements are reasonably well understood, it should be feasible to protect unoccupied suitable habitat.
  11. Search for additional populations and suitable unoccupied habitat. Suitable habitat may include sand pine scrub, scrubby flatwoods, and coastal dunes in Hardee, Hillsborough, Manatee, and Pinellas Counties.
  12. Inventory known populations. Estimate population size, note threats and opportunities for protection, and identify landowners.
  13. Protect and manage habitat.
    131. Arrange for protection of land through ownership, cooperative agreements with landowners or other legal measures.
    132. Manage protected lands to maintain their suitability for the golden aster through application of limited disturbance, such as prescribed burning, limited clearing of trees and shrubs, and preventing excessive disturbance.
    133. Monitor the condition of each protected site periodically. Monitoring procedures should be designed to be sufficient to detect major changes in the size of a population of Florida golden aster and to detect encroachment by other plant species. Photography may provide a quick, effective monitoring method.

2. Augment existing populations of Florida golden aster. Expand protected populations and attempt to establish populations on protected sites with sand pine scrub or coastal dune habitat.
  21. Develop methods. For establishing new populations, either directly sowing seeds into an unoccupied site or transplanting young plants should work. Experience with garden populations of the plant (Task 5) will probably provide sufficient guidance, and serve in place of a pilot project. At sites currently occupied by the golden aster, experiment with methods to increase the area of bare sand available for occupancy by the plant, and monitor to see whether golden asters colonize the area.
  22. Establish Florida golden aster on suitable protected sites. After establishment, monitor the condition of the plants periodically. Photography of permanent plots should suffice for the first year or two; afterward, inspect to see whether the population is spreading.
3. Enforce available protective legislation. Employ local, State, and Federal regulations to protect sand pine scrub vegetation containing Florida golden aster.
  31. Initiate Section 7 consultation when applicable. Section 7 of the Endangered Species Act applies to Federal activities which might affect listed species. Because Florida golden aster is not known to occur on lands with Federal surface or minerals ownership, few consultations are expected.
  32. Enforce take and trade prohibitions. Florida golden aster is protected by the Endangered Species Act and the Preservation of Native Flora of Florida Act. The potential horticultural value of this plant is slight, so trade in the species is unlikely to develop. Vandalism might become a problem.
  33. Utilize available state, county and regional permitting and planning programs to encourage protection of habitat suitable for Florida golden aster. The Hillsborough County Land Alteration and Landscaping Ordinance (Ordinance 87-2) restricts alteration of sand pine scrub communities and habitat of endangered species. Policies of the Tampa Bay Regional Planning Council also help protect the golden aster (Appendix 1). The South Hillsborough Area Regional Plan, currently under preliminary discussion in Hillsborough County, may provide further opportunities to protect



populations of the golden aster. Little can be done about existing subdivision lots.

4. Provide public information about Florida golden aster. The support of governmental agencies, conservation organizations such as the Florida Native Plant Society, and garden clubs may be crucial to the recovery of this species. The local press should also be kept informed of conservation activities.
5. Conserve germ plasm. The Center for Plant Conservation sponsors the establishment of garden populations of endangered plants at member botanical gardens. Bok Tower Gardens in Lake Wales, Florida is working with this species. The Center can also arrange long-term seed storage in cooperation with the U.S. Department of Agriculture.

#### D. CONSERVATION EFFORTS

Public conservation efforts to date have included listing as an endangered species by the State of Florida and the U.S. government. The Hillsborough County government has protected the golden aster's habitat by ordinance and has started new populations on county land. An effort has been made to protect a population at a Hillsborough County boat ramp by reducing the frequency of mowing. Bok Tower Gardens has established a garden population and provided young plants to Hillsborough County for establishing new populations. The Tampa Tribune has covered listing and recovery efforts in Hillsborough County. The Pinellas County government will attempt to move the plant to protected sites if the opportunity arises. Policies adopted by the Tampa Bay Regional Planning Council promote the protection of this and other endangered species.

