

A SUCCESSFUL BIGHORN SHEEP REESTABLISHMENT PROGRAM IN SOUTHWESTERN IDAHO

By
Paul Hanna
Idaho Department of Fish and Game
and
Mike Rath
Bureau of Land Management
Boise, Idaho

DESCRIPTION OF THE AREA

The general area that will be referred to is the southwest corner of Idaho encompassing Owyhee County (Fig. 1). Malheur County, Oregon borders the western edge of the region and Elko County, Nevada forms the southern border. The Snake River forms the northern boundary and Twin Falls County is to the east.

The entire area is sparsely populated. The main population centers lie adjacent to the Snake River on the extreme northern edge. The vast majority of the land is Natural Resource Land administered by the Boise District of the Bureau of Land Management. Grazing of domestic livestock and irrigated farming are the major uses of the land.

The topography varies from relatively flat on the Snake River plains to rolling hill country associated with extensive plateaus in the Owyhee uplands to steep mountainous terrain near the Oregon border. Elevations vary from 2,500 feet at Homedale, Idaho to 8,000 feet on War Eagle Mountain.

The major drainages which dissect the area are the Owyhee, Bruneau, and Jarbidge rivers. The canyons associated with these water courses are extremely rugged and in some places over 1,200 feet deep.

Plant communities represented include primarily a sagebrush-grassland type with salt desert shrub vegetation at lower elevations. Some juniper-pinion and Douglas fir communities are represented at higher elevations.

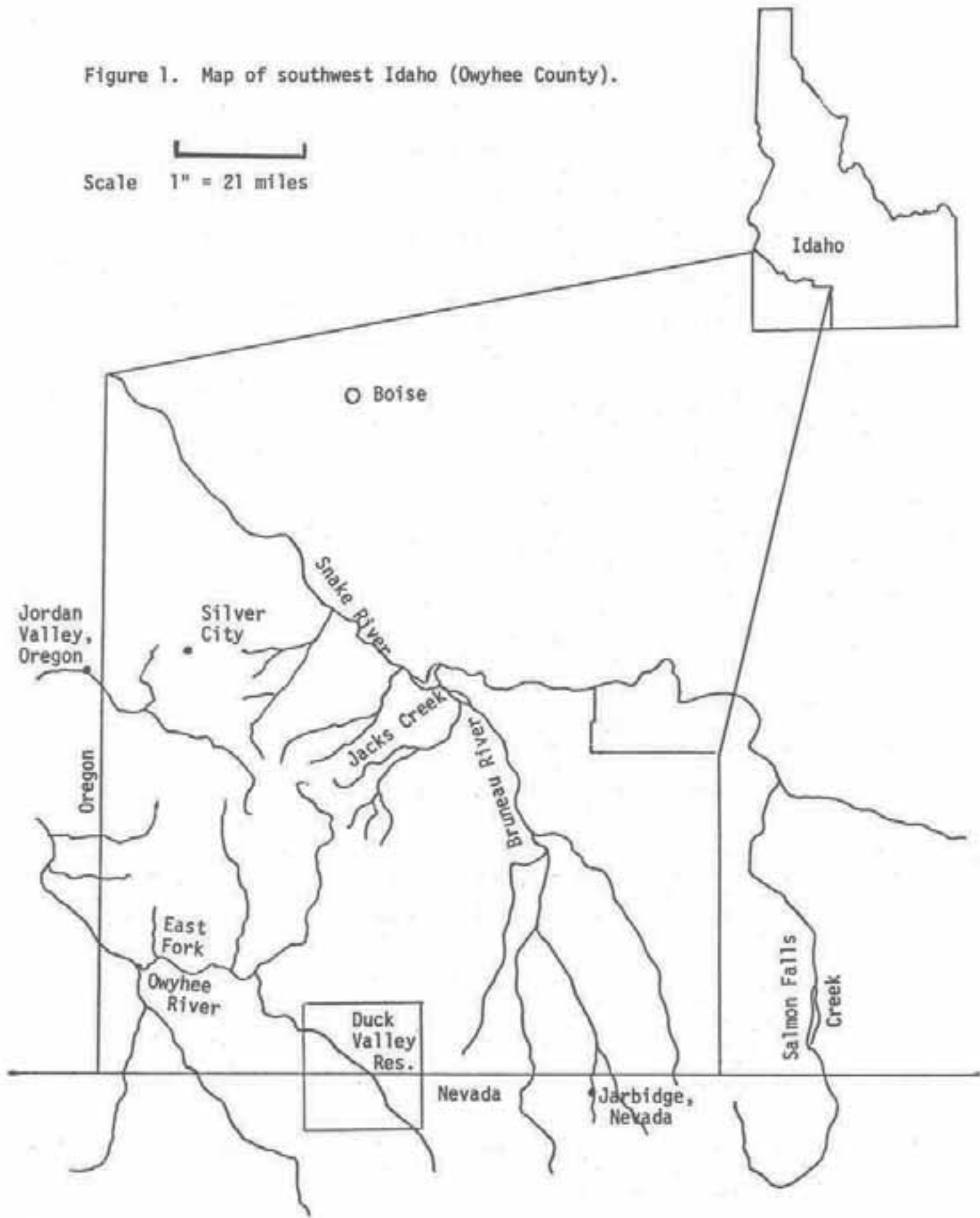
Precipitation varies from 8 inches to 15 inches a year. Most of it falls as snow in the winter and rain in early spring and late fall. Snow depths at lower elevations rarely exceed 12 inches for any length of time. Temperatures vary from lows well below 0°F in January to over 100°F in July and August.

