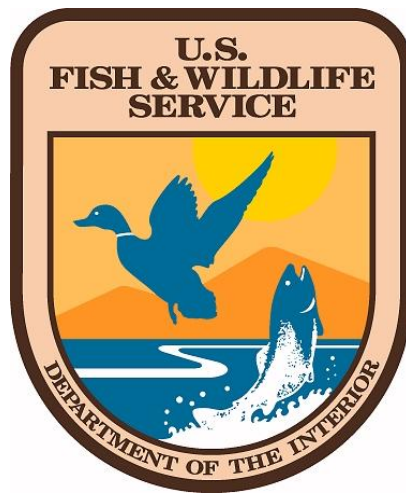


**NATIONAL REVIEW
ESCAPED PRESCRIBED FIRES**



**Final Report
October 2006**

Table of Contents

Executive Summary	Page 3
Introduction	Page 3
Review Team Process	Page 4
Summary of Review Team Findings	Page 5
1. Identify specific commonalities that were casual factors in the escapes, including all phases of the prescribed fire project. This discussion should look at both the planning and implementation of the prescribed fires as well as the suppression operations.	Page 5
2. What mitigation actions should be taken to address the commonalities? This discussion should include all mitigation actions that the team believes would be effective with emphasis on tools (training, workshops, examples, worksheets, etc.) which could be developed and distributed.	Page 5
3. What policy guidance changes should be considered and recommended? This discussion should include items that may need to be improved, including After Action Reviews (AARs) and reviews of escaped prescribed fires, how transmittal of this information to field practitioners can be improved, practices that may need to be improved or designed to increase information sharing and assistance of best management practices.	Page 7
4. Is there a need for the Service to collect and analyze additional prescribed fire incident (escape/injury/near miss) information in the future? This discussion should include whether a specific prescribed fire incident report would be helpful in tracking and identifying trends in incidents, and identify specific information needs if the team believes this would be helpful.	Page 9

EXECUTIVE SUMMARY

The review findings addressed key areas to be incorporated into the planning process for prescribed burns. This includes better contingency planning, increase suppression skills for firefighters participating in prescribed burns, trigger points for increasing beyond minimum staffing, and reduce the need for converting prescribed fires to wildfires due to fires burning in ground fuels. A step-up approach to prescribed fire staffing was identified for implementation, patrol standards for day 2 and beyond, and complexity as related to the burn boss and key positions. A need was also identified to build valid contingency plans. With decreased funding in the next years expectations of maintaining targets needs to be aligned with the decreased funding to ensure prescribed burn programs do not extend beyond safe implementation. A Lessons Learned product needs to be developed from a line officer perspective to develop additional training for line officers. The findings also addressed discrepancies or at least the need to clarify the procedures following an escape prescribed burn. It was determined that following the Red Book protocol (24hr, 72hr, and Factual Report) for the reporting of an investigation would be beneficial for the reporting of a review. A standard template for the escaped prescribed fire final report would assist in gathering information for an escaped fire and also assist in future tracking of commonalities of escaped fires.

INTRODUCTION

The Fish and Wildlife Service has policies and standards for prescribed burning that have been developed through extensive scientific exploration and practical experience. Prescribed fire is an important tool in the management of various ecosystems within the Fish and Wildlife Service Refuge system. With fire wildlife habitat is improved, hazardous fuels are reduced, fire dependant plant communities are maintained, and fire dependant landscapes are perpetuated. The annual average acreage treated with prescribed burns is 416,041 (NFPORS).

The Fire Management Branch, with the concurrence and support of the National Fire Leadership Team, chartered an ad hoc team to investigate the unusually high number of escaped prescribed fires that the Service has experienced from March 2005 through May 2006. The review team was to address the following:

1. Identify specific commonalities that were casual factors in the escapes, including all phases of the prescribed fire project. This discussion should look at both the planning and implementation of the prescribed fires as well as the suppression operations.
2. What mitigation actions should be taken to address the commonalities? This discussion should include all mitigation actions that the team believes would be effective with emphasis on tools (training, workshops, examples, worksheets, etc.) which could be developed and distributed.
3. What policy guidance changes should be considered and recommended? This discussion should include items that may need to be improved, including After Action Reviews (AARs) and reviews of escaped prescribed fires, how transmittal of this information to field practitioners can be improved, practices that may need to be improved or designed to increase information sharing and assistance of best management practices.
4. Is there a need for the Service to collect and analyze additional prescribed fire incident

(escape/injury/near miss) information in the future? This discussion should include whether a specific prescribed fire incident report would be helpful in tracking and identifying trends in incidents, and identify specific information needs if the team believes this would be helpful.

