1995 PRESCRIBED FIRE PLAN

Crab Orchard National Wildlife Refuge

PREPARED BY: Thomas A. Palmer — Forester — **DATE:** 12-29-94

REVIEWED BY: John N. Mabery — Wildlife Biologist — **DATE:** 1-12-95

SUBMITTED BY: Charles Holbrook — Acting Refuge Manager — **DATE:** 1-18-95

REVIEWED BY: Meredith A. Welthner — Regional Fire Management Coordinator — **DATE:** 3-2-95

The approved Prescribed Fire Plan constitutes the authority to burn, pending approval of Section 7 Consultations, Environmental Assessments or other required documents. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Actions taken in compliance with the approved Prescribed Fire Plan will be fully supported.

APPROVED BY: William H Hutchinson — Acting Wildlife Associate Manager — **DATE:** 3/2/95

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APPENDICES

Prescribed Burning Unit (PBU) Number: *95-01*
Compartment Number: *I-2*
Name of Area:
Acres to be Burned: *35.6*
Length of Burn Perimeter: *90 chains*
Burn Complexity Rating:

COMPLEXITY ELEMENTS WORKSHEET			
ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape	*LOW*	*LOW*	*LOW*
2. The number and dependence of activities	*LOW*	*LOW*	*LOW*
3. Values at risk	*LOW*	*LOW*	*LOW*
4. Fuels/Fire behavior	*LOW*	*LOW*	*LOW*
5. Size of prescribed burn team	*LOW*	*LOW*	*LOW*
6. Magnitude of oversight/political activities	*LOW*	*LOW*	*LOW*
7. Fire treatment objectives	*LOW*	*LOW*	*LOW*
8. Environmental constraints	*LOW*	*LOW*	*LOW*
9. Safety	*LOW*	*LOW*	*LOW*
10. Ignition procedures/methods	*LOW*	*LOW*	*LOW*
11. Interagency problems	*LOW*	*LOW*	*LOW*
12. Project logistics	*LOW*	*LOW*	*LOW*
13. Special features inside fire area	*LOW*	*LOW*	*LOW*
14. Smoke management	*LOW*	*LOW*	*LOW*
SUMMARY OF ELEMENTS	*LOW*	*LOW*	*LOW*
PRESCRIBED FIRE SUMMARY COMPLEXITY RATING			
SUMMARY COMPLEXITY DETERMINATION	*LOW*		
Rationale: *All elements are rated LOW.*			

County: *Williamson*
Latitude: *37°41'*
Longitude: *89°08'*

Legal Description: *NW¼ of Section 5, Township 10 South, Range 1 East, Third Principal Meridian*

Is a Section 7 Consultation being forwarded to Fish and Wildlife Enhancement for review? *No*

Physical Features and Vegetation Cover Types: *The vegetative cover type is shortleaf pine (planted 1938-40). The understory is hardwood regeneration, brush, vines, grasses, and forbs. Fuels present are a multi-year rough, honeysuckle vines, dead herbaceous vegetation, and some dead woody vegetation. The maximum slope in this PBU is about 10%.*

History of Treatments: *This PBU shows evidence of previous fire, but no records of prescribed burning were found. This stand was commercially thinned in 1991-2.*

Primary Resource Objectives: *Pine stands which have been thinned to remove pulpwood-size trees provide satisfactory habitat for a variety of species when burned on a 3-year cycle. Prescribed fire is the most efficient and effective means to encourage a flourishing understory community in pine stands. The open stands of pine serve as a shelter crop for the more desirable native hardwoods. Fire is a natural force which encourages desirable hardwood regeneration necessary for eventual stand conversion.*

Specific Objectives of this Burn: *The proposed burn should top-kill the majority of the hardwood stems and vines less than one inch in diameter, reduce the load of natural and activity fuels, and promote the growth of herbaceous vegetation.*

Acceptable Range of Results: *Burn coverage should be >90%. Top-kill of stems <1 inch should be >70%. Fuel reduction should be >50%. Crown scorch should be <30%.*

PRE-BURN MONITORING

VEGETATION TYPE	FIRE BEHAVIOR FUEL MODEL	TOTAL PBU AREA (acres)	% AREA OF TYPE	TYPE AREA
Pine	*9*	*35.6*	*100*	*35.6*
TOTALS		***35.6***	***100***	***35.6***

Habitat Conditions: *Overstory is a fully stocked stand of shortleaf pine. Midstory is hardwood regeneration and shrubs. Understory is a dense growth of seedlings/sprouts of hardwood trees and shrubs, vines and miscellaneous herbaceous vegetation.*

Photograph Showing Pre-Burn Vegetative Conditions:

PLANNING and ACTIONS

Required Permits: *An "Open Burning Permit" will be obtained from the Illinois Environmental Protection Agency.*

Site Preparation: *Prior to ignition, 90 chains of firebreak must be established around the perimeter. The firebreak will be prepared using a small dozer and tractor-mounted tiller. The exposed soil will be seeded with appropriate vegetation to prevent erosion.*

Safety Considerations: *Every effort will be made to prevent the fire's escape, especially onto the private land on the north and west. Any area surrounding the PBU should be suitable to serve as a safety zone. The PBU will be checked for the presence of visitors prior to ignition.*

Personnel Escape Plan: *Personnel should have no trouble escaping to the safety zone located outside the perimeter of the PBU.*