HISTORIC RECORDS AND DISTRIBUTION

Bighorn sheep were common in southwestern Idaho prior to settlement by the white man. Archaeological excavations and occasional sightings of sheep

Figure 1. Map of southwest Idaho (Owyhee County).

Scale 1" = 21 miles



skulls indicate bighorns were found in Salmon Falls Creek, the Jarbidge River, and Castle Creek, a tributary of the Snake River.

In 1972 a rancher living in Oneal Basin unearthed a cache of bighorn skulls on the South Fork of Salmon Falls Creek. This site is approximately 20 miles south of the Idaho border in Nevada.

The Nevada State Museum, in an archaeological excavation of Deer Creek Cave on the West Fork of the Jarbidge River, collected numerous bighorn sheep bones. They found that native Americans had occupied the cave off and on for well over 3,000 years. The abundance of sheep bones indicate bighorns were their predominant food item. The cave lies just below the Jarbidge, Nevada town site only a few miles from the Idaho state line (Shutler and Shutler 1963).

An archaeological excavation headed by the University of Washington has just recently unearthed bighorn bones in Brown's Creek, a tributary of Castle Creek. In 1964 an old bighorn skull was found by a Bureau of Land Management employee, also in the Castle Creek drainage.

Petroglyphs depicting bighorn sheep carved by native Americans on rock walls in the Deep Creek drainage provide even further evidence of the past distribution of bighorns in southwestern Idaho.

POPULATION DECLINE

Several factors contributed to the decline and eventual disappearance of bighorns in the early 1900's.

In 1863 silver and gold were discovered in upper Jordan Creek. The subsequent mining boom brought the country to its peak human population. Silver City was the largest settlement and became county seat in 1866.

The local populace undoubtedly hunted wild sheep for subsistence and contributed to their decline.

The population growth was responsible for the establishment of the livestock industry existing today. Overgrazing by cattle and domestic sheep played a part in the demise of the wild sheep. Over 100,000 cattle were found in the county in 1889 (Rinehart 1932). Range deterioration and poor nutrition may have made the sheep more susceptible to diseases.

There are conflicting opinions as to what disease killed off whole bands of sheep. Scabies was suspected. The scabies mite, Psoroptes equi, was introduced into the area by domestic sheep. Buechner (1960) indicated another subspecies of mite was endemic to bighorns. Either one could have caused the wholesale die-offs if the sheep's nutritional plane sank too low. The winter of 1884-85 was one of the worst epidemics according to Bailey (1936).

The beginning of the Twentieth Century found the bighorn still dwindling. Some of the last verified sightings recorded in the literature were around Red Canyon in the Juniper Mountain area in 1915 (Bailey 1936) and lower Battle Creek in 1920 (Cowan 1940).

Two interviews with pioneer Idaho residents have added to our knowledge of past bighorn distribution and their eventual disappearance. Mr. W. Wilson of Bruneau, Idaho saw a bighorn ram on the lower end of Duncan Creek sometime between 1910 and 1920 (Shaw, personal communication). Mr. G. Dickerson of Parma, Idaho reported that he killed a bighorn ram east of Battle Creek in 1927. He further stated that this was the last sheep he heard of in Owyhee County (Norell, personal communication).

