

SUMMARY OF FIRES IN EVERGLADES NATIONAL PARK
AND BIG CYPRESS NATIONAL PRESERVE
1977 AND 1978

Report T-565

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INTRODUCTION

The purpose of this report is to present a summary of fire statistics for the years 1977 and 1978 for Everglades National Park and the Big Cypress National Preserve. It is essential that an annual report be continued in future years to make fire records more easily accessible.

Big Cypress National Preserve is just being acquired and fire management is just beginning in the Preserve. Big Cypress National Preserve acquired 353,000 acres during 1977. The additional 216,500 acres will be added to Big Cypress for fire management when 60% of the land is purchased, possibly by 1980. The Florida Division of Forestry will retain fire control responsibilities for this acreage until transfer to the National Park Service is completed.

One resources management specialist position is present in the Big Cypress. The individual in the position is responsible for developing a fire management plan for the preserve. All fires must be suppressed until the fire management plan is approved.

Contrasted to Big Cypress, Everglades has had prescribed fire experience since 1958. A fire management plan has been in effect since 1972.

The Everglades fire management plan divides the park into three management units which roughly correspond to the mangrove zone (Unit 1), prairies (Unit 2), and pinelands of Long Pine Key (Unit 3) (Figs. 1 and 2). Three different fire actions can take place on fires within these units. These actions are observation, containment within a specified area, and suppression.

Everglades fires are classified as natural fires, management fires, wildfires, and research fires. Natural fires (N) are lightning-caused fires which are allowed to burn under specified conditions. Management fires (M) are fires set by resources managers under specified conditions. Wildfires (W) are fires that burn out of prescription and must be suppressed. Research fires (R) are prescribed fires set to burn for a specific research objective.

Everglades National Park

More fires occurred during both 1977 and 1978 than occur during an average year (Table 1). However, in 23 of the 31 years of record, more acres were burned than burned during 1977 or 1978. Average size of fires was much smaller than normal due to above normal rainfall (Table 1).

Nine prescribed burns were carried out in 1977 and four in 1978. Few prescribed burns could be carried out during 1978 because of the unusually wet conditions (Table 2). Relative inexperience of the fire crew, because of a nearly complete turnover of personnel, also contributed to the difficulties of prescribed burning in 1978.

The small part of Everglades National Park near and including Management Unit 3 receives approximately one-half the fire management action. During 1977, 10 fires (53%) occurred within this zone or within the nearby Hole-in-the-Donut management area (Fig. 1). Three of these fires (16%) were pineland prescribed burns set by resources managers to reduce fuel and set back hardwood succession. Four Hole-in-the-Donut fires were experimental burns to test the effectiveness of fire in maintaining herbaceous vegetation by excluding the exotic Schinus and other woody vegetation.

Fire 8 (Table 3) for 1977 was a prescribed burn for fuel reduction along the east boundary. The 3,877 acre burn (all acreage burned during one afternoon) was the largest fire to occur in Everglades National Park during the 1977 and 1978 fire seasons.

Eight of 16 fires (50%) that burned during 1978 occurred within the same pinelands-"Hole-in-the-Donut" area (Table 4; Fig. 2). Several other fires were attempted, but appropriate burning conditions were never present. Fire 2 (Table 4), Block D pinelands, with 787 acres burned, was the largest fire during 1978. During 1978, an experimental planting of native hardwood saplings was carried out in the extreme eastern end of the Hole-in-the-Donut to test the strategy of introducing a seed source of trees which are capable of outcompeting Schinus. Therefore, all fires are now to be suppressed within this vicinity. Only one fire, fire 14, occurred in the Hole-in-the-Donut when, during burning of piles of bulldozed Schinus, fire escaped and burned into a nearby area of sawgrass and Muhlenbergia which had been disturbed by past farming operations.

One research burn, Fire 16, was conducted on the west margin of Taylor Slough along the main park road. This burn was the first of a long-term study of fire effects on Muhlenbergia prairie.