The following individuals were nominated by their Region and selected by the Fire Management Branch to participate on the team:

- **Carl Schwope**, Balcones Canyonlands NWR FMO, team chair
- **Pete Kubiak**, R4 Prescribed Fire Specialist, team member – fuels team liaison
- **John Holcomb**, R1/CNO Prescribed Fire Specialist, team member – operations team liaison
- **Mike Durfee**, R5 Central Zone FMO, team member
- **Colby Crawford**, Prescribed Fire Specialist, Sandhills District, team trainee and support

The final report was submitted to the Fuels and Operations teams for review, and then distributed to the Fire Management Branch and Regional staff for review.

REVIEW TEAM PROCESS

The Team reviewed information provided from the national office, fire management branch on the following escapes of record:

Refuge	Region	Prescribed Fire Name	Date
Kirwin NWR	6	Dog Town	11/18/05
Texas Mid-Coast NWRC	2	Moccasin Pond	01/08/06
Pocosin Lakes NWR	4	Multiple Units	02/17/06
Alligator River NWR	4	North Navy Research	03/04/06
St. Vincent NWR	4	C-5 Ridge	03/15/06
Big Branch NWR	4	Paquet Road Unit 12	03/23/06
Carolina Sandhills NWR	4	Unit 17/06	03/23/06
Kirwin NWR	6	Bluegill Fire	04/05/06
Piedmont NWR	4	25A/25B	04/07/06
Lake Andes WMD	6	New Holland	04/12/06
Alamosa NWR	6	Unit M	04/13/06
Merritt Island National Wildlife Refuge	4	Schnider Express	05/16/06
	1	Starvation-Depression	5/17/06
Moosehorn National Wildlife Refuge	5	Baker Pond	05/23/06

- The Team identified, collected, and analyzed the factual data associated with the escape of the prescribed burn.
- Team members completed technical analyses of weather and fire behavior factors.
- The Team documented data collected.

SUMMARY OF REVIEW TEAM FINDINGS

Factors Addressed:

1. *Identify specific commonalities that were casual factors in the escapes, including all phases of the prescribed fire project. This discussion should look at both the planning and implementation of the prescribed fires as well as the suppression operations.*
2. *What mitigation actions should be taken to address the commonalities? This discussion should include all mitigation actions that the team believes would be effective with emphasis on tools (training, workshops, examples, worksheets, etc.) which could be developed and distributed.*

Findings:

- Commonalities
- Mitigation Actions
- Ground fires exceeding the parameters of the burn plan were the cause of six of the escaped prescribed fires.

Each of the following mitigation actions listed below needs to be implemented by the FMO so that guidelines are established for each fire district and incorporated into the prescribed fire planning process. The approving official through the technical review process needs to ensure that these mitigation actions have been addressed in each prescribed fire plan.

- Longer patrol times incorporated into the prescribed burn plans while remaining within prescriptions and environmental regulations. This would allow more flexibility in using 9263/9264 funding to manage the prescribed burn until declared out.
- Trigger points for declaring an escape, such as, returning to a surface fire or smoke impacts.
- Declaring an escape should include criteria for why the fire is unwanted.
- Include separate prescriptive criteria for implementation and follow up patrols. Ground fires are not influenced as readily by changes in conditions such as wind and humidity and should be monitored based on a burn prescription that is different than the implementation criteria.
- Contingency planning was identified as an area that could help reduce the occurrences of prescribed fires from being declared escapes.

Each of the following mitigation actions listed below needs to be implemented by the FMO so that guidelines are established for each fire district and incorporated into the prescribed fire planning process. The approving official through the technical review process needs to ensure that these mitigation actions have been addressed in each prescribed fire plan.

- Step-up staffing for implementation, patrols, and complexity based on changing conditions with identified trigger points in the prescribed burn plan based on NFDRS, Fuel Moisture, Soil Moisture, etc. An example would be an extra ATV w/sprayer for

increased patrols when burning in high fire danger or adding an extra engine. There needs to be hard trigger points such as patrols continuing 48 hours after last smoke when KBDI is over 550.

- Use a larger allowable area concept. Pre-identified lines or areas called Secondary Suppression Line. (Part of MMA principle). Determining what areas could be allowed to burn when fire crosses the control would expose firefighter to less risk by reducing the need for aggressive direct attack.