Special Constraints and Considerations: *Adverse effects on surrounding communities, visitors, wildlife, air, soil, water and desirable vegetation should be negligible when adhering to the specifications of this plan. Prescribed burning shall not be conducted during periods of national or regional emergencies, nor severe drought conditions.*

Communication and Coordination on the Burn: *All fireline personnel will carry hand-held radios to communicate with the Fire Boss and each other. The Fire Boss will coordinate all activities.*

IGNITION, BURNING and CONTROL

Desired dates: *November to March*
Desired time of day: *0900-1700*

ACCEPTABLE PRESCRIPTION RANGE			
PARAMETER	**LOW**	**HIGH**	**ACTUAL**
ENVIRONMENTAL CONDITIONS			
Temperature (°F)	*30*	*55*	
Relative Humidity (%)	*20*	*45*	
20' Wind Speed (mph)	*8*	*18*	
Mid-flame Wind Speed (mph)	*4*	*12*	
Cloud Cover (%)	*0*	*70*	
Soil Moisture	*moist*	*saturated*	
1-hour Fuel Moisture (%)	*5*	*15*	
10-hour Fuel Moisture (%)	*5*	*20*	
100-hour Fuel Moisture (%)	*15*	*25*	
1000-hour Fuel Moisture (%)	*15*	*25*	
Live Fuel Moisture (%)	*50*	*100*	
Litter/Duff Moisture (%)	*10*	*30*	
FIRE BEHAVIOR			
FIRE BEHAVIOR FUEL MODEL: 9			
Rate of Spread (ch/hr)	*4*	*40*	
Flame Length (ft)	*1.9*	*6.1*	
Fireline Intensity (BTU/ft/sec)	*23*	*285*	

Type of Firing Method: *Back and strip-head.*

Ignition Technique: *Prior to commencing full-scale ignition, a small test fire will be ignited in a relatively safe area of representative fuel to determine expected fire behavior. Ignition will start at the down-wind firebreak where a back-fire will be used to secure the line. The back-fire will be allowed to burn approximately 2 chains up-wind away from the firebreak, then the flanking firebreaks will be ignited for a distance of approximately 5 to 6 chains. A strip-head fire will then be ignited across the unit perpendicular to the wind direction. The strip-head firing technique will be used to ignite the balance of the unit.*

SMOKE MANAGEMENT

Distance and Direction to Smoke Sensitive Areas: *There are 2 private residences about 60 chains to the south.*

Necessary Transport Wind Direction, Speed and Mixing Height: *N,E,S,W; 10-20 mph; >500 meters*

Visibility Hazards: *None*

Actions to Reduce Visibility Hazards: *PBU will only be treated with the prescribed wind direction.*

Residual Smoke Problem Reduction Measures: *None should be needed.*

FUNDING and PERSONNEL

Activity Code: *33610-9120*

COST ESTIMATION WORKSHEET					
	HOURS	LABOR COST ($)	EQUIPMENT ($)	SUPPLIES ($)	TOTAL COST ($)
PRE-BURN OPERATIONS					
Administration	4	88		10	
Site preparation	4	60	40	0	
SUBTOTALS	8	148	40	10	198
BURN OPERATIONS					
Personnel	16	256			
Equipment	4		12	0	
Supplies			5	5	
SUBTOTALS	20	256	17	5	278
POST-BURN OPERATIONS					
Evaluations	1	22			
SUBTOTALS	1	22	0	0	22
TOTALS	29	426	57	15	498

BURN DAY ACTIVITIES

Public/Media/Cooperator Contacts on Burn Day: *Lake Egypt FPD will be notified by telephone (☎ 964-1278) of the location and size of the PBU prior to ignition. Local residents will be notified by personal visit if possible.*

Crew and Equipment Assignments: *The Fire Boss will assign individual responsibilities and positioning of equipment.*

Crew Briefing Points: *The crew will be briefed on the ignition procedure, holding techniques, local water sources, and safety concerns.*

HOLDING and CONTROL

Potential Control Problems: *Fireline personnel will patrol the perimeter of the unit to watch for spot-fires, fire creeping across the firebreak, or burning snags within 100 feet of the firebreak. Fireline personnel will carry hand-held radios so that any problems can be reported immediately to the Fire Boss. All potential problems will be resolved as soon as practicable.*

Water Refill Points: *Lost Branch 1½ mile to SE; Grassy Bay 1¾ mile to E; Little Grassy Creek 1¾ mile to E.*

Contingency Plan for Escaped Fire: *The Fire Boss shall be notified immediately of any escaped fire, who will then size up the situation and assign all appropriate personnel and equipment to extinguish it. If the situation is determined to be beyond the capabilities of immediately available resources, Lake Egypt FPD will be called via radio (channel 3) for assistance.*

Mop up and Patrol: *The fire should be burned out in about 3 hours. Fireline personnel will check the perimeter of the unit for smoldering snags and other potential hazards. The fireline will be secured before leaving the area. The area will be checked daily until all fire burns itself out or is extinguished by a soaking rain.*

Other Special Considerations: *None.*

POST-BURN OPERATIONS

EVALUATIONS

Evaluation #1. (within 1 week of burn date)

Date of evaluation: __ - - __

Crown scorch on pine: ☐ slight (0-35%), ☐ moderate (36-66%), ☐ severe (67-100%), ☐ N/A

