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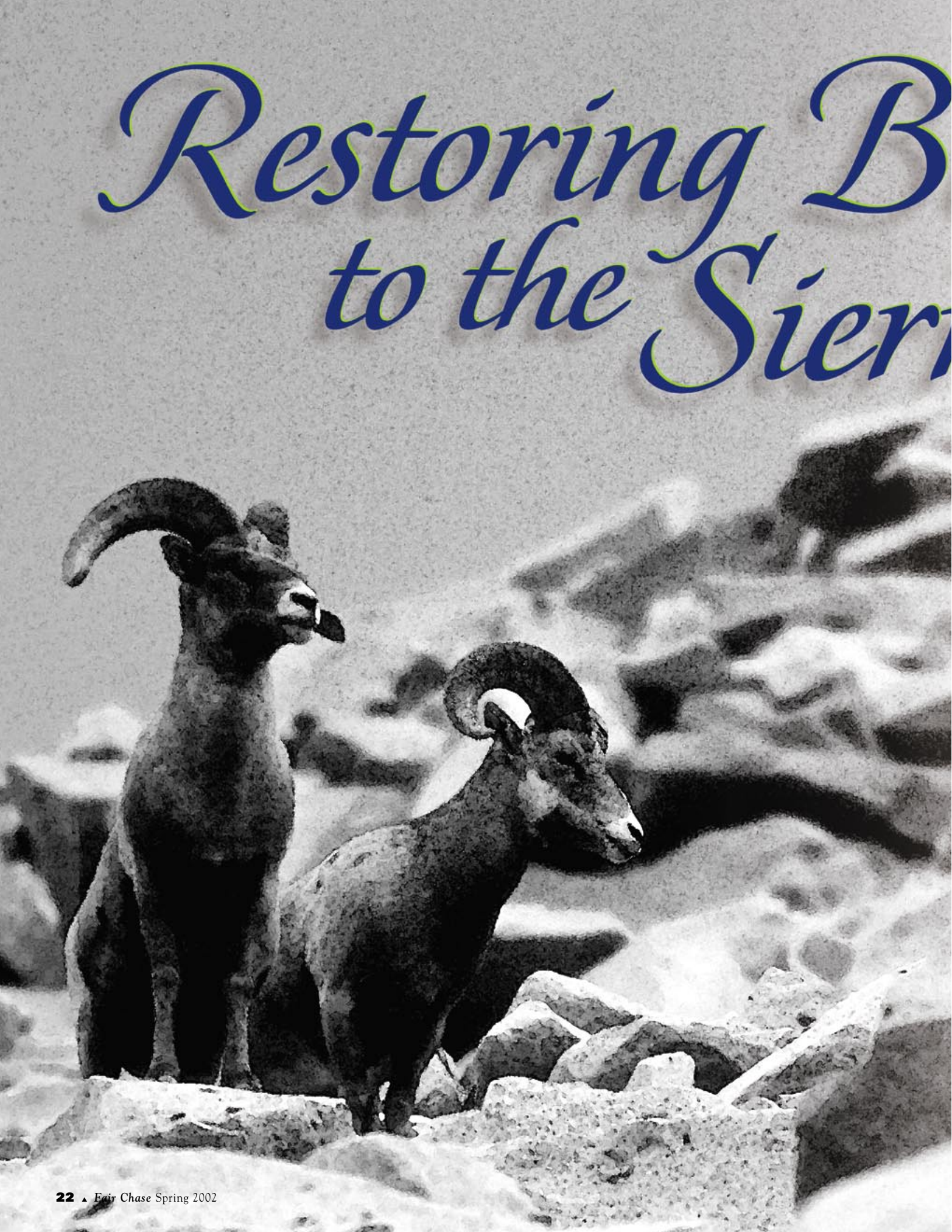

# ighorn Sheep ra Nevada

## A PROJECT OF INTEREST TO THE BOONE AND CROCKETT CLUB

### GETTING THE PARTY STARTED

Late one evening during February 1997, I had just returned to my room at the Philadelphia Marriott, host hotel for the 20th annual convention of the Foundation for North American Wild Sheep. I was exhausted and looked forward to a good rest, but could clearly hear music through the walls of my room. I knocked on a door across the hall to lodge my protest. But as soon as the door opened, I was invited in. Carolyn Pedrotti, wife of Dan Pedrotti, president of the Boone and Crockett Club, insisted that I join the gathering. That night I discovered that Texans know how to party.

