SOCIETY FOR THE CONSERVATION OF BIGHORN SHEEP

# The Sheepherder

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Dedicated to study and promote the conservation, propogation and preservation of the wild sheep of North America.

NOVEMBER - DECEMBER 1981

## SANTA ROSA MOUNTAIN BIGHORN PROJECT
Report No. 2 - James R. DeForge

Courtesy Mrs. Pat Hansen

Research Team Leader, James R. DeForge reports that during the period July 1 to August 31, the Society Research team has spent an additional 35 days and 52 man-days in the field on the Santa Rosa Mountain Project. Other team members participating in the field studies during that time were: Joan Scott, Charles W. Jenner, D.V.M., Steve Segreto, and Claudia Collier. Other people assisting were: Dave Jessup, D.V.M., California Dep't of Fish and Game, Karen Sausman and Gail Naylor - Living Desert Reserve; Rod Melchert, D.V.M. and Pat Kalatschan - the Palm Desert Pet Hospital; Terry Russi, Bureau of Land Management; Don Koch, Biologist, and Mimi Dyer, a Rancho Mirage resident.

Results from blood tests taken from bighorn captured on April 20 to May 1 indicate that several infectious diseases are present in this population. These include parainfluenza -3 virus, a common cause of pneumonia in domestic livestock. Pneumonia has been found to be an important mortality factor in bighorn sheep throughout the western United States. Evidence of bluetongue virus and a closely related epizoootic Hemorrhagic disease virus were also presnt in the bighorn herd. These are important diseases of livestock and wildlife and have not been previously identified in other bighorn sheep populations in California.

The research team has found lamb survival to be very poor in the population. Although adults have been observed sneezing, coughing, and/or with diarrhea, it seems to be the lambs that cannot survive the illness. There are approximately 40 ewes in the herd being observed. Most of these had lambs, however few of the lambs survived.

One lamb that appeared healthy for a long time was the only lamb captured during the effort of May first. It was only one week old at that time. Possibly the antibiotics given the lamb at that time gave it an added protection. However, the lamb seemed weak starting in mid-July and by August 1 researchers feared the lamb was showing signes of terminal illness, possibly pneumonia. The lamb was followed closely by research team members, but on August 4 he died at just over three months of age. The body was brought out by research team leader James DeForge. The necropsy by DFG Veterinary Pathologist Dave Jessup confirmed that the lamb died of subacute fibrinous pneumonia. After death of this lamb only one lamb remained in the study area. This animal was seen coughing in early July, however it now appears healthy. This lamb is a female and approximately five months old as of August 31.

Another lamb, approximately one week old and abandoned by its mother, was found by researchers on July 31. This lamb was weakened, coughing, and had a prolapsed and infected eye. Resarchers took the lamb to Palm Desert Veteriarians Rod Melchert and Terry hicks, who gave it antibiotics, treated the infected eye, and took blood samples. Living Desert Reserve Director Karen Sausman bottle-fed and cared for the lamb. All efforts were made to save it, including intravenous feeding and inoculations against bluetonge and parainfluenza-3. However the lamb died in the early morning on August 9.

On August 29, a new lamb, approximately three weeks old, was observed. This animal has since been observed cou ghing violently. Since the mother is an uncollared ewe, it is difficult to follow this lamb, but plans have been made to capture and treat the lamb if it is observed again and shows increasing signs of terminal illness.

On August 6 two captive-born bighorn rams from the Living Desert Reserve were vaccinated against bluetongue and parainfluenza-3 in order to evaluate the effectiveness of the vaccines. They were moved to the University of California Philip Boyd Deep Canyon Research Center and will eventually be radio-collared and released into the wild.

During this period the rams have appeared in the ewe range for the rut. Observations are being recorded on rutting behaviour, as well as movements, feeding habits, predation, human impact, etc. Plants have been collected for analysis of nutritional composition, and fecal pellets for botanical composition.

This study is a cooperative effort between the Society for the Conservation of Bighorn Sheep and the California Department of Fish and Game. The Society's research efforts have been funded by the Foundation for North American Wild Sheep and by fund raising efforts of the Society. The Society is indebted to the people and organizations that have been listed in this report.

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NOTE: As has been reported at various time in T.S. the bighorn sheep of California have been a fully protected species ever since the Act of 1873 which made that declaration. Since 1976 the bighorn sheep of the Santa Rosa Mountains and San Jacinto Range as well have suffered very high mortality rates. In 1981 the California Legislature did finally agree, after several years, to require the California Department of Fish and Game to make a study effort to determine possible causes for the losses. However, the Legislature also failed to provide any financing for these studies. California Codes do not make any provisions for expenditures of F. & G. Preservation Funds for non-game fish and wildlife. Hence the need for funding from other sources or special acts of Legislature.

