

A DISCUSSION OF THE DEVELOPMENT OF THE NEVADA CHAPTER OF THE WILDLIFE SOCIETY POSITION STATEMENT "INFLUENCE OF FIRE ON WILDLIFE HABITAT IN THE GREAT BASIN", AUGUST 1998

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ABSTRACT: Fire is a controversial issue in the Great Basin regarding whether it is beneficial or detrimental to wildlife habitat. Recognizing this controversy, the Nevada Chapter of The Wildlife Society (NC-TWS) developed a position statement regarding the influences of fire (wild and prescribed) on terrestrial wildlife habitat in the Great Basin. Both attributes and liabilities were assessed. The position statement "Influence of fire on wildlife habitat in the Great Basin: A position statement by the Nevada Chapter-The Wildlife Society" provides scientific findings and recommendations.

Key words: Great Basin, Nevada Chapter-The Wildlife Society, position statement, prescribed fire, wildfire, wildlife habitat.

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Wildlife habitats are dynamic areas subject to changing conditions over months, years, and centuries. These changes vary not only in time but also in magnitude and substance; i.e., floods, droughts, fire, earthquakes, and impacts of humans and other animals. Of these, fire is today a highly controversial issue warranting documentation of its attributes and liabilities. It is controversial because it is an environmental impact over which we may or may not have some control, either by prevention and prescribed treatment. Fire is an ancient and contemporary factor influencing vegetation succession. Vegetation changes following fire may be detrimental or beneficial to wildlife populations depending on the ecosystem and fire variables (Payne and Bryant 19094, Gruell 1996).

Ten years ago, many Americans witnessed on television the massive fires ignited by lightning engulf a third of the Yellowstone National Park. Over 800,000 acres of the park were burned. The smoke had not cleared before some politicians condemned the federal government's fire policies, claiming that Yellowstone was doomed to be a wasteland for generations to come. Scientists have subsequently studied the 1988 fires in Yellowstone and have noted that the conflagration produced a patchy mosaic of burned forests—the cornerstone of habitat enrichment for the widest array of wildlife species. Certain wildlife species are now more numerous than prior to the 1988 fires; none are reported less abundant (Wilkinson 1998).

Conservation organizations in Nevada have received mixed information regarding the values and practices of fire to wildlife. The Nevada Chapter of The Wildlife Society (NC-TWS) was approached to produce an objective scientific assessment including recommendations not incumbered by restrictive policies or existing procedures. The NC-TWS accepted this request with the single

goal of providing scientific findings and recommendations relative to the influence of fire on wildlife habitat in the Great Basin. Other fire issues (e.g., methods of suppression, rehabilitation, fire management planning) may be evaluated later.

DEVELOPMENT PROCEDURES

The NC-TWS appointed a committee knowledgeable of fire/wildlife relations, including 3 members of the NC-TWS and 3 non-members, to develop the position statement. Work commenced in November 1997 and was completed in August 1998. Approximately 5 to 6 man-months were contributed by the committee to research, develop, and review the position statement; about 1 man-month per committeeman. The objectives of the position statement were:

- (1) To document the wildlife profession's scientific findings and position regarding historical and contemporary influences of fire on terrestrial wildlife habitat in the Great Basin.

- (2) To produce a legally defensible statement based on scientific findings, documented with references; and

- (3) To make the findings available to interested parties (e.g., state and federal agencies, conservation organizations, professional resource societies, and the interested public).

Fire can impact wildlife habitat in many ways. However, it was decided that this position statement would primarily address the influences of fire on vegetation changes related to the needs and values of terrestrial wildlife. Fire included both wildfire and prescribed fire. The term wildlife included all free-ranging wild vertebrates in their natural habitat (Giles 1978, Bailey 1984). The Great Basin ecoregion referred to landscapes in the Intermountain West with drainages terminating in closed watersheds and not flowing to the ocean (Grayson 1993).

Secondary plant succession occurs where the original vegetation has been disturbed, such as via fire or drought (National Research Council 1994). Although the status of most wildlife habitats in the Great Basin are under the administration of state and federal government agencies, the position statement also included private holdings and Native American Trust lands.

The position statement was developed by the committee and then reviewed by 2 technical editors. Modifications were incorporated and then it was sent to all NC-TWS members for review and comments. One in five members submitted suggestions for improvement, or encouraged increased technical information. The position statement was then approved by the NC-TWS Executive Board.