Lightning fires were widely scattered over most of the park (Tables 3 and 4; Figs. 1 and 2). Lightning fires ranged in size from less than one acre to the 726 acres burned on June 25, 1978, near "10-mile Corner" (Fire 5, Table 4). The largest lightning-caused fire during 1977 was 364 acres burned in Spartina-brush land between Wood and Harney Rivers (Fire 18, Table 3).

Average fire management cost, at \$3.20 per acre, was higher than during previous years (Table 5). Bancroft (1976) stated that "about 10,000 acres are prescribed burned annually at an average cost of about \$1.36 per acre."

Big Cypress National Preserve

The National Park Service had fire management responsibilities for portions of Big Cypress for only two months during 1978. Preliminary indications are that Big Cypress is one of the most fire impacted areas under National Park Service management. The total of 51 fires for November, 1978, all of incendiary origin, shows the tremendous potential for fire within the preserve (Table 6).

The Florida State Division of Forestry has collected fire statistics during the past 6 years. Location of fires has been mapped for 1977 (Fig. 3 from Duever, 1979). A map showing composite fire history was prepared by Duever (1979) which shows 31-100 fires during a five year period in the Turner River-Ochopee-Birdon Road areas. Other areas with high fire frequency were the "central portion of the Preserve," along the Tamiami Trail (U.S. 41), along State Road 29, and Alligator Alley (U.S. 84). The general region south of Tamiami Trail and south of the "Loop Road" had 0-1 fires per hectare for the five years.

Pasture burning is a practice allowed for portions of Big Cypress National Preserve. During November 1978, three pasture burning permits were issued which resulted in 900 of the 1430 acres (63%) burned. During December, three pasture burning permits were issued resulting in 1100 of the 1275 acres (86%) burned. These permits resulted in 74% of acreage burned during November and December, 1978.

SUMMARY

Fire statistics for Everglades National Park are summarized for the 1977 and 1978 calendar years. Neither year was exceptional from the standpoint of fire numbers, acres burned, or cost of fires. Most fires were centered around the pinelands - Hole-in-the-Donut area within the park. Nineteen fires burned 6,458 acres during 1977. Sixteen fires burned 2,494 acres during 1978. Statistics on cause of fire, management unit where burned, acres burned, and cost are presented.

The National Park Service began assuming fire management responsibility for portions of the Big Cypress National Preserve during the fall of 1978. Fires for November and December, 1978, totaled 57 fires that burned 2705 acres.

LITERATURE CITED

- Bancroft, Larry. 1976. Fire Management in Everglades National Park. Fire Management (Winter): pp. 18-21.
- Duever, M. 1979. A Resources Base Inventory for Big Cypress Preserve.
- Duever, M. J., J. E. Carlson, J. F. Meeder, L. C. Duever, L. H. Gunderson, L. A. Riopelle, T. R. Alexander, R. F. Myers, and D. P. Spangle. 1979. Resources Inventory and Analysis of the Big Cypress National Preserve. Final Report to USDI, NPS, Southeast Regional Office, Atlanta, Georgia. Vol. I. 700 pp.

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Table 1. Fire statistics for 1977 and 1978 compared to 1948-1977 averages

	1977	1978	1948-1976* Averages
Number of fires	19	16	13
Total acres burned	6,458	2,494	
Average size of wildfires (acres)	3	60	1,300
Average size of lightning fires (acres)	62	103	530

*Fire Management Plan, Everglades National Park

Table 2. Rainfall records at Royal Palm Ranger Station and Tamiami Ranger Station (in inches)