Each of the mitigation actions listed below needs to be addressed by the Burn Boss on burn day or just prior to the burn day. The line officer signing the go/no-go needs to ensure these actions have been addressed before approving the prescribed fire.

- Address fuels conditions outside of the burn unit. It is possible that fuels outside the burn unit would not facilitate fire spread reducing the need for aggressive suppression actions. Or maybe the fuel conditions warrant only an indirect attack method.
 - Ensure proper equipment is on scene to suppress fires outside the control line. If an engine is required for contingency then ensure that the terrain outside the burn unit is appropriate for the engine.
- Suppression skills or the lack of experience and organizational deficiencies were identified as a commonality for these escapes.

The following mitigation action listed below needs to be implemented by the FMO so that guidelines are established for each fire district and incorporated into the prescribed fire planning process. The approving official through the technical review process needs to ensure that these mitigation actions have been addressed in each prescribed fire plan.

- Burn Boss and key personnel must have experience burning at representative percentiles for the fuel type. Increase the complexity of the prescribed burn and/or the minimum staffing based on conditions such as NFDRS, so that the burn boss and key personnel qualifications are increased as conditions become drier. An example of this would be increasing the Burn Boss qualifications on a moderate complexity burn to include ICT3 when burning above the 90th percentile. Another example would be to add an engine or ATV for patrol as the percentile increased

It is recommended that the following mitigation actions be the responsibility of the Regional Office and a mentoring process established within Region to help Burn Bosses gain the experience where needed.

- Many years can pass before drought conditions return. Firefighters can gain experience with many prescribed burns during this time without actually being exposed to burning during drought conditions.
- Ensure Burn Boss has sufficient repetition in the position. Recommend personnel detail on wildfire assignments or to others refuges to increase skill levels and exposure to different burning conditions. Increasing the Burn Bosses diversity in fuels, personnel and frequency will build better Burn Bosses.

Factor Addressed:

3. *What policy guidance changes should be considered and recommended? This discussion should include items that may need to be improved, including After Action Reviews (AARs) and reviews of escaped prescribed fires, how transmittal of this information to field practitioners can be improved, practices that may need to be improved or designed to increase information sharing and assistance of best management practices.*

Findings:

The following recommendations need to be implemented at the National level.

The following is the recommended changes to the FWS Fire Management Handbook and the Redbook concerning escaped prescribed fires.

Redbook Chapter 18

18-16 Line 23 and 24 needs to be changed to omit an expenditure of suppression funds or results in property damage. The need for an investigation is outlined in Redbook Chapter 19. The following categories require an investigation: Entrapment, Shelter Deployment, Incidents with Potential and/or Non-Serious Injury, and Wildland fire Serious Accident. The guidelines for an escaped prescribed fire requiring an investigation need to follow this format.

Line 23 and 24 Change to read:

An investigation is required for prescribed fires where an Entrapment, Shelter Deployment, Incidents with Potential and/or Non-Serious Injury, or Wildland fire Serious Accident occurs.

Line 25 Skip:**Line 26 Change to read:**

The following guidelines apply to escape prescribed fire reviews:

18-17 Line 23 Add:

FWS – Refer to FWS Fire Management Handbook Chapter 18 for agency specific guidance on escaped prescribed fire reviews.

Redbook Chapter 19**19-5 Line 8 Change to read:**

Refer to FWS Fire Management Handbook Chapter 18 for agency specific guidance on escaped prescribed fire reviews.

FWS Fire Management Handbook Chapter 18**Change to read:**

Prescribed Fire Reviews and Investigation:

If a prescribed fire requires an investigation then follow the investigation process outlined in the Redbook Chapter 19. Incidents with Potential and/or Non-Serious Injury require a local or Regional level investigation all other investigations will be determined or conducted at the National level.

Escaped prescribed fires not requiring an investigation will receive an appropriate review (see FWS Fire Management Handbook Chapter 19 for review guidance and format). An initial report containing the most obvious and basic facts about the escape will be sent to the Regional Fire Management Coordinator from the Agency Administrator within 24 hours.

FWS Fire Management Handbook Chapter 19

Change to read:

Escaped Prescribed Fire Review - All prescribed fires that are reclassified as unplanned and unwanted wildland fires will be reviewed by the refuge manager (or designated representative). This review may be included as part of a Regional or National Level review if necessary. The purpose of the review is to determine why and under what circumstances a prescribed fire had to be reclassified as a wildland fire. It will identify the circumstances leading to the reclassification of the fire, what actions were taken after reclassification as a wildland fire, and possible future actions that need to be taken to avoid similar situations.