Consequently the Society is pushed for funds necessary to defray expenses of the above project and other projects as well. It is hoped that there will be a good response of participation at the Annual dinner in Palm Springs on December 5th. We also do hope that someone will send in the $2,500. for the bronze casting of the bighorns as rendered by Max Greiner of Kerrville, Texas, and which he has donated to the Society in an effort to assist in funding these projects.

You will find another order blank with THE SHEEPHERDER on which you may order notepaper illustrated by Pat Hansen. The art work is such quality that each and every one of the eight different sketches as worthy of mounting by lovers of the bighorns.

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Annual Ticket time is here again. Donations are income tax deductible items.
As noted above the Society is almost totally dependent on donations to carry on it's work. Waterhole installations and maintenance and research projects take an enormous amount of money and are necessary if the Society is going to keep on with the tremendous progress that has been made to date.
Members will have received (or soon will receive) tickets to be sold to those persons willing to lend a helping hand. Ticket stubs together with money received for them is to be returned to the Society's office at 401 north Garfield Ave., Alhambra, Cal. 91801. If you can sell more tickets than you have received, then, ask Dr. Lutz at his office for them.

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Courtesy Mrs. Pat Hansen

## ARIZONA BIGHORN SHEEP STATUS REPORT 1981

During the 25th Annual Meeting of the Desert Bighorn Council held at Kerrville, Texas this past April Richard Remington of the Arizona Game & Fish Department made the departmental report to Council.

During 1980 - 81 bighorn surveys conducted in Arizona were conducted both on the ground and with the aid of helicopters. Of the 2,153 bighorn classified, 501 were rams, 1103 ewes, and 487 were lambs. Also, 58 yearlings were classified. The surveys were conducted within 20 game management units and in many mountain ranges.

Statewide a total of 50 permits were authorized, of which five were allotted to non-resident hunters Permits authorized do not include those authorized by the Hualapai Indian Reservation. (There were six of these). A total of 2819 first choice applications were received, for an average of 56 requests per each permit----of these 589 were non-resident applications. During the hunt there were 50 hunters, who hunted an average of 6¼ days with a success of 78% for the 39 rams harvested. During the years since 1971 there have been an average of: 64 permits with 62+ hunters; a harvest of 41 rams and success ratio of 63+%. Ages of harvested rams ranged from four to thirteen years with an average of seven years statewide. 1980 was the first year that permits were issued for unit 31 that includes the Aravaipa Canyon the site of Arizona's first sheep transplant. Two permits were issued and two rams harvested. That herd is now currently 60 bighorns.

In November 1980 20 bighorns were transferred from the West Kofa area to Apache Lake, then ferried across the lake to be released on Goat Mountain. (This had been reported in T.S. in January 1981 and progress report in June '81. Also during November there was a transplant

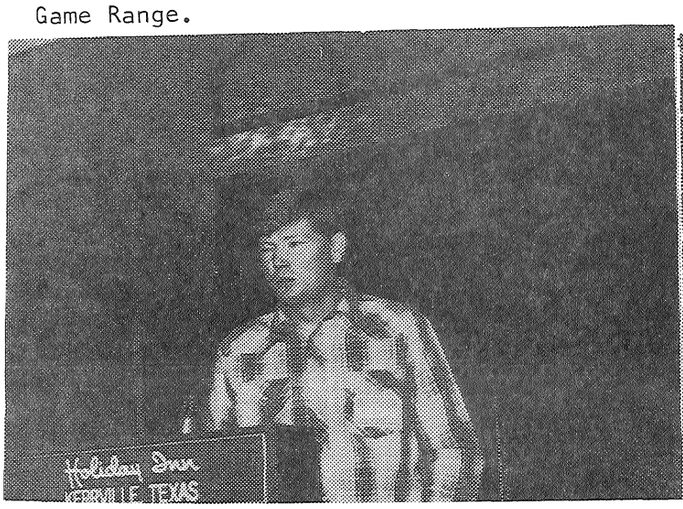
from the Trigo Mts. into an enclosure on the Mule Shoe Ranch in the Galiuro Mountains. This has also been reported). Funds for this transplant were furnished by the New Mexico Game and Fish Department under an agreement between the two game departments that 24 bighorns were to be trapped in Arizona and that 12 of these be released in the Galiuro Mts. and the other 12 to be transplanted in New Mexico. This was done and these latter sheep were released into an enclosure in the Peloncillo Mts. of Southwestern New Mexico.

Also in 1980, eight bighorns were captured in the Black Mts. of northwestern Arizona and transported to Texas by Drs. Tom Bunch and Bob Glaze. These sheep are in an enclosure on the outskirts of Kerrville.

A total of 20 Rocky Mountain Bighorn Sheep have been released in the Blue River area of eastern Arizona--some in 1979 and the balance in 1980. Their summer range is around the 6500' elevation and that of the winter range includes the mixed conifer belt of the river canyons at elevations of 8,000 to 9,000'.

