

2012

Gunnison Sage-Grouse Lek Count Summary

And

Population Estimate

For the Crawford Population

Final Report

1 April – 10 May Lek Season

Crawford, Colorado

Colorado Parks and Wildlife



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Many people were involved in the 2012 Gunnison sage-grouse lek counts. These individuals represented four government agencies, local citizens and private landowners, and the local Gunnison sage-grouse working group.

Gunnison sage-grouse leks were counted using a modified version of the protocol established in 1996. All known leks were counted at least once during each of four 10-day periods beginning April 1 and ending May 10. Coordinated counts were used to avoid disturbance to grouse from a single lek counter driving from lek to lek and to avoid double counting of birds where movement between leks could occur. All lek counters used a standardized data form and were asked to record the number of males, females, and unknown Gunnison sage-grouse present at the lek at five minute intervals. Counters also recorded weather conditions, disturbances to grouse, grouse behavior, and movements to and from the lek.

These data were analyzed to determine the high count for males (HMC) and females (HFC), the estimated male and female populations, the overall population estimate for the Crawford area, peak dates of lek attendance, and a three-year moving average of high male counts. A population estimate for the Crawford area was calculated using the formula presented in the 2005 Gunnison Sage-grouse Rangewide Conservation Plan.

In 2012, 7 leks were visited, resulting in a high count for male Gunnison sage-grouse of 20, up by 11 from the 9 males counted in 2011. The high female count was 9. Both male and female lek attendance peaked during the 1–10 May count period. The Crawford area population estimate is 99 birds, an increase of 55 birds from 2011. The three-year moving average high male count for 2010–2012 is 11, a 10% increase from the 2009–2011 high male count moving average of 10. The current 10-year average (2003-2012) population estimate is 110 birds which is below the 275 bird long term target set in the 2005 Gunnison Sage-grouse Rangewide Conservation Plan and the 2011 Crawford Working Group Gunnison Sage-Grouse Conservation Plan.

Colorado Parks and Wildlife (CPW) translocated 30 radio-collared birds to Crawford in the spring of 2012 to continue an analysis of demographics and movement patterns of Gunnison sage-grouse using these birds. An on-going research project by the United States Geological Service (USGS) is looking at movement patterns and habitat use of Gunnison sage-grouse in the Crawford area. A new area of potential Gunnison sage-grouse habitat at Oak Mesa, north of Hotchkiss, was discovered when birds were observed and at least one nest site was found in June, 2012.

## Acknowledgments

The 2012 Gunnison sage-grouse lek counting season for the Crawford population was made possible because of the combined efforts of each individual involved (Appendix A). We would like to extend thanks to all of you who dedicated your time, energy, and early mornings to count grouse. Several people were directly involved in the 2012 Gunnison sage-grouse lek counts at Crawford. Colorado Parks and Wildlife (CPW) coordinated the effort and received help from the Bureau of Land Management (BLM), US Forest Service (USFS), National Park Service (NPS), the US Geological Service (USGS), and volunteers from the Gunnison Sage-grouse Crawford Working Group. Thanks again for your contribution to Gunnison sage-grouse conservation.



## **Introduction**

The Gunnison sage-grouse (*Centrocercus minimus*) is a unique species of sage-grouse found only in portions of southwestern Colorado and southeastern Utah (Young et al. 2000). There are nine distinct sub-populations occurring within their range, with the largest inhabiting the Gunnison Basin (Gunnison Sage-grouse Rangewide Conservation Plan 2005). The Gunnison sage-grouse received species status in January of 2000 from the American Ornithologist's Union based on long-term studies by grouse researchers Jessica Young and Clait Braun, among others. Shortly thereafter, a coalition of environmental groups petitioned the U.S. Fish and Wildlife Service (FWS) to emergency list the Gunnison sage-grouse under the Endangered Species Act (ESA). After review, the FWS designated the bird as a "priority 5" candidate species under the ESA and precluded listing at that time. However, after re-evaluation in 2004, the FWS designated the species as a "priority 2" candidate species, which shifted the grouse into a higher priority status for listing. Principal areas of concern for Gunnison sage-grouse include overall population declines and reductions in the quantity and quality of their sagebrush habitats. On April 18, 2006, the FWS posted their final listing determination for the Gunnison sage-grouse. In the ruling, the Service determined that based on the best scientific and commercial information, that listing under the ESA was not warranted. This ruling has since been revisited. On September 27, 2010, the FWS determined that the Gunnison sage-grouse warrants protection under the Endangered Species Act, but that proposing the species for protection will be delayed while the Service addresses the needs of other higher priority species. Currently, the FWS is revisiting their proposed listing decision. A final listing decision is expected by the end of September, 2012.

Annual Gunnison sage-grouse lek surveys provide key information used by officials and interested parties for decisions pertaining to land management practices and regulations, population management actions, and federal ESA listing actions. The lek counts have been standardized over the past sixteen years and represent an objective method of projecting annual spring population size and assessing trends. This report details the results of the 2012 lek count season, including counts of total number of males and females, calculated estimates of population size, changes throughout recent years, information on projects that were conducted during the 2012 lek season, and recommendations for future counting efforts.

