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Dusky Seaside Sparrow



RECOVERY PLAN

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DUSKY SEASIDE SPARROW
RECOVERY PLAN

Prepared by
The Dusky Seaside Sparrow
Recovery Team
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habitat management for
wildlife
distribution population
population size
marsh
life history
nests & nestlings
habits & behavior

TABLE OF CONTENTS

Part I	Introduction	1
	Former Distribution and Status	1
	Present Distribution and Status	2
	Habitat Requirements	3
	Life History	3
Part II	Recovery Plan Outline	5
	Action Diagram	7
	Action Plan Outline Narrative	8
Part III	Implementation Schedule	12

DUSKY SEASIDE SPARROW RECOVERY PLAN

PART I

INTRODUCTION

The Dusky Seaside Sparrow (*Ammospiza maritima nigrescens*) has one of the most restricted ranges of any North American bird. It is limited in distribution to the cordgrass (*Spartina bakerii*) marshes and savannas of the north portion of Brevard County in east-central Florida. Although many aspects of its life history are not known, some information has been obtained on distribution, numbers, habitat requirements, and, to a certain extent management (Nicholson 1929, Sharp 1968, Trost 1968 and Baker 1973). This plan is designed to restore and maintain the Dusky Seaside Sparrow at a viable population level. Presently (1978) the dusky is one of our rarest birds and the team feels that it would be unrealistic to set a goal of a specific population size at this time.

FORMER DISTRIBUTION AND STATUS

The dusky was discovered in the St. Johns River Valley west of Titusville, Florida, near Salt Lake in 1872 by Charles Maynard (1875). Maynard saw only one dusky in the St. Johns marshes, and described it as "the Black and White Shore Finch". He later found the dusky plentiful in the Indian River marshes on Merritt Island. Prior to diking of marshes for mosquito control in the 1950's, dusky were still abundant on Merritt Island. Sharp (1968) estimated that as many as 2,000 pairs might have been present in the undiked marshes on approximately 6,000 acres.

The only other known habitat remaining for dusky is on the east side of the St. Johns River Basin in Brevard County (Fig. 1). Although Maynard (1875) described the bird as rare in the St. Johns Basin and common on Merritt Island subsequent surveys in the St. Johns Basin revealed dusky present from north of Lake Poinsett to south of Salt Lake on the east side of the St. Johns River (Nicholson 1929, Sharp 1968, Trost 1968). Only about 1,200 acres of preferred habitat now remain in the St. Johns Basin and this will support about 300 pair of dusky.

PRESENT DISTRIBUTION AND STATUS

For all practical purposes mosquito impoundments have eliminated the dusky from Merritt Island. Continuous inundation of most of the marsh by these impoundments has largely destroyed the expanses of cordgrass, salt grass (Distichlis spicata), saltwort (Batis maritima) and rush (Juncus roemerianus).

The dike on one impoundment (T-10-K) has been broken to allow water movement to and from the Indian River and vegetation is recovering in this particular impoundment. It is possible, however, that populations are too low for recovery on Merritt Island National Wildlife Refuge and a transplanting program of birds from the St. Johns appears to be necessary. Only 1 to 3 pairs of birds remain on Merritt Island at present.

Since 1968, when Sharp made his dusky population estimates of 894 singing males on the St. Johns, habitat in this area has declined due to drainage, housing developments, conversion of marsh to improved pasture and highway construction. As habitat shrinks, fires in this moist savanna become a much more critical factor. Many ranchers burn cordgrass annually for cattle grazing purposes, thereby forcing duskie from the area. The wildfires that frequently result from these ranch fires sweep throughout the range of the dusky, particularly in drought years. These factors have reduced populations to a total of 30 singing male duskie in the 1977 spring and summer survey and only 24 in the 1978 survey.

Because the dusky has such a restricted distribution, its recovery is limited in scope to the St. Johns marshes and Merritt Island. It will probably never again reach its former numbers on Merritt Island, due to the mosquito control measures. It is possible, however, to expect to have a remnant, stable population on Merritt Island, if some of the marshes are managed primarily for the dusky.

Suitable habitat within the dusky's range appears to be the major limiting factor. Habitat losses in the St. John's Basin have reached a point where public ownership of managed refuge areas is necessary if duskie are to survive. Merritt Island and one tract on the St. Johns are administered by the U.S. Fish and Wildlife Service as National Wildlife Refuges. Another tract on the St. Johns commonly termed the "Beeline Tract" must be acquired, and placed in public ownership, to help insure the species' recovery.

