

# **Vya Population Management Unit Population Conservation Plan**

## **INTRODUCTION**

The Vya Sage Grouse Population Management Unit encompasses 501,247 acres of sage grouse habitat in northwestern Washoe County and a small portion of northeastern Modoc County in California. The area is bounded on the west by Surprise Valley and the Warner Mountains in California, highway 8A to the south, the Oregon-Nevada Stateline to the north and Massacre Bench and the Sheldon National Wildlife Refuge boundary to the east. Elevations vary from approximately 4,000 feet on the valley floors to over 7,000 feet at Vya Peak. Yearly precipitation levels vary from 8 inches in the valley floors to over 18 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. Overall, sagebrush is a dominant vegetation type in this PMU with low sagebrush, Wyoming big sagebrush and mountain big sagebrush occurring in similar amounts. Large stands of Juniper also occur within this PMU.

## **CONSERVATION ASSESSMENT**

Sage Grouse in this population management unit occur over a large geographic area with little or no occurrence of habitat fragmentation. Over 80 percent of the land in this PMU are under federal ownership and are managed by the Bureau of Land Management. No large-scale changes in land management practices are anticipated for this PMU. 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 the Vya PMU indicates a low probability of extirpation within the next 20 years.

Population estimates based on lek counts over the last ten years indicate relatively stable bird numbers with a spring breeding population of 1,500 to 2,000 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.

### **FACTOR: Harvest**

#### **WAFWA Guideline**

Where populations are hunted, harvest rates should be 10% or less than the estimated fall population to minimize negative effects on the subsequent year's breeding population.

**Risk: Over Harvest of the Population. Rated Low.**

Hunting is the most obvious direct mortality factor that people observe on sage grouse. Hunting is also one of the most

manageable mortality factors. Harvest trends for the Vya PMU have been collected from hunter bag checks and questionnaire data since the mid 1950's.

During the 1960's when sage grouse

were hunted separately from other species during a September season it is estimated that harvest levels exceeded 500 birds during some years with over 200 hunters pursuing grouse in the Vya area. Conservative October seasons begun in 1986 have reduced both hunter participation and the total number of birds harvested. Due to the remoteness of the Vya hunt unit declines in hunter numbers may have been more dramatic than other more accessible hunt areas. Because of this the risk of over harvest by hunters was rated low by the population subgroup. Hunter numbers have averaged 35 over the last ten years with an average harvest of 77 birds. These October seasons have produced a ninety- percent reduction in hunter numbers and birds harvested from peak years during the 1960's. Season timing and to a lesser extent changes in bag limits have been very effective tools for matching harvest rates to sage grouse population levels. Figure 1 portrays these changes in harvest rates over the last forty years for the Vya population unit.

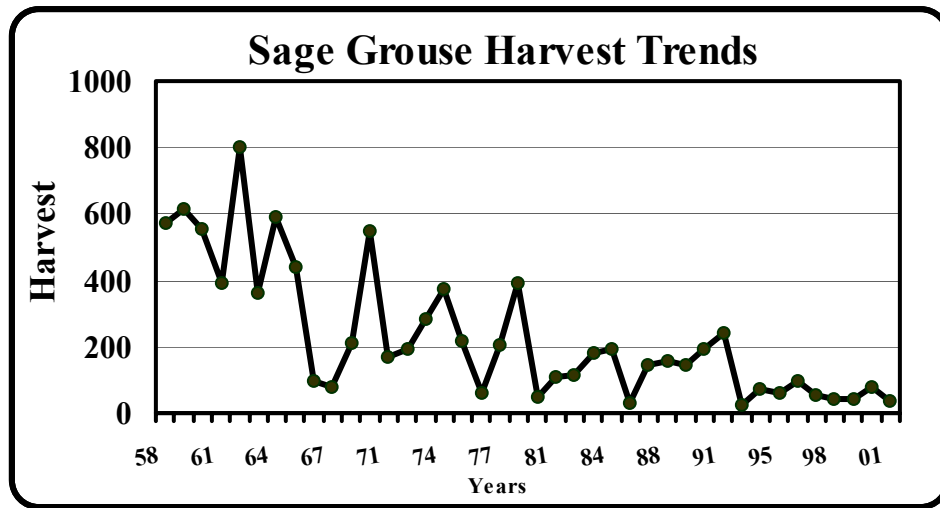


Figure 1.