It was sometime between 1920 and 1930 that they finally disappeared.

REESTABLISHMENT

The Idaho Department of Fish and Game in cooperation with the Bureau of Land Management began a reestablishment program in 1963 in an attempt to restock historic habitat with bighorn sheep. California bighorns (Ovis canadensis californiana) were chosen as the subspecies to fill the unoccupied niche that existed.

The California bighorn was originally distributed from southern British Columbia southward through Washington and Oregon, northwestern California and along the Sierra Nevada. Their range extended eastward, probably including northwestern Nevada and southwestern Idaho.

There are conflicting opinions in the literature as to which subspecies of bighorns inhabited southwestern Idaho. Bailey (1936) believed that the California bighorn was historically distributed throughout suitable habitat in southeastern Oregon. Cowan (1940), who conducted a taxonomic study of available bighorn skulls, concurred with Bailey's opinion. If this was the case, it would be logical to conclude that the same subspecies inhabited southwestern Idaho since the areas are similar and no real barrier to dispersal occurs between the states.

Hall (1946) examined the skull of a mature ewe taken from the Jackson Mountains in northwestern Nevada. He classified the animal as a Rocky Mountain bighorn (O. C. canadensis) but he noted characteristics of both the California bighorn and the desert bighorn (O. C. nelsoni). A skull taken from the Owyhee mountains and measured by Dr. C. H. Merriam was classified as canadensis. These sources would support a conclusion that the Rocky Mountain bighorn was originally distributed in southwestern Idaho.

Although the original subspecies distribution will probably never be known exactly, evidence indicates that southwestern Idaho was an area of intergradation between the California and Rocky Mountain subspecies. For purposes of reestablishment, either subspecies could probably have been successful. The selection of the California bighorn was probably the best considering that this subspecies is much less abundant than the Rocky Mountain bighorn.

Oregon and Nevada have either introduced, or plan to introduce, California bighorns adjacent to southwestern Idaho, so the chances of subspecies intergrading today is slight.

Although limited in scope, Idaho has had a very successful reestablishment program. Currently two separate populations have been reestablished in Owyhee County. The potential for additional reestablishments appears great with much historic range unoccupied.

EAST FORK OWYHEE RIVER (Fig. 2)

In 1962 Department biologists picked the first transplant sites for the reestablishment of California bighorns. The British Columbia Fish and Wildlife Branch of the Department of Recreation and Conservation had surplus animals and no place to relocate them. The Department agreed to furnish some money to trap them and in return was to receive 100 sheep.

The East Fork of the Owyhee was picked for three reasons. It was felt at that time this area was historic californiana habitat; a domestic sheep allotment was in a non-use capacity; and the canyon complexes provided adequate stands of native, perennial grasses.

In 1963 the Department received 19 bighorns, 9 more in 1965, and 10 in 1966 (Table 1). All bighorns were live trapped near Williams Lake, British Columbia, Canada. The releases in 1965 and 1966 supplemented the original 19 animals. All sheep were released in approximately the same area.

After the releases, the Department's aerial surveys and occasional sightings indicated the animals were becoming established and the population expanding. John Drewek, a former graduate student at the University of Idaho, collected data from June 1968 to November 1969, in an effort to determine the population increase and factors acting upon it.

A minimum of 80 bighorns of all classes were present in the area as of November 1969. Drewek (1970) felt the population was expanding at the rate of 20 animals per year.

The research by Drewek (1970) indicated the transplant was indeed successful. No factors appeared to be seriously restraining the population at the time of the study. Partly due to Drewek's findings, the Idaho Fish and Game Commission authorized the first bighorn sheep hunt ever held in Owyhee County the fall of 1969.

LITTLE JACKS CREEK (Fig. 2)

In 1967, 12 additional sheep were obtained from British Columbia and released in Rattlesnake Creek, a tributary of Little Jacks Creek approximately 40 miles northeast of the East Fork site (Table 2).