	Royal Palm												Total
	Month												
	J	F	M	A	M	J	J	A	S	O	N	D	
1977	1.96	1.65	0.70	0.64	12.81	8.67	5.53	4.43	11.68	3.53	2.89	3.58	58.07
1978	3.32	4.60	2.77	6.31	5.07	8.71	6.25	11.41	13.67	9.66	1.32	2.27	75.36
Average	1.61	1.91	1.56	2.54	6.63	10.24	7.02	7.78	8.91	6.38	2.16	1.39	58.13
	Tamiami												
1977	2.01	1.51	2.05	1.98	7.05	7.48	9.57	9.25	10.52	0	0.14	0.33	51.89
1978	2.19	0.09	7.80	2.84	6.36	11.53	7.24	9.99	6.40	0	3.26	4.04	61.74
Average	1.47	1.51	1.84	2.33	5.96	9.25	8.20	7.50	8.91	5.54	1.50	1.17	52.21

Table 3. 1977 Fire Statistics

	<u>Fire Name</u>	<u>Fire No.</u>	<u>Cause</u>	<u>Fire Mgmt Unit</u>	<u>Acres</u>	<u>Cost (\$)</u>	<u>Date</u>	<u>Remarks</u>
1.	Block B	M-1	Prescribed	3	758	880	1/12/77	
2.	Block H	M-2	Prescribed	3	664	2,900	1/26/77	Fire escaped intended area for prescribed burn in Block I
3.	Unit 3	M-3	Unknown	2	0	29	2/6/77	Fire extinguished by itself
4.	Donut Units 1 and 5	M-4	Prescribed	2	510	3,325	2/2/77	To control hardwoods and <u>Schinus</u>
5.	Unit Four	M-5	Prescribed	2	150	125	2/25/77	To keep farmland in early stages of succession
6.	Flamingo	M-6	Prescribed	1	28	2,528	3/18/77	To reduce <u>Baccharis</u>
7.	Interpret	M-7	Prescribed	2	4		11/9/77	Training
8.	East Boundary	M-8	Prescribed	2	3,877	1,801	12/22/77	Fuel reduction
9.	Broad River	R-1	Prescribed	1	60	3,709	2/22/77	Burned prairie between Broad River and Roger's River
10.	Block H-III	R-2	Prescribed	3	27	13,148	12/13/76 to 4/2/77	12 plots and surrounding area to investigate role of humidity and type in determining fire effects
11.	Pumphouse	W-2	lightning	3	1	140	3/6/77	

	<u>Fire Name</u>	<u>Fire No.</u>	<u>Cause</u>	<u>Fire Mgmt Unit</u>	<u>Acres</u>	<u>Cost (\$)</u>	<u>Date</u>	<u>Remarks</u>
12.	Faux Pas	W-3	man	2	5	75	4/3/77	State Forest Service used unauthorized plow
13.	Kitten	W-4	man	2	2	75	4/3/77	Arson fire
14.	Cuthbert Lake	N-1	Lightning	1	4	0	5/10/77	Coastal interior prairie
15.	9-Mile-77	N-2	Lightning	1	2	0	5/25/77	Sawgrass, water depth 17 cm
16.	King Corey	N-3	Lightning	2	0	0	7/5/77	
17.	West Sweet Bay	N-4	Lightning	2	1	0	7/10/77	
18.	Wood	N-5	Lightning	1	364	0	7/31/77	<u>Spartina</u> -brush burned between Wood and Harney Rivers
19.	Taylor Slough	<u>N-6</u>	Lightning	2	<u>1</u>	<u>0</u>	8/18/77	
	Totals	19			6,458	\$28,735		

Table 4. 1978 Fire Statistics

	<u>Fire Name</u>	<u>Fire No.</u>	<u>Cause</u>	<u>Fire Mgmt Unit</u>	<u>Acres</u>	<u>Cost (\$)</u>	<u>Date</u>	<u>Remarks</u>
1.	L-31W	W/M-1	Incendiary	3	1	10	1/15/78	In prescription but suppressed without permission.
2.	Block D	M-2	Prescribed	3	787	3,854	1/31/78	First attempt; 2nd attempt was 2/7/78; finally burned 3/30/78.
3.	Walden	W/M-3	Incendiary	2	120	260	6/16/78	Off Tamiami Trail
4.	Canal	N-1	Lightning	2	26	35	6/25/78	On canal L-67
5.	Crash Site	N-2	Lightning	2	726	35	6/25/78	Near "10-Mile Corner"
6.	North River	N-3	Lightning	2	0.25	50	6/29/78	Near Mahogany Hammock
7.	Gator Slough-1	N-4	Lightning	2	2	0	8/02/78	2 miles SE of "10-Mile Corner"
8.	Broad River	N-5	Lightning	2	105	0	8/03/78	North fork of Broad River headwaters
9.	Coconut Hammock	N-6	Lightning	2	30	0	8/01/78	Near south end of "Stairsteps"
10.	Pine Island	N-7	Lightning	3	0.25	0	8/05/78	