The entire NC-TWS, therefore, contributed to the development, review, and approval of the position statement provided as the Appendix. Included were scientific and managerial findings, recommended positions, and 161 literature citations.

DISCUSSION

During development of the position statement, 4 paramount issues surfaced and were assessed. First, a review of the scientific literature yielded a paucity of data regarding plant succession and its effects on wildlife populations. Few studies were located that quantified plant community changes in relation to wildlife densities or nesting/thermal/protective cover requirements. Anecdotal data were frequently found, but quantitative data regarding these relationships were limited. Most notably lacking were publications evaluating the adverse effects of fire on wildlife populations and habitat. Apparently, this is an area warranting increased scientific and managerial studies.

Second, the effects of fire were at times evaluated soon after the fire. However, wildlife relationships with burned vegetation change as the vegetation community undergoes successional stages. Then too, professional wildlife biologists recognize that as vegetation progresses through successional stages, the vegetation provides different characteristics beneficial or detrimental to differing wildlife. Therefore, the effects of fire could be major immediately after a fire, but 6 to 15 years later, the vegetation community could develop into a healthy mixed plant community of grasses, forbs, and shrubs. This became especially relevant to the position statement committee when evaluating present shrublands. Many acres of shrublands are currently in a state of poor health which will continue for years unless a disturbance happens to stimulate plant reproduction and browse pro-

duction. Recognizing this, the Wyoming Department of Game and Fish recently reported that a third or more of sagebrush communities comprising key wildlife habitats need a major disturbance to restore healthy shrub conditions (Gocke 1997).

Third, the influences of healthy vegetation communities on differing wildlife species was explored by the position statement committee. For example, it was apparent that shrubs were key forage for certain wildlife (e.g., sage grouse [*Centrocercus urophasianus*], cottontails [*Sylvilagus* spp], deer [*Odocoileus* spp], pronghorn [*Antilocapra americana*], and others); thus, the health of shrublands was important to sustaining wildlife numbers. These shrublands however, can become stagnant or decadent over time and periodic disturbances assist in maintaining shrublands with a mosaic of different plant age classes resulting in greater seed production and enhanced browse for forage or cover (Gurell 1996). The nutritional value of shrubs apparently is also affected by differing plant age classes enhanced by disturbances (Riggs et al. 1996). Also, some wildlife rely heavily on shrubs for browse in winter, but need highly nutritious and succulent herbaceous forage in spring and summer for reproduction and lactation (Ellis 1970, Salwasser 1979). All of these factors surfaced while assessing the ecological relations of fire and vegetation to wildlife population dynamics.

Fourth, on the adverse side of sustaining healthy vegetation conditions, 2 major issues were identified: the impact of areas burned repetitively and the invasion of exotic herbaceous plants. Apparently, some contemporary rangelands are burning more frequently than disclosed in historic fire interval reports. This is due in part to increased flash fuels such as the exotic annual cheatgrass (*Bromus tectorum*). Various exotic plants have been increasing in density and distribution during the last century (Young et al. 1978). For some landscapes, it appears this has some adverse impacts for sustaining quality wildlife habitat: increased exotic flash fuels frequently lead to increased fire intervals. The problem is especially deleterious to key wildlife shrublands. Managers need to recognize this recent resource dilemma and develop new strategies to address this for Great Basin wildlife habitat.

This position statement yielded information relative to the ecological relationships of healthy/unhealthy plant communities to healthy/unhealthy wildlife populations. It may be difficult for some wildlife biologists and other resource managers to fully comprehend the complexity of these interrelationships. Therefore, Chapters and Sections of The Wildlife Society are encouraged to acceler-

ate professional training endeavors that identify healthy/unhealthy habitat conditions and wildlife/vegetation change relationships.

This position statement provides the basis for a better understanding of fire, vegetation, and wildlife dynamics as an ecological process. As such, when new information is developed, periodic review and update will be warranted. One of the primary goals of the position statement is to identify biological findings and provide a position on how professional wildlife biologists and managers can work towards the use of scientific management to achieve the wise use and allocation of resources to sustain healthy wildlife habitats. We hope that the position statement adopted by the NC-TWS is a contribution towards improved understanding of some of the influences fire has on wildlife habitat in the Great Basin.

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