The bighorn introduction in the Virgin Mountain enclosure seem to be having success. Five lambs were born within the enclosure during 1980. One of these has been found dead. However, no cause for the loss has been determined. One ewe gave birth during June which indicated that she had been bred within the enclosure.

The A. G. & F. Department has located another 33 separate possible bighorn sheep transplant sites. Studies are under way to determine the best order for these location sites. Research is under way to determine the relative success of the different types of bighorn sheep transplants within the state. Another study is to determine the interactions, if any, between the bighorns and the deer. Another study being made is to determine impacts from powerline construction existence of a 500kv electrical transmission line throughout bighorn sheep habitat in the New Water, Plomosa, Dome Rock Mountains, and the northern portions of the Kofa Game Range.



*Richard Remington, Arizona Game and Fish Department*

*Warren Kelly, Humboldt National Forest - Nevada*

## A HISTORY OF BIGHORN TRANSPLANTS ON THE HUMBOLDT NATIONAL FOREST

During the desert bighorn Council meetings this past April, Warren E. kelly gave a history of events associated with the bighorn sheep of the Northeastern part of the State of Nevada. Kelly knows the area of the Humboldt National Forest very well having served in Forest Service in Nevada for a great many years. Kelly is also well known for his art work--and it is, of course, of bighorn sheep.

Historically the Humboldt National Forest had three races of subspecies of bighorn sheep The California subspecies was found in the Santa Rosa Mountains, the Rocky Mountain subspecies occupied the Ruby, Independence, Jarbridge, Ward, Snake, Mt. Moriah, and schell Mountain Ranges. The desert bighorn were found in the White Pine and Quinn Ranges. Bighorn were probably the most numerous large wild ruminant in this area in the late 19th century. In an interview recorded in 1964 with the first Forest Supervisor, Mr. Sid Tremewan, he stated that bighorn sheep were common in the Ruby Mts. Another old time resident of Northeastern Nevada, Mr. Hugh Martin, in an interview recorded in 1963 stated that bighorn sheep were numerous in the Tennessee and Copper Mountains. By the mid 1930 both the Rocky Mountain and California bighorn had been eliminated from the Forest.

From 1889 to 1905 many bands of nomadic domestic sheep roamed over the state. The best estimate we have today is that about 2.5 million sheep grazed through the valleys and mountains in their annual movment through the state.. This was a prime example of the sheepman-cattleman conflict in the west. Fortunately it did not turn into a shooting war. These nomadic bands of sheep competed with the livestock of resident ranchers. This mad rush caused an enormous amount of trampling. This accompanied with severe grazing practices left the county a dust bowl. Owners of these sheep had no ranch property and moved their animals north in the spring and south in the winter. Under these conditions livestock were on the range too early in the spring and too late in the fall. Many plants were heavily grazed prior to seed ripe and were grazed too severely during summer and fall, further reducing plant vigor. These grazing practices resulted in changes in plant composition and succession. Many native grasses of high forage value nearly disappeared and were replaced with lower quality grasses of less palatability and nourishment.

From 1905 to 1920 bighorn sheep populations were either drastically reduced or completely eliminated, largely due to competition for food, water and space and from diseases and parasites carried by their domestic cousings. Bighorns were common in the Ruby Mountains from 1908 to 1910. The last Rocky Mountain bighorn was observed her in 1921.

Because of these nomadic bands of domestic sheep, resident ranchers petitioned President Roosevelt to designate certain lands as Forest Reserves. The first Forest Reserve in Nevada was designated in 1904. However, it wasn't until 1919 that all the lands of the 2.5 million acres that were to make up the present Humboldt National Forest were so designated.. By 1910 the nomadic bands of domestic sheep were removed, the grazing conflicts between ranchers resolved and grazing allotment boundaries established.

In 1980, the Forest grazed 54,000 cattle and 79,500 domestic sheep and provides 240,000 animal units months of use. In addition to domestic livestock the forest has 34,500 mule deer, 350 elk, 140 bighorn sheep and 380 antelope.

Along with reductions in livestock numbers, grazing systems were put into practice and seasons of use were changed. Many range improvements such as water developements and reseeding projects were accomplished. Slowly ranges began to show improvement, both soil and vegetation were beginning to show an upward trend and higher value plants were on the increase.

With range conditions improving and domestic sheep numbers decreasing, thought could be turned to restocking some of the ranges with wild sheep. Between Christmas and New Years of 1974, the Department of Fish and Game informed the Humboldt Forest that the State of W yoming was trapping Rocky Moun tain bighorn and expected to have animals on their way to Nevada in the first week of January. This created problems: the N.E.P.A. in 1969 requires that any Federal action must have an Environmental Analysis and Assessment written in order to determine whether or not an Environmental Impact Statement was necessary; an E.A. for an introduction or reintroduction of any wildlfie species on any Forest Service lands must be approved by the Regional Forester; It takes a minimum of four to six weeks to do an E.A., write the assessment and get the document reviewed by District Rangers, Wildlife Staff, Forest Supervisor and Regional Forester; and there was less than two weeks to get the job done. However, all this was done in time with the exception that it was several days after the sheep had been released into Smith Creek drainage of Mount Moriah that the document was signed by the Regional Forester.