#### E. REFERENCES

- Semple, J.C. 1981. A revision of the goldenaster genus Chrysopsis (Nutt.) Ell. nom. cons. (Compositae - Astereae). *Rhodora* 83(835):323-384.
- Wunderlin, R., D. Richardson, and B. Hansen. 1981. Chrysopsis floridana. Status report prepared for U.S. Fish and Wildlife Service. Endangered Species Field Station files, Jacksonville, Florida.

## PART III. IMPLEMENTATION SCHEDULE

Priorities in Column 4 of the following Implementation Schedule are assigned as follows:

- Priority 1 - An action that must be taken to prevent extinction or to prevent the species from declining irreversibly in the foreseeable future.
- Priority 2 - An action that must be taken to prevent a significant decline in species population/habitat quality or some other significant negative impact short of extinction.
- Priority 3 - All other actions necessary to provide for full recovery of the species.

## GENERAL CATEGORIES FOR IMPLEMENTATION SCHEDULES\*

## Information Gathering - I or R (research)

1. Population status
2. Habitat status
3. Habitat requirements
4. Management techniques
5. Taxonomic studies
6. Demographic studies
7. Propagation
8. Migration
9. Predation
10. Competition
11. Disease
12. Environmental contaminant
13. Reintroduction
14. Other information

## Management - M

1. Propagation
2. Reintroduction
3. Habitat maintenance and manipulation
4. Predator and competitor control
5. Depredation control
6. Disease control
7. Other management

## Acquisition - A

1. Lease
2. Easement
3. Management agreement
4. Exchange
5. Withdrawal
6. Fee title
7. Other

## Other - O

1. Information and education
2. Law enforcement
3. Regulations
4. Administration

\* (Column 1) - Primarily for use by the U.S. Fish and Wildlife Service.

IMPLEMENTATION SCHEDULE

General Category	Plan Task	Task Number	Priority	Task Duration	Responsible Agency			Estimated Fiscal Year Costs			Comments/Notes
					FWS	Region	Division	Other	FY 1	FY 2	
I-1	Search for additional populations and suitable habitat	11	2	1 year	4	FWE	Univ.	1 K			
I-1	Inventory known populations	12	2	1 year	4	FWE	Univ.	2 K			
A,M	Protect and manage habitat	13	1	Ongoing/continuous	4	FWE	Indiv. County	1 K	4 K	5 K	
A-1,2,3,6	Arrange legal protection of land	131	1	Unknown	4	FWE	TNC County RPC				
M-3	Manage protected land	132	1	Ongoing/continuous	4	FWE	County Indiv.				
M-3	Monitor condition of protected land	133	2	Ongoing/continuous	4	FWE	Univ. County				
R-7,13	Develop methods to expand existing populations and start new ones	21	2	3 years	4	FWE	Univ.				
M-2	Establish golden aster on protected sites	22	2	5 years	4	FWE	County TNC Indiv.				

IMPLEMENTATION SCHEDULE

General Category	Plan Task	Task Number	Priority	Task Duration	Responsible Agency			Estimated Fiscal Year Costs			Comments/Notes
					FWS	Region	Division	Other	FY 1	FY 2	
0-4	Initiate Section 7 consultation	31	2	Ongoing/continuous	4	FWE					
0-2	Enforce take and trade prohibitions	32	3	Ongoing/continuous	4	FWE					
0-3	Utilize permitting and planning programs to protect golden aster habitat	33	1	Ongoing/continuous	4	FWE	State RPC County				
0-1	Provide public information	4	3	Ongoing/continuous	4	FWE					
M-1	Conserve germ plasm	5	2	Ongoing/continuous	4	FWE	CPC USDA				

LIST OF ABBREVIATIONS

- = The Center for Plant Conservation, including member botanical gardens
- = U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Division of Endangered Species
- = Individuals/Landowners
- = Tampa Bay Regional Planning Council
- = State of Florida
- = The Nature Conservancy
- = Universities or Colleges
- = U.S. Department of Agriculture