### ***Lek Counts as an index to population trend***

Lek count data often generates considerable discussion and sometimes controversy. Lek count methodologies were developed many years ago, based on the premise that counts could aid in assessing grouse population trends. Research has demonstrated that male sage-grouse do not attend leks every day, and male attendance is variable depending on many factors including weather, social dynamics (such as male dominance or the presence of a receptive hen), time of day, predator disturbance, etc. From a lek counter standpoint, the number of birds observed may vary depending on factors such as observer experience, optic quality/distance to lek, access, vegetation composition of a particular lek, and vantage point quality.

Changes in the number of grouse counted should not be interpreted as an exact measurement of annual population variability, nor should they be construed as the actual number of grouse in the population. Standardized lek counts should allow managers to evaluate population trends over time. Lek counts presently provide the most efficient, low-impact means for acquiring meaningful data on local grouse populations.

## Count Methodology

Gunnison sage-grouse leks were counted using a slightly modified version of the protocol established in 1996. Each lek should be counted once during each of four 10-day periods beginning on 1 April and ending on 10 May during the current season. Coordinated counts were used with lek counters camping overnight on site to avoid disturbance to adjacent leks. The Crawford leks are strung out along the C-77 road making access to individual leks without disturbing birds difficult. All counts were conducted around sunrise. All lek count personnel used a standardized data form and were asked to count the number of males, females, and unknown Gunnison sage-grouse present at the lek at five minute intervals. If grouse were inadvertently flushed off of a lek, the total number of birds in flight was recorded as “unknown”, and not used to calculate high counts. Counters also recorded weather conditions, disturbances to grouse, grouse behavior, and movements to and from the lek. Lek counters were also asked to indicate any activity on brushbeats or other use areas associated with their lek.

## Data Analysis

Information from each data sheet was entered into a database. Subsequent analyses provided the total number of individual males and females observed for each lek, the estimated female and male populations, the population estimate based on known leks counted, the overall population estimate, peak dates of attendance, and a three year moving average of high male counts.

**Population Estimate:** In 2005, the Rangewide Steering Committee (RSC) completed the Gunnison sage-grouse Rangewide Conservation Plan (RCP), which in many ways is a continuation of the local Conservation Plans adopted throughout the species’ range. As the title implies, this plan attempts to offer a broader, rangewide perspective and is intended to supplement local plans, “so as to ensure that the cumulative result of conserving local populations is conservation of the species” (Gunnison sage-grouse Rangewide Conservation Plan 2005). With regard to this annual report, it is important to mention that the RCP addresses various issues surrounding population estimation for Gunnison sage-grouse. After review of the most current Gunnison sage-grouse research and scientific literature, the RCP recommends using an updated formula for calculating a population estimate based on lek count data. The key assumptions for the formula are:

Male high count represents 53% of the male sage-grouse in the population  
There are 1.6 females in the population for every 1 male

**Peak Lek Attendance:** The peak period of lek attendance was determined by comparing the four periods to determine when individual leks had their highest count of males and females. Whichever period had the highest number of leks with high counts was deemed the peak period of attendance (the peak in attendance is separated into male and female peaks). It was also determined which period had the highest total number of males/females observed regardless of gender specific lek peaks.

**Lek Status:** The revised status for each lek and lek area was determined based on the standard definitions, both for the 2012 season as well as the cumulative status.

**Active Lek:** To be considered Active for a given season, a lek must have at least two males in attendance during two count periods. Active leks need to be counted at least once each 10-day count period.

**Inactive Lek:** To be considered Inactive for a given season, a lek must have zero males in attendance for at least two count periods (i.e., not meet the active definition). If, however, birds are observed during either count period, at least one additional count period should be counted. For the official status of a lek to be considered Inactive, a lek needs to be seasonally Inactive for five consecutive years.

**Unknown Lek:** A lek is considered Unknown for a given season if it did not meet the requirements for Active or Inactive during a given season or was not counted the appropriate number of count periods to determine its status. For example, a lek that had five males on one count and only one male on the other counts would be Unknown, as would a lek that was only counted once with no males observed, or an Active lek that was only counted twice with 0 birds observed. A lek that is Active in one season and Inactive during the next season would have an official status of Unknown.

**Historic Lek:** A Historic Lek is one that has been Inactive for 10 consecutive years.

**Official Status:** The Official Status of a lek is given as a cumulative status and designated as Active, Historic, Inactive, or Unknown. To be Officially Active, a lek only needs to be designated as Active in the current year. A lek cannot be considered Officially Inactive unless it has been seasonally Inactive for five consecutive years. Thus, a lek might not have any birds for a given season, but its official status may be Unknown because the lek had not been Inactive all of the past five years. Historical lek status is not given until a lek has been Inactive for 10 consecutive years.

**3-Year Moving HMC Average:** The three-year moving average was calculated by averaging the high male count from the current season with the high male counts from the previous two seasons.