**Risk: Over Harvest of Females and Young. Rated Low.**

Nevada studies on hunted and non-hunted areas over a four-year period were conducted in the Massacre PMU during the 1980's. Harvest rates of 25 percent were made on the hunted area, rather than the normal 7-11 percent. Based on lek counts and late summer density surveys, the number of birds increased on both the hunted and non-hunted area, but increases on the hunted area were lower than the non-hunted. These data suggest that populations are able to withstand some level of exploitation. Wing data collected during these hunts indicated that hunting birds in September produced high harvest rates on the female segment of the population. Sixty to seventy percent of the harvest during this four-year study was made up of females. Harvest ratios obtained during October seasons are generally made up of 50 percent males and 50 percent females. Delaying hunting in the fall helps to maintain low harvest rates and reduces the impact on the female segment of the population.

**Risk: Over Harvest of marginal and isolated populations.**

The Washoe-Lassen-Modoc population subgroup did not consider this to be a risk to sage grouse in the Vya PMU. Sage Grouse in this population management unit occur over a large geographic area with little or no occurrence of habitat fragmentation. This area is very remote and difficult to access. Because of this only a very small number of hunters pursue sage grouse in this unit during the October season. For example wing collections conducted during the 2002 season indicate that less than twenty birds were harvested out of this unit. With a population estimate of 1,500 to 2,000 birds this harvest is insignificant at less than one percent of the total grouse inhabiting this PMU.

**Risk: Over Harvest of genetically unique populations.**

The Washoe-Lassen-Modoc population subgroup did not consider this to be a risk to sage grouse in the Vya PMU. Sage Grouse in this population management unit occur over a large geographic area with little or no occurrence of habitat fragmentation. Genetic mixing occurs within the Vya PMU and also with adjacent PMU's.

**Risk: No Harvest Data for Population Estimates. Rated Medium.**

Nest success and the recruitment of juveniles into the population is usually cited as the most significant parameter influencing the population dynamics of sage grouse. Production data is used to generate fall population estimates and is vital to understanding the status and trend of a sage grouse population. Production or recruitment can be monitored by brood counts or wing composition surveys. Brood counts are labor-intensive and usually result in inadequate sample size or miss leading information. Gathering reliable production data from brood counts over a large landmass like the Vya PMU can be very difficult. Estimates of sage grouse nesting success and juvenile to adult hen ratios should be obtained through adequate samples of hunter harvested wings when there is no risk to the population. Given the remoteness of this area and the lack of harvest, gathering adequate production data will be difficult in this management unit. However, the Vya population subgroup recommends that NDOW utilize wing barrels and wing tags to delineate the location of hunter harvested wings.

**Risk: Crippling Loss.**

The Washoe-Lassen-Modoc population subgroup did not consider this to be a risk to sage grouse in the Vya PMU. Certainly within a hunted population crippling loss occurs. However, with the low harvest rates in this unit any crippling loss would occur at a level that would not impact the population trend.

**Risk: Poaching. Rated Medium.**

California Fish and Game biologists and game wardens indicate that some illegal take of sage grouse may be occurring within the Vya PMU. Most of this activity occurs during the late summer months when birds are closely associated with water sources and most vulnerable. Most of this take is considered to be opportunistic and no data exists that indicates organized poaching occurs within this PMU. Illegal take of sage grouse in this PMU is probably not at a level that is impacting population trend however, the population subgroup recommends law enforcement patrols occur during late summer and fall to document any problems with illegal take.