PART IV.  
APPENDIX 1

County Ordinance and Regional Planning Council policies  
affecting Florida golden aster

A. Hillsborough County Land Alteration and Landscaping Ordinance  
(Ordinance No. 87-2)

This ordinance is 56 pages long and covers a gamut of issues from the preservation of wetlands, sand pine scrub, and endangered species habitats to the layout of parking lots. Here are some excerpts affecting Florida golden aster:

Definitions:

CRITICAL HABITAT FOR ENDANGERED, THREATENED OR RARE SPECIES

Land or water areas that are either determined by means of the due process provisions of the Federal Endangered Species Act to be necessary to the normal needs or survival of those species which are likely candidates for extinction or extirpation, or determined to be habitat for any species found primarily in Hillsborough County and listed as endangered by the U.S. Fish and Wildlife Service.

SAND PINE SCRUB COMMUNITIES

Upland plant communities found on relict dunes or present and former shorelines where the soil is composed of well-washed and sterile sands. The community is composed of two layers with sand pine occupying the top layer and various scrub oaks and shrub species creating a thick understory. The understory typically includes myrtle oak, Chapman oak, sand live oak, rosemary, lyonia and scrub holly. Scrub communities which do not contain sand pine or a predominance of sand pine but do contain the scrub/shrub species listed in this definition and are located on one of the following soils: Lakewood fine sand, Pomello fine sand, or St. Lucie fine sand, are also considered to be sand pine scrub communities.

[Land Alteration Activity Within] Sand Pine Scrub Communities:

No land alteration activity is allowed within a sand pine scrub community except as specified below:

- a) Where sand pine scrub community exists on at least two acres of a parcel to be developed or is contiguous with the same plant community on an adjacent parcel or parcels and together these vegetated areas equal at least two acres, land alteration activity may occur on a maximum of 50 percent of the plant community acreage on the parcel, provided a minimum of 50 percent of the plant community acreage is retained in its entirety with no enclaves of developed area and provided the land alteration activity on the developable portion is in compliance with all other applicable requirements of this Ordinance. In addition, where the sand pine scrub community on one parcel is contiguous with the same plant community on one or more adjacent parcels, the developable portion shall be located to minimize disruption of this contiguity.
- b) Land alteration activity is permissible on parcels with smaller acreages of sand pine scrub community than that described above, provided the activity is in compliance with all other applicable requirements of this Ordinance.

#### Critical Habitat for Endangered, Threatened or Rare Species

No land alteration activity is allowed which alters the ecological integrity, balance or character of land or water areas determined by means of the due process provisions of the Federal Endangered Species Act to be critical habitat. In addition, no land alteration activity is allowed which alters the ecological integrity, balance or character of land or water areas which have not been so designated but which support any endangered species found primarily in Hillsborough County, except in cases where the developer commits to a plan approved by the U.S. Fish and Wildlife Service to relocate or recover the species on another parcel of land which is either publicly or privately owned.

- B. Policies of the Tampa Bay Regional Planning Council from the Council's Comprehensive Regional Policy Plan, The Future of the Region (F.R.) (provided by Suzanne T. Cooper, Principal Planner, pers. comm.):

Identified areas that contain viable populations of, or suitable habitats for, species listed as endangered, threatened, or of special concern by the State and Federal government, shall be classified as environmentally sensitive, preservation, or conservation areas with future development limited to land uses compatible with the listed species. (10.6.2, F.R.)

A system of incentives or other measures should be developed to encourage landowners to preserve native habitats. (10.6.1., F.R.)

Public education programs to inform residents of the Tampa Bay area about species listed as endangered, threatened, or of special concern, their habitats, and value to natural systems and man, shall be developed by equipped organizations or agencies. (10.7.1., F.R.)