**10-Year Moving Population Average:** The ten-year moving average is calculated by averaging the current season population estimate with the population estimates from the previous nine seasons.

## Results

### *Weather and Access*

The Crawford area had an unusual, warmer than average winter during 2011/2012, with generally higher high and lower low temperatures than average based on data recorded at the Black Canyon Gunnison National Weather Service weather station. The average high and low temperatures were below average in November. The average high temperatures were above average and average low temperatures were below average in December through April (Table 1).

**Table 1.** Crawford area 8-year average monthly temperatures (°F) versus Winter 2011/12 monthly average temperatures, courtesy of Black Canyon Gunnison NWS weather station.

| Month         | High 24 Hr.<br>Temperature °F | Low 24 Hr.<br>Temperature °F |
|---------------|-------------------------------|------------------------------|
| November 2011 | 45.3                          | 15.2                         |
| 8 yr. avg.*   | 47.5                          | 20.0                         |
| December 2011 | 37.3                          | 7.9                          |
| 8 yr. avg.    | 35.2                          | 10.8                         |
| January 2012  | 40.4                          | 9.9                          |
| 8 yr. avg.    | 35.5                          | 10.8                         |
| February 2012 | 39.9                          | 8.5                          |
| 8 yr. avg.    | 38.9                          | 12.0                         |
| March 2012    | 52.2                          | 18.5                         |
| 8 yr. avg.    | 48.4                          | 19.7                         |
| April 2012    | 61.7                          | 26.2                         |
| 8 yr. avg.    | 55.3                          | 26.2                         |

\*monthly data from winter 2004/2005 – 2011/12

The following excerpts are from the Colorado Parks and Wildlife Water Update, April and May 2012:

March 2012 temperatures in Colorado were well above average ranging from 4–8 degrees Fahrenheit above normal, with highest temperatures recorded in the eastern plains and foothills. March 2012 was the 3<sup>rd</sup> warmest March on record for the period 1895–2012. The warmest March ever recorded in Colorado occurred in 2004, followed by the 2<sup>nd</sup> warmest March in 1910.

March is typically one of Colorado’s snowiest months. However, Colorado in March 2012 tied 1966 for the driest on record, with records dating back to 1895. Many weather stations throughout the state reported an extreme lack of moisture. The Front Range and westernmost portion of the eastern plains were the driest of all. The exceedingly warm and dry March conditions in Colorado are part of a large-scale phenomenon that has occurred throughout much of the continental United States.

Similar to March, April 2012 temperatures in Colorado were well above average ranging from 4-6 degrees Fahrenheit above normal with highest temperatures recorded in the eastern plains, foothills, and mountains. April 2012 was the 4<sup>th</sup> warmest April on record for the period 1895–2012. Highest temperatures during April were experienced in north central Colorado, northeast Colorado, and isolated pockets of southern Colorado.

**Table 2.** Weather summary from 1 April–10 May 2012, from the Green Mountain Hobo U30 Station, Serial #9822464, courtesy of the U.S. Geological Survey.

|                            | 1–10 April | 11–20 April | 21–30 April | 1–10 May |
|----------------------------|------------|-------------|-------------|----------|
| Avg. High (°F)             | 57.8       | 52.6        | 65.8        | 65.5     |
| Avg. Low (°F)              | 32.6       | 31.0        | 40.8        | 42.4     |
| # Nights < 32°F            | 4          | 5           | 1           | 0        |
| # Days w/<br>Precipitation | 0          | 4           | 2           | 1        |
| Total Water (in.)          | 0          | 0.22        | 0.16        | 0.18     |

Weather conditions did not impact access during the 2012 count season. Counts were completed on April 6, 19, 23, and May 5. The originally scheduled date for the second count period, April 13, was rescheduled to April 19 due to the possibility of inclement weather affecting access or grouse breeding behavior.

**Crawford Area Use**

There were six leks originally scheduled to be counted in the Crawford area in 2012. A potential seventh lek (Summit lek) was discovered prior to the third count that was counted during the third and fourth counts. There was some discussion as to whether Summit was actually a satellite use area of the Section 35 lek. It was decided to count Summit as a separate lek because of its distance from the Section 35 lek.

No birds were observed on **Middle Lek** in 2012. **Middle Lek** and **Fruitland Mesa #4** were counted only three count periods due to lack of a lek counter during the second count. One female was counted during the second and third counts on **Fruitland Mesa #1**. A single female was flushed the night before the first count; ducks and magpies were on the lek during the third count and ducks and a raven were seen on the fourth count. **Dam Lek** had two males counted during the first and second counts, an unknown during the second count, and a single male during the fourth count. A mule deer and coyote were seen near the lek during the first count, a raven flyover occurred during the second count, and two deer were seen near the lek on the third count. One female and two jackrabbits were seen on **Fruitland Mesa #4** during the third count. **Range Cone Lek** had by far the greatest number of birds during all count periods with a high

count of 14 males and six females during the fourth count. Several mule deer were seen on the lek and three horseback riders with two dogs came very near the lek during the first count. One male grouse, several deer, and a raven were seen on **Section 35 Lek** during the first count. Two males, a turkey, and several deer and elk were seen during the second count. Two male grouse, three coyotes, and a golden eagle were seen during the third count at **Summit Lek**. One male and a female were seen during the fourth count when a copulation was observed.

