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The effects of the 1999 wildfires on Nevada birds

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A series of large wildfires between August 4th and 7th combined with an ongoing severe fire season produced a serious impact on Nevada's bird life. As of September 1st more than 1.5 million acres of the state had burned, an area equal to 2% of the state's total landmass and twice the size of the State of Rhode Island. This area provided critical or important habitat for more than 40% of Nevada's wildlife, including many bird species.

Nevada rangelands became increasingly more flammable during the past 4-5 years due to higher than average rangeland productivity. Ironically, this was caused by above average precipitation. However, 1999 was a dry summer, and conditions were good for igniting all of this natural fuel. The widespread series of thunderstorms in early August ignited a large number of fires that overwhelmed fire fighters. Wind, coupled with the dry conditions and the large number of fires, created the largest fire event the state has ever seen. At the conclusion of this event some 1.4 million acres had burned, exceeding the previous year's total by nearly a million acres.

The fires impacted at least twelve bird species that are recognized by Partners in Flight as Priority Species. More than one million individual birds in four different habitat types were affected by the fires. Meanwhile, the Interior Basin Ecosystem Management Project had already estimated that Sage Thrasher, Brewer's Sparrow, and Loggerhead Shrike habitat had decreased some 30% from the 1850s. The loss of this additional 1.5 million acres in Nevada for these sagebrush obligate species can only have negative effects on them.

Other losses included the destruction of 38 Sage Grouse lek complexes as well as 144,000 acres of winter/spring range and 186,000 acres of summer habitat. Losses to Chukar habitat amounted to some 481,000 acres.

The short-term effects of the fires on resident wildlife are increased mortality through various natural agents. Birds will either need to find patches of suitable habitat within the burned areas or emigrate from the area to survive. The loss of the shrub-dominated

communities in these burned areas will reduce the interchange of individuals of a given species between populations. This phenomenon will affect the long-term health of many wildlife species by fragmenting their habitats and decreasing the overall health of the ecosystem by decreasing diversity.

Fire and fire cycles are natural events and result in the recycling of nutrients locked in plant material back to the soils and the environment. These nutrients are utilized by young colonizing plants and can increase the overall health of a habitat over time. At higher elevations, above the zone commonly inhabited by cheatgrass, small cool-burning fires may improve the health of the system, but in lower elevation sites where the native bunchgrass-shrub community has been replaced by cheatgrass or substantially invaded by cheatgrass, hot, wind-driven fires like those that occurred in August of 1999 can be devastating. Cheatgrass normally outcompetes shrubs because of its rapid seed dispersal, late winter germination capability, and the maintenance of an accelerated fire regime; the result is a monotypic grassland community with little or no value for birds or other wildlife.

Natural re-vegetation of burned areas occurs after all fires but with the introduction of cheatgrass in the early part of this century and its rapid invasion into our rangelands, this natural cycle has been altered considerably at the landscape scale. Fires in Nevada now burn earlier in the year, more frequently, and with greater intensity over larger areas. From the 1950s through the 1970s cheatgrass gained a progressively stronger foothold on the state's rangelands. Natural succession in areas dominated by cheatgrass does not occur, even after 20 years, owing to the competitiveness of cheatgrass and the accelerated fire cycle. In the mid 1980s wildfires began to increase dramatically. The previously burned areas re-vegetated with cheatgrass became more prone to burning, and the total acreage burned increased threefold. The cheatgrass fire cycle continued to accelerate in the 1990s culminating in the fire event of the summer of 1999. The acreage burned this decade is a sevenfold increase from the 1950-1980 period and more than double the acres burned during the 1980s.

The key, then, to reclaiming these burned rangelands is to 1) break the cheatgrass/accelerated fire cycle and 2) actively reclaim as much of the burned areas as possible in the same year of the fire, prior to cheatgrass gaining a foothold. It is to that end that the Division of Wildlife is actively participating with many other entities, in both the private and public sectors, to gain an upper hand in these two critical areas. It can only be accomplished by concentrating all of our resources and moving forward at full speed with the rehabilitation effort.

Seed-drilling rehabilitation efforts began in November and December of last year to stabilize watersheds and to prevent erosion and dust hazards. Beginning in early January 2000, aerial seeding of shrub species on critical burn areas, as designated by the BLM Burned Area Rehabilitation (BARE) Teams, began. The Division of Wildlife in cooperation with the BLM and the Division of Forestry are now moving forward with additional efforts to augment these seeding efforts. Through the efforts of volunteer seed collectors, over 1000 pounds of critical shrub seeds are currently being distributed on five burn areas designated by the Division of Wildlife as critical habitat.

Additionally, several groups, including the Mule Deer Foundation, Nevada Chukar Foundation, Nevada Bighorns Unlimited, the National Rifle Association through the Nevada Rifle and Pistol Association, and Wildlife and Habitat Improvement in Nevada have contributed nearly $80,000 towards the purchase of seed for the Division's rehabilitation efforts. Bald Mountain Mine, Barrick Gold, Cortez Gold, Ken Snyder Mine, Newmont Gold, and Ruby Hill Mine have pledged nearly $40,000 to assist in the aerial distribution of the seeds on these sites. Through these collaborative efforts, between 7,500 and 10,000 acres will be seeded with sagebrush, four-wing saltbush, rabbitbrush, *Kochia*, and a variety of forb species that would not have otherwise been rehabilitated.

It is only through efforts like these that fire-degraded Great Basin shrub communities in Nevada and the many species of birds, mammals, and reptiles that they support will be preserved for the future. It is incumbent upon land managers, agencies, interest groups and the public to support these critical efforts in order to preserve the habitats that so many species depend upon.