In 1975 policies and guidelines for introductions and reintroductions of wildlife were signed off by the Forest Service and Nevada Department of Fishand Game for these purposes. To date (April 1981) the Forest has four areas that have approved E.A. for the reintroduction of bighorn sheep. Three of these areas have had one bighorn release and two of these areas. have had two releases. There has been a total of 74 bighorn released on the Forest, twenty-six California bighorns and forty-eight Rocky Mountain sheep. These herds had increased to 33 and 72 respectively by end of 1979.

"Although we had problems caused primarily by lack of communication, no one lost sight that the most important objective was to get bighorn back into their historic ranges. We also found the value of good guidelines and planning. Well prepared guidelines save much time and frustration.

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## ARIZONA GUIDE ARRESTED FOR LACEY ACT VIOLATION

Lamont R.Mills, U.S. Attorney for the District of Nevada, has announced the arrest of Arizona bighorn sheep guide Boyd Willis Gardner for allegedly guiding, taking and transporting a desert bighorn ram killed near Pierce Ferry on the Lake Mead National Recreation Area.

Gardner, 46, of Snowflake, was booked in the North Las Vegas jail and arrainged before U.S. Magistrate Phillip Pro the weekend of August 22 - 23. He was placed under $1,000 surety bond, and a preliminary hearing was set for September 10, 1981.

It is alleged that Gardner contracted with a U.S. Fish and Wildlife Service undercover agent for the sum of $5,000 to assist intaking a bighorn.

A joint undercover operation by the Fish and Wildlfie Service, the National Park Service, and the Department of Game and Fish was based in Meadview, Arizona.

Although numerous violations of Arizona Game and Fish statutes and NPS regulations were involved, Gardner was actually charged with violation of the Lacey Act which prohibits the transportation of illegally taken wildlife contrary to an act of Congress and/or in interstate commerce. Federally-administered national recreation areas like Lake Mead are closed to all hunting.

The matter was presented before Magistrate Pro in Las Vegas because, under Special Order 16, Nevada has jurisdiction over the Arizona portion of the Lake Mead National Recreation Area.

This is reportedly the eleventh bighorn sheep prosecution undertaken by the U.S. Attorney's office in Nevada. Past judgements are said to have resulted in fines of several thous-

ands of dollars, probation and loss of hunting and guiding priviledges. The maximum penalty for violation of the Lacey Act is one year in prison and/or a $10,000 fine.

Recent prosecutions appear to have curtailed a lot of illegal activity, and the Nevada U.S. Attorney anticipates more prosecutions in the near future.

Wes Martin, the Department's Region III supervisor in Kingman, notes that 22 state, and several federal agents were involved in the case from its inception. One FWS agent, one NPS officer and two from the Department stayed with the case full time.
(WILDLIFE NEWSLETTER, Arizona Game & Fish Department and also courtesy of Tom Harper of the U.S Fish and Wildlife Service, Las Vegas, Nevada).

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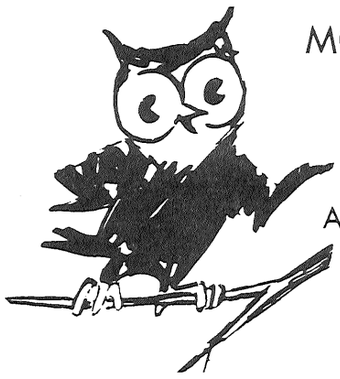


We do make every effort to keep the addresses of our members current and correct. You can help us to do this by letting us know your proper address when you move.

Each time the Postal Service cannot deliver your copy of THE SHEEPHERDER it costs the Editor 25¢ plus a new envelope and First Class postage in order to resend that issue--provided the Postal Service has furnished him with a new address. As a result your copy of that issue will probably be more than a month delayed--if you then receive it at all.

There are seven (7) water projects that are scheduled for completion during the ensuing season. If you can participate contact Glenn W. Sudmeier, Water Project Coordinator at Star Route, Box 4 - C, Hesperia, Calif. 92345 of better yet telephone him at: (714) 389-2498.

Nov. 21, 1981--Old Dad Mts. meet at the camp-site near Kelso--Northeast of The Devil's Play-ground---Kelbaker Road out of Baker will have Temporary D.F.G. direction signs. Arrive Friday evening or before 07:00 Saturday Nov. 21.