**Peak Lek Attendance**

The total number of males observed on all leks visited during each count period peaked at 16 during the third and fourth count periods (Table 3).

**Table 3.** Number of individual Gunnison sage-grouse observed on leks of the Crawford population from 1 April–10 May 2012.

|         | 1–10 April | 11–20 April | 21–30 April | 1–10 May |
|---------|------------|-------------|-------------|----------|
| Males   | 11         | 15          | 16          | 16       |
| Females | 1          | 1           | 6           | 7        |

**Table 4.** 2012 high male count by lek and count period for the Crawford population.

| LEK              | 1–10 April | 11–20 April | 21–30 April | 1–10 May | HMC | Count Period |
|------------------|------------|-------------|-------------|----------|-----|--------------|
| Fruitland Mesa 1 | 0          | 0           | 0           | 0        | 0   | no males     |
| Dam Lek          | 2          | 2           | 0           | 1        | 2   | 1st, 2nd     |
| Middle Lek       | 0          | nc          | 0           | 0        | 0   | no males     |
| Fruitland Mesa 4 | 0          | nc          | 0           | 0        | 0   | no males     |
| Range Cone Lek   | 8          | 11          | 14          | 14       | 14  | 3rd, 4th     |
| Section 35 Lek   | 1          | 2           | 0           | 0        | 2   | 2nd          |
| Summit Lek*      | nc         | nc          | 2           | 1        | 2   | 3rd          |
| Totals           | 11         | 15          | 16          | 16       | 20  |              |

nc - not counted

\* potential new lek

**Table 5.** 2012 high female count by lek and count period for the Crawford population.

| LEK              | 1–10 April | 11–20 April | 21–30 April | 1–10 May | HFC | Count Period |
|------------------|------------|-------------|-------------|----------|-----|--------------|
| Fruitland Mesa 1 | 0          | 1           | 1           | 0        | 1   | 2nd, 3rd     |
| Dam Lek          | 0          | 0           | 0           | 0        | 0   | no females   |
| Middle Lek       | 0          | nc          | 0           | 0        | 0   | no females   |
| Fruitland Mesa 4 | 0          | nc          | 1           | 0        | 1   | 3rd          |
| Range Cone Lek   | 1          | 0           | 4           | 6        | 6   | 4th          |
| Section 35 Lek   | 0          | 0           | 0           | 0        | 0   | no females   |
| Summit Lek*      | 0          | 0           | 0           | 1        | 1   | 4th          |
| Totals           | 1          | 1           | 6           | 7        | 9   |              |

nc – not counted

\*potential new lek

**Table 6:** 2012 Lek status – Crawford population.

| LEK               | 2011 Status | 2011 HMC | 2012 # Counts | 2012 HMC | 2012 HFC | 2012 Status | Official Status |
|-------------------|-------------|----------|---------------|----------|----------|-------------|-----------------|
| Fruitland Mesa #1 | I           | 0        | 4             | 0        | 1        | I           | U               |
| Dam Lek           | I           | 3        | 4             | 2        | 0        | A           | A               |
| Middle Lek        | I           | 0        | 3             | 0        | 0        | I           | I               |
| Fruitland Mesa #4 | I           | 0        | 3             | 0        | 1        | I           | U               |
| Range Cone Lek    | A           | 6        | 4             | 14       | 6        | A           | A               |
| Section 35 Lek    | I           | 0        | 4             | 2        | 0        | I           | U               |
| Summit Lek*       | U           | nc       | 2             | 2        | 1        | U           | U               |

nc – not counted

\*potential new lek

### *Population Estimate And Trend*

#### *2005 Gunnison Sage-grouse Rangewide Conservation Plan Model*

The Crawford area population, calculated using known lek counts, is 99 birds, an increase of 55 birds from 2011 (Table 7). The population target for the Crawford population identified in the 2005 Gunnison Sage-grouse Rangewide Conservation Plan as well as in the Crawford Area Gunnison Sage-grouse Conservation Plan is set at a long-term (10-year) average of 275 birds. The current 10-year average (2003-2012) population estimate is 110 birds, well below the 275 bird target.

Three-year moving averages of high male counts are used to assess the sustainability of the Gunnison sage-grouse in the Crawford area. The three-year average for 2010–2012 is 11 males, which represents a 10% increase from the 10 male moving average calculated for 2009–2011 (Table 7).