HABITAT REQUIREMENTS

Preferred Dusky Seaside Sparrow habitat has the general aspect of a wet to moist savanna with a broad open horizon. Dominant vegetation consists mainly of cordgrass with widely scattered cabbage palms (Sabal palmetto), hammocks, ponds and pans dispersed throughout.

This region of the St. Johns Basin was a lagoon when much of the area was covered by the sea during the Pleistocene Epoch and still remain a slightly brackish marsh.

Nesting and wintering habitat appear to be similar. Banding and color-marking studies to date have shown little seasonal or daily movement. They prefer an unbroken expanse of cordgrass, normally between 10 and 15 feet above mean sea level. Below this elevation wetter areas and dense vegetation predominate, whereas at elevations above 15 feet ground moisture decreases and cordgrass usually is too sparse for duskies.

LIFE HISTORY

Breeding and Nesting Behavior:

Males begin singing in March but it is not until April that the breeding season is in full swing. Trost (1968) thought that the species is two-brooded since the eggs were laid in two peaks; the first in late April and early May and the second in late June and early July.

Observations from Fish and Wildlife Service personnel on the St. Johns National Wildlife Refuge indicate that almost complete nesting failures may occur in some year. Nests are built in cordgrass normally, but nests have been found in groundsel (Baccharis angustifolia) on the St. Johns as well as in rush and saltwort on Merritt Island (Nicholson 1928). The average clutch consists of 3 or 4 white eggs spotted with dark reddish brown splotches.

Most of the published data on duskies in the literature was collected during the spring and summer breeding season, probably because that is the only time that the birds may be readily observed. Males in particular are quite tame in the spring and are easily approached.

Fall and Winter Behavior:

During the nonbreeding seasons adults remain near their breeding territories. Little information is available on movements of juveniles, however, Trost (1968) stated that two males and a female banded during the summer as juveniles, established territories the next year near where they had fledged.

Recolonization:

Of particular concern is the rate at which duskie reinhabit their range after being displaced by wildfires (which are common on the St. Johns in the winter and spring).

Since these birds are sedentary and have narrow habitat preferences, higher rates of mortality could be expected because of displacement by wildfires, particularly if suitable habitat is not close to the burned area and the birds are thereby forced into marginal habitat.

Food:

The only published account of a dusky food habitat collection is from Howell (1932). Six stomach contents revealed largely insects and spiders, along with some vegetable matter. He reports that "Grasshoppers and crickets composed about 37 percent of the total, and spiders about 25 percent. Other items were beetles, bugs, horseflies, dragon flies, lepidopterous larvae, Hymenoptera, and a praying mantis. The vegetable matter consisted of a few seeds of sedges, one seed of wax myrtle, and a quantity of tubers of a grass or sedge."

Trost (1968) observed duskie feeding on small snails and possibly ants. He also observed an adult carrying a dragonfly larva and another carrying a salt marsh butterfly to their nestlings.