	<u>Fire Name</u>	<u>Fire No.</u>	<u>Cause</u>	<u>Fire Mgmt Unit</u>	<u>Acres</u>	<u>Cost (\$)</u>	<u>Date</u>	<u>Remarks</u>
11.	Overlook	N-8	Lightning	2	26	20	9/09/78	Off west end of Block D
12.	Campground	M-4	Prescribed	3	38	866	9/19/78	
13.	Gator Creek	N-9	Lightning	1	9	0	9/21/78	Near EVER City, N of Alligator Bay; probably <u>Spartina</u> marsh
14.	Unit 1-C	W/M-5	Man	2	60	0	11/21/78	Hole-in-the-Donut area
15.	East Boundary	M-5	Prescribed	2	402	2,569	12/07/78 & 12/08/78	"5-Mile Corner" to L-67
16.	Research	<u>R-1</u>	Prescribed	2	<u>161</u>	<u>314</u>	12/15/78	Main park road near Taylor Slough
	TOTALS	16			2,493.5	\$8,013		

Table 5. Summary of 1977 and 1978 fire statistics by fire management unit*

	1977													
	Number of Fires in Fire Management Unit				Acres Burned in Fire Management Unit				Actual Cost for Fire Management Unit (\$)					
	#1	#2	#3	Total	#1	#2	#3	Total	Avg. Size	#1	#2	#3	Total	Avg./Acre
Natural	3	3	0	6	370	2	0	372	62	0	0	0	0	0
Research	1	0	1	2	60	0	27	87	44	3708	0	13,148	16,857	193.75
Wildfire	0	2	1	3	0	7	1	8	3	0	150	140	290	36.25
Management	1	5	2	8	28	4,541	1,422	5,951	749	2528	5,280	3,780	11,588	1.95
Totals	5	10	4	19	458	4,550	1,450	6,458	340	503	3,320	16,988	20,811	3.22
	1978													
Natural	1	7	1	9	9	915.25	0.25	924.5	102.7	0	140	0	140	0.15
Research	0	1	0	1	0	161	0	161	161	0	314	0	314	1.95
Wildfire	0	2	1	3	0	180	1	181	60.3	0	260	10	270	1.49
Management	0	1	2	3	0	402	825	1,227	409	0	2,569	4,720	7,289	5.94
Totals	1	11	4	16	9	1658.25	826.25	2,493.5	155.8	0	3283	4730	8013	3.21

*Fire Management Units: #1 = Mangrove Zone (328,427 acres)
 #2 = Prairies (356,811 acres)
 #3 = Pinelands (19,840 acres)

Table 6. Status of fires known to have occurred on NPS and State controlled lands in Big Cypress National Preserve in November and December of 1978.

Date	No.	Acres	Notes
11/14	1	400	pasture burning permit
11/17	2	35	
11/19	3	2	
11/19	4	1	
11/25	5	150	
11/26	6	1	
11/26	7	100	pasture burning permit
11/29	8	400	"
11/22	12	50	
11/22	13	20	
11/22	14	200	
11/22	15	30	
11/27	16	30	
11/27	17	5	
11/27	18	6	
Total	15	1,430	
12/17	19	20	
12/17	20	5	
12/17	21	150	pasture burning permit
12/26	22	750	"
12/26	23	200	"
12/19	24	150	
Total	6	1,275	