**BY VERNON C. BLEICH, PH.D.**
SENIOR WILDLIFE BIOLOGIST
CALIFORNIA DEPARTMENT OF FISH AND GAME
B&C PROFESSIONAL MEMBER

**PHOTOGRAPHS BY JOHN D. WEHAUSEN**

Besides Dan and Carolyn, I met Tommy Caruthers, and past Club president, Paul Webster. Eventually talk turned to sheep. As a Senior Wildlife Biologist with the California Department of Fish and Game (CDFG), I live within a few miles of the largest existing population of California bighorns and have been engaged in conservation efforts on their behalf for more than 15 of my nearly 30 years with CDFG.

I recall drawing distribution maps on cocktail napkins, as well as a logistic curve demonstrating population growth on a tablecloth

when the supply of napkins was exhausted. What I recall most vividly, however, was the intense interest of those at the table regarding wildlife conservation. As a result of this chance meeting, I was nominated for membership by Paul Webster, and was approved as a Professional Member of the Boone and Crockett Club in 1999.

## BIGHORN SHEEP IN THE SIERRA NEVADA

Over the past years, several events affecting the status of wild sheep in the Sierra Nevada have improved chances for population growth. But history tells us we must seize the opportunity now.

The Sierra Nevada, one of the largest mountain ranges in North America, is located in eastern California near the Nevada border. Until recently, wild sheep inhabiting that range were considered to be the same subspecies as California bighorn sheep that occur in British Columbia and several states in the western U.S. Research supported by CDFG, however, has recently led us to conclude that bighorn sheep in the Sierra Nevada are the only extant "California" bighorns, *Ovis canadensis californiana*. The "California" bighorns found in British Columbia and the western U.S., and formerly classified as *californiana*, were more similar to Rocky Mountain bighorn sheep, and they have been reclassified as *Ovis canadensis canadensis*. Despite the strength of the morphological and genetic evidence, there will be long debates about this re-classification.

Like most other populations of bighorn sheep in North America, those in the Sierra Nevada declined substantially during the 19th century. Whether those declines can be attributed to a single factor, or have multiple causes, is open to speculation. As recently as 1979, the Mt. Baxter and Mt. Williamson populations were the only concentrations of bighorns in the Sierra Nevada. That year, a third population was established at Wheeler Ridge, and through the cooperative efforts of CDFG, the U.S. Forest Service (USFS), Bureau of Land Management (BLM), National Park Service (NPS), Los Angeles Department of Water and Power (LADWP), a major landowner in the eastern Sierra Nevada, and the academic community, additional populations appeared, one at Mt. Langley in 1980. In 1981, the Director of CDFG formally established the Sierra Nevada Bighorn Sheep Interagency Advisory Group to facilitate the conservation of these magnificent animals. Since then, the USFS, BLM, LADWP, NPS, the University of California (UC), and CDFG have together developed a conservation strategy for bighorn sheep in the Sierra Nevada. It included recommendations that bighorn sheep be restored to suitable, but vacant, habitat in the Sierra Nevada where practical.

PHOTO BY VERNON BLEICH

During 1986, CDFG and the other cooperators established a fifth population of Sierra Nevada bighorn sheep in Lee Vining Canyon, west of Mono Lake and far to the north of the existing populations. That effort was undertaken to restore wild sheep to Yosemite National Park, as well as to provide an additional population as insurance against sudden (epizootic) loss of all wild sheep in the Sierra Nevada. The Lee Vining Canyon population was augmented with eight additional females in 1988 to enhance its reproductive base, which had declined to only six adult females as a result of inclement weather and losses to predators. After removal of three mountain lions, the population stabilized, then grew. By 1986, wild sheep numbered over 300 in the Sierra Nevada, and occupied five areas.

Despite increasing numbers, not all was well. During the late 1980s, sheep no longer were using the low-elevation winter ranges that provided nutritious forage. At high elevations, lambing was delayed because after winter it took female sheep longer to regain body condition, necessary for ovulation. Sheep that remained at high elevations were also subjected to greater weather-related mortality than they would have been at lower elevations. Predation may have been the primary reason that sheep began to remain at high elevations during late winter and early spring; sheep appeared to be trading nutrient availability for safety from predators.

Overall, populations continued to decrease and, by 1998, there was evidence that bighorn sheep in the Sierra Nevada had declined to the point that they would not recover without intervention. Based on a recommendation from the Sierra Nevada