Amount of litter/duff remaining: ☐ light, ☐ moderate, ☐ heavy

Amount of understory vegetation remaining: ☐ light, ☐ moderate, ☐ heavy

Smoke dispersal: ☐ excellent, ☐ good, ☐ fair, ☐ poor

Escape of fire: ☐ none, ☐ burned across line, ☐ spotted over line

Controlled with: ☐ ease, ☐ moderate effort, ☐ significant effort

Erosion potential: ☐ negligible, ☐ slight, ☐ moderate, ☐ severe

Objectives accomplished: ☐ yes, ☐ no, ☐ partially

Evaluation #2. (after start of growing season)

Date of evaluation: __ - - __

Crown scorch on pine: ☐ light (0-35%), ☐ moderate (36-66%), ☐ severe (67-100%), ☐ N/A

Tree damage: ☐ none apparent, ☐ resin bleeding, ☐ bark cracking, ☐ insects, ☐ fungus, ☐ mortality of desirable trees

Amount of undesirable vegetation top-killed: ☐ 0-20%, ☐ 21-40%, ☐ 41-60%, ☐ 61-80%, ☐ 81-100%

Erosion: ☐ negligible, ☐ slight, ☐ moderate, ☐ severe

Objectives accomplished: ☐ yes, ☐ no, ☐ partially

ACTUAL COST WORKSHEET

BURN DATE:

PERSONNEL				
NAME	QUANTITY	RATE		TOTAL
		COST ($)	UNIT	
Aly, W.	0.0	0.00	hour	0.00
Collins, J.	0.0	0.00	hour	0.00
Espeland, R.	0.0	0.00	hour	0.00
Hericks, C.	0.0	0.00	hour	0.00
Hericks, W.	0.0	0.00	hour	0.00
Hileman, R.	0.0	0.00	hour	0.00
Mabery, J.	0.0	0.00	hour	0.00
Modglin, C.	0.0	0.00	hour	0.00
Palmer, T.	0.0	0.00	hour	0.00
Rendleman, T.	0.0	0.00	hour	0.00
Vincent, J.	0.0	0.00	hour	0.00
			SUBTOTAL	**0.00**
EQUIPMENT				
JD-550 dozer	0.0	11.00	hour	0.00
Rotavator + tractor	0.0	7.00	hour	0.00
Tree Cutter + tractor	0.0	7.00	hour	0.00
Honda ATV 4x4	0.0	3.00	hour	0.00
Honda ATV 4x2	0.0	3.00	hour	0.00
			SUBTOTAL	**0.00**
VEHICLES				
Trucks	0.0	0.20	mile	0.00
			SUBTOTAL	**0.00**
SUPPLIES				
Drip torch fuel	0.0	1.00	gallon	0.00
			SUBTOTAL	**0.00**
			TOTAL	**0.00**

AVERAGE COST PER ACRE WORKSHEET

TOTAL COST ($)	TOTAL AREA (acres)	AVERAGE COST ($/acre)
0.00	35.6	**0.00**

Prescribed Burning Unit (PBU) Number: *95-02*
Compartment Number: *I-2*
Name of Area:
Acres to be Burned: *14.4*
Length of Burn Perimeter: *52 chains*
Burn Complexity Rating:

COMPLEXITY ELEMENTS WORKSHEET			
ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape	*LOW*	*LOW*	*LOW*
2. The number and dependence of activities	*LOW*	*LOW*	*LOW*
3. Values at risk	*LOW*	*LOW*	*LOW*
4. Fuels/Fire behavior	*LOW*	*LOW*	*LOW*
5. Size of prescribed burn team	*LOW*	*LOW*	*LOW*
6. Magnitude of oversight/political activities	*LOW*	*LOW*	*LOW*
7. Fire treatment objectives	*LOW*	*LOW*	*LOW*
8. Environmental constraints	*LOW*	*LOW*	*LOW*
9. Safety	*LOW*	*LOW*	*LOW*
10. Ignition procedures/methods	*LOW*	*LOW*	*LOW*
11. Interagency problems	*LOW*	*LOW*	*LOW*
12. Project logistics	*LOW*	*LOW*	*LOW*
13. Special features inside fire area	*LOW*	*LOW*	*LOW*
14. Smoke management	*LOW*	*LOW*	*LOW*
SUMMARY OF ELEMENTS	*LOW*	*LOW*	*LOW*

PRESCRIBED FIRE SUMMARY COMPLEXITY RATING	
SUMMARY COMPLEXITY DETERMINATION	*LOW*
Rationale: *All elements are rated LOW.*	

County: *Williamson*
Latitude: *37°41'*
Longitude: *89°08'*

Legal Description: *NW¼ of Section 5, Township 10 South, Range 1 East, Third Principal Meridian*

Is a Section 7 Consultation being forwarded to Fish and Wildlife Enhancement for review? *No*

Physical Features and Vegetation Cover Types: *The vegetative cover type is shortleaf pine (planted 1938-40). The understory is hardwood regeneration, brush, vines, grasses, and forbs. Fuels present are a multi-year rough, honeysuckle vines, dead herbaceous vegetation, and some dead woody vegetation. The maximum slope in this PBU is about 10%.*

History of Treatments: *This PBU shows evidence of previous fire, but no records of prescribed burning were found. This stand was commercially thinned in 1991-2.*

Primary Resource Objectives: *Pine stands which have been thinned to remove pulpwood-size trees provide satisfactory habitat for a variety of species when burned on a 3-year cycle. Prescribed fire is the most efficient and effective means to encourage a flourishing understory community in pine stands. The open stands of pine serve as a shelter crop for the more desirable native hardwoods. Fire is a natural force which encourages desirable hardwood regeneration necessary for eventual stand conversion.*