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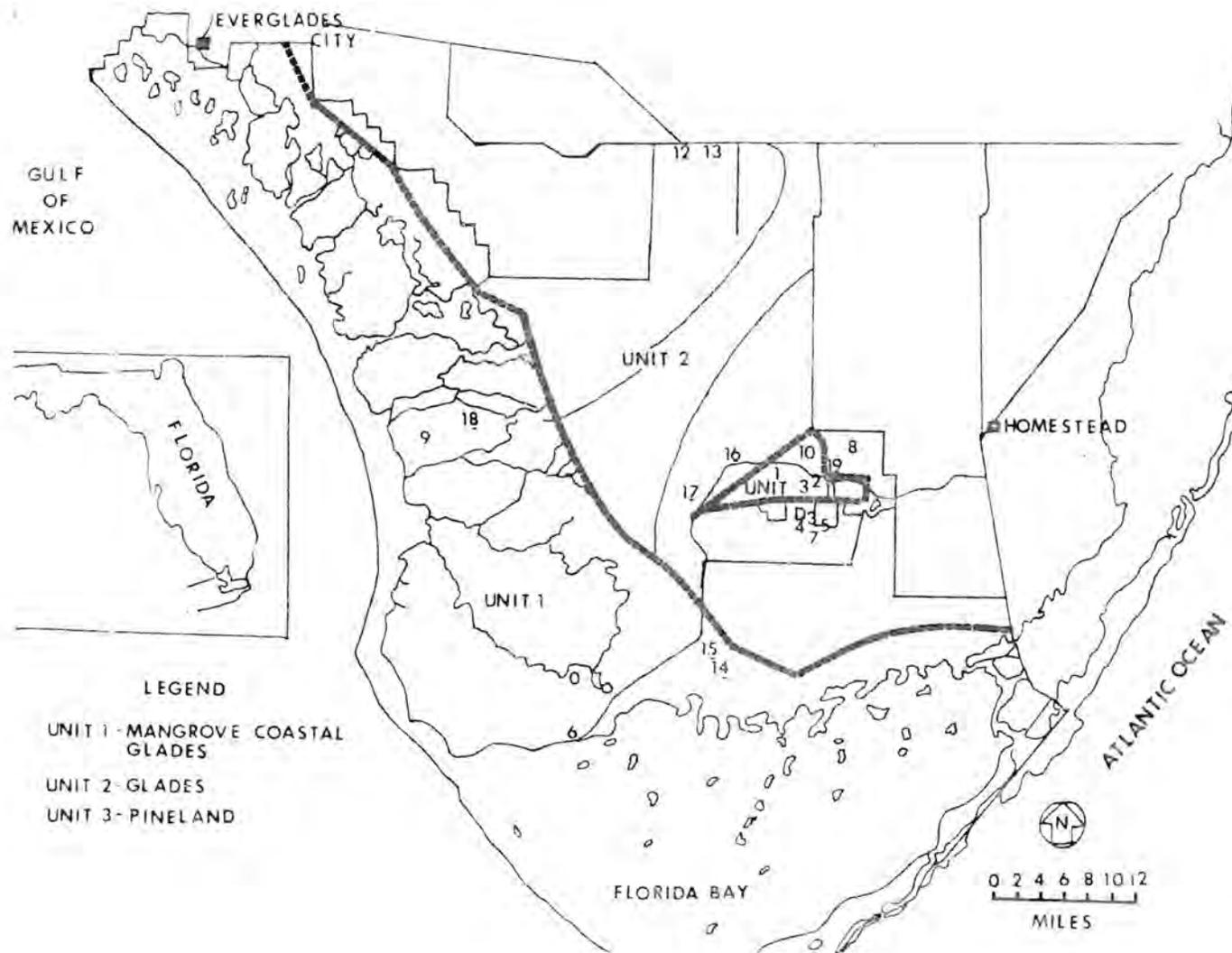


Figure 1. Approximate location of 1977 fires within Everglades National Park.