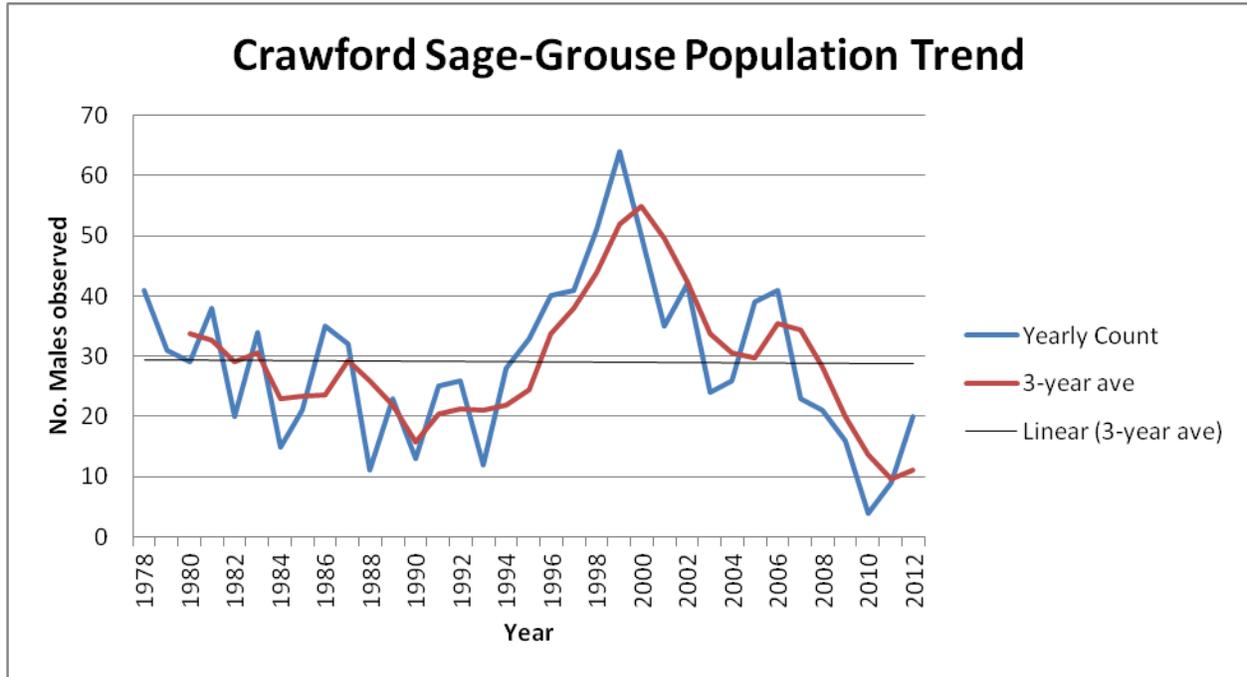
**Table 7.** Summary of population data from Gunnison sage-grouse lek counts of the Crawford population, 1978–2012. HMC = high male count, male population estimate = HMC/.53, female population estimate = (male population estimate) x (1.6), population estimate = male + female population estimates.

| Year | HMC | % Δ in Males | 3-Year Average | % Δ   | Est. Male Population* | Est. Female Population | Population Estimate | Relationship to Target Level (275)** |
|------|-----|--------------|----------------|-------|-----------------------|------------------------|---------------------|--------------------------------------|
| 1978 | 41  | n/a          |                |       | 77                    | 123                    | 200                 | below                                |
| 1979 | 31  | 24.4         |                |       | 58                    | 93                     | 151                 | below                                |
| 1980 | 29  | 6.5          | 34             |       | 55                    | 88                     | 143                 | below                                |
| 1981 | 38  | 31.0         | 33             | -2.9  | 72                    | 115                    | 187                 | below                                |
| 1982 | 20  | -47.4        | 29             | -1.2  | 38                    | 61                     | 99                  | below                                |
| 1983 | 34  | 70.0         | 31             | 6.9   | 64                    | 102                    | 166                 | below                                |
| 1984 | 15  | -55.9        | 23             | -25.8 | 28                    | 45                     | 73                  | below                                |
| 1985 | 21  | 40.0         | 23             | 0     | 40                    | 64                     | 104                 | below                                |
| 1986 | 35  | 66.7         | 24             | 4.3   | 66                    | 106                    | 172                 | below                                |
| 1987 | 32  | -8.6         | 29             | 20.8  | 60                    | 96                     | 156                 | below                                |
| 1988 | 11  | -65.6        | 26             | -10.3 | 21                    | 34                     | 55                  | below                                |
| 1989 | 23  | 109.1        | 22             | -15.4 | 43                    | 69                     | 112                 | below                                |
| 1990 | 13  | -43.5        | 16             | -27.3 | 25                    | 40                     | 65                  | below                                |
| 1991 | 25  | 92.3         | 20             | 25.0  | 47                    | 75                     | 122                 | below                                |
| 1992 | 26  | 4.0          | 21             | 5.0   | 49                    | 78                     | 127                 | below                                |
| 1993 | 12  | -53.8        | 21             | 0     | 23                    | 37                     | 60                  | below                                |
| 1994 | 28  | 133.3        | 22             | 4.8   | 53                    | 85                     | 138                 | below                                |
| 1995 | 33  | 17.9         | 24             | 9.1   | 62                    | 99                     | 161                 | below                                |
| 1996 | 40  | 21.2         | 34             | 41.7  | 75                    | 120                    | 195                 | below                                |
| 1997 | 41  | 2.5          | 38             | 11.8  | 77                    | 123                    | 200                 | below                                |
| 1998 | 51  | 24.4         | 44             | 15.8  | 96                    | 154                    | 260                 | below                                |
| 1999 | 64  | 25.5         | 52             | 18.2  | 121                   | 194                    | 315                 | above                                |
| 2000 | 50  | -21.9        | 55             | 5.8   | 94                    | 150                    | 244                 | below                                |
| 2001 | 35  | -30.0        | 50             | -9.1  | 66                    | 106                    | 172                 | below                                |
| 2002 | 42  | 20.0         | 42             | -16.0 | 79                    | 126                    | 205                 | below                                |
| 2003 | 24  | -42.9        | 34             | -19.0 | 45                    | 72                     | 117                 | below                                |
| 2004 | 26  | 8.3          | 31             | -8.8  | 49                    | 78                     | 127                 | below                                |
| 2005 | 39  | 50.0         | 30             | -3.2  | 74                    | 118                    | 192                 | below                                |
| 2006 | 41  | 5.1          | 35             | 16.7  | 77                    | 123                    | 200                 | below                                |
| 2007 | 23  | -43.9        | 34             | -2.9  | 43                    | 69                     | 112                 | below                                |
| 2008 | 21  | -8.7         | 28             | -17.6 | 40                    | 64                     | 104                 | below                                |
| 2009 | 16  | -23.8        | 20             | -28.6 | 30                    | 48                     | 78                  | below                                |
| 2010 | 4   | -75.0        | 14             | -30.0 | 8                     | 13                     | 31                  | below                                |
| 2011 | 9   | 125.0        | 10             | -28.6 | 17                    | 27                     | 44                  | below                                |
| 2012 | 20  | 122.2        | 11             | 10.0  | 38                    | 61                     | 99                  | below                                |