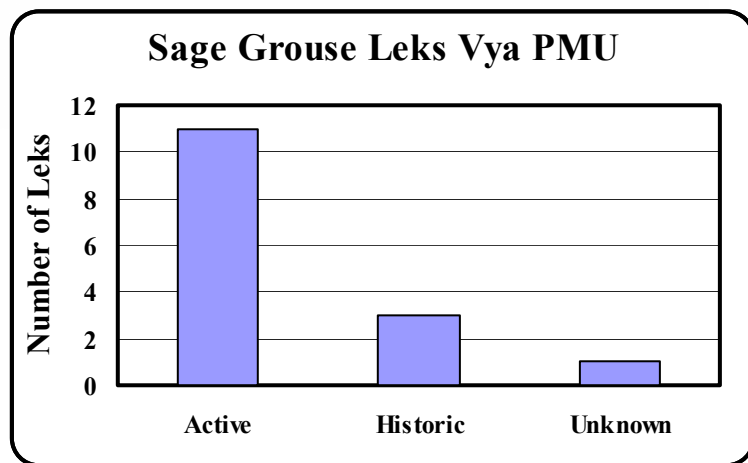
**FACTOR: Population Status and Trend**

**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 can be found throughout the 501,247 acres of the Vya PMU. This fact coupled with the remoteness of the area and difficulty in travel complicate attempts to define populations and generate population estimates. Lek counts provide the best index to breeding populations however, lek counts done to date from the ground by CDFG, BLM, volunteers and NDOW have produced an incomplete picture of the population.



**Figure 2.**

Aerial lek surveys are the best method for obtaining information on population numbers and trend of sage grouse in this population management unit and others. However, NDOW does not currently conduct aerial surveys in this PMU. Budget and manpower constraints have been the reasons for not conducting these surveys in past years. Figure 2 shows what is currently known about the status of leks in the Vya PMU. In order to better understand the trends of known

leks and to identify new leks within this PMU the population subgroup has developed conservation actions and subsequent monitoring that will address the lack of knowledge about strutting grounds in this remote area. This group recommends that NDOW implement an aerial survey program which looks at all known leks in this PMU at least once a year. The group also felt that a systematic search for new leks should also be conducted on a yearly basis until all likely breeding areas within the PMU have been surveyed.

**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 have been and how many birds are being harvested from the population. Without this baseline information it can be difficult to determine if conservation actions are having a positive or negative effect on the population. An example of this is the predator work, which is being done in the Massacre PMU. The effects of this conservation action to increase the nesting success of sage grouse are being monitored by obtaining adequate samples of hunter harvested wings to measure whether the removal of avian predators is increasing sage grouse production rates. In the Nevada portion of the Vya PMU very little baseline population data is currently available therefore it is recommended by the population subgroup that initial conservation actions focus on obtaining this baseline population data.

**FACTOR: 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. Rated High.**

The population subgroup rated this risk as high based on a study done by CDFG in Modoc County California. Studies conducted in the Massacre PMU in Nevada have indicated that the low productivity of sage grouse in this area may be the result of excessive predation during nesting. A study of the effect of predator control on sage grouse production was initiated beginning in the spring of 2000 within the Massacre PMU in the Grassy-Stevens Camp area. The division contracted with wildlife services to conduct predator control over approximately 250 square miles with emphasis on ravens. At the conclusion of this project or at any point of the project, where data supports the implementation of predator treatments to sustain or enhance sage grouse populations, the Division of Wildlife will amend this plan and propose appropriate measures to the Wildlife Commission for support and funding. Information gathered

from the study in the Grassy Stevens Camp area within the Massacre PMU may be applied to problem areas within the Vya PMU.

**Risk: Excessive nest losses by terrestrial mammals. Rated Low.**

The Vya population subgroup rated this as a low risk since there is no data to suggest that this is occurring in the Vya PMU.

**Risk: Excessive losses on broods by avian predators. Rated Low.**

The Vya population subgroup rated this as a low risk since there is no data to suggest that this is occurring in the Vya PMU.

**Risk: Excessive brood losses by terrestrial mammals. Rated Low.**

The Vya population subgroup rated this as a low risk since there is no data to suggest that this is occurring in the Vya PMU.

**Risk: Excessive losses on adults by avian predators. Rated Low.**

The Vya population subgroup rated this as a low risk since there is no data to suggest that this is occurring in the Vya PMU.

**Risk: Excessive losses on adults by terrestrial mammals. Rated Low.**

The Vya population subgroup rated this as a low risk since there is no data to suggest that this is occurring in the Vya PMU.