The second release site that Department biologists picked and got approval for from the Bureau of Land Management was the Big Jacks-Wickahoney Creek complex. There were three reasons for selecting this area: adequate perennial grass forage; excellent canyon complex for escape cover; and minimal livestock conflicts due to lack of adequately distributed water sources. Livestock use is severely limited by the lack of water and the canyon complex is deep and diverse, providing an excellent interspersion of cliffs and benches.

FIGURE 2. PRESENT DISTRIBUTION OF CALIFORNIA BIGHORN SHEEP IN SOUTHWEST IDAHO.

1. EAST FORK OWYHEE RIVER
2. LITTLE JACKS CREEK

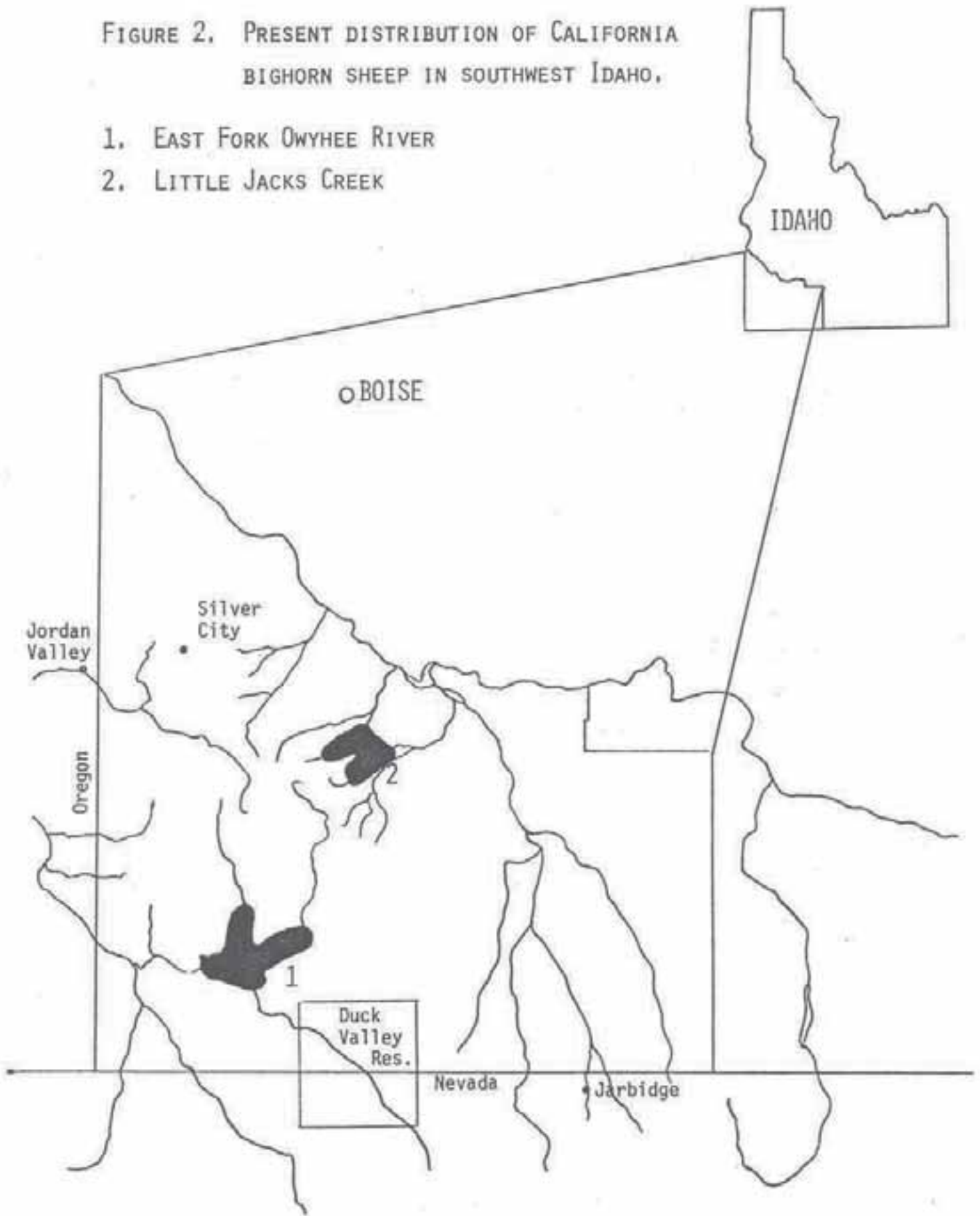


Table 1. Summary of bighorn sheep released into the East Fork Owyhee River drainage, 1963-66.