Specific Objectives of this Burn: *The proposed burn should top-kill the majority of the hardwood stems and vines less than one inch in diameter, reduce the load of natural and activity fuels, and promote the growth of herbaceous vegetation.*

Acceptable Range of Results: *Burn coverage should be >90%. Top-kill of stems <1 inch should be >70%. Fuel reduction should be >50%. Crown scorch should be <30%.*

PRE-BURN MONITORING

VEGETATION TYPE	FIRE BEHAVIOR FUEL MODEL	TOTAL PBU AREA (acres)	% AREA OF TYPE	TYPE AREA
Pine	*9*	*14.4*	*100*	*14.4*
TOTALS		*14.4*	*100*	*14.4*

Habitat Conditions: *Overstory is a fully stocked stand of shortleaf pine. Midstory is hardwood regeneration and shrubs. Understory is a dense growth of seedlings/sprouts of hardwood trees and shrubs, vines and miscellaneous herbaceous vegetation.*

Photograph Showing Pre-Burn Vegetative Conditions:

PLANNING and ACTIONS

Required Permits: *An "Open Burning Permit" will be obtained from the Illinois Environmental Protection Agency.*

Site Preparation: *Prior to ignition, 52 chains of firebreak must be established around the perimeter. The firebreak will be prepared using a small dozer and tractor-mounted tiller. The exposed soil will be seeded with appropriate vegetation to prevent erosion.*

Safety Considerations: *Every effort will be made to prevent the fire's escape, especially onto the private land on the north. Any area surrounding the PBU should be suitable to serve as a safety zone. The PBU will be checked for the presence of visitors prior to ignition.*

Personnel Escape Plan: *Personnel should have no trouble escaping to the safety zone located outside the perimeter of the PBU.*

Special Constraints and Considerations: *Adverse effects on surrounding communities, visitors, wildlife, air, soil, water and desirable vegetation should be negligible when adhering to the specifications of this plan. Prescribed burning shall not be conducted during periods of national or regional emergencies, nor severe drought conditions.*

Communication and Coordination on the Burn: *All fireline personnel will carry hand-held radios to communicate with the Fire Boss and each other. The Fire Boss will coordinate all activities.*

IGNITION, BURNING and CONTROL

Desired dates: *November to March*
Desired time of day: *0900-1700*

ACCEPTABLE PRESCRIPTION RANGE			
PARAMETER	**LOW**	**HIGH**	**ACTUAL**
ENVIRONMENTAL CONDITIONS			
Temperature (°F)	*30*	*55*	
Relative Humidity (%)	*20*	*45*	
20' Wind Speed (mph)	*8*	*18*	
Mid-flame Wind Speed (mph)	*4*	*12*	
Cloud Cover (%)	*0*	*70*	
Soil Moisture	*moist*	*saturated*	
1-hour Fuel Moisture (%)	*5*	*15*	
10-hour Fuel Moisture (%)	*5*	*20*	
100-hour Fuel Moisture (%)	*15*	*25*	
1000-hour Fuel Moisture (%)	*15*	*25*	
Live Fuel Moisture (%)	*50*	*100*	
Litter/Duff Moisture (%)	*10*	*30*	
FIRE BEHAVIOR			
FIRE BEHAVIOR FUEL MODEL: 9			
Rate of Spread (ch/hr)	*4*	*40*	
Flame Length (ft)	*1.9*	*6.1*	
Fireline Intensity (BTU/ft/sec)	*23*	*285*	

Type of Firing Method: *Back and strip-head.*

Ignition Technique: *Prior to commencing full-scale ignition, a small test fire will be ignited in a relatively safe area of representative fuel to determine expected fire behavior. Ignition will start at the down-wind firebreak where a back-fire will be used to secure the line. The back-fire will be allowed to burn approximately 2 chains up-wind away from the firebreak, then the flanking firebreaks will be ignited for a distance of approximately 5 to 6 chains. A strip-head fire will then be ignited across the unit perpendicular to the wind direction. The strip-head firing technique will be used to ignite the balance of the unit.*

SMOKE MANAGEMENT

Distance and Direction to Smoke Sensitive Areas: *There are several private residences beyond a 1 mile radius to the south.*

Necessary Transport Wind Direction, Speed and Mixing Height: *N,E,S,W; 10-20 mph; >500 meters*

Visibility Hazards: *None*

Actions to Reduce Visibility Hazards: *PBU will only be treated with the prescribed wind direction.*

Residual Smoke Problem Reduction Measures: *None should be needed.*

FUNDING and PERSONNEL

Activity Code: *33610-9120*

COST ESTIMATION WORKSHEET					
	HOURS	LABOR COST ($)	EQUIPMENT ($)	SUPPLIES ($)	TOTAL COST ($)
PRE-BURN OPERATIONS					
Administration	4	88		10	
Site preparation	2	30	20	0	
SUBTOTALS	6	118	20	10	148
BURN OPERATIONS					
Personnel	6	96			
Equipment	2		6	0	
Supplies			5	5	
SUBTOTALS	8	96	11	5	112
POST-BURN OPERATIONS					
Evaluations	1	22			
SUBTOTALS	1	22	0	0	22
TOTALS	15	236	31	15	282

BURN DAY ACTIVITIES

Public/Media/Cooperator Contacts on Burn Day: *Lake Egypt FPD will be notified by telephone (☎ 964-1278) of the location and size of the PBU prior to ignition. Local residents will be notified by personal visit if possible.*