\*Rounded prior to determining female population estimate.

\*\*Target level is the long term (10-year) average population estimate for the Crawford area from the 2005 Gunnison Sage-grouse Rangewide Conservation Plan and the 2011 Crawford Area Gunnison Sage-grouse Conservation Plan.

**Figure 1:** Yearly high male count and 3-year average for the Crawford area Gunnison sage-grouse population, 1978–2012.



**Research and Monitoring**

**Research**

Colorado Parks and Wildlife has transplanted 45 Gunnison sage-grouse from the Gunnison population to Crawford in 2011 and 2012 (with traditional VHF transmitters). Fifteen (9 male, 6 female) were released in spring of 2011. Thirty (10 male, 20 female) were released in spring of 2012. As of July 13, 2012, 28 transplanted grouse remain in the Crawford area. Three were confirmed mortalities (1 unknown, 1 likely avian predator, and 1 likely red fox), 2 are missing, 8 are likely slipped collars, and 4 birds have left the area and are now living in Cimarron (2) or the western part of the Gunnison Basin (2). In 2011 and 2012, the BLM extended the winter closure in the area an extra 15 days (until May 15) to provide extra protection to transplanted grouse during their acclimation period (CWG 2012).

An on-going research project by the United States Geological Service (USGS) is looking at movement patterns of Gunnison sage-grouse in the Crawford area. Dr. Doug Ouren is also continuing his motorized use monitoring in the area. In coordination with BLM, NPS, and CPW, avian backpack GPS Parallel Transform Transmitters (PTT) have been deployed on four grouse in the Crawford area (2 in 2011 [1 female, 1 male], 2 in 2012 [2 males]). The GPS PTTs attempt to log locations hourly from 6am to 6pm and once at midnight. While sample size is still small for number of grouse, the PTT locations have provided very interesting seasonal movement data. Trapping Gunnison sage-grouse has been a challenge in the Crawford area. The USGS received assistance from many local experts on grouse capture in the Gunnison Basin population, but all found the Crawford grouse to be very wily and extremely difficult to catch. Long days and nights have gone into catching these birds. Even with just the two grouse marked in 2011, valuable information on where grouse move seasonally has been gained. USGS is developing a Lek Site Probability Model to help locate yet unknown lek sites for this population (CWG 2012).

Evidence of nesting activity by Gunnison sage-grouse was discovered in June 2012 in the Oak Mesa area north of Hotchkiss, CO. See Appendix B for location and area maps.

### **Recommendations**

Monitor newly discovered Oak Mesa site to determine if lekking activity occurs in the area.

Continue coordinated counts with lek counters camping overnight. Evaluate the effectiveness and results as compared to previous count methodology.

Continue counting the Summit Lek as a potential separate lek from the Section 35 Lek. Evaluate count results to confirm that the lek is not a satellite of Section 35 lek.