DUSKY SEASIDE SPARROW RECOVERY PLAN OUTLINE

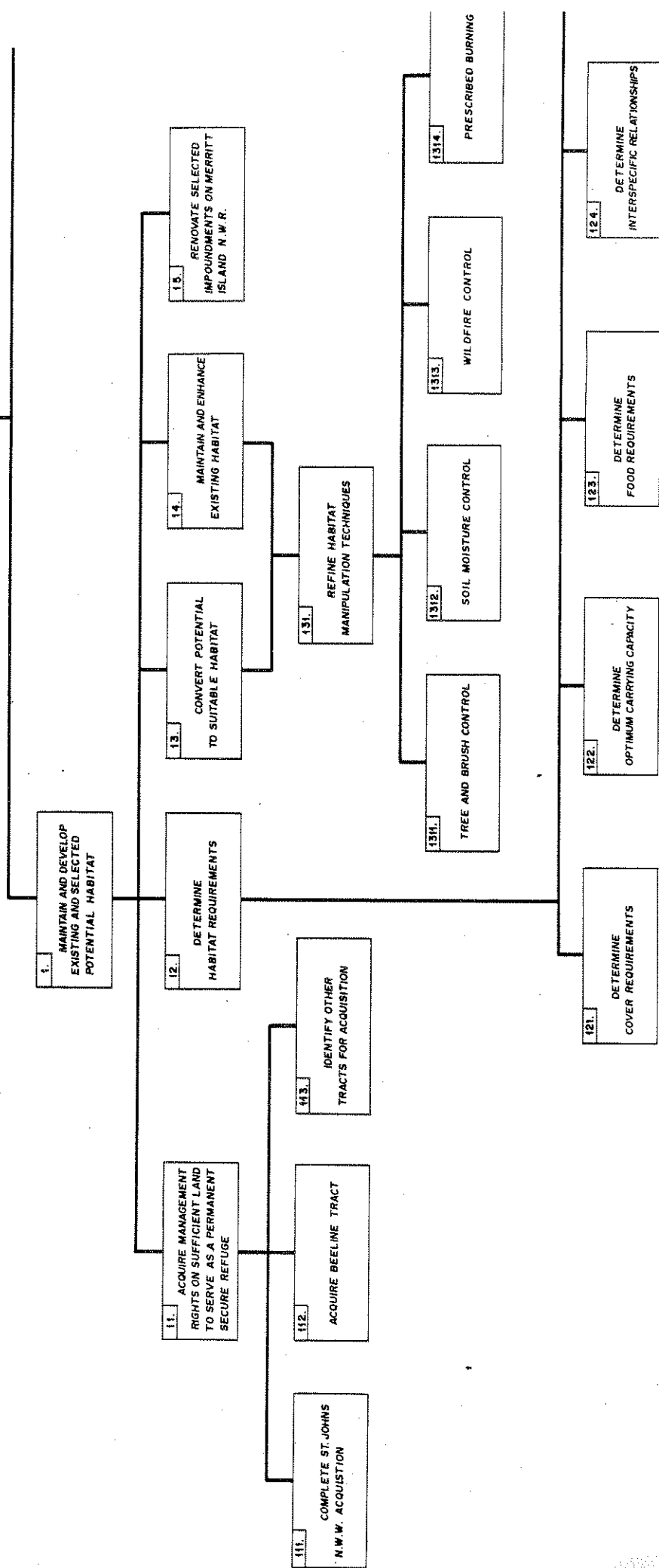
Prime Objective: Restore the Dusky Seaside Sparrow to a point that it is no longer threatened with extinction.

1. Maintain and develop existing and selected potential habitat.
 11. Acquire management rights on sufficient land to serve as permanent, secure refuges.
 111. Complete St. Johns National Wildlife Refuge acquisition.
 112. Acquire Beeline Tract.
 113. Identify other tracts for acquisition.
 12. Determine habitat requirements.
 121. Determine cover requirements.
 122. Determine optimum carrying capacity.
 123. Determine food requirements.
 124. Determine interspecific relationships.
 125. Determine intraspecific relationships.
 13. Convert potential to suitable habitat.
 131. Refine habitat manipulation techniques.
 1311. Tree and brush control.
 1312. Soil moisture control.