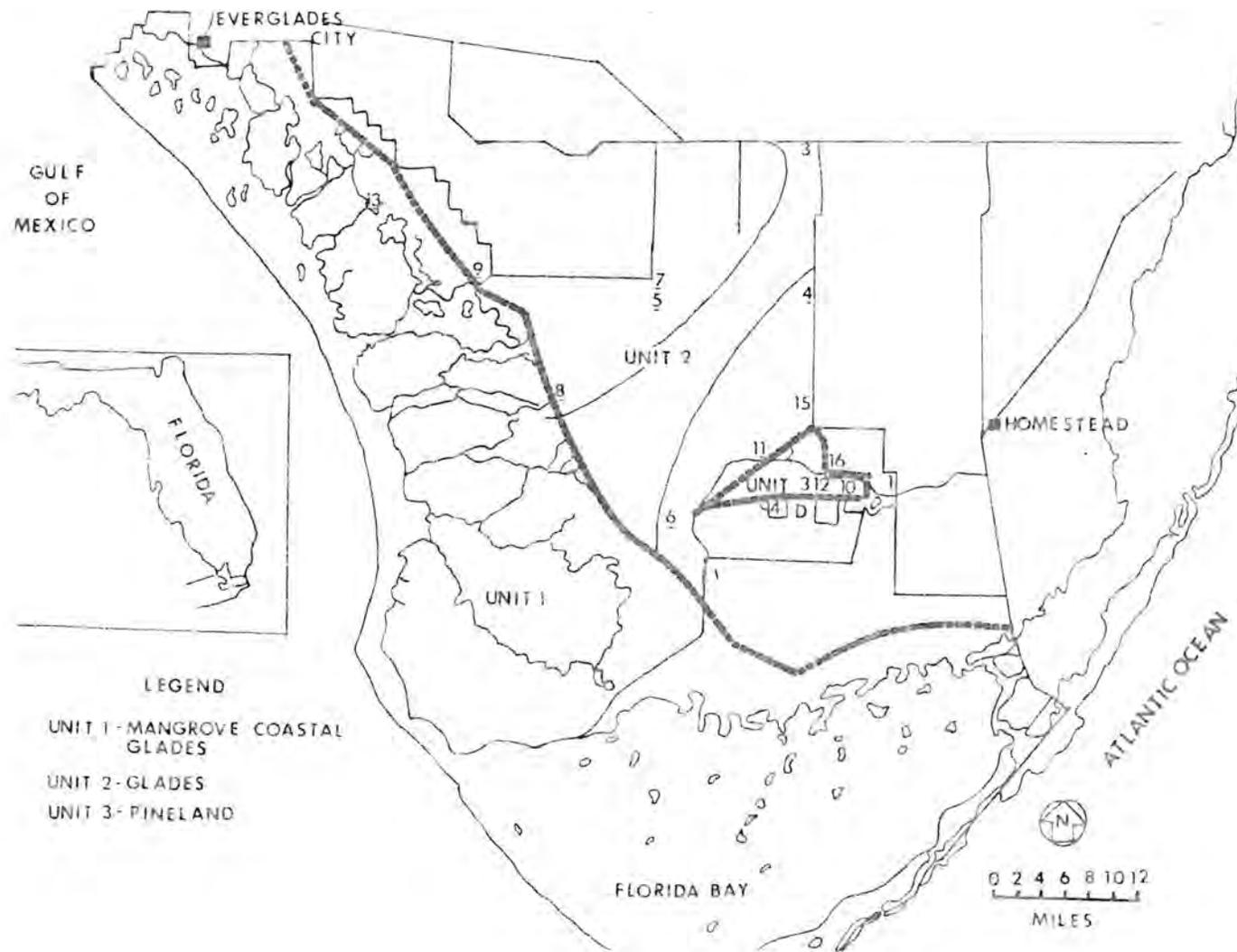


Figure 2. Approximate location of 1978 fires in Everglades National Park.