**FACTOR: 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: Low production rates caused by poor nutrition. Rated Low.**

Studies of red grouse (in Scotland) and ruffed grouse diets in relation to reproduction indicate that high quality diets result in greater production. The pre-laying period for females may also be critical to sage grouse populations. The nutritional and energy reserves gained in winter from a diet of sagebrush peak just prior to breeding. As spring forbs begin to appear, females shift their diet to include forbs and availability

of forbs with high nutritional value appear to influence the productivity of Sage Grouse hens. The hen must consume a diet with sufficient amounts of the essential amino acids, vitamins and minerals to produce an egg and to supply that egg with all of the nutrients needed by the egg throughout the incubation period. For optimum survival and early growth of the chicks, the hen must also provide a yolk with sufficient reserves for the newly hatched chick.

Nutritional studies specific to sage grouse populations in northwestern Nevada need to be conducted to ascertain if there is a link between nutrition and poor productivity of sage grouse. Current studies on the Sheldon National Wildlife Refuge may provide results that could be used within Vya and other adjacent PMU's.

**Risk: Disease related problems.**

No data exists to indicate that this is occurring in the Vya PMU. At this time the Washoe-Lassen-Modoc population subgroup did not consider this to be a risk to sage grouse in the Vya PMU.

**FACTOR: Genetics**

**Risk: Unique population not viable.**

**Risk: Unique population.**

**Risk: Genetic mixing.**

The Washoe-Lassen-Modoc population subgroup did not consider the above to be a risk to sage grouse in the Vya PMU. Sage Grouse in this population management unit occur over a large geographic area with little or no occurrence of habitat fragmentation. Grouse numbers are estimated at 1,500 to 2,000 birds in the spring with birds inhabiting most of the 501,247 acres in this PMU. Genetic mixing occurs within the Vya PMU and also with adjacent PMU's. Radio-telemetry data show movement of grouse between California and Nevada. Movements of over 40 air miles have been documented. Recent genetic work suggests sage grouse across the range are not unique, with the possible exception of southern Nevada and California.

## **CONSERVATION STRATEGY**

**Goals:**

**Maintain limited harvest program to allow for recreation use and data collection at levels below population thresholds.**

**Determine reliable population estimates and trends.**

**Complete Wildlife Services project to determine predator impact on sage grouse population.**

## **Complete research on Sheldon Wildlife Refuge to determine bird health**

### **Objectives:**

**Keep harvest levels below 10 percent of fall population estimate.**

**Collect necessary harvest data for population estimates by 2006.**

**Provide recreational opportunities for sport harvest.**

**Survey and inventory leks to determine 25 trend leks by 2006.**

**Determine predator criteria for application of treatments by 2006.**

**Determine bird health and disease with blood samples by 2006.**

### **Conservation Actions**

- The Nevada Division of Wildlife and the Nevada Wildlife Commission will utilize Season Timing and Bag Limits to control the harvest of sage grouse in the Vya PMU. California Fish and Game will maintain a closed season in the California portion of the Vya PMU.
- Seasons in Nevada will be structured to assure that harvest rates are 10% or less of the estimated fall population. Work will be done by NDOW and the Wildlife Commission on a biennial basis.
- NDOW law enforcement officers will conduct patrols in the Vya PMU to determine the extent of illegal harvest.
- The Nevada Division of Wildlife will develop spring breeding and fall population estimates for sage grouse in the Vya PMU.
- 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.
- Research on nutrition is being conducted on the Sheldon National Wildlife Refuge.
- Aerial lek surveys to determine spring breeding population estimate.
- Wing Composition Data to determine production, harvest composition and to generate a fall population estimate. Hunter harvested wings will help to validate questionnaire data.
- 10% Harvest Questionnaire Survey to determine harvest levels.
- Aerial surveys to locate new or unknown leks.
- 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.

## **Adaptive Management**

NDOW will monitor sage grouse harvest in the Vya PMU using the monitoring actions described above. If data gathered from this monitoring indicates a change is needed in the harvest program to meet WAFWA guidelines NDOW and the Wildlife Commission will use appropriate conservation actions described above to meet WAFWA guidelines.

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 Vya and other PMU's.

Information gathered on nutritional studies being done on the Sheldon may be applied to management of sage grouse in the Vya PMU.