Date	Females			Males			Total
	Adult	Yearling	Lamb	Adult	Yearling	Lamb	
October 31, 1963	8	4	2	0	2	3	19
November 18, 1965	6	0	1	1	0	1	9
November 2, 1966	<u>7</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>10</u>
TOTAL	21	4	4	2	3	4	38

Table 2. Summary of bighorn sheep released into Little Jacks Creek drainage, 1967.

Date	Females			Males			Total
	Adult and Yearling	Lamb	Total	Adult and Yearling	Lamb	Total	
October 28, 1967	7	1	8	3	1	4	12

Initially, it appeared that this transplant may have been a failure. Early aerial surveys showed no sheep. The first verified sightings were of five sheep in May 1968. Periodic reports from cattlemen and hunters were received from 1969-71. In 1972 it became apparent that the area contained enough sheep to warrant a closer look at the population.

During April 1973 and February 1974, intensive surveys of Little Jacks Creek and associated drainages were conducted with the aid of a helicopter. Approximately 20 sheep were found on each survey--the great majority being rams in both cases. In August 1974 the Department and Boise District, Bureau of Land Management, cooperated in radio collaring several sheep to locate ewe-lamb bands and to determine the extent of their seasonal distribution. Forty-eight different sheep were classified during the radio collaring operation. This represented the largest number counted to date and indicated the population was successfully establishing itself.

Personnel in charge of the project tracked the sheep from September to February 1975. Despite some difficulty with radios, the following data was compiled. There were 81 sheep sights made from August 23 to January 22--34 ewes, 17 lambs, 30 rams. Using these classes, the ratios of lambs and rams per 100 ewes is 50 and 88, respectively. Of the 30 rams classified, 20 (67 percent) were legal rams.

In January 1975 the Department proposed a hunt for Little Jacks Creek sheep. The population appears to have established itself and has a good complement of rams. The Idaho Fish and Game Commission concurred with the recommendation.

HABITAT SITUATION

East Fork Owyhee River

The vegetation and topography encompassing this bighorn range was described by Drewek (1970). The area is grossly characterized as a high plateau. Elevation is roughly 5,500 feet. The major drainages flow through steep-walled canyons up to 400 feet deep. The terrain appears flat but is generally rolling and broken with deep lateral draws branching off the main canyons.

The major portion of the bighorn habitat is classified as rockland, rough broken canyon, and escarpment. The landforms are mostly canyons of major streams and associated draws. The flats adjoining the canyon are covered with deep to shallow, well drained soils.

The sagebrush-grassland (Tisdale et al. 1969) vegetative type describes the extensive plateau or benches. Deeper soils support big sagebrush, Artemisia tridentata, as the dominant shrub. Where the soils are shallow and poorly drained, low sagebrush Artemisia arbuscula is dominant. Bluebunch wheatgrass Agropyron spicatum is the dominant grass on south and east slopes. North and west slopes are dominated by Idaho fescue, Festuca idahoensis. Other grasses commonly occurring are Sandberg bluegrass, Poa sanbergii; squirreltail, Sitanion hystrix; and cheatgrass, Bromus tectorum.

Canyon bottoms are typically flat, with the streams winding from cliff to cliff. Stream banks are usually lined with willow, Salix spp.

Drewek (1970) found the following in regards to the sheep's diet. Bluebunch wheatgrass and giant wild rye, Elymus cinereus, were the species the bighorns were most commonly observed eating year-round. Through the winter months the cured leaves of these two grasses made up the bulk of the bighorn diet. Leaves and new stem growth of willow, Salix erigna and S. lasiandra, were a favored item. Other shrubs used were Ribes spp.; serviceberry, Amelanchier alnifolia; and both species of sage previously mentioned. Forbs used included buckwheat, Eriogonum spp., Thelypodium spp., and other Cruciferae, and various Compositae.

Domestic cattle appeared to be the sheep's major competitor (Drewek 1970), with the conflict area being the sagebrush flats immediately adjacent to the canyon rims and the bottoms of draws, washes, and canyons. At the time, Drewek (1970) could not pinpoint any deleterious effects from cattle-bighorn competition for forage. However, recent observations indicate that groups of sheep have moved out from the release site area and are occupying areas of better range condition. However, the topography being the way it is precludes a lot of competition as the cattle cannot utilize a lot of the area the sheep occupy.

