

The following is a draft document outlining population management risks, conservation measures and monitoring actions for sage grouse in the Pah Rah-Virginia Population Management Unit. This information has been generated solely for the use of the Washoe-Lassen-Modoc sage grouse working group. Other use of this information is prohibited without the written permission of the Washoe-Lassen-Modoc sage grouse group.

The following narrative covers risk assessments for population biology and were completed by NDOW and the population subgroup. The BLM and the habitat subgroup will assess Habitat risks. Once assessments for all five PMU's within the Washoe-Lassen-Modoc area have been completed conservation measures and monitoring actions for population biology and habitat will be combined and prioritized. An implementation schedule and funding needs will be developed from the prioritized list.

Summary

The Pah Rah and Virginia Population Management Units encompass 402,748 acres in southern Washoe County. For the purposes of this narrative these two PMU's will be combined. Threats to these PMU's are virtually identical and there is a chance that future-marking studies will reveal that there is interchange of birds between these two mountain ranges. This area is bounded on the west by Highway 395 and Long Valley, Interstate Highway 80 and the Cities of Reno and Sparks Nevada to the south and State Highway 446 to the east and north. Elevations vary from approximately 4,000 feet on the valley floors to over 8,700 feet at Tule Peak. Yearly precipitation levels vary from 7 inches in the valley floors to over 15 inches at the higher elevations. Vegetation types range from salt desert shrub communities in the dryer valley floors to aspen and mountain mahogany in the upper elevations. Wildfires have burned approximately 35 percent of this PMU converting sagebrush dominated shrub lands to annual grasses and weeds. Wildfires which occurred during the years of 1999 through 2001 were particularly devastating burning some of the last strong holds of sage grouse habitat left in both the Pah Rah and Virginia Mountain Ranges.

Sage Grouse in these two mountain ranges occur in small isolated pockets of suitable habitat. Based on observations from division biologists and knowledgeable individuals within this subgroup it is estimated that sage grouse currently utilize

approximately 54,000 acres or 14 percent of the 402,748 acres in this PMU. The land status of this area is quite different from other PMU's within the responsibility of the Lassen-Washoe-Modoc Conservation Group. Only 57 percent of the 402,748 acres are under BLM management while 35 percent is under private ownership and 8 percent belongs to the Pyramid Lake Indian Tribe. Urbanization particularly in the Pah Rah Range is a huge threat to existing sage grouse habitat. Of the estimated 53,760 acres of habitat currently used by sage grouse in the Pah Rah and Virginia Mountain Ranges 27,520 acres or 51 percent are under private ownership. Within the Pah Rah Range it is estimated that 69 percent of existing sage grouse habitat is under private ownership. A qualitative population viability analysis was done by Nevada Division of Wildlife biologists using parameters outlined in Appendix 6 of the governor's sage grouse plan. This analysis of factors in these mountain ranges indicates a high probability of extirpation within the next 20 years.

Only one active lek is known to exist in this area. Current population estimates based on this lek indicate declining numbers with a spring breeding population of 150 to 200 sage grouse. The following assessment of management risks, conservation actions and monitoring will provide NDOW and others guidance in the collection of data and management of sage grouse in this population management unit.

Conservation Goal

- **Stabilize the trend in sage grouse numbers over the next ten years in the Pah Rah and Virginia Mountain Ranges.**

Conservation Objective

- **Implement the conservation actions, monitor the results and use adaptive management to achieve the conservation goal.**

Harvest

WAFWA Guideline

Populations should not be hunted where less than 300 birds comprise the breeding population.

Risk: Over Harvest of the Population.

The subgroup did not consider this to be a risk since hunting seasons in this unit have been closed since 2000. However, there was some concern relative to the Falconry Season, which continues to remain open in Management Area Two. The subgroup recommended that either NDOW document the take of grouse in this area by falconers or close the season.

Risk: Over Harvest of Females and Young.

The subgroup did not consider this to be a risk since hunting seasons in this unit have been closed since 2000.