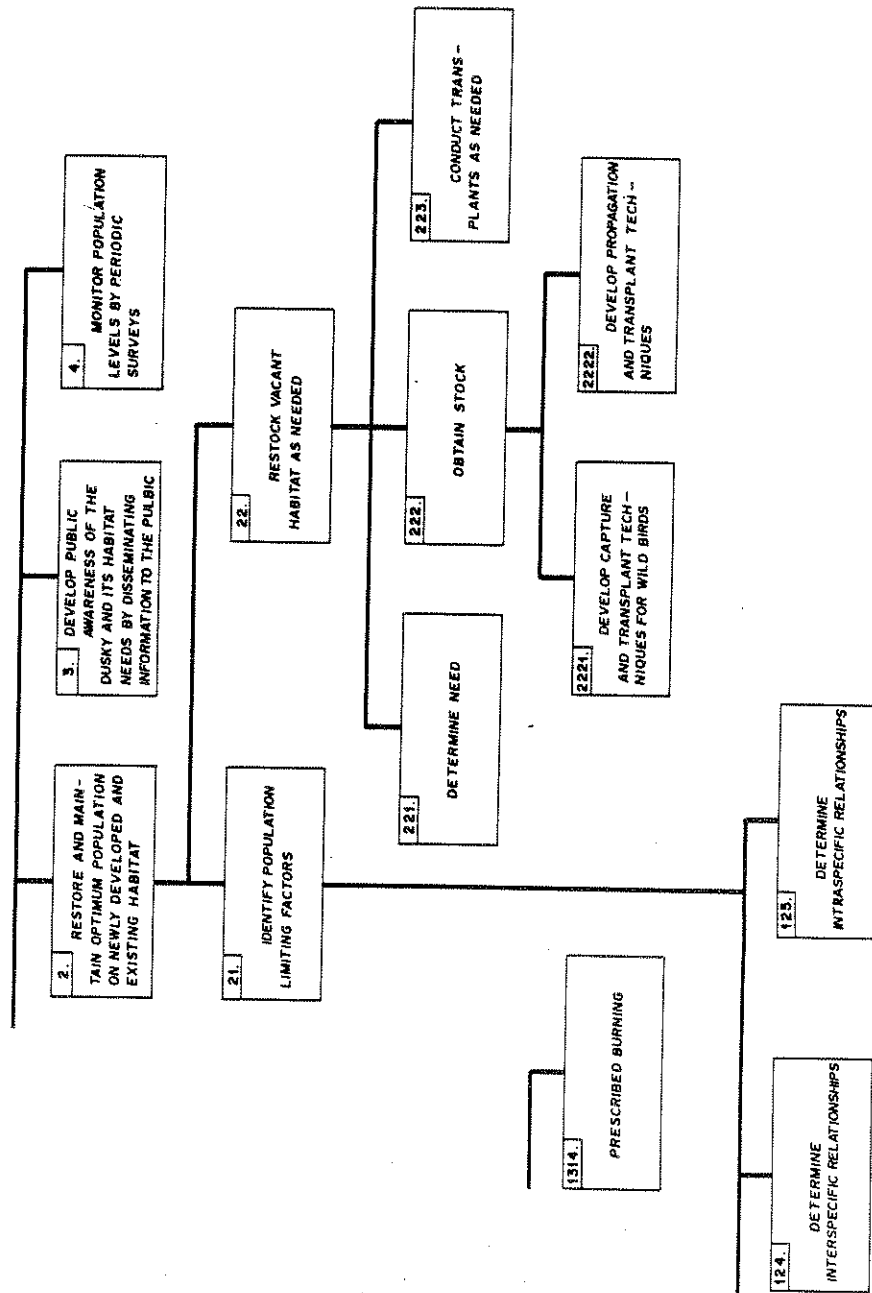
- 1313. Wildlife control.
- 1314. Prescribed burning.
- 14. Maintain and enhance existing habitat.
- 15. Renovate selected impoundments on Merritt Island National Wildlife Refuge.
- 2. Restore and maintain optimum populations on newly developed and existing habitats.
 - 21. Identify population limiting factors.
 - 22. Restock vacant habitat as needed.
 - 221. Determine need.
 - 222. Obtain stock.
 - 221. Develop capture and transplant techniques for wild birds.
 - 222. Develop propagation and transplant techniques.
 - 223. Conduct transplants as needed.
- 3. Develop public awareness of the dusky and its habitat needs by disseminating information to the public.
- 4. Monitor population levels by periodic surveys.

action diagram for the DUSKY SEASIDE SPARROW RECOVERY PLAN

RESTORE THE DUSKY SEASIDE SPARROW POPULATION TO A POINT THAT IS NO LONGER THREATENED WITH EXTINCTION



march 1978



ACTION PLAN OUTLINE NARRATIVE

Prime Objective: Increase the Dusky Seaside Sparrow population to a point that it is no longer threatened with extinction. At this time we do not have sufficient information to set specific population goals and will wait until we better understand population dynamics and habitat needs before setting such goals.