Crew and Equipment Assignments: *The Fire Boss will assign individual responsibilities and positioning of equipment.*

Crew Briefing Points: *The crew will be briefed on the ignition procedure, holding techniques, local water sources, and safety concerns.*

HOLDING and CONTROL

Potential Control Problems: *Fireline personnel will patrol the perimeter of the unit to watch for spot-fires, fire creeping across the firebreak, or burning snags within 100 feet of the firebreak. Fireline personnel will carry hand-held radios so that any problems can be reported immediately to the Fire Boss. All potential problems will be resolved as soon as practicable.*

Water Refill Points: *Lost Branch 1½ mile to SE; Grassy Bay 1¾ mile to E; Little Grassy Creek 1¾ mile to E.*

Contingency Plan for Escaped Fire: *The Fire Boss shall be notified immediately of any escaped fire, who will then size up the situation and assign all appropriate personnel and equipment to extinguish it. If the situation is determined to be beyond the capabilities of immediately available resources, Lake Egypt FPD will be called via radio (channel 3) for assistance.*

Mop up and Patrol: *The fire should be burned out in about 2 hours. Fireline personnel will check the perimeter of the unit for smoldering snags and other potential hazards. The fireline will be secured before leaving the area. The area will be checked daily until all fire burns itself out or is extinguished by a soaking rain.*

Other Special Considerations: *None.*

POST-BURN OPERATIONS

EVALUATIONS

Evaluation #1. (within 1 week of burn date)

Date of evaluation: _____

Crown scorch on pine: ☐ slight (0-35%), ☐ moderate (36-66%), ☐ severe (67-100%), ☐ N/A

Amount of litter/duff remaining: ☐ light, ☐ moderate, ☐ heavy

Amount of understory vegetation remaining: ☐ light, ☐ moderate, ☐ heavy

Smoke dispersal: ☐ excellent, ☐ good, ☐ fair, ☐ poor

Escape of fire: ☐ none, ☐ burned across line, ☐ spotted over line

Controlled with: ☐ ease, ☐ moderate effort, ☐ significant effort

Erosion potential: ☐ negligible, ☐ slight, ☐ moderate, ☐ severe

Objectives accomplished: ☐ yes, ☐ no, ☐ partially

Evaluation #2. (after start of growing season)

Date of evaluation: _____

Crown scorch on pine: ☐ light (0-35%), ☐ moderate (36-66%), ☐ severe (67-100%), ☐ N/A

Tree damage: ☐ none apparent, ☐ resin bleeding, ☐ bark cracking, ☐ insects, ☐ fungus, ☐ mortality of desirable trees

Amount of undesirable vegetation top-killed: ☐ 0-20%, ☐ 21-40%, ☐ 41-60%, ☐ 61-80%, ☐ 81-100%

Erosion: ☐ negligible, ☐ slight, ☐ moderate, ☐ severe

Objectives accomplished: ☐ yes, ☐ no, ☐ partially

ACTUAL COST WORKSHEET

BURN DATE:

PERSONNEL				
NAME	QUANTITY	RATE		TOTAL
		COST ($)	UNIT	
Aly, W.	0.0	0.00	hour	0.00
Collins, J.	0.0	0.00	hour	0.00
Espeland, R.	0.0	0.00	hour	0.00
Hericks, C.	0.0	0.00	hour	0.00
Hericks, W.	0.0	0.00	hour	0.00
Hileman, R.	0.0	0.00	hour	0.00
Mabery, J.	0.0	0.00	hour	0.00
Modglin, C.	0.0	0.00	hour	0.00
Palmer, T.	0.0	0.00	hour	0.00
Rendleman, T.	0.0	0.00	hour	0.00
Vincent, J.	0.0	0.00	hour	0.00
			SUBTOTAL	**0.00**
EQUIPMENT				
JD-550 dozer	0.0	11.00	hour	0.00
Rotavator + tractor	0.0	7.00	hour	0.00
Tree Cutter + tractor	0.0	7.00	hour	0.00
Honda ATV 4x4	0.0	3.00	hour	0.00
Honda ATV 4x2	0.0	3.00	hour	0.00
			SUBTOTAL	**0.00**
VEHICLES				
Trucks	0.0	0.20	mile	0.00
			SUBTOTAL	**0.00**
SUPPLIES				
Drip torch fuel	0.0	1.00	gallon	0.00
			SUBTOTAL	**0.00**
			TOTAL	**0.00**

AVERAGE COST PER ACRE WORKSHEET

TOTAL COST ($)	TOTAL AREA (acres)	AVERAGE COST ($/acre)
0.00	14.4	**0.00**

Prescribed Burning Unit (PBU) Number: *95-03*
Compartment Number: *I-2*
Name of Area:
Acres to be Burned: *6.4*
Length of Burn Perimeter: *30 chains*
Burn Complexity Rating:

COMPLEXITY ELEMENTS WORKSHEET			
ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape	*LOW*	*LOW*	*LOW*
2. The number and dependence of activities	*LOW*	*LOW*	*LOW*
3. Values at risk	*LOW*	*LOW*	*LOW*
4. Fuels/Fire behavior	*LOW*	*LOW*	*LOW*
5. Size of prescribed burn team	*LOW*	*LOW*	*LOW*
6. Magnitude of oversight/political activities	*LOW*	*LOW*	*LOW*
7. Fire treatment objectives	*LOW*	*LOW*	*LOW*
8. Environmental constraints	*LOW*	*LOW*	*LOW*
9. Safety	*LOW*	*LOW*	*LOW*
10. Ignition procedures/methods	*LOW*	*LOW*	*LOW*
11. Interagency problems	*LOW*	*LOW*	*LOW*
12. Project logistics	*LOW*	*LOW*	*LOW*
13. Special features inside fire area	*LOW*	*LOW*	*LOW*
14. Smoke management	*LOW*	*LOW*	*LOW*
SUMMARY OF ELEMENTS	*LOW*	*LOW*	*LOW*
PRESCRIBED FIRE SUMMARY COMPLEXITY RATING			
SUMMARY COMPLEXITY DETERMINATION	*LOW*		
Rationale: *All elements are rated LOW.*			

County: *Williamson*
Latitude: *37°41'*
Longitude: *89°07'*

Legal Description: *NW¼ of Section 5, Township 10 South, Range 1 East, Third Principal Meridian*

Is a Section 7 Consultation being forwarded to Fish and Wildlife Enhancement for review? *No*

Physical Features and Vegetation Cover Types: *The vegetative cover type is shortleaf pine (planted 1938-40). The understory is hardwood regeneration, brush, vines, grasses, and forbs. Fuels present are a multi-year rough, honeysuckle vines, dead herbaceous vegetation, and some dead woody vegetation. The maximum slope in this PBU is about 10%.*

History of Treatments: *This PBU shows evidence of previous fire, but no records of prescribed burning were found. This stand was commercially thinned in 1991-2.*

Primary Resource Objectives: *Pine stands which have been thinned to remove pulpwood-size trees provide satisfactory habitat for a variety of species when burned on a 3-year cycle. Prescribed fire is the most efficient and effective means to encourage a flourishing understory community in pine stands. The open stands of pine serve as a shelter crop for the more desirable native hardwoods. Fire is a natural force which encourages desirable hardwood regeneration necessary for eventual stand conversion.*

Specific Objectives of this Burn: *The proposed burn should top-kill the majority of the hardwood stems and vines less than one inch in diameter, reduce the load of natural and activity fuels, and promote the growth of herbaceous vegetation.*

Acceptable Range of Results: *Burn coverage should be >90%. Top-kill of stems <1 inch should be >70%. Fuel reduction should be >50%. Crown scorch should be <30%.*

PRE-BURN MONITORING

VEGETATION TYPE	FIRE BEHAVIOR FUEL MODEL	TOTAL PBU AREA (acres)	% AREA OF TYPE	TYPE AREA
Pine	*9*	*6.4*	*100*	*6.4*
TOTALS		***6.4***	***100***	***6.4***

Habitat Conditions: *Overstory is a fully stocked stand of shortleaf pine. Midstory is hardwood regeneration and shrubs. Understory is a dense growth of seedlings/sprouts of hardwood trees and shrubs, vines and miscellaneous herbaceous vegetation.*

Photograph Showing Pre-Burn Vegetative Conditions:

PLANNING and ACTIONS

Required Permits: *An "Open Burning Permit" will be obtained from the Illinois Environmental Protection Agency.*

Site Preparation: *Prior to ignition, 30 chains of firebreak must be established around the perimeter. The firebreak will be prepared using a small dozer and tractor-mounted tiller. The exposed soil will be seeded with appropriate vegetation to prevent erosion.*

Safety Considerations: *Every effort will be made to prevent the fire's escape, especially onto the private land on the north. Any area surrounding the PBU should be suitable to serve as a safety zone. The PBU will be checked for the presence of visitors prior to ignition.*

Personnel Escape Plan: *Personnel should have no trouble escaping to the safety zone located outside the perimeter of the PBU.*

Special Constraints and Considerations: *Adverse effects on surrounding communities, visitors, wildlife, air, soil, water and desirable vegetation should be negligible when adhering to the specifications of this plan. Prescribed burning shall not be conducted during periods of national or regional emergencies, nor severe drought conditions.*

Communication and Coordination on the Burn: *All fireline personnel will carry hand-held radios to communicate with the Fire Boss and each other. The Fire Boss will coordinate all activities.*

IGNITION, BURNING and CONTROL

Desired dates: *November to March*
Desired time of day: *0900-1700*

ACCEPTABLE PRESCRIPTION RANGE			
PARAMETER	**LOW**	**HIGH**	**ACTUAL**
ENVIRONMENTAL CONDITIONS			
Temperature (°F)	*30*	*55*	
Relative Humidity (%)	*20*	*45*	
20' Wind Speed (mph)	*8*	*18*	
Mid-flame Wind Speed (mph)	*4*	*12*	
Cloud Cover (%)	*0*	*70*	
Soil Moisture	*moist*	*saturated*	
1-hour Fuel Moisture (%)	*5*	*15*	
10-hour Fuel Moisture (%)	*5*	*20*	
100-hour Fuel Moisture (%)	*15*	*25*	
1000-hour Fuel Moisture (%)	*15*	*25*	
Live Fuel Moisture (%)	*50*	*100*	
Litter/Duff Moisture (%)	*10*	*30*	
FIRE BEHAVIOR			
FIRE BEHAVIOR FUEL MODEL: 9			
Rate of Spread (ch/hr)	*4*	*40*	
Flame Length (ft)	*1.9*	*6.1*	
Fireline Intensity (BTU/ft/sec)	*23*	*285*	

