History of Bighorn Sheep in the Sun River Area, Montana

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***Abstract*:** The Sun River bighorn sheep herd (Hunting Districts 421, 422, 423 & 424) has consistently been one of the largest and most robust native herds within Montana. Early European settlement records indicate bighorn sheep presence in the upper Sun River drainage area as early as 1866, although it is reasonable to assume that bighorn sheep have inhabited the upper Sun River drainage for at least the last two centuries. By the early part of the 20th century, bighorn sheep numbers in this as well as many other areas were dramatically reduced. The causes most often cited were contact with domestic sheep, range competition from livestock and other big game animals, contraction of diseases, and subsistence hunting. There have been four recorded die-off events for the Sun River herd (1924-25, 1927, 1936 and 1983-84). During the 1930s bighorn sheep numbers in the Sun River area began to recover due to the reversal of the previously noted conflicts. Herd reestablishment was due to natural production, survivorship and recruitment. Current (spring 2010) population surveys place Sun River sheep at over 900 animals (ram:ewe:lamb = 66:100:28). Translocation efforts along with hunting are the two primary tools utilized to help manage population growth. Trapping and translocation of bighorn sheep in Montana began in 1922 and has resulted in a total of 2,752 sheep transplants used for restoration of historically occupied sheep habitat or augmentation of existing herds. Of these, 1,197 sheep or 47% have come from the Sun River area, which has been used as a source population for 34 different locations (31 different locales within MT and 3 other states). There have been two transplants of bighorn sheep into the Sun River area (1 ram in 1944 and 22 of various age and sex in 1999). Since 1955, there have been 2,902 sheep hunting licenses given in this area (1,723 ram or either-sex licenses and 1,179 ewe licenses) with an overall success rate of 74% (85% on ram or either-sex licenses and 58% on ewe licenses).

KEY WORDS bighorn sheep, Sun River, translocation, hunting, research, disease.

Biennial Symposium of the Northern Wild Sheep and Goat Council 17:82–86; 2010

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The first recorded European explorations of the Sun River country were by Lewis and Clark in June of 1805, however, no bighorn sheep observations were noted. Rocky Mountain bighorn sheep presence in the upper Sun River drainage was first reported in 1866 (Couey 1950). Earlier reports exist in other locations within the Rocky Mountains and it is reasonable to assume that bighorn sheep presence in the Sun River country has been persistent for at least the last two hundred years. Similar to other wild sheep populations, around the turn of the 20th century sheep numbers in this area declined likely due to contact with domestic sheep (and subsequent disease), range competition from livestock and other big game (primarily elk), and subsistence hunting. However, due to the natural topography of the area and the ability for sheep to separate themselves from other livestock and big game concentrations, bighorn sheep populations did not suffer complete eradication. Unverified reports of good numbers of sheep were noted in 1908

and 1910 in two different locations within the Sun River area (Couey 1950).

In 1913, there were 6,500 cattle and horses and 5,500 domestic sheep permitted to graze on forest service lands in the Sun River area (Picton et al. 1975). In 1929, the Gibson Irrigation Dam (and Reservoir) was completed effectively blocking primitive access to the upper Sun River country. Due to this new barrier along with support from local sportsmen, livestock use of this area was gradually reduced. By 1934 nearly all livestock grazing had been discontinued. Today, only two relatively small seasonal horse grazing allotments exist in the upper Sun River drainage. Cattle grazing continues in other portions of currently occupied sheep habitat in the area, but there is no domestic sheep presence in the vicinity of suitable bighorn sheep habitat.

Beginning in the 1930s sheep numbers in the area were recovering and the first successful translocation effort in this area was accomplished in 1942. Other than an approximate 30-50% herd die-off in 1983-84, bighorn sheep in the greater Sun River area have continued to flourish.

LOCATION

The upper Sun River drainage and surrounding occupied sheep habitat is located in west central Montana along the eastern edge of the Rocky Mountains known as the Sawtooth Range (Figure 1). The area lies approximately 60 miles south of Glacier National Park and on the east edge of the Bob Marshall Wilderness. This area is comprised of bighorn sheep hunting districts (HD) 421, 422, 423 and 424. Together, these HDs represent just over 2,949 km² of land with approximately 855 km² (30%) currently occupied by bighorn sheep during at least some portion of the year. Just over 90% of the occupied sheep habitat is public land (U.S. Forest Service, Bureau of Land Management, or Montana Fish, Wildlife and Parks). Although < 10% of existing occupied sheep habitat is private, these lands are important, especially during winter.

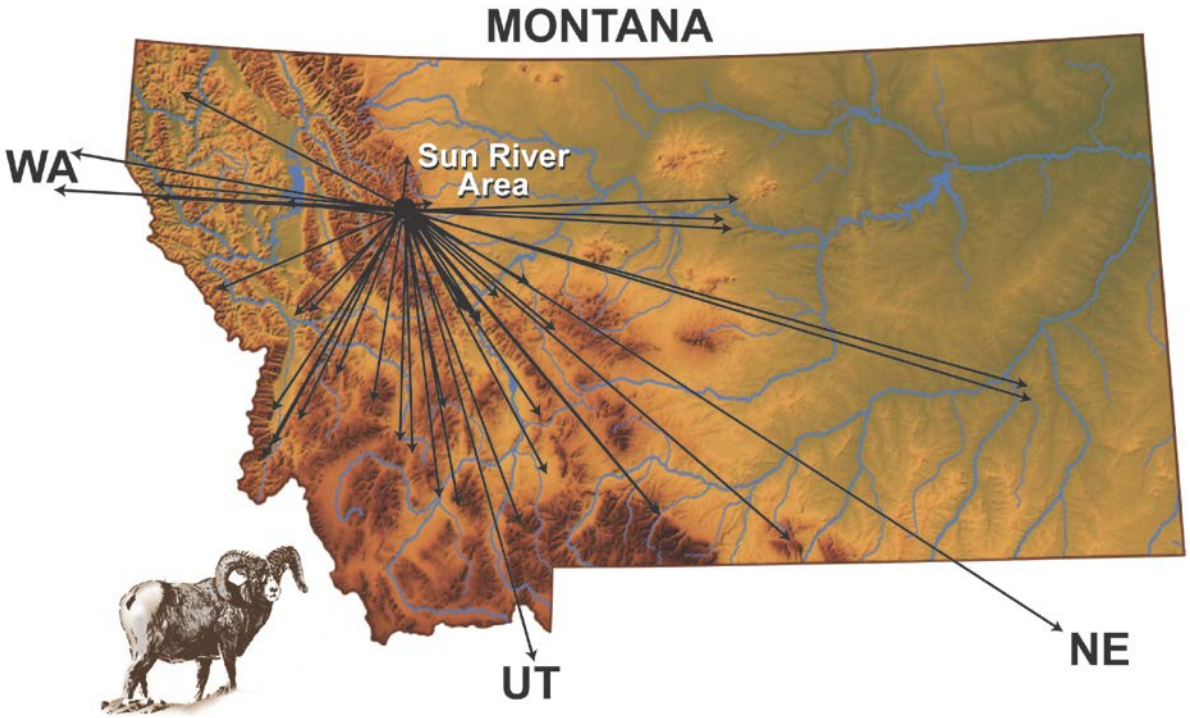

Figure 1. Map of Montana portraying location of the Sun River area and approximate locations to which Sun River sheep have been translocated, 1942 – 2009.

POPULATION HISTORY

The earliest recorded survey of bighorn sheep in this area was in 1941, with an observed number of 161 sheep (Couey 1950). In 1943 there was an estimated 280 sheep inhabiting the area with approximately 63% of these sheep in the upper Sun River drainage and the others occupying the surrounding areas (Couey 1950). By the mid 1950s sheep observations (minimum counts) in the area grew to nearly 400, and by the early 1970s observations further increased to between 700 and 800 animals. Although an approximate 30-50% die-off (some areas were harder hit than others) occurred during 1983-84, by the fall of 1986 surveys placed total observed sheep at not less than 780 individuals. The most recent (spring 2010) survey yielded observations of not less than 933 observed animals. An average of 461 sheep were observed during late fall rut surveys from 1955-2009. Average lamb:ewe and ram:ewe ratios from the same time period are 44:100 and 53:100, respectfully.

The overall population management objective for HD's 421, 422, 423 and 424 is to be at or near 800 sheep observed during spring/fall surveys. Current overall lamb production appears to suggest population maintenance rather than significant growth at 28 lambs:100 ewes. Ram numbers remain strong at 66 rams:100 ewes. Continued hunter harvest and translocation efforts are important to help manage population growth.

DISEASE AND DIE-OFF

There have been four bighorn sheep die-offs recorded in this area in the last century. The first die-off occurred during 1924-25 with an estimated population loss of 70%. Forage competition with other big game (elk) and livestock was thought to be a major contributing factor. Other smaller die-offs were recorded in 1927 and 1936, but the magnitude is unknown. Field diagnosis of some of the dead sheep in the 1924-25 and 1927 die-offs indicated pneumonia as the cause of death (Marsh 1938). The last major die-off occurred during 1983-84, with an estimated loss of 30-50% of the population. Estimates vary because certain areas within the greater Sun River region had higher losses than others. The latter die-off was primarily caused by bronchophneumonia complicated by pulmonary nematodiasis. While we will never know the true origin of the disease, one plausible scenario consists of a disease outbreak that started in the spring of 1983 at Crowsnest Pass-Waterton Lakes National Park, Canada, worked its way south through Glacier National Park and eventually down the eastern flank of the Rocky Mountain Front and the Sun River region (Montana Fish, Wildlife & Parks 1984). With the exception of a small transplant in 1999, all population growth post die-off has been the result of natural production, recruitment, and immigration.

TRANSLOCATION

One tool commonly utilized to help manage highly productive sheep herds is trapping and translocating sheep. Since 1942, sheep from the Sun River area have been used as a source for restoration of historically occupied sheep habitat or augmentation of existing herds. In the early years of such efforts, there were three different permanent sheep traps (Scattering Springs, Ford Creek, and Castle Reef) placed in strategic areas for capturing sheep. There was also an additional mountain goat trap in the Deep Creek area that was occasionally used for capturing bighorn sheep. These traps proved to be very effective and were used for nearly 60 years. Although the remnant sheep traps are still present, current capture efforts are completed via helicopter net-gunning which

has significantly improved the efficiency of such efforts.

Over the last 68 years, trapping and translocating sheep from the Sun River area has been completed in 33 different years (sometimes more than once per year). Sun River sheep were moved to 31 different locations within Montana (some areas have received multiple augmentations), and 3 other states (Fig. 1). In total, 1,197 individual sheep have been trapped and translocated from the Sun River area (47% of all MT sheep augmentation and/or restoration transplants) (Carlsen et al. 2010). In addition, there are seven areas that at some point have received Sun River sheep and have since further been used as a source herd (n=806 or 32% of all transplants statewide) to augment sheep to other areas (Carlsen et al. 2010). Through these restoration efforts, Sun River sheep have been directly or indirectly involved with 79% of all Montana sheep augmentation and/or restoration efforts.

There have been only two translocations during which sheep were released into the Sun River area. In 1944 and for unknown reasons, one ram from southwest Montana was released in Sun Canyon. In 1999, in an effort to help boost existing sheep numbers in the Deep Creek area (16 km north of the Sun Canyon), 22 sheep of various age and gender were translocated from the Bitterroot Mountains, Montana. Ewes (wearing neck-bands and ear tags) from the 1999 translocation are still occasionally observed.

HUNTING

In addition to trapping and translocation efforts, another important facet to sheep management in the Sun River area is hunting. From 1912 to 1952, there was no hunting season for bighorn sheep in the Sun River area. From 1953 until 1974, ram hunting seasons were permitted (bighorn sheep hunting district 42). Starting in 1974, licenses were changed to either-sex (ES) hunting, and for the first time a separate and limited number of ewe hunting licenses were available. It was not until 1975 that bighorn sheep Hunting Districts 421, 422, 423, and 424 were established.

Since 1955, there have been 2,902 sheep hunting licenses awarded in this area (1,723 ram or ES licenses and 1,179 ewe licenses) with an overall success rate of 74% (85% on ram or ES licenses, and 58% on ewe licenses). Since 1976, the average age of all harvested rams is 7.4 years.

Bighorn sheep hunting in the Sun River area remains as popular as ever. Current hunter drawing odds for ES sheep licenses vary from 0.59% to 1.22%, depending on the hunting district. In contrast, adult ewe hunting opportunity drawing odds are significantly better and vary from 62.5% to 83.3%. Similar to other areas, ES hunting opportunity has become very restrictive over time. Typically after many years of applying for an ES license, hunters that are successful in the drawing have high expectations of harvesting a trophy quality ram.

RESEARCH

Part of the history of bighorn sheep in this area is its contribution to research efforts. Since 1966, there have been 5 MS theses completed on Sun River bighorn sheep biology and ecology. One of the more significant results of this research was the development of the current four sheep hunting districts. Even today, current management practices (i.e., overall population objectives) are based on some of the research findings from the late 1960s and 1970s (Schallenberger 1966, Erickson 1972, Frisina 1974). Other research (Andryk, 1983, Schirokauer 1996) has contributed to our knowledge the effects of habitat

alteration on bighorn sheep inhabiting the Sun River area.

SUMMARY

Through hunting, translocation efforts, research, and general wildlife viewing, this herd has established its importance both locally and nationally over the past seven decades. Continued management and cooperation with public and private landowners, as well as finding a balance between translocation efforts and hunting, will be important in the future to help keep healthy numbers of sheep in the Sun River country.

ACKNOWLEDGMENTS

The information gathered and summarized in this manuscript is presented in recognition of all the good biologists, conservationists and sportsman that have worked and lived in the Sun River Country. This short summary is a testament to their work and emphasizes the desire to continue to maintain a healthy and robust population of bighorn sheep in the Sun River area.

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