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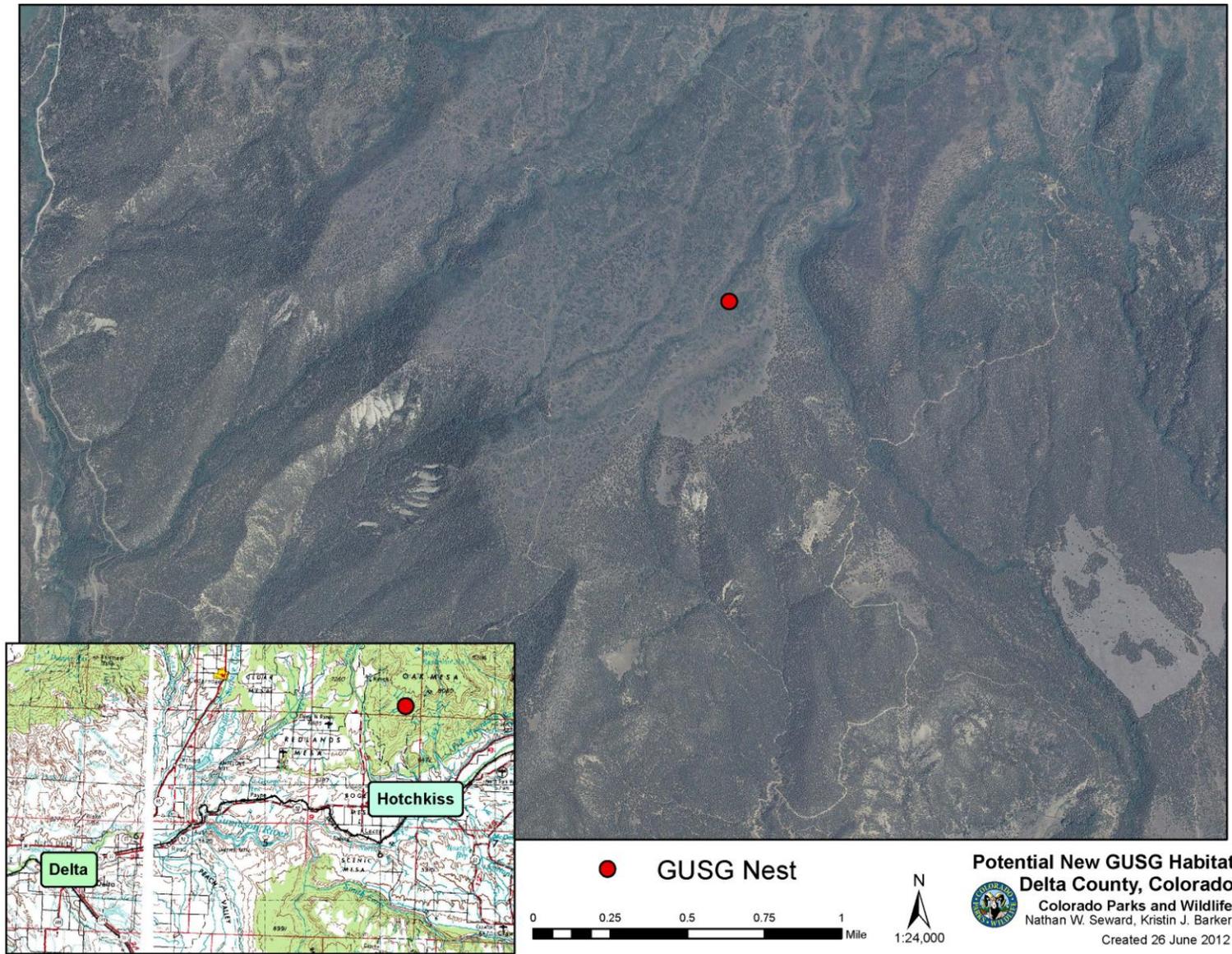
Gunnison Sage-Grouse Web Page. 2001. <http://www.western.edu/bio/young/gunnsg/gunnsg.htm>.

