

**Review of Myakka River State Park
Prescribed Fire
Conducted June 2, 2009**

Framework of the Review

- The review focused on the entire process for this burn from the planning, logistics and operational implementation of the prescribed fire and following AAR and subsequent notifications of medical issues. The review did not just focus on the entrapment incident but looked at the entire process to examine the complete chain of events so that we can learn from this event and provide professional growth to our fire program. The Review Team consisted of 2 Florida Park Service staff from outside of the park and outside of the park's regional district. The review staff were both experienced burn bosses; one was an Assistant Park Manager and the second individual was a Fire Management Officer.
- Interviews were conducted one week after the incident with the Burn Boss, 2 Crew/Line bosses, and 8 crew members. One Crew/Line boss was unavailable and two crew members were unavailable at the time of the interviews. All but one crew member submitted written statements in addition to the interviews. The Park Manager provided additional comments as to his involvement to assist with time line. All paperwork associated with burn was collected and reviewed.

What Was Planned

- The prescribed burn was planned for a maintenance rotation of zone 9B consisting of 2061 acres of dry prairie with numerous embedded wetlands. The plan was designed to not burn a portion of the east side of this zone should time restraints dictate.

What Happened

- A prescribed burn was started at 1120 on June 2, 2009 in Zone 9B. This zone was being burned using ground ignition by 3 crews consisting of 14 staff. The burn started with minor communication issues but no other operational problems. Sometime between 1400 & 1430 a change was made to the ignition plan by two of the Crew Bosses and more problems with communications on this large zone continued and were getting worse. Crews tried to use radios and cell phones to communicate but had issues with both. This change caused a portion of the zone to be ignited before it should have been. This error was not passed to the Burn Boss in a timely manner due to communication troubles. Adjustments were made by the Burn Boss and another communication error, this time verbal and not via radio or cell, caused the ignition of a section of line that cut off the path and eventually the escape route of one crew.

Contributing Factors Leading to Entrapment

- Trouble with communications via radio and cell phone.
- Changes to firing plan during burn coupled with hindered communications of changes to the Burn Boss.
- Ignition of part of zone past designated cutoff point with no notification to Burn Boss resulting in further changes to plan.
- Mistake in verbal ignition instructions that subsequently cut off escape route for crew.
- Failure of the supervisory staff to fulfill Crew leader position responsibilities.
- No location markers on ground corresponding with points on crew maps.

Summary of Non-Effective Performance

- Communications issues known from the onset should have been mitigated prior to the burn day.
- Non-adherence to proper use of ICS organizational position structure following chain-of-command communication including operations, emergency actions and post burn medical treatment.
- Safety zones and escape routes not shown on crew maps.
- Timely notification of deviations to plan and events up the chain of command.
- Use of non standard forms may have contributed to not having the standard burn checklist for briefing and other standard forms.

Summary of Effective Performance

- Prescription met all basic requirements.
- Good preparation of zone prior to burn.
- The Crew Boss packets included detailed written instructions for each crew including ignition sequence for all three crews and the crew bosses' cell numbers which is not required and is above and beyond requirements.
- Burn Boss's ability to adjust to changes/errors very good.
- Crews were experienced and they had more staff on the burn than required on the prescription.
- Equipment and number of personnel on scene was more that required on the prescription.
- Use of ATV's by Burn Boss and Crew Bosses to allow for quicker face-to-face communications. While this may work "in a pinch" this is not sufficient for routine operations.
- Relaying radio traffic via truck radios increased ability to communicate.
- Using a camera that shows date and time on the fire line assisted in documentation of burn and the re-creation of events.

Recommendations for Improvement

- Correction of communication issues must be given priority before continuing a fire program in the remote areas of parks. The use of the available mobile repeaters purchased by the Division needs to be stressed and parks need to be reminded of the procedures to request units.
- Fire staff needs to review the standard ICS positions responsibilities to ensure supervisors are looking at the bigger picture and not focusing on a single task such as operating an engine or completing ignition.
- All changes/adjustments to the operational plan or any problems or concerns need to be passed on immediately to next higher supervisor and/or Burn Boss/Incident Commander. No changes to the Operational Plan should be made if proper communications with entire burn crew cannot be established. If there are no communications then this becomes a Watch-out Situation and mitigation must take place to reestablish effective communications prior to moving on with the burn.
- All crew should have access to a back-up battery or clam-shell.
- All supervisory staff should keep a running log (ICS 214 or similar) of fire operations with times to assist with the future planning efforts by documentation of problems and general observations of fire behavior.
- Consideration of firefighter mental status needs to be taken into consideration when an incident like this occurs. Crew should be told to stay in specified area or removed from the line and provided a time for Critical Incident Debriefing (CID). Also since one staff deployed a shelter that individual should have been removed since they did not have a shelter for the remainder of the time on the line.
- Immediate notification of Burn Boss if any crew member seeks medical attention during or after the burn for injuries received related to that fire.
- Crew should routinely discuss the definition of “Safety Zone” & “Deployment Sites” and train on the recognition of these sites in the field as defined in the Incident Response Pocket Guide or Fireline Handbook.
- All crew should be provided information & training on the hazards associated with breathing smoke on the fireline.

Summary

1900 acres of prescribed burn completed in zone 9B.

The entrapment of six crew members along east line with one shelter deployment.

Fire contained within the zone.

Resource management objectives met.

Damages

Minor injuries (smoke inhalation)

Minor equipment damaged (truck mirror)

Attachments

Attachment 1: Personnel

Attachment 2: Detailed Summary

Attachment 3: Overview Map of Zone

Attachment 4: Entrapment Site

Attachment 5: Burn Boss Comments

Attachment 1

Personnel on Burn:

- 1. Burn Boss / Incident Commander*
- 2. Line Boss - Crew*
- 3. Line Boss - Crew*
- 4. Line Boss - Crew*
- 5. Weather, Scribe, Lookout - Crew*
- 6. Stringer Crew - Ignition*
- 7. Fire Truck Crew - Engine*
- 8. Stringer Crew - Ignition*
- 9. Tractor Operator Crew - Engine*
- 10. Stringer Crew - Ignition*
- 11. Fire Truck Crew - Engine*
- 12. Tractor Operator Crew - Engine*
- 13. Trainee - Crew*
- 14. Tractor Operator Crew - Engine*

Attachment 2

Summary of Burn Events:

Overview of 9B burn.

Crews gather at shop and head out to zone. Upon arrival at point A Burn Boss gives a general briefing to crews on operational plan and objectives. Burn Boss then gives Crew/Line Bosses detailed ignition plan and instructions for the individual crews.

Test fire started at point A and Burn Boss gives OK to begin ignition of zone.

Crew 1 heads south toward point J, Crew 2 heads east toward point B.

Winds were out of the ESE at 2-5 with the humidity at 46%, fine dead fuel moisture at 8%.

Crew 2 holds just shy of wooden bridge at point B to allow Crew 1 to enter the hiking trail at point J and start ignition off the trail starting at marker 32. Crew 1 strings fire up to point B meeting up with Crew 2 and securing the NW corner of the zone.

Crew 1 then returns to point J and continues south toward point I while crew 2 heads west towards wetland "106". At wetland 106 Crew 3 takes over ignition and heads east toward point C or intersection of Deer Prairie Lane.

At this point there is discussion of best way to access a portion of the hiking trail that was to be fired internally just north of Panther Point campsite. Original plan was to access the trail via Deer Prairie Lane but due to concerns with length of time it would take to move crew to that location by Crew 3 Crew Boss it was decided that the Crew 2 Crew Boss, because of familiarity with the zone, would access the trail from point B and complete the ignition of that section. Upon arrival at the starting point for this section Crew Boss for Crew 2 contacted the Burn Boss via cell phone (could not contact via radio) to advise of the new plan This change resulted in the person igniting this line to miss the cutoff point which was a mowed break (mowed last November) and an additional section of the trail was ignited that went further south near the south line of the zone. Crew Boss 2 notified Crew Boss 3 of this error. This error was not communicated to the Burn Boss due to communication issues.

At this time Crew 1 was near point I and the Burn Boss was assisting with a small tricky area of that line. The Burn Boss noticed smoke near the south line and tried to contact the Crew Boss of Crew 3 but could not reach via radio or cell phone. The Burn Boss then went to investigate this smoke and found the fire in a section of flatwoods along the south line. The Burn Boss then contacted the Crew Boss for Crew 1 and asked for the tractor and water buffalo to be moved to that location to monitor that section of the line. The Burn Boss communicated with Crew Boss for Crew 1 and adjusted the plan to this new development by having Crew 1 ignite the south line heading east from point I toward point G while Burn Boss strung back toward Crew Boss 1.

Crew Boss 2 upon arriving at the intersection of the trail and Deer Prairie Lane heads north to find the mowed line (not stringing fire). Crew Bosses 2 and 3 met at point D and burned out

around two wetland wells located at that point, Crew Boss 2 was then instructed by Crew Boss 3 to fire from point D back to point C. A short ways from point D the torch runs out of fuel and the Crew Boss 2 contacts her crew to bring more fuel. The Crew is still on the north line near point C where they were holding and quickly brought fuel to finish the line to the north. Crew Boss 2 tries repeatedly to contact Crew Boss 3 without success. Crew Boss 2 then contacts the Burn Boss and was instructed to ignite south from point D along the west side of Deer Prairie Lane to point Z and to have her crew proceed with her. Crew Boss 2 started igniting from point D using the ATV to speed up the progress and after a short time stopped and placed a crew member on the back of the ATV to ignite since it was hard to string fire off the right side of the ATV and drive at the same time. Crew 2 continues to head south past point Z down to just past point E.

At approximately that time as Crew 2 starts down Deer Prairie Lane, the Crew Boss 3 approached from point F (south line) and met with the Burn Boss. Instructions were given to start at a specific point on the south line just east of the pine area and string back to point G.

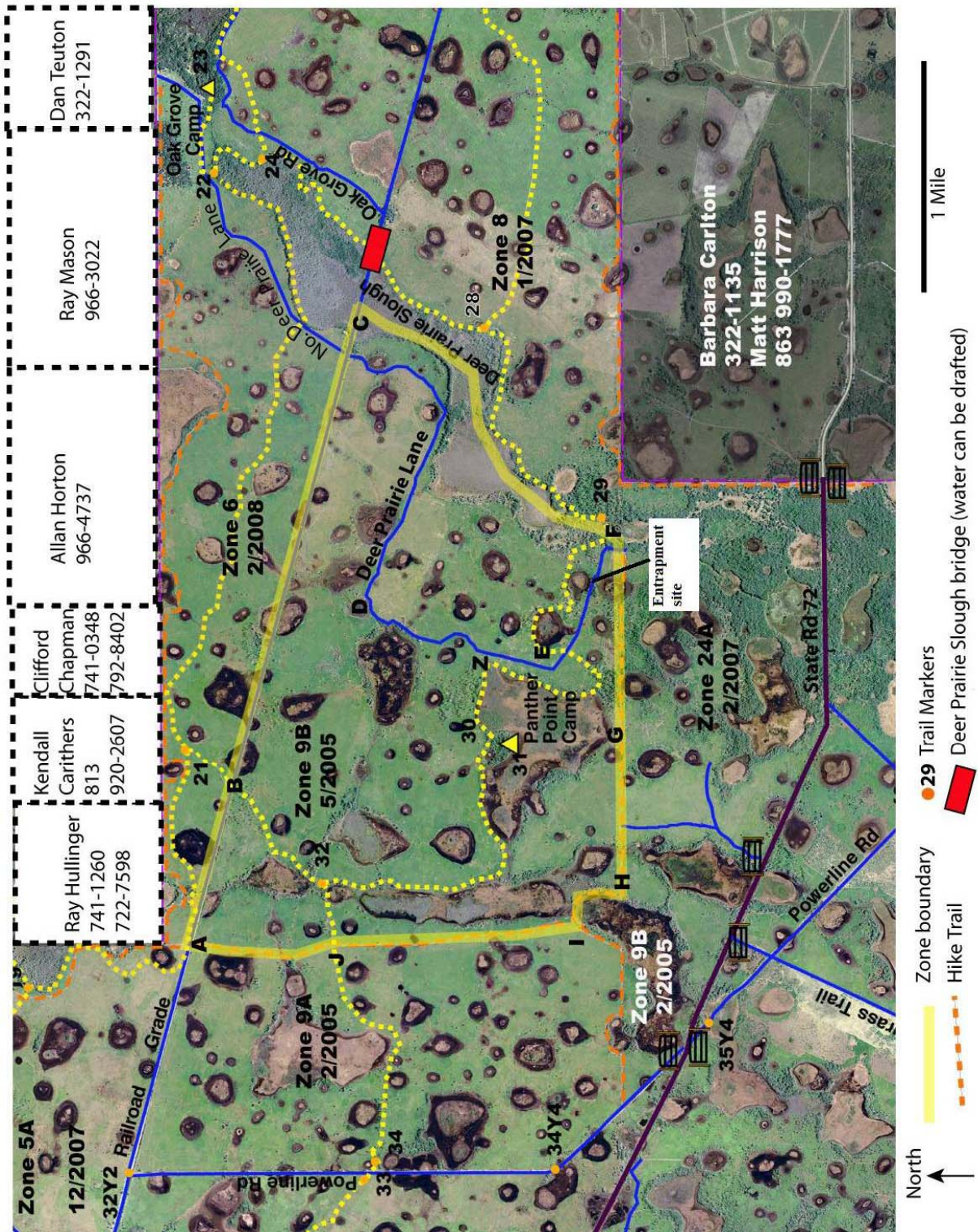
At this time the expected switch in the winds to the SW was starting to occur.

This instruction was misunderstood resulting in the ignition of the south line from the specified point toward the east to point F. Crew Boss 3 then heads from point F along Deer Prairie Lane not realizing that Crew 2 was traveling south on that road. Realizing that the fire just ignited along the south line was an error, Crew Boss 3 heads north from point F on Deer Prairie Lane igniting the west side north to just short of a wetland in hopes to draw both fires into the zone, keeping it from crossing the road. Crew Boss 3 then heads north and finds Crew 2 heading toward her igniting. At this point the ignition by Crew 2 was stopped and Crew Boss 3 moves the crew to a fire shadow between two wetlands since they had no escape option at that time.

The crew rode out the fire front in the fire shadow by taking refuge in engines and by one crew member deploying a shelter. After allowing the front to pass, all of the crew at that location left and went to the south line where they met up with the Burn Boss. Crew 2 did not sustain any burns but were visibly shaken by the incident. The crew was asked if medical attention was needed but all indicated that they would assist with mop-up since a large rain storm was moving in from the SW. Mop-up was short as the heavy rains completed the task for them. Crews were instructed to return to the shop for the AAR.

After the AAR and after the crews disbursed from the fire the decision was made by some of the crew members to seek medical attention and they went to the local ER to be checked out. While in route one of the crew members contacted another park official to let him know they were seeking medical attention. The Burn Boss received the same notice from the Park Manager who had received a call from another park asking about the incident.

Attachment 3



Attachment 4

Entrapment site



Attachment 5

Burn Boss Comments on Zone 9B Review

I felt that this review was conducted in a professional and fair manner; and I believe that all concerned in the process felt the same. However there are three topics in this report that do not reflect actual events adequately that I thought should be addressed.

1. *Summary of Burn Events:* In the last paragraph of this narrative it states that on the way to the local ER one of the crew members contacted the burn boss to let her know they were seeking medical attention. This was not the case. I called them after being informed that they were at the hospital by our park manager. I had asked the crew at both the scene of the incident and at post burn meeting if they wanted to seek medical attention and all said they felt it unnecessary. That was the last information I received from the crew members until I contacted them. This is not being brought up to point fingers, just in efforts to keep the facts in order.
2. *Summary of Burn Events:* In the 2nd to last paragraph of this narrative it states, that the crew rode out the fire front in the fire shadow by taking refuge in the engines and by one crew member deploying a shelter. This is correct; with one exception; the Crew Boss 3, who brought the crew to the safest place available at the time remained outside the engine hosing down the palms and oaks to keep fire brands from compromising any of the equipment that the rest of the crew was taking shelter in.

Why I think this is important to address is as follows:

Though we do our best to plan and execute all aspects of a prescribed fire safely, unexpected things can happen or unexpected mistakes can be made. When that is the case the “perfect” safety zone may not always be available, but a survivable one usually is, if a burner maintains constant awareness of surroundings. That’s where our training kicks in in its most profound ways. And I don’t think that has been adequately recognized here. The crew and equipment involved in this entrapment were unharmed due to quick response and realization of where to be and what to do when things go wrong.

As a burn boss in the future I will be stressing to my crew the necessary awareness of knowing not only the major safety zones that may be marked on their maps, but the ones that many natural features can help provide if needed. I will also be stressing a need to follow burn orders more closely as the deviation from those was a major cause of the incident.

3. *Summary of Burn Events:* 1st page, 7th paragraph, last sentence- The Burn boss met at that location with Crew boss 1, and adjusted the plan to this new development by having crew 1 ignite the south line heading west from point G toward point I. This is incorrect. I did not meet with CB1 we communicated via radio and I had CB1 continue to light from I to G where the tractor operator and I were standing by monitoring the fire in pines adjacent to wetland. Again I am only bringing this up to keep facts in proper order.

One suggestion for accuracy purposes in future reviews a recorder might be helpful. I am sure it is difficult to interview multiple people with possible conflicting accounts or perceptions and keep all the information straight. Please feel free to check my corrections with any involved on those events if need be.

I have 24 years of burn experience in the Florida dry prairie habitat at Myakka River State Park, and I have had the great privilege of growing with the FPS fire program. I take my role as fire boss very seriously and though I have never been involved in a review before I found it to be an overall positive experience. I came away from the process feeling confident in my strengths and reinforced with new ideas in areas I can do a better job in. Every burn offers us this opportunity no matter what role we play or our experience level. I am proud of the zone 9B burn team, they are good burners and I would burn with any of them again.

Note: Final report reflects corrections identified by the Burn Boss.