Type of Firing Method: *Back and strip-head.*

Ignition Technique: *Prior to commencing full-scale ignition, a small test fire will be ignited in a relatively safe area of representative fuel to determine expected fire behavior. Ignition will start at the down-wind firebreak where a back-fire will be used to secure the line. The back-fire will be allowed to burn approximately 2 chains up-wind away from the firebreak, then the flanking firebreaks will be ignited for a distance of approximately 5 to 6 chains. A strip-head fire will then be ignited across the unit perpendicular to the wind direction. The strip-head firing technique will be used to ignite the balance of the unit.*

SMOKE MANAGEMENT

Distance and Direction to Smoke Sensitive Areas: *There are several private residences beyond a 1 mile radius to the south.*

Necessary Transport Wind Direction, Speed and Mixing Height: *N,E,S,W; 10-20 mph; >500 meters*

Visibility Hazards: *None*

Actions to Reduce Visibility Hazards: *PBU will only be treated with the prescribed wind direction.*

Residual Smoke Problem Reduction Measures: *None should be needed.*

FUNDING and PERSONNEL

Activity Code: *33610-9120*

COST ESTIMATION WORKSHEET

	HOURS	LABOR COST ($)	EQUIPMENT ($)	SUPPLIES ($)	TOTAL COST ($)
PRE-BURN OPERATIONS					
Administration	3	66		10	
Site preparation	2	30	20	0	
SUBTOTALS	5	96	20	10	126
BURN OPERATIONS					
Personnel	4	64			
Equipment	2		6	0	
Supplies			5	5	
SUBTOTALS	6	64	11	5	80
POST-BURN OPERATIONS					
Evaluations	1	22			
SUBTOTALS	1	22	0	0	22
TOTALS	12	182	31	15	228

BURN DAY ACTIVITIES

Public/Media/Cooperator Contacts on Burn Day: *Lake Egypt FPD will be notified by telephone (☎ 964-1278) of the location and size of the PBU prior to ignition. Local residents will be notified by personal visit if possible.*

Crew and Equipment Assignments: *The Fire Boss will assign individual responsibilities and positioning of equipment.*

Crew Briefing Points: *The crew will be briefed on the ignition procedure, holding techniques, local water sources, and safety concerns.*

HOLDING and CONTROL

Potential Control Problems: *Fireline personnel will patrol the perimeter of the unit to watch for spot-fires, fire creeping across the firebreak, or burning snags within 100 feet of the firebreak. Fireline personnel will carry hand-held radios so that any problems can be reported immediately to the Fire Boss. All potential problems will be resolved as soon as practicable.*

Water Refill Points: *Lost Branch 1½ mile to SE; Grassy Bay 1¾ mile to E; Little Grassy Creek 1¾ mile to E.*

Contingency Plan for Escaped Fire: *The Fire Boss shall be notified immediately of any escaped fire, who will then size up the situation and assign all appropriate personnel and equipment to extinguish it. If the situation is determined to be beyond the capabilities of immediately available resources, Lake Egypt FPD will be called via radio (channel 3) for assistance.*

Mop up and Patrol: *The fire should be burned out in about 2 hours. Fireline personnel will check the perimeter of the unit for smoldering snags and other potential hazards. The fireline will be secured before leaving the area. The area will be checked daily until all fire burns itself out or is extinguished by a soaking rain.*

Other Special Considerations: *None.*

POST-BURN OPERATIONS

EVALUATIONS

Evaluation #1. (within 1 week of burn date)

Date of evaluation: _____

Crown scorch on pine: ☐ slight (0-35%), ☐ moderate (36-66%), ☐ severe (67-100%), ☐ N/A

Amount of litter/duff remaining: ☐ light, ☐ moderate, ☐ heavy

Amount of understory vegetation remaining: ☐ light, ☐ moderate, ☐ heavy

Smoke dispersal: ☐ excellent, ☐ good, ☐ fair, ☐ poor

Escape of fire: ☐ none, ☐ burned across line, ☐ spotted over line

Controlled with: ☐ ease, ☐ moderate effort, ☐ significant effort

Erosion potential: ☐ negligible, ☐ slight, ☐ moderate, ☐ severe

Objectives accomplished: ☐ yes, ☐ no, ☐ partially

Evaluation #2. (after start of growing season)

Date of evaluation: _____

Crown scorch on pine: ☐ light (0-35%), ☐ moderate (36-66%), ☐ severe (67-100%), ☐ N/A

Tree damage: ☐ none apparent, ☐ resin bleeding, ☐ bark cracking, ☐ insects, ☐ fungus, ☐ mortality of desirable trees

Amount of undesirable vegetation top-killed: ☐ 0-20%, ☐ 21-40%, ☐ 41-60%, ☐ 61-80%, ☐ 81-100%

Erosion: ☐ negligible, ☐ slight, ☐ moderate, ☐ severe

Objectives accomplished: ☐ yes, ☐ no, ☐ partially

ACTUAL COST WORKSHEET

BURN DATE:

NAME	QUANTITY	RATE		TOTAL
		COST ($)	UNIT	
PERSONNEL				
Aly, W.	0.0	0.00	hour	0.00
Collins, J.	0.0	0.00	hour	0.00
Espeland, R.	0.0	0.00	hour	0.00
Hericks, C.	0.0	0.00	hour	0.00
Hericks, W.	0.0	0.00	hour	0.00
Hileman, R.	0.0	0.00	hour	0.00
Mabery, J.	0.0	0.00	hour	0.00
Modglin, C.	0.0	0.00	hour	0.00
Palmer, T.	0.0	0.00	hour	0.00
Rendleman, T.	0.0	0.00	hour	0.00
Vincent, J.	0.0	0.00	hour	0.00
			SUBTOTAL	**0.00**
EQUIPMENT				
JD-550 dozer	0.0	11.00	hour	0.00
Rotavator + tractor	0.0	7.00	hour	0.00
Tree Cutter + tractor	0.0	7.00	hour	0.00
Honda ATV 4x4	0.0	3.00	hour	0.00
Honda ATV 4x2	0.0	3.00	hour	0.00
			SUBTOTAL	**0.00**
VEHICLES				
Trucks	0.0	0.20	mile	0.00
			SUBTOTAL	**0.00**
SUPPLIES				
Drip torch fuel	0.0	1.00	gallon	0.00
			SUBTOTAL	**0.00**
			TOTAL	**0.00**

AVERAGE COST PER ACRE WORKSHEET

TOTAL COST ($)	TOTAL AREA (acres)	AVERAGE COST ($/acre)
0.00	6.4	**0.00**

Prescribed Burning Unit (PBU) Number: *95-04*
Compartment Number: *I-2*
Name of Area:
Acres to be Burned: *3.2*
Length of Burn Perimeter: *20 chains*
Burn Complexity Rating:

COMPLEXITY ELEMENTS WORKSHEET			
ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape	*LOW*	*LOW*	*LOW*
2. The number and dependence of activities	*LOW*	*LOW*	*LOW*
3. Values at risk	*LOW*	*LOW*	*LOW*
4. Fuels/Fire behavior	*LOW*	*LOW*	*LOW*
5. Size of prescribed burn team	*LOW*	*LOW*	*LOW*
6. Magnitude of oversight/political activities	*LOW*	*LOW*	*LOW*
7. Fire treatment objectives	*LOW*	*LOW*	*LOW*
8. Environmental constraints	*LOW*	*LOW*	*LOW*
9. Safety	*LOW*	*LOW*	*LOW*
10. Ignition procedures/methods	*LOW*	*LOW*	*LOW*
11. Interagency problems	*LOW*	*LOW*	*LOW*
12. Project logistics	*LOW*	*LOW*	*LOW*
13. Special features inside fire area	*LOW*	*LOW*	*LOW*
14. Smoke management	*LOW*	*LOW*	*LOW*
SUMMARY OF ELEMENTS	*LOW*	*LOW*	*LOW*

PRESCRIBED FIRE SUMMARY COMPLEXITY RATING	
SUMMARY COMPLEXITY DETERMINATION	*LOW*
Rationale: *All elements are rated LOW.*	

County: *Williamson*
Latitude: *37°41'*
Longitude: *89°07'*

Legal Description: *NW¼ of Section 5, Township 10 South, Range 1 East, Third Principal Meridian*

Is a Section 7 Consultation being forwarded to Fish and Wildlife Enhancement for review? *No*

Physical Features and Vegetation Cover Types: *The vegetative cover type is shortleaf pine (planted 1938-40). The understory is hardwood regeneration, brush, vines, grasses, and forbs. Fuels present are a multi-year rough, honeysuckle vines, dead herbaceous vegetation, and some dead woody vegetation. The maximum slope in this PBU is about 10%.*

History of Treatments: *This PBU shows evidence of previous fire, but no records of prescribed burning were found. This stand was commercially thinned in 1991-2.*

Primary Resource Objectives: *Pine stands which have been thinned to remove pulpwood-size trees provide satisfactory habitat for a variety of species when burned on a 3-year cycle. Prescribed fire is the most efficient and effective means to encourage a flourishing understory community in pine stands. The open stands of pine serve as a shelter crop for the more desirable native hardwoods. Fire is a natural force which encourages desirable hardwood regeneration necessary for eventual stand conversion.*

FWS/ARW-WAM2

MAR - 3 1995

Memorandum

To: Refuge Manager, Crab Orchard National Wildlife Refuge

From: Wildlife Associate Manager 2

Subject: Annual Prescribed Burn Proposals

Your 1995 Prescribed Burn Proposal has been reviewed by the Regional Fire Management Coordinator (RFMC).

The plans are very well organized and complete. All elements are covered and are appear to be well thought out. Your objectives are well defined and measurable, which will facilitate the monitoring outlined in the Post-burn Evaluation worksheet. Your Proposal is approved, and you are to be commended on the quality of the work.

Your project descriptions for the FY 1995 fire budget exercise will be entered into the Project Description sections of FIREPRO by the Regional Office when they are ready for use. This will be in about one month. You will need to begin putting together that information now for the FY 1996 and 1997 prescribed burn projects, as this information will need to be entered into FIREPRO by July 31, 1995. You will not need to have the actual proposals ready at that time, but the budget requests for the projects will need to be identified as closely as possible. We need to go through this to catch up with the budget cycle. If you need blank worksheets to help with preparation of the required data, please notify Meredith Weltmer.

When preparing your project descriptions, it is not necessary to have a separate entry for every project. You can "lump" projects together based on common objectives and use the total acreage and costs for each set of projects. For example, all projects with the objective of treatment of cattails for habitat improvement could be combined as a project set. The important point is that the project descriptions be complete, because these descriptions will be the inputs for FIREPRO to calculate staffing and support for each station's prescribed burn season and program.

If you have questions, please call your Zone Fire Management Officer (Tom Zellmer at Seney NWR) or Meredith Weltmer at (612) 725-3313.

Matthias A. Kershbaum

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