A formal report of the review will be prepared, signed by the refuge manager, and a copy forwarded to the Regional Fire Management Coordinator and the Fire Management Branch. At a minimum, the review report will include the following elements:

- An analysis of seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration. Include fire weather forecasts including any spot forecasts, Remote Automated Weather Station (RAWS) data and National Fire Danger Rating System (NFDRS) data.
- An analysis of the actions taken leading up to the wildfire declaration for consistency with the prescribed fire burn plan. This will include whether it was adequate and whether it was followed.
- An analysis of the prescribed fire burn plan for consistency with policy.
- An analysis of the prescribed fire prescription and associated environmental parameters.
- A review of the approving line officer's qualifications, experience and involvement including adequate program oversight.
- A review of the qualifications and experience of key personnel involved.
- A summary of causal agents contributing to the wildfire declaration.
- Determine the level of awareness and understanding of procedures and guidance of the personnel involved.
- Establish accountability.

Included with the final report will be the supporting documentation from Redbook Chapter 18 Conversion to Wildfire – Actions.

Factor Addressed:

4. *Is there a need for the Service to collect and analyze additional prescribed fire incident (escape/injury/near miss) information in the future? This discussion should include whether a specific prescribed fire incident report would be helpful in tracking and identifying trends in incidents, and identify specific information needs if the team believes this would be helpful.*

Findings:

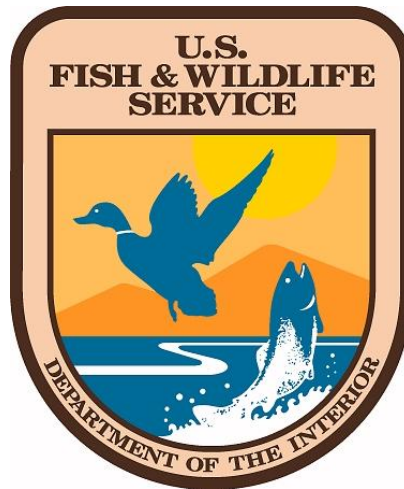
The following recommendations need to be implemented at the National level.

The Review Team recommends that the attached template be used for the final report for escaped prescribed fires. Using a standardized template would help to identify trends and commonalities for escaped prescribed fires as well as document the lessons learned.

The Review Team recommends that a 24hr factual report be sent by the Agency Administrator to the Regional Fire Management Coordinator and the Fire Management Branch and the disseminated to the Fire Districts.

All Reviews need to be disseminated to each fire district as they are received by the Fire Management Branch. This will help ensure that lessons learned can be incorporated as they occur.

**BURN UNIT
ESCAPED PRESCRIBED
FIRE REVIEW**



**FINAL REPORT
DATE**

Prepared	_____	Date:	_____
	name-title		
Reviewed	_____	Date:	_____
	name-title		
Approved	_____	Date:	_____
	name, Agency Administrator		

INTRODUCTION

(Capture the information included in the 24hr report, ie. size of prescribed fire, size of escape, complexity levels, etc.)

The Review Team consisted of:

The following participated in the review and/or were involved in the burn:

SUMMARY NARRATIVE

(Chain of Events)

PRIMARY FINDINGS & RECOMMENDATIONS

- Findings
- Recommendations- include who is responsible for the recommendations

An analysis of seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration. Include fire weather forecasts including any spot forecasts, Remote Automated Weather Station (RAWS) data and National Fire Danger Rating System (NFDRS) data:

- Findings
 - Recommendations

An analysis of the actions taken leading up to the wildfire declaration for consistency with the prescribed fire burn plan. This will include whether it was adequate and whether it was followed:

- Findings
 - Recommendations

An analysis of the prescribed fire burn plan for consistency with policy:

- Findings
 - Recommendations

An analysis of the prescribed fire prescription and associated environmental parameters:

- Findings
 - Recommendations

A review of the approving line officer's qualifications, experience and involvement including adequate program oversight:

- Findings
 - Recommendations

A review of the qualifications and experience of key personnel involved:

- Findings
 - Recommendations

A summary of causal agents contributing to the wildfire declaration:

- Findings
 - Recommendations

Determine the level of awareness and understanding of procedures and guidance of the personnel involved:

- Findings
 - Recommendations

Establish accountability:

- Findings
 - Recommendations

Synopsis of Lessons Learned