January 16, 1982---Sheephole Mountains---the tenaja there is no more reliable and has been going dry during the time of great need. This project must be funded by the Society at a cost of at least $5,000.00 Therefore the Society must call upon it's members for financial assistance. Send your TAX FREE donations to the Desert Waterhole Improvement Fund--also known as the John Lowery Memorial Fund, to the Society Office--401 North Garfield, Alhambra, California 91801.
February 6, 1982 -- Riverside Mountains,
February 27, 1982 Coxcomb Mts. South,
March 20, 1982 Nopah Range North,
April 17, 1982 Whipple Mts. West,
May 8, 1982 Whipple Mts. East.

DECEMBER 5, 1981-----The Annual Membership Banquet for the Society for the Conservation of Bighorn Sheep is to be held at the Palm Desert Resort Country Club 40-999 Resorter Blvd., Palm Desert, California. The Banquet is being held this year in the immediate vicinity of the area in which the Society's research program is taking place. Strong local support insures that this will be an exciting and informative event. Jim DeForge, Team Leader, of the research now being conducted will be making a slide presentation of efforts to date and a report on their most recent findings.

The Research team , Biologists and D.F.G. personnel (led by Dick Weaver and Dave Jessup) are recapturing bighorns at the present time----November 4th through November 10th. There is to be a No Host Bar open at 6:00p.m. with a prime rib dinner being served at 7:00p.m. Send dinner reservations to Jim DeForge 218 East "J" St., Ontario, Ca. 91764

The Desert Bighorn Council will hold it's 26th Annual Meetings inBorrego Springs, Calif. The first session is to begin the morning of April 7th and will continue through April 8th. On Friday April 9th there is to be a field trip into desert bighorn sheep habitat of the Anza-Borrego Desert State Park. There is a good likelihood that some of the rare peninsular species of desert bighorn sheep will be seen. April is the time of year when the desert usually shows it's display of desert wildflowers. As a result motel and hotel occomodations will be at premium occupancy. If you plan to attend sessions of the D.B.C. and wish motel accomoddations---get your request in early--like right away.

## SHEEP RELEASED IN PELONCILLOS

Twenty-eight desert bighorn sheep - 10 ewes, 10 rams and eight lambs-- were released into the wilds of the Peloncillos Mountains of southwestern New Mexico in late June. The ewes had been held since November in a 40-acre paddock built to get them accustomed to the area.

The ewes were part of a group of 12 captured in Arizona and given to the Department of Game and Fish for its assistance in the capture. The ewes were pregnant when captured, and the lambs were born in the Peloncillo paddock. The rams came from a captive herd at the Game and Fish Department's Red Rock Wildlife area.

The 20 adult sheep are radio-equipped and are being monitored for one year by a graduate student from New Mexico State University.

New Mexico Wildlife magazine --September-October 1981

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## AND THEN ---THE FICKLE FINGER OF FATE STIKES

In a letter to me, the editor, dated 23 October 1981, Andrew Sandoval the Bighorn Sheep Project Supervisor for the State of New Mexico writes: "I would like to take this opportunity to inform fellow sheep herders of the recent set back we incurred with the recent desert bighorn transplant on the Peloncillo Mountains of extreme southwestern New Mexico.

Ten rams (ranging in age between 3.5 - 8.5 years) were released into a 16 ha holding paddock to supplement ten ewes and eight lambs on May 7, 1981. On June 26, the paddock was opened and the sheep allowed to drift out at their leisure. All ten rams died between August 1 - 29.

Clinical symptoms and laboratory results indicated bronchial pneumonia as the cause of death with Corynebacterium pyogenes, Pasteurella Multocida and Neisseria sp. as the causitive pathogens. Possible pre-disposing factors include: (1) a yet to be identified virus, (2) adverse weather conditions; (3) stress due to adapting to a new environment, manifested by being raised in captivity; and (4) no apparant previous exposure to bronchial pneumonia, consequently no resistance to the disease.

Clinical symptoms were first observed in July 22. After the first ram died on August 1, clinical symptoms became more evident, ie. sporadic and long spasms of coughing, nasal and oral discharges, poor to emaciated body condition, depressed behaviour (disinterested in feeding, reluctance to move when approached, and dazed disposition). The first rams that died were in relatively good body condition. The ones that managed to hang on became extremely emaciated. Most of the rams died in their beds, or collapsed while walking. There was a tendency for rams to remain sedentary for a week or longer preceeding their deaths. One ram resided the entire month of August within the old paddock site before it died.