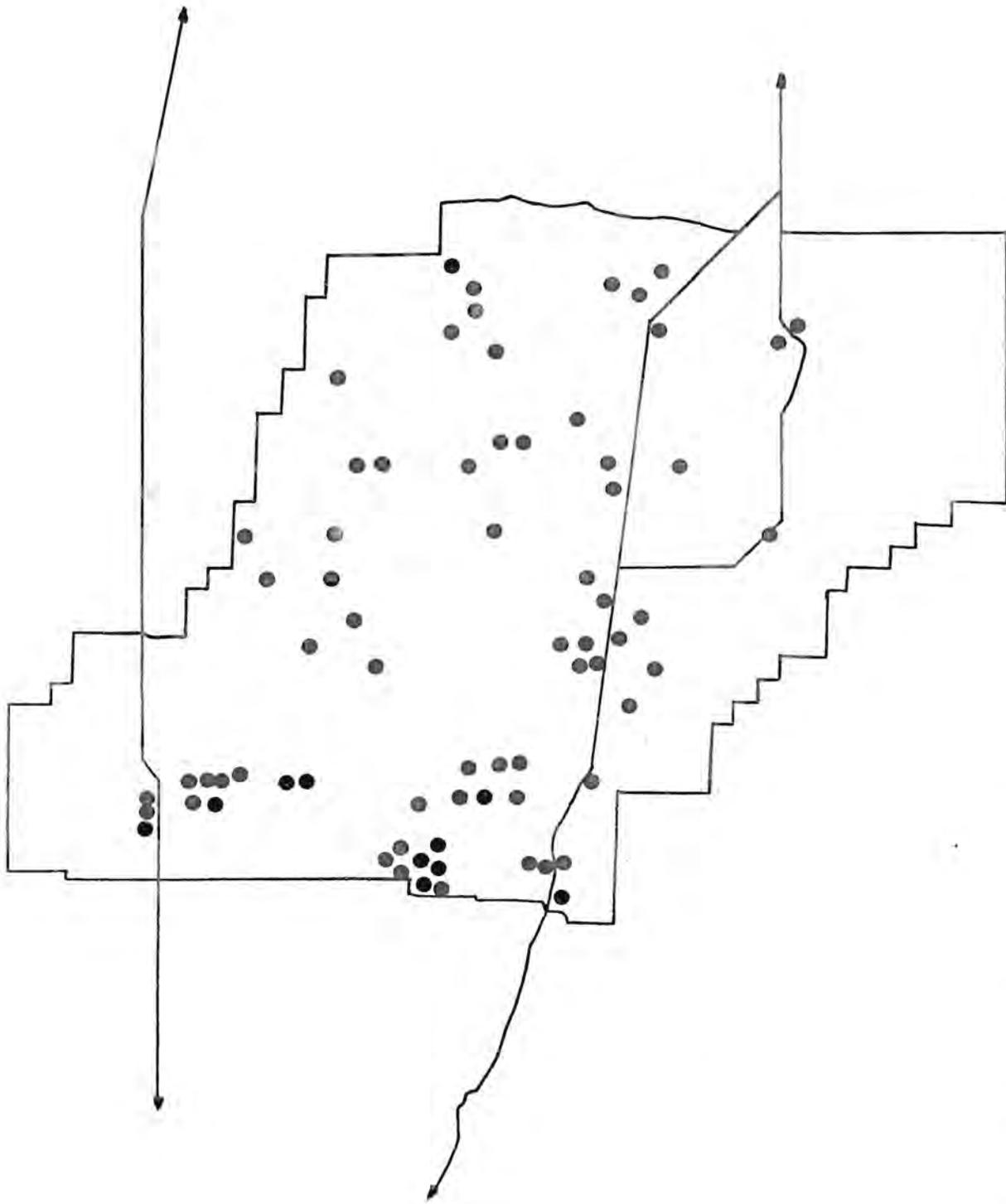


Figure 3. Location of known fires in the Big Cypress National Preserve, 1977.