1. Maintain and develop existing and selected potential habitat.- A major thrust must be habitat preservation, in some cases, and management in others.
 11. Acquire management rights on sufficient land to serve as permanent, secure refuge.- Judging from the past history of habitat degradation throughout the dusky range, the only secure habitat will have to be controlled by public agencies. Such refuges will serve as nuclei from which populations can spread to habitat temporarily disrupted by wildfire or other causes.
 111. Complete the St. Johns National Wildlife Refuge acquisition.- This acquisition of 4,000 acres was begun by the Fish and Wildlife Service in 1971 and was essentially completed in 1977 (Fig. 1).
 112. Acquire Beeline Tract.- About 1,500 acres are included in this tract south of the St. Johns NWR in the forks of the Beeline Highway (Fig. 1).
 113. Identify other tracts for acquisition.
12. Determine habitat requirements.- Knowledge about habitat requirements is limited.
 121. Determine cover requirements.- Knowledge of cover requirements is inadequate. The following areas need particular attention as soon as possible.
 - a) Effects of shrubs and trees within occupied habitat and Dusky Seaside Sparrow tolerance to them with particular emphasis on various densities of trees on population densities of the sparrows.
 - b) Rate of habitat recovery following wildfires or other temporary disruptions.
 - c) Habitat needs and preferences for nesting, feeding, brood rearing, and other life functions.

- d) Factors affecting habitat conditions such as frequency of fires, salinity of water and soil etc.
 - e) Special deleterious conditions such as predator habitat and conditions that harbor competitive species.
122. Determine optimum carrying capacity.- This is necessary, if we are to evaluate the success of management efforts on a specific site; also if we are to establish goals. Carrying capacity can be determined over a period of time by observing dusky numbers at various locations during the year.
123. Determine food requirements.- We know little about food habits of duskies or the availability of potential food. Since dusky numbers are too low to permit collections and stomach analyses, we must rely on intensifying visual observations of feeding duskies to supply an insight into their food habits.
124. Determine interspecific relationships.- Such factors to be considered include:
- a) Competition from other species, particularly during the nesting season. Nesting red-wings (Agelaius phoeniceus) are known to constantly harass duskies which nest in close proximity. We do not know to what extent, if any, this harassment depresses dusky nesting.
 - b) Nest predation. Little is known of predators or predation rates on dusky nests. More information will be gathered over a period of time in combination with other nesting studies.
125. Determine intraspecific relationships.- Much basic life history information is needed. To determine limiting factors, studies should be initiated on:
- a) Nesting ecology- nesting success, percent hatching, site selection, care of young, etc.
 - b) Banding, marking studies-to ascertain daily and seasonal movements, longevity, mortality and survival.
13. Convert potential habitat to suitable habitat.- Some areas not now occupied by duskies should be converted to suitable habitat by management. Since only about 1200 acres of preferred dusky habitat remain throughout the range, we must intensify management and create new habitat.
131. Refine habitat manipulation techniques.

1311. Tree and brush control.- Investigations should include methods of controlling woody plants by:
 1. Prescribed burning
 2. Mechanical means
 3. Chemical control
 4. Water level control
 1312. Soil moisture control.- Investigate the effects of soil moisture on the maintenance of the savanna conditions upon which the dusky depends, initial effects to include experimental water level manipulation on the St. Johns as well as Merritt Island. Some dike construction or removal of existing dikes may be necessary.
 1313. Wildfire control.- Firelines must be constructed to prevent wildfires. Existing ditches and disturbed areas are to be utilized as much as possible. A vehicle capable of negotiating extremely boggy conditions is necessary to construct the firelines.
 1314. Prescribed burning.- This management tool needs to be refined to reduce unwanted brush, thereby maintaining the prairie-like appearance of the marsh. Prescribed burned areas in small blocks or strips will serve as buffer areas to keep wildfires to a minimum. Firelines must be constructed as described in 1313.
14. Maintain and enhance existing habitat.
 15. Renovate selected impoundments on Merritt Island NWR.- In order to convert impounded areas to natural marsh, the dike along the Indian River in mosquito control Impoundment T-10-K will be removed. In addition a subdike will be constructed in Impoundment T-10-J so that the southern half of the impoundment can be managed for the Dusky Seaside Sparrow while the northern half may remain flooded for mosquito control and waterfowl use.
2. Restore and maintain optimum populations on newly developed and existing habitat.
 21. Identify population limiting factors- #1211, 1212, 1213, 1214, 1215 are all related to keeping populations depressed.
 22. Restock vacant habitat as required.- This will be priority item on Merritt Island where habitat is being improved, but numbers are too low to take advantage of the available habitat. This may also be applicable on areas where fires have burned large areas separated from other colonies.