Risk: Over Harvest of Marginal and Isolated Populations.

The subgroup did not consider this to be a risk since hunting seasons in this unit have been closed since 2000.

Risk: Over Harvest of Genetically Unique Populations.

The subgroup did not consider this to be a risk since hunting seasons in this unit have been closed since 2000.

Risk: No Harvest Data for Population Estimates.

The subgroup did not consider this to be a risk to this population. However, attempts to collect brood data should be conducted during the summer months.

Risk: Crippling Loss.

The subgroup did not consider this to be a risk since hunting seasons in this unit have been closed since 2000.

Risk: Poaching. Rated High.

No data exists to indicate that organized poaching occurs within this area. However, because of its close proximity to the cities of Reno and Sparks the subgroup felt that incidental poaching could be a factor affecting sage grouse in this area. The group recommends that increased law enforcement patrols take place in this unit particularly during the late summer and fall, when birds are associated with water, to document any problems with illegal take.

Conservation Actions

- Continue to keep sage grouse hunting season closed in Management Area 2.
- NDOW law enforcement officers will conduct patrols in the Pah Rah Virginia PMU to determine the extent of illegal harvest.

Monitoring

- Determine the numbers of sage grouse taken by falconers.

Population Status and Trend

WAFWA Guideline

Routine population monitoring should be used to assess trends and identify problems for all hunted and nonhunted populations. Check stations wing collections and questionnaires can be used to obtain harvest information. Breeding population (lek counts) and production data can be used to monitor population levels.

Risk: Unable to Determine Trend of Population. Rated High.

Having reliable information to determine how many sage grouse are in a population and whether or not bird numbers are increasing, stable or declining is vital to making proper management decisions. Sage grouse in the Virginia and Pah Rah Mountains are associated with small pieces of shrub dominated habitats which have remained intact despite the onslaught of urbanization and wildfire. Grouse numbers are quite low in these areas with a current population estimate of 150 to 200 birds. Locating these birds on a consistent basis to determine movement patterns, use areas and chick survival and recruitment has been and will continue to be extremely difficult. It is the recommendation of this subgroup that NDOW conduct a trapping and telemetry marking study to allow biologists to track birds through their seasonal movements. It is recommended that 5 to 10 female sage grouse be radio collared in both the Virginia and Pah Rah Mountain Ranges. Information gathered from a project like this will greatly expand our knowledge of sage grouse in this area.

Lek counts provide the best index to breeding populations. However, only one active strutting ground is known to exist in this unit. This lek which is located in the northern portion of the Virginia Mountain Range has declined in numbers from 75 birds in the early 1990's to 20 birds in 2001. A large wildfire, which occurred in 1999 and removed most of the nesting habitat associated with this lek, may be the primary cause of this decline. Aerial lek surveys were conducted in the Pah Rah's in the spring of 2001. No birds were observed actively strutting on a lek however, six males were observed flying as if they had just been flushed from a strutting ground. This area has the look and feel of a lek site however, urban development is fast overtaking what is left of the wild lands in this area. If a lek is located in this general area it will be lost to housing development within the next five years. Given the number of sage grouse known to exist in the Pah Rah Range it is the recommendation of the subgroup that NDOW continue to search for lek sites in this mountain range. The marking study described in the previous paragraph may also help to identify unknown leks in this range.

Risk: Unable to Determine Effects of Conservation Plan. Rated High.

In order to understand the effects of various conservation measures biologists must first have a good idea of how many birds are in a population, what the production and recruitment rates are and what are important use areas. Without this baseline information it can be difficult to determine if conservation actions are having a positive or negative effect on the population. The Nevada Division of Wildlife will attempt to capture and radio collar a minimum of five female sage grouse in both the Virginia and Pah Rah Ranges to define use areas, determine movements and measure chick survival and recruitment. The conservation actions and subsequent monitoring outlined below should provide this baseline information.

Conservation Actions

- The Nevada Division of Wildlife will conduct research to determine sage grouse use areas, bird movement and measure chick survival and recruitment.
- The Nevada Division of Wildlife will develop population estimates for sage grouse in the Virginia and Pah Rah Mountain Ranges.
- Work will be done on an annual basis.