Necropsies were performed on all but one, and tissue samples were collected from most. All carcasses examined showed the following pathological signs to varying degrees:

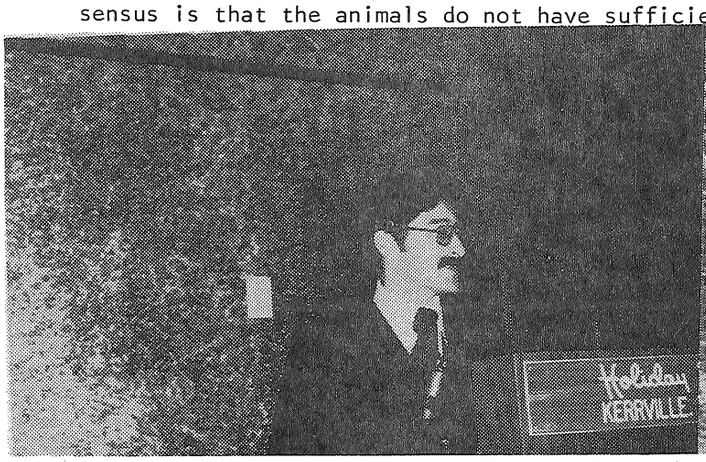
1. Adhesions of pleura from lungs to rib cage and diaphram,
2. Consolidation of apical, cardiac and ventral portions of diagramatic lobes,
3. Fibrin and pus deposits (some as large as 30cm. long).

Coughing has been observed in four of the six lambs, with spasms exceeding two minutes. Mucus accumulation apparantly triggered the spasms, and in one case mucus was observed being expelled orally. Physically and behaviourally, the lambs appeared depressed. They bedded frequently and often stood with outstetched necks, apparantly due to difficulty in breathing. They fed little and have lost considerable weight.

To help insure lamb production next year, two young rams were released near the old paddock site on September 27. These rams were born at Red Rock Wildlife Experimental area, but had been confined at New Mexico State University for over a year for cross-transmission experiments involving Psoroptic mites and drug dosage trials with Ivermectin. These rams were found to be resistant to scabies, and the decision was made to release them on the Peloncillo Mountains.

Treatment is being attempted with bait stations consisting of horse pellets and mineral supplement containing neo-terramycin powder concentrate. During confinement in the paddock, sheep consumed over 500 kg. of horse pellets. However, above normal precipitation since the release has produced an abundance of high quality and palatable forage. Sheep have been observed pawing at the supplemental feed, apparantly attempting to avoid the bitter taste of the drug. The taste is being masked with molasses. Other problems associated with the treatment stations include feeding by non-target species, namely rodents, and frequent rain showers that disintegrate the pellets.

More recently, Rocky Mountain bighorn transplanted in 1978 on the Latir Peaks northeast of Taos were found to be suffering from bronchial pneumonia. A horseback survey conducted last week indicates that we may have already lost over half of the population. The pre-epizootic population estimate was close to 50 animals. The status of this population will probably be contingent on the severity and duration of the upcoming winter. The sheep are entering the most stressful periods (the rut and winter) in very poor body condition. Our consensus is that the animals do not have sufficient fat reserves to survive a severe winter...."



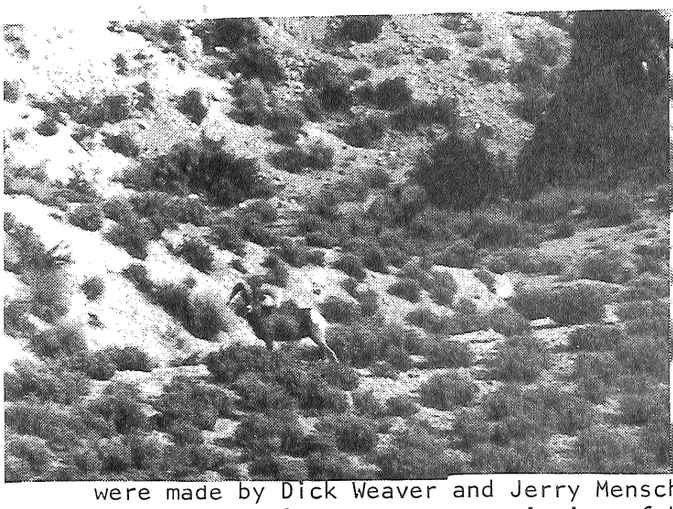

*Andrew Sandoval, Bighorn Sheep Project Supervisor New Mexico Department of Game and Fish.*

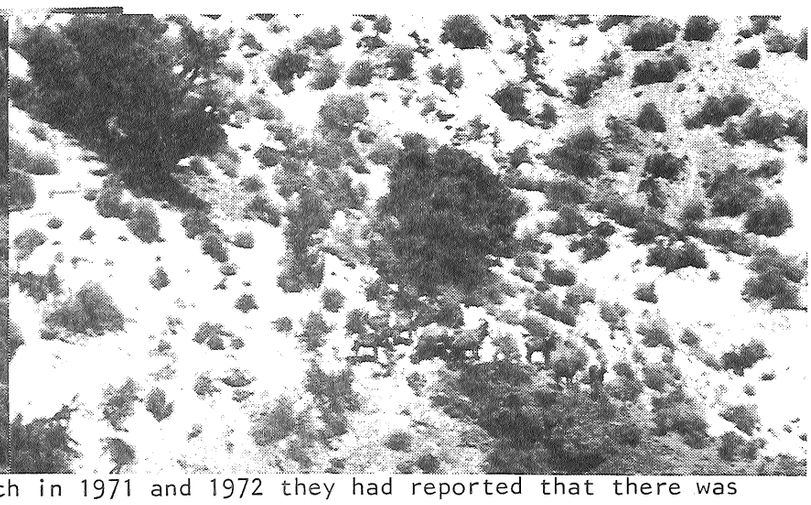
*Pictures above and the two on page seven taken by Rocklin Wooley.*

