



Figure 5. Growing-season fires behave quite differently from dormant-season fires and, more often than not, growing-season fire burns less complete and often patchy in nature. The resulting mosaic burn can create ideal habitat for bobwhite quail. Notice the woody cover and grass cover not consumed by fire. (Photo D. Elmore)

during the growing season, it will often exhibit a high percentage of unconsumed and unburned vegetation and these patches provide a higher amount of variation within the unit that can benefit quail (Figure 6). Having this habitat variation within the burn unit also provides habitat for other wildlife species.

It should be noted this will not always be beneficial to all species, especially if the patch (burned or unburned) size is smaller than a particular wildlife species responds to. Prairie-chickens (*Tympanuchus spp.*) for instance, require large tracts of treeless prairie. Conducting a patchy fire that only removed a portion of the east-



Figure 6. Growing-season burns will often exhibit a high percentage of unconsumed and unburned vegetation and these patches provide a higher amount of variation within the unit that can benefit wildlife such as quail. Notice in this photo the area left unburned due to sparse fine fuels. These patches of unburned blackberry and bluestem not only serves as winter cover for birds such as quail, but can provide nesting habitat the following spring for some ground nesting birds. (Photo D. Elmore)

ern redcedar in a burn unit would not be appropriate for prairie-chickens. However, once all the eastern redcedar were removed, then a patchy fire within the grassland could provide both nesting and brood cover similar to what the bobwhite quail require. Thus, depending on the initial conditions of the site, wildlife species of interest, and scale of patches, a non uniform burn may or may not be warranted.

Besides changing the overall composition of plant functional groups (such as grass, forb and woody), season of burn also can impact individual plant species. For example, certain forbs may be at an advantage when growing-season burns are conducted rather than dormant season burns, while other plant species will be at a disadvantage. Many of these relationships take years to become evident for some species (particularly perennial plants). Others, such as annuals, are immediately impacted, but the results are highly variable depending on the precipitation during that year. Thus, a growing-season fire may yield abundant common broomweed (*Gutierrezia dracunculoides*), which is a valuable quail plant, in one year, and almost no response following the next growing-season burn. As precipitation is impossible to predict, it becomes problematic to anticipate individual plant species responses at small scales. From a large landscape perspective, this may be irrelevant, assuming not all the landscape is managed the same way. Thus, it becomes important to not manage all the land the same way year after year.

Growing-season Burns as Food Plots

Land managers often wish to plant food plots to increase forage or serve as an attractant for certain species of wildlife such as waterfowl, dove, turkey and deer. At times this may be a beneficial practice, particularly as an attractant for hunting. However, there are problems associated with this practice such as: cost, erosion, introduction of invasive plants, compaction of soil, and difficulty of establishment. An alternative is to use prescribed fire to stimulate food-producing native plants. Growing-season fires can be very effective at this. For example, in the Southern Great Plains, summer fires often create patches of snow-on-the-mountain (*Euphorbia marginata*) and various species of croton or dove weed (*Croton spp.*), which are highly desirable to mourning doves (*Zenaidura macroura*). The seeds from these plants, coupled with the lack of grass litter following the fire, make these burned areas key areas for dove hunting in September. Additionally, late summer or early fall fires reduce grass litter going into the dormant season which can make certain important cool season plants more accessible. Scribner's panicum (*Dichanthelium oligosanthes*), which is important winter deer forage, is a good example. This plant is commonly foraged on by white-tailed deer during the winter in areas burned during the previous growing season (Figure 7).

While, these native "food plots" may not produce the quantity of forage per acre that a cultivated plot would, the cost is much less per acre, thus many more acres can be treated, maximizing the benefit to wildlife. Land managers will not see the same results from year