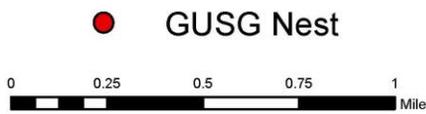
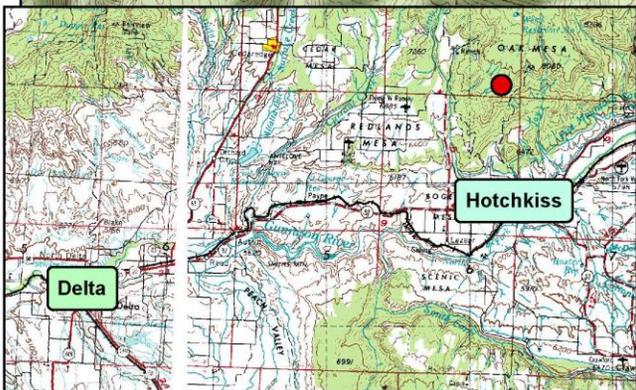
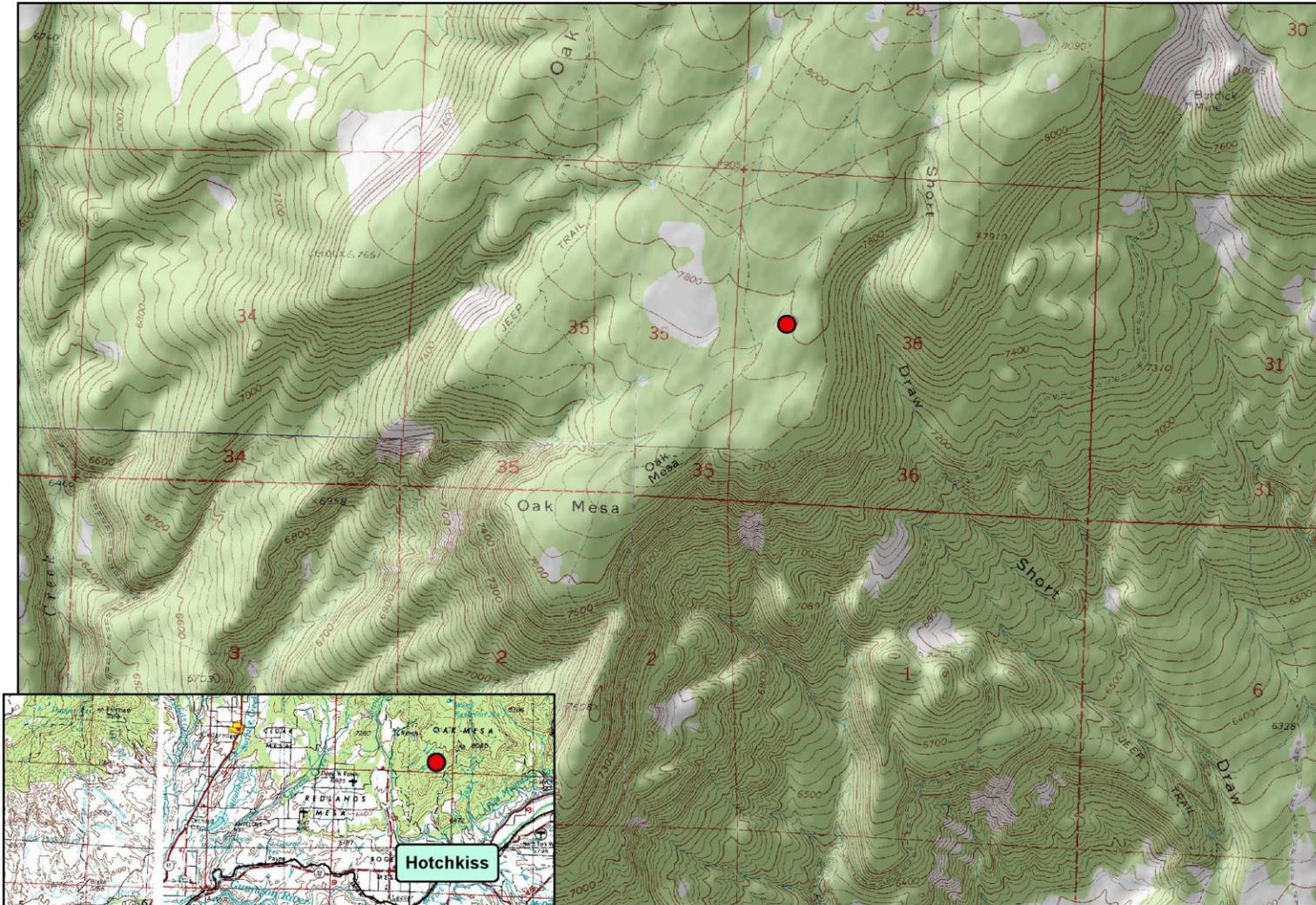
Young, J. R., C. E. Braun, S. J. Oyler-McCance, J. W. Hupp, and T. W. Quinn. 2000. A new species of Sage-grouse (Phasianidae: *Centrocercus*) from Southwestern Colorado. *Wilson Bulletin* 112(4): 445–453.

Appendix A: Individuals involved with Gunnison sage-grouse counts in the Crawford area during 2012.

| <b>Name</b>     | <b>Affiliation</b> | <b>Contribution</b> |
|-----------------|--------------------|---------------------|
| Kyle Banks      | CPW                | Lek Counter         |
| Bill Day        | CWG                | Lek Counter         |
| Dennis Garrison | USFS               | Lek Counter         |
| Mel Gramke      | BLM                | Lek Counter         |
| Ken Holsinger   | BLM                | Lek Counter         |
| Doug Homan      | CWG                | Lek Counter         |
| Mike Jackson    | CPW                | Coordinator         |
| Chris Lazo      | CWG                | Lek Counter         |
| Doug Ouren      | USGS               | Lek Counter         |
| Lynae Rogers    | BLM                | Lek Counter         |
| Nathan Seward   | CPW                | Support             |
| Melissa Siders  | BLM                | Lek Counter         |

Appendix B: Location and area maps of newly discovered Gunnison sage-grouse nesting activity.





**Potential New GUSG Habitat**  
**Delta County, Colorado**  
 Colorado Parks and Wildlife  
 Nathan W. Seward, Kristin J. Barker  
 Created 26 June 2012