## LAST CHANCE MOUNTAIN REPORT

Rocklin Wooley, Society Director from San Jose has sent in an interesting report of his findings in the Last Chance mountains of eastern California. Rocklin doesn't say how great a distance it is from his San Jose home to his area. However, a look at a map will convince anyone that Wooley is highly dedicated.

Rocklin has at times been somewhat discouraged by his previous finding in the Last Chance area. He attempted a waterhole count in 1978 that was unseccessful. Then last year he again checked the area and did not find even one bighorn track--seing only one track of a deer. In 1979 he had seen one set of ram tracks in an enclosure about a spring, but had seen a ewe and a lamb of the year. This had been encouraging to him. During the field studies that





were made by Dick Weaver and Jerry Mensch in 1971 and 1972 they had reported that there was presumably only a remnant population of bighorns in that range.

Rocklin says: "My first break came last year, when I found Last Chance Spring No. 3. With it was more sheep sign than I had ever seen in that entire range. This year my count seemed to have one bad break after another. First my three companions for some reason or another could not make the trip. Alone, I couldn't cover all of the sources. Then I discOvered that some very heavy thunderstorms had hit the area only a couple of weeks before my trip. When I got there the weather was disappointingly cool--in the mid-70's. Last, but not least, the fenced spring site had six cows and a calf living inside it, right on the spring. Neverthe less, I decided to hike the area, and sit on which ever spring indicated the most use.

Then my luck began to change. I hiked around the largest of the springs--the one we call Last Chance No. 1, and up the ridge above it. I found a few old beds and some pellet groups. When I descended the ridge and headed west toward the one we call Last Chance No. 2. As I did this I passed what appeared at a distance to be a seasonal seep, and found another spring hidden in a small gulley. The site was loaded with sheep sign, all of it fresh.

Much encouraged I checked the next spring and then made the 1/2 mile hike to Last Chance No. 3.

Last Chance No. 3 was bone dry.

However, this was, to me, good news, in a way. I could now cover the remaining water sources by myself. On the way back to my truck, I noticed that something had been added to the new spring that I had just discovered. Two of those'somethings' moved. They were sheep six of them---three ewes, a yearling ram, a yearling ewe and a lamb. Unfortunately I didn't have my telephoto lens mounted and I got no pictures of them.

The next day I took my stand by 06:30. But, a couple of hours later I discovered that I was stationed on a prominent sheep trail, and so I moved to another location. About two hours later I looked over at my first stand and saw a ram standing on the exact spot where I had been previously sitting. And right behind him came a herd of twelve ewes yearlings, and a lamb. I watched and photographed them for about two and one-half hours. First they watered and then tried to eat what little grass that they could find. They then moved over to the big fenced spring site and gathered around the outside of the fence to watch the seven cows that had been living onthis spring continue to eat the riparian forage that they are not entitled to. (This is the trespass situation that the Bureau of Land Management has yet to comment on)". NOTE: Wooley has commented on this trespass situation previously--a year ago.

Wooley continues: "I surely wish that I could have gotten a picture of that sight: the thirsty, hungry bighorn sheep and the fat, contented, trespassing cattle. One of the ewes even approached the access opening, but she would not enter. The scene enraged me. The bighorns then spread out and nibbled at the remains of the grass outside the fenced spring. Later the sheep moved off down the canyon to an area where there appeared to be some riparian vegetation. At the end of the day I checked the site. It is still another spring. This one actually a running stream some 75 yards long. It was right under my nose, just like the other.

The following day I photographed a coyote at the springs and had the opportunity to photo a half-curl ram at 75 yards distance. The sheep did not attempt to enter the enclosed spring area on that day".

Thanks Rocklin for an interesting report. The presence of unknown numbers at the Last Chance is certainly welcome news.

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## STATUS OF BIGHORN ON WHEELER RIDGE: JUNE, 1981

A report of mid-August by Tom Blankenship, Wildlife Biologist of the Department of Fish and Game states that: "All five funtioning radio collars were checked during the period of June 2 to June 9th. Results are as follows:

There was a group of five ewes, inwhich two of them wore radio collars, three lambs, one yearling ram, and one ram about three years old, located some 500 yards north of the main switchback on the Union Carbide road(southwest corner of section 4). Two of these ewes were yearlings.

