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Small scale demonstration burns

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INTRODUCTION

I was recently invited to participate in an outdoor learning program at Stephen F. Austin (SFA) State Park for 7th grade students from McDonald Jr. High in the Katy ISD. The program was organized by Lisa Reznicek, Texas Parks and Wildlife park interpreter at SFA. There were two days of demonstrations and learning exercises at four stations, each lasting 30 minutes with 15 minutes travel time between stations. My station was to relate why we want to do prescribed burning and how it can be done safely. For adults, this would usually be a one hour PowerPoint presentation. I did not think that a slide presentation would appeal to the students, so we experimented with a new way of communicating the fire message.

INTRODUCING PRESCRIBED BURNING TO YOUTH

April 2013 – 7th Grade Outdoor Class

Figure 1. Lighting a demonstration backing fire for students using a sandbox covered with a layer of hay. (Note: faces of the students are blurred to protect their identities.)

First, I talked to the students to explain that: 1) fire was a natural part of the ecosystem until we suppressed it, 2) as a result of suppression, we have changed the ecosystem, and now we are finding that the resulting ecosystem changes may not be as desirable as we once thought, 3) for economic, environmental, and safety reasons, we are now trying to sreturn fire back to the land, and 4) fire is frightening for many people, and therefore you need to understand how to use it safely. That requires training, experience, equipment, and people to help you.

Figure 2. Lighting a demonstration flank fire for students. Students participated by measuring the weather and helping to extinguish the fire. (Note: faces of the students are blurred to protect their identities.)

We also discussed the fire triangle (oxygen, fuel, heat) and how those elements are used or removed to create or suppress fire. We discussed the importance of the weather (wind speed, relative humidity, and temperature) and emphasized that understanding fire behavior requires understanding some chemistry and physics. We showed the Kestrel weather station and the group selected their most scientific student to record weather readings. We addressed the need for verbal and written communication skills through discussions of radio communication on the burn line and the importance of preparing written burn plans. We also mentioned the importance of organization, teamwork, and leadership skills in conducting prescribed fires.

After the introductory lessons, we made the demonstration exciting with a small-scale burn. At the suggestion of the park staff, we used their sandbox (about 8 ft x 8 ft). A very dry square bale of old hay was spread over the sandbox about 1-2 inches deep. The students raked the edges in about six inches for our firebreak of mineral soil. It may also work to use any bare ground in a safe place. If the demonstration must be conducted in a lawn or parking lot, one or two sheets of plywood could be cut into 2 ft x 4 ft sections, laid together, and covered with play sand (available in bag from most hardware stores) to keep the wood from burning. During the two days of demonstrations, the wind was very light, so I used a leaf blower fan for artificial wind. If you were close enough to electrical power, a house or shop fan would also work.

Figure 3. Setting the demonstration head fire. (Note: faces of the students are blurred to protect their identities.)

Swatters, were handed out to those students who did not get a radio or the Kestrel. We showed all how to use their tools and we discussed which part of the fire triangle each tool addressed. We discussed the process and purpose of lighting the downwind side for the backing fire, then lighting the flanks (to remove the fuel to stop the headfire). We discussed the difference between controlled burns and prescribed burns. A controlled burn (brush pile, trash can, etc.) should be able to be suppressed by water, turning off the fuel or oxygen supply, or other means if it is truly controlled, while a prescribed burn cannot be *turned off* until it runs out of fuel. We emphasized that your brain is the most important tool to make the fire do what you want it to do.

The demonstrations went very well and the students seemed to get the message that fire is good tool when used correctly. We also conveyed that conducting burns requires an understanding of science and good communication skills. We encouraged students to study and learn everything they could at school so they could be able to do things like this that require an understanding of science and good communication skills.

The demonstration reached many people including more than 300 students and teachers over two days. Even the teachers said they learned something from the demonstrations. Though we had some fun with the demonstration, we stressed to the students “do not try this at home.”

Roxanne Hernandez, director of SCTPBA and a trained prescribed burn manager, conducted the demonstration and pointed out afterwards that one of the photographs showed her with the drip torch resting on her leg, which is not a recommended practice. You may find other areas where we could have improved safety, and we will work to improve those in future demonstrations. This type of demonstration might be a good way to introduce prescribed burning to newcomers since it can be done in almost any setting.

February, 2013 – 4-H Demonstration

Philip Shackelford, Austin County AgriLife Agent, asked me to conduct our small prescribed burn demonstration for his 4-H group in Bellville. We did it Saturday February 1, 2014 at the Austin County Fairgrounds in the riding arena.

Figure 4. A small-scale demonstration burn for a 4-H group conducted in a riding arena. Students observe a backing fire.

First, we discussed why we burn and how we make a plan to burn safely and accomplish our goals. I used a bale of hay spread on the ground and let the 4-H members light it with drip torches following the usual sequence of backing fire, flank fire, then head fire. We used the radios to communicate and the swatters to control any stray embers. I then let them spray water from the spray rig on my Polaris to "mop up" after the fire was out. I think the parents were as interested as the kids. It went well, and no emergency fire trucks were needed.

Figure 5. A small-scale demonstration burn for a 4-H group conducted in a riding arena. Students help light a ring head fire.

Figure 6. A small-scale demonstration burn for a 4-H group conducted in a riding arena. Students help light a ring head fire.

Figure 7. A small-scale demonstration burn for a 4-H group conducted in a riding arena. Students help light a ring head fire.

Figure 8. A small-scale demonstration burn for a 4-H group conducted in a riding arena. Students watch as the unit burns out.

Figure 9. A small-scale demonstration burn for a 4-H group conducted in a riding arena. Students help extinguish the fire.

Figure 10. A small-scale demonstration burn for a 4-H group conducted in a riding arena. Students help extinguish the fire.

GETTING HELP

The South Central Texas Prescribed Fire Association and Prescribed Burn Association of Texas. Find their online resources at: http://www.sctpba.org/ and http://pbatexas.org.

The Great Plains Fire Science Exchange has resources for teaching about prescribed fire, wildfire, as well as fire effects, monitoring, and more at http://GPFireScience.org. We can also locate experts to address your fire questions.

For more information:

gpfirescience.org