The protection of coastal vegetative communities, coastal wildlife habitats, and dune systems from the adverse effects of development shall be required. (9.1.2., F.R.)

Development and other activities which damage coastal dune systems shall be prohibited. The restoration of coastal dune systems that are damaged shall be of highest priority. (9.2.1., F.R.)

Sensitive coastal resources shall be protected from short term and long term degradation and erosion resulting from improper development practices and recreational misuse. (9.2.3., F.R.)

Stabilization projects, preferably utilizing vegetation as the stabilizing medium are encouraged. (9.2.5., F.R.)



## APPENDIX 2

(Persons and agencies who received draft copies for review and comment.)  
 Recovery Plan for Florida Golden Aster  
 January 1988

Dr. Linda R. McMahan  
 Senior Program Officer, Botany  
 Center for Plant Conservation  
 125 The Arborway  
 Jamaica Plain, Massachusetts 02130

Dr. E. Dennis Hardin  
 Florida Natural Areas Inventory  
 254 East Sixth Avenue  
 Tallahassee, Florida 32303

Mr. Don Wood  
 Florida Game and Fresh Water  
 Fish Commission  
 620 South Meridian Street  
 Tallahassee, Florida 32304

Dr. Kenneth R. Langdon  
 Botanist  
 Division of Plant Industry  
 P.O. Box 1269  
 Gainesville, Florida 32602

Dr. Richard Wunderlin  
 Department of Biology  
 University of South Florida  
 Tampa, Florida 33620

Mr. Allen Burdett  
 7879 91st Street North  
 Seminole, Florida 33543

Mr. Steve Mortellaro  
 Hillsborough County  
 Environmental Protection Commission  
 1900 Ninth Avenue  
 Tampa, Florida 33605

Ms. Charner Benz  
 Hillsborough County Department  
 of Development Coordination  
 900 Twiggs Street  
 Room 208  
 Tampa, Florida 33602

Ms. Suzanne T. Cooper  
 Tampa Bay Regional  
 Planning Council  
 9455 Koger Boulevard  
 St. Petersburg, Florida 33702

Dr. Andre F. Clewell  
 A.F. Clewell, Inc.  
 1345 University Parkway  
 Sarasota, Florida 34234

Executive Director  
 Tampa Bay Regional  
 Planning Council  
 9455 Koger Boulevard  
 St. Petersburg, FL 33702

Mr. Bob Craig  
 Executive Director  
 Florida Native Plant Society  
 525 SW 41st Street  
 Gainesville, FL 32607

Colonel Robert M. Brantly  
 Executive Director  
 Florida Game and Fresh Water  
 Fish Commission  
 620 South Meridian Street  
 Tallahassee, Florida 32789

Mr. John Cook  
 The Nature Conservancy  
 Florida Field Office  
 1331 Palmetto Avenue, Suite 205  
 Winter Park, FL 32789

Mr. Thomas Gardner  
 Executive Director  
 Florida Department of  
 Natural Resources  
 Marjory Stoneman Douglas Bldg.  
 Tallahassee, Florida 32303

Mr. Ed Conklin, Chief  
Florida Department of  
Natural Resources  
Division of Recreation and Parks  
Commonwealth Building  
3900 Commonwealth Boulevard  
Tallahassee, Florida 32303

Mr. Doyle Conner, Commissioner  
Florida Department of Agriculture  
and Consumer Services  
State Capitol  
Tallahassee, Florida 32301

Mr. Thomas Pelham, Secretary  
Florida Department of  
Community Affairs  
2571 Executive Center Circle, East  
Tallahassee, Florida 32301

Chairman  
Pinellas County Board of  
County Commissioners  
315 Court Street  
Clearwater, FL 33516

Chairman  
Hillsborough County Board of  
County Commissioners  
P.O. Box 1110  
Tampa, FL 33601

Mr. Jonathan Shaw  
President  
Bok Tower Garden  
P.O. Box 3810  
Lake Wales, FL 33853-3810