Little Jacks Creek

This bighorn range has extensive steep, isolated canyons with pristine grass stands, a variety of forbs, and browse. Cattle graze the more accessible portions, particularly adjacent plateaus which border the canyon rims. However, there are extensive areas within and adjacent to the canyon complex where cattle use is light if grazing occurs at all.

The main difference between Little Jacks Creek and East Fork Owyhee River is the canyon structure. The East Fork has "U" shaped canyons whereas Little Jacks Creek is terraced.

The elevation of the plateau associated with Little Jacks generally is between 5,000 and 5,500 feet. The main canyon is 1,200 feet deep in places. Bighorns occupy the canyon but are occasionally observed on the flats up to 1/2 mile from the rims. Pellet group transects established in the spring of 1975 by the Boise District, Bureau of Land Management, show some bighorn sheep are utilizing areas on the east plateau up to 1 1/2 miles from Little Jacks Creek.

Because of a lack of water on some of the flats alongside the canyon, the grazing season is rather short. This insures little competition between sheep and cattle. It has indirectly contributed to the preservation of relict climax bunchgrass-sage communities. Some of the finest stands of grass in Owyhee County occur on the flats between the junction of Rattlesnake Creek and Little Jacks Creek on the south and west and the El Paso gas pipeline on the east.

Sagebrush-grassland is the dominant vegetative type on the flats. Bunchgrass thrives on benches within the canyons. Along the streams in most

places willow is present. No intensive habitat mapping or food habits analysis has been done. Contact with cattle occurs on the flats and foothills between the mouths of Little Jacks and Shoofly creeks. Competition for forage is probably not great as the cattle make little use of the steeper slopes and move out during the summer. However, there is evidence of intensive livestock use on the big plateau complex west of Little Jacks Creek.

Due to the relative flatness of both areas, no migration from summer to winter ranges occurs. Lateral movements along stream courses and vertical movements in and out of the associated canyons are the extent of the bighorn travels. Consequently, their home ranges are relatively small and must provide adequate forage yearlong. The most noticeable movement that has been detected is in the spring when pregnant ewes travel to the more remote canyons to have their young.

PRESENT STATUS AND MANAGEMENT

It appears that the East Fork Owyhee River sheep population may be stabilizing. Although the total numbers observed during the 1974 surveys were slightly higher than in the past, age composition of the ram component has shifted to favor older animals.

The East Fork of the Owyhee River population has stabilized around 250 animals. The Little Jacks Creek herd is expanding slowly and numbers roughly 75 head.

Winter aerial surveys are conducted biennially to gather herd distribution, sex and age composition, and number of legal rams in the male component. Infrequent ground inspections are made on the bighorn range to ocularly assess range conditions, areas of livestock concentrations and livestock trespass. The Boise District, Bureau of Land Management, has established 12 miles of ground transects to help assess the movement and use of sheep on the flats above Little Jacks canyon.

At present there are no investigations on bighorn food habits, behavior, range competition or attempts to determine any limiting factors on populations. The Boise District has initiated an intensive inventory and analysis of the Little Jacks Creek area and a draft Habitat Management Plan is in preparation.

The East Fork sheep are still being hunted on a permit system. Seasons run for 30 days from the first Saturday in September to the first Sunday in October. After starting with 5 permits, the season in the East Fork ran 4 years before the permit level was raised to 7. The kill has varied from 1 to 3 with an average of 2.2 rams per year. A total of 15 sheep have been taken. Present regulations limit the harvest to 3/4 curl rams or better. It is the Department's policy to manage bighorn sheep in Idaho as a trophy species. Hunter information is solicited from successful permittees. A follow up contact by conservation officers is made to insure a 100 percent sample. Present regulations also require a successful hunter to surrender horns for inspection and measurement in order for the Department to compile a data base of all sheep kills.

A hunt was authorized for the Little Jacks Creek sheep the fall of 1975 by the Idaho Fish and Game Commission. Three permits were issued but no rams were taken.