In addition, four rams( two of which wear collars, the other large ram with a non-functioning radio collar, and one ram perhaps two years old) were located 600 yards east of the mine road to Morgan Pass(northeast quarter of section 6).

The ewe with collar number six was in the south-west quarter of section 26, west of Paradise. She had no lamb on June 9th, but apparantly was pregnant. She was located again, near the same place, on July 29. At that time she had a lamb, but was with no other sheep.

In summary:

16 sheep were seen on Wheeler Ridge this spring and summer, including 6 ewes(two of these yearlings), five adult rams, one yearling ram, and four lambs.

Except for the ewe with collar number six, the ewe-lamb group that was at the north end of Wheeler Ridge has yet to be located.

To the above report sent in to the Editor by Dick Weaver, Dick has added that during the month of April 20 animals were seen and that it was beleived at that time that there were a minimum of 25 sheep now in the area. As Dick says: "It is very difficult to find the bighorns without the aid of the radio collars. However there is at least four new lambs of the year. So we know that there are 16 and could be as many as 29 bighorns on the Wheeler Ridge area.

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## DEATH VALLEY NATIONAL MONUMENT BURRO CENSUS ALARMING

The National Park Service has released it's '1981 Burro Census Summary' as of August 6, 1981. These figures are for the actual numbers of burros that were counted during the four day aerial observations.

According to Dick Weaver, California Department of Fish and Game Biologist the actual population of burros in the monument could be actually as many as two or three times as great. Burros are very difficult to observe in their desert environment. Their grey color blends so very well into the land and it's vegetation.

The census count was a total of 2,501 burros seen. The census did not include areas that are known to have burro populations. These omitted areas were: Sand Spring area, Hunter Mountain, Dodd Spring and Grapevine Cyn in the Saline Valley, Tuber Canyon, Jail Canyon, and Hall Canyon.

This census took place after nearly 600 burros had been captured and removed from the Death Valley area. (actual removal 577 burros, IN THE LAST TWO YEARS.)

The largest concentrations of burros were in Cottonwood Canyon-556; Six Springs Canyon-Gold Hill 116; Butte Valley, Arrastre Spring 723; and Anvil Spring Canyon 299.

The Census of 1980 showed 2,268; the census of 1979 --2,051.

The team of Dick Weaver and Jerry Mensch in 1972 came up with an estimated total of approximatly 1,300 burros in the monument and a total of some 3,410 burros in all of California.

We expect that the National Park Service will soon release it's Burro Management Plan for public review. The NPS will need a lot of support from those of us who are concerned with the future of the Death Valley ecosystems and the native wildlife associated with that region.

## ARIZONA FINDS EVIDENCE OF BIGHORN'S EXPOSURE TO LIVESTOCK DISEASES

California is not alone in having problems associated with livestock induced diseases among the bighorn sheep. The A. G. & F. Departments's Wildlife Newsletter of September 18th reports that tests of blood samples taken from desert bighorn sheep in late 1980 and early 1981 in Aravaipa Canyon, the Trigo Mountains and the Kingman area indicate a possibly significant exposure to livestock diseases among sheep in two of the three areas.

The samples were sent to the National Veterinary Services Laboratories of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service and analyzed for evidence of bluetongue, soremouth (contagious ecthyma), and EHD (epizootic hemorrhagic disease) all highly contagious infections carried by viruses.

Eleven of the 27 bighorns tested showed antibody levels high enough to indicate previous exposure to at least one of the diseases..

Six of seven animals tested in the Aravaipa herd showed previous exposure to bluetongue and EHD, and two showed exposure to soremouth. Twelve blood samples from sheep in the Trigos showed one case of exposure to bluetongue and EHD and four of exposure to soremouth. Two of eight Kingman area samples showed soremouth antibodies were present in sufficient concentrations to indicate previous exposure.

None of the sheep sampled were sick. The antibody levels merely indicate enough exposure to the viruses to trigger normal bodily defense mechanisms.

Although the initial sampling is too small for anyone to draw conclusioons, it may be significant that there is higher incidence of disease exposure in the Aravaipa and Kingman sheep which have a greater interaction with cattle, although there are some burros in that area.

The Department will start a fairly large scale disease research effort this fall. Plans are to get blood samples from burros being rounded up on BLM lands and, with the ranchers' cooperation, from domestic cattle on these ranges.

Why are the preliminary test results important? Department Field Coordinator Jim deVos explains that all diseases are intensified by stress: "With abundant water and a fairly diverse vegetative community, there should be no problem. But in the event of a long-term drought and depleted range conditions, the sheep would be concentrated, and conditions would force them to compete for food and water with livestock. Such stress could trigger an active epizootic." Further tests will evaluate this potential.

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