221. Determine need.- This will depend on further research to determine how quickly duskie reinhabit areas after being displaced, existing population levels, and proximity to other colonies.
 222. Obtain stock.- Upon determining need, stock will be obtained from either wild populations or artificially propagated birds.
 2221. Develop capture and transplant techniques for wild birds.- The birds will probably be captured by mist-netting but numbers, sex, age and time of year for transplantings are to be determined.
 2222. Develop propagation and transplant techniques.- Since duskie are at a critically low population level, propagation and transplant techniques will first be developed for a closely related subspecies of seaside sparrow. This will be a high priority item.
 223. Conduct transplants as needed.- As mentioned previously, initial work with this technique will be transplanting duskie from the St. Johns to Merritt Island.
3. Develop public awareness of the dusky and its habitat needs.- Recovery of the dusky cannot be assured unless the public, particularly locally and regionally, are aware of and in sympathy with the plight of this bird.
 4. Monitor population levels.- Necessary to determine how well our programs are working. At a minimum, this will entail annual spring population and habitat estimates to evaluate long term trends and short term changes

PART III

Implementation Schedule

Action and Priority	Plan Designation	Responsibility Lead	Completion Target Date	Estimated Cost (Thousands)	
				FY 79	FY 80 FY 81
Acquisition Complete St. Johns NWR	111	FWS	1977	Complete	
Complete Beeline Tract	112	FWS	1978	Complete	
Identify other tracts for acquisition	113	FWS	Unknown		
Management and Investigations Develop propagation and transplant techniques	2222	FG & FWS FWFC FAS2	1981	70 30	30
Develop capture techniques	2221	FWS	1979	2 --	--
Determine cover requirements	121	FWS	Continuing	10 5	5
Determine optimum carrying capacity	122	FWS	Beyond 1981	4 5	5
Determine food requirements	123	FWS	Continuing	5 5	5
Determine inter- specific relation- ships	124	FWS	Continuing	4 4	4

Action and Priority	Plan Designation	Responsibility		Completion Target Date	Estimated Cost (Thousands)		
		Lead	Cooperator		FY 79	FY 80	FY 81
Determine intra-specific relationships	125	FWS	FG & FWFC	Continuing	8	10	10
Identify population limiting factors	21	FWS	FG & FWFC	Continuing	Unknown	Unknown	Unknown
Maintain and enhance existing habitat	14	FWS		Continuing	Total of 1311 thru 1314		
Tree and brush control	1311	FWS		Continuing	5	20	5
Soil moisture control	1312	FWS			3	6	Unknown
Wildfire control	1313	FWS		Continuing	20	5	5
Prescribed burning	1314	FWS		Continuing	20	10	10
Renovate selected impoundments on Merritt Island NWR	15	FWS	Brevard County Mosquito Control	1979	9	--	--
Restocking	22 221, 222, 223	FWS	FG & FWFC	Unknown	Unknown	Unknown	Unknown
Monitor Population	4	FWS	FG & FWFC	Continuing	6	5	5
Information and Education Develop Public awareness of the Dusky	3	FWS	FG & FWFC	Continuing	Unknown	Unknown	Unknown
1 Florida Game and Fresh Water Fish Commission 2 Florida Audubon Society	<u>TOTAL</u>				666	105	84

LITERATURE CITED

- Baker, J.L. 1973. Preliminary studies of the Dusky Seaside Sparrow on the St. Johns National Wildlife Refuge. Proc. Southeastern Assoc. Game and Fish Commissioners 27: 207-214.
- Howell, A.H. 1932. Florida Bird Life. Dist. by National Audubon Society, New York.
- Maynard, C.J. 1875. A new species of finch from Florida. Am. Sportsman 5: 248.
- Nicholson, D.D. 1928. Nesting habits of the Seaside Sparrows in Florida. Wilson Bull. 40: 224-237.
- _____. 1929. Breeding of the Dusky Seaside Sparrow on the mainland of Florida. Auk. 46: 391
- Sharp, B. 1968. Numbers distribution, and management of the Dusky Seaside Sparrow. M.S. Thesis. Univ. of Wisconsin. 76 pp.
- Trost, C.H. 1968. Dusky Seaside Sparrow. Pages 849-859 in A.C. Bent (O.L. Austin, ed.). Life histories of North American cardinals, grosbeaks, buntings, towhees, finches, sparrows and allies. U.S. National Museum Bulletin 237. 1889 pp.

Figure 1