Monitoring

- Aerial lek surveys to determine spring breeding population estimate.
- Aerial surveys to locate new or unknown leks.
- Monitor radio collared birds.
- Wing Composition Data to determine production and harvest composition and fall population estimate.
- Work will be done by NDOW on an annual basis.

Predation

WAFWA Guideline

For small, isolated populations and declining populations, assess the impact of predation on survival and production. Predator management should be implemented only if the available data (e.g., nest success <25%, annual survival of adult hens <45%) support the action.

Risk: Excessive nest losses by avian predators.

Risk: Excessive nest losses by terrestrial mammals.

Risk: Excessive losses on broods by avian predators.

Risk: Excessive losses on broods by terrestrial mammals.

Risk: Excessive losses on adults by avian predators.

Risk: Excessive losses on adults by terrestrial mammals.

The population subgroup did not consider any of the above risks under predation to be factors, which are threatening sage grouse in this area. However, given the above WAFWA guideline, it is recommended that any information obtained from the proposed marking study be utilized to determine the impact of predation in this area. If predation is found to be a limiting factor NDOW can use information gathered from studies conducted in the Massacre PMU to effect predator control in the Virginia-Pah Rah area.

Conservation Actions

- Research will be conducted to determine if avian predator control will improve production and recruitment rates of sage grouse in the Massacre PMU. Results from this research will be used to guide management decisions in other PMU's.

Monitoring

- Wildlife Services will conduct raven control and report on the number of birds removed
- Wildlife Services will conduct predator census and report on predator numbers.
- Division of Wildlife will collect wing composition data to determine production rates

Adaptive Management

Wildlife Services and NDOW will conduct and monitor predator control and its effects on sage grouse production in the Massacre PMU. Results from this research will be used to guide management decisions in Massacre and other PMU's.

Bird Health

WAFWA Guideline

Manage breeding habitats to support 15-25% canopy cover of sagebrush, perennial herbaceous cover averaging >18 cm in height with >15% canopy cover for grasses and >10% for forbs and a diversity of forbs during spring.

Risk: Poor nutrition. Rated Unknown by Subgroup.

The population subgroup chose to rate this risk as unknown since no research has been done on this population of sage grouse. The subgroup recommended that nutritional studies be conducted on grouse in this area during the capture and marking studies recommended in previous sections. Sample sizes will be small but still should provide some insight into nutritional levels of sage grouse in these units. Current studies on the Sheldon National Wildlife Refuge may also provide results that could be used in the Virginia-Pah Rah Mountains.

Risk: Disease related problems. Rated Unknown by Subgroup.

The population subgroup chose to rate this risk as unknown since no research has been done on this population of sage grouse. The subgroup recommended that disease related studies be conducted on grouse in this area during the capture and marking studies recommended in previous sections. Sample sizes will be small but still should provide some insight into any disease-related problems affecting sage grouse in these units. Current studies on the Sheldon National Wildlife Refuge may also provide results that could be used in the Virginia-Pah Rah Mountains.

Conservation Actions

- Obtain blood samples during marking and capture project.
- Research on nutrition is being conducted on the Sheldon National Wildlife Refuge.

Adaptive Management

Information gathered on nutritional levels of sage grouse in Virginia-Pah Rah and Sheldon PMU's may be applied to management of sage grouse in Virginia-Pah Rah and other PMU's.

DRAFT
Genetics

Risk: Unique population not viable.

Risk: Unique population.

Risk: Genetic mixing.

The Lassen-Washoe-Modoc population subgroup chose to rate all risks under genetics as unknown since no research has been done on this population of sage grouse. The subgroup recommended that genetic related studies be conducted on grouse in this area during the capture and marking studies recommended in previous sections.

Conservation Actions

- NDOW will determine genetic composition.
- NDOW will determine population viability.

Monitoring

- NDOW will conduct DNA testing from captured birds.