The following are offered as reasons for the success of both releases:

1. Adequate stands of perennial bunchgrasses.
2. Adequate escape cover.
3. Abundance of free flowing water.
4. Conservative use of bighorn ranges by domestic livestock.
5. Both areas relatively remote and inaccessible.
6. No apparent long seasonal or altitudinal migrations.
7. Deep winter snows and prolonged cold spells relatively infrequent.
8. Little, if any, illegal hunting.

FUTURE MANAGEMENT DIRECTION

Transplanting and reestablishing bighorns is a must if their populations are ever going to increase substantially. Geist (1971) indicates that reestablished populations behave much like natural relic populations. They remain small in number and generally fail to spread far from the release sites. Occasionally, an animal (mostly young rams) can be seen a great distance from the main population. Geist (1971) contributes this lack of 'pioneering' to learned behavior handed down from older generations.

This behavioral characteristic can be seen in the Owyhee County bighorns. In spite of continuous available habitat, the East Fork sheep have dispersed only 15 miles from the release site in 12 years. As far as can be determined, the Little Jacks Creek population has not moved more than 7 miles from the release site in 8 years. Although population dispersal is slow, ultimately it should be expected that the bighorns will occupy continuous suitable habitat within these canyon complexes. However, population establishment within isolated habitats should not be expected without a transplanting program.

Potential historic habitat exists in many places in southwestern Idaho. Spurred by prior successes, the Department plans to expand bighorn distribution into these areas that are acceptable ecologically to sheep and socially to the public.

The following management objectives were agreed upon by the Department and Bureau of Land Management to properly plan for the continued reestablishment of California bighorns into suitable habitat in southwestern Idaho.

MANAGEMENT OBJECTIVES

A. Objectives of the Idaho Department of Fish and Game

1. Catalog and delineate all areas of suitable sheep habitat. Prepare an inventory and analysis of potential bighorn reestablishment areas.

2. Extend the distribution of bighorn sheep into historic habitat in southwestern Idaho where suitable conditions still exist.
3. Transplant sheep from existing Idaho stock and whenever possible obtain bighorns from other stocks.
4. Existing populations will be managed first to increase numbers and secondly to provide more hunting opportunity in the future.
5. When suitable stocks are established in Idaho and a population can withstand removal, surplus sheep should be available to other western states that desire to reestablish sheep or supplement present populations.

B. Objectives of the Boise District, Bureau of Land Management

1. Maintain or improve existing and potential bighorn habitat in southwestern Idaho so that viable sheep populations can be supported.
2. Develop multiple use management plans that will blend various resource potentials into a coordinated program that is compatible with bighorn sheep.
3. Review any Department bighorn sheep transplant proposals and develop an Environmental Analysis Report (EAR) of potential impacts.
4. Encourage the reestablishment of bighorn sheep into those habitats found suitable and where compatible with other resource uses.

The following criteria will be used in picking suitable transplant sites and assigning priority to them. Since both previous transplant sites have successfully established bighorns, they will serve as guidelines for what good habitat is:

1. Adequate stands of bunchgrass.
2. Adequate escape cover--deep canyon complexes and associated rim lands or steep, rocky mountainous areas.
3. Area to be wild and relatively inaccessible.
4. Conservative use of bighorn range by domestic livestock.
5. Landownership--public domain.
6. Adequate water supply.
7. Analyze all land use practices present and projected in the vicinity.
8. Attitudes of vested interest groups.

Presently an inventory and analysis is being prepared for the West Fork of the Bruneau River before the Department officially requests permission

from the Bureau of Land Management to transplant sheep in that drainage. It should be completed sometime next spring. If a request is approved, the Department plans to capture bighorns from existing populations.

Other areas that show promise and will be analyzed are: South Fork of the Owyhee River, Jarbidge River, East Fork of the Owyhee River in the vicinity of Red Canyon Creek, Sheep Creek, Big Jacks Creek-Duncan Creek, Little Owyhee River, and the North Fork of the Owyhee River (Fig. 3).

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FIGURE 3.
POTENTIAL DISTRIBUTION OF
CALIFORNIA BIGHORN SHEEP IN S. W. IDAHO

1. JARBIDGE--BRUNEAU COMPLEX
2. BIG JACKS CREEK--DUNCAN CREEK COMPLEX
3. SOUTH FORK OWYHEE RIVER
4. NORTH FORK OWYHEE RIVER

