



Figure 4. The effects of fire on forage quality (% crude protein) throughout the growing-season of 2009. Data were collected from pastures managed with patch burning. Different symbols represent areas that vary in the time since burned. Recently burn areas (less than one year since fire) contain higher forage quality. A prescribed fire in mid-July increases quality of forage, raising it significantly higher than other areas. This increase remains through the end of the growing-season.

## Wildlife

It is well established that disturbances such as prescribed fire can be used to manage habitat for many species of wildlife.<sup>32,33,34</sup> Fire effects both plant composition (species of plants) and structure (height, stems per area, litter depth, etc). Various wildlife species have differing habitat requirements, so fire can be used to alter the plant community in ways to favor specific species or groups of species. While many land managers recognize the role fire has on wildlife, traditionally most prescribed fires are conducted during the dormant season, even those conducted primarily for wildlife objectives. There are several customary reasons why fire is used during this time of year, such as avoiding disturbance of ground nesting birds, minimizing mortality of reptiles, amphibians, and young mammals as well as tradition. While all of these reasons can be valid, it is difficult to achieve some management objectives for wildlife during dormant season burns and burning at the same time of year every time may benefit certain plants more than others.

Further, land managers often struggle to burn enough land to keep the plant community in the appropriate condition to meet their objectives. For example, in the Southern Great Plains, thousands of acres of rangeland are being encroached by eastern redcedar (*Juniperus virginiana*). This has significantly changed the plant species composition of these grasslands,<sup>35,36</sup> which directly impacts the wildlife species present. Landowners constrained to only burning during one season of the year will often lose acres of prairie to eastern redcedar woodland, which becomes increasingly difficult to control with fire by itself.

The primary consideration regarding the use of fire should be the appropriate fire frequency (how often you

burn) to maintain the desired plant community. This often entails burning during different seasons of the year. It is important to note that all other considerations (i.e. season of burn) should be secondary to fire frequency. Therefore, the primary reason to use growing-season fire is to extend the burn window to maintain the desired plant community to meet wildlife management objectives. With that in mind, there are some differences in plant and animal responses that should be understood.

## Impacts to Wildlife Habitat Structure and Composition

Growing-season fires behave quite differently from dormant-season fires, and more often than not, they tend to burn less complete and are often patchy in nature (Figure 5). Factors such as fuel load, fuel type, moisture, slope, soils and grazing will contribute to this patchy burn pattern. This patchy distribution of burned and unburned areas can be beneficial to some species of wildlife that require diverse plant communities in close proximity.

Bobwhite quail (*Colinus virginianus*) is a classic example. This species requires dense nesting cover, usually in the form of residual grass from the previous growing season and forb rich areas with adequate amounts of bare ground for their broods.<sup>37</sup> These areas need to be in close proximity to each other. While conducting small burns (less than 50 acres) may be beneficial to quail, many times this is not logistically or economically feasible for land managers. Thus, burn units tend to be larger in size and if conducted during the dormant season, most of the vegetation in the burn unit will be consumed by the fire, resulting in fairly uniform plant structure across the unit in the short term. However, if that same unit burned