



Figure 8. To conduct a growing-season burn, adequate dead plant residue (litter) from the previous year's growth is required. This litter is needed to ignite the fire and create the heat to remove the moisture from the current year's growth, so the fire will continue to carry through the fuelbed. (Photo Stephen Winter)

the moisture level, the more heat energy required to remove the water from the live plant tissue before it is consumed by the fire. Do not assume that because a plant is green and growing that it will not burn very well. Many plants burn extremely well during the growing season; this can be attributed to plant chemistry (volatile oils) and many live plants also have dead leaves.

Personal Safety

A potential problem from conducting growing-season burns is the increased risk of heat stress related problems to members of the burn crew. Always make sure everyone is ready for the additional heat of burning during the summer time. Have plenty of water and sports drinks available so everyone on the fire crew can stay hydrated. Be sure personnel drink ample amounts of fluids before, during and after the burn to keep their body hydrated.⁴⁶ Also, everyone should learn to recognize the symptoms of heat-related problems such as heat stress or heat stroke and know how to treat them.

Personnel should wear clothing that allows for adequate ventilation and cooling, but is safety appropriate, such as all cotton. Another way to reduce heat-related problems is to make sure everyone on the burn crew rides in some type of vehicle if at all possible. Also, certain tasks involve being around greater amounts of heat than others on growing-season burns, so make sure personnel switch tasks often to reduce the chance of heat related injuries. If everyone on the burn crew will watch out for each other, and crew members learn to know their limits, there should be no heat related problems encountered while conducting growing-season burns even on the warmest of summer days.

Smoke

One aspect to burning that should be managed during the growing season or any season of the year is the smoke. Smoke from prescribed fire and wildfires are predominately made up of water vapor. With increased fuel



Figure 9. With increased fuel moisture (green vegetation) there is a greater amount of smoke produced. On the positive side, most burn days during the growing-season are favorable for proper smoke dispersion. While a growing-season burn may increase the amount of smoke produced on an individual burn, it can help spread the total smoke load out over an entire year. (Photo Stephen Winter)

moisture (green vegetation) there is a greater amount of smoke produced.⁴⁷ On the positive side, most burn days during the growing season are favorable for proper smoke dispersion (Figure 9). While a growing-season burn may increase the amount of smoke produced on an individual burn, it can help spread the total smoke load out over an entire year. When burning during the growing season, or any time of the year, make smoke management a priority. For more information on smoke management see Oklahoma Cooperative Extension Publication E-1008 *Smoke Management for Prescribed Burning*.

Fire Behavior

Generally flame length and rate of spread are less when conducting growing-season burns (Figure 10). This is due in part to the increased moisture content of the fuels, which has a direct relationship with these fire behavior measurements.^{2,48} When conducting growing-season burns, do not expect fast moving fires with tall flames because they will not normally occur. In fact, the flames are rarely taller than the surrounding vegetation and the headfire commonly moves at the rate of a dormant season backfire. This slow rate of fire spread can increase the amount of time it takes to conduct a burn, so plan accordingly.

Growing-season fires still impact woody plants in much the same way dormant-season fires do (Figure 11). While dormant-season fires have taller flame lengths and faster rates of spread, growing-season fires still top kill woody plants. This is due to the residence time, or how long the fire burns in a given area. The intensity of fire may be less, but the duration of heat from the growing-season fire is longer. The temperature at which most vascular plant material dies is around 150 F,¹⁶ so if the outside temperature is already from 90 F to 100 F, then only a small increase in temperature from a fire will top kill most plants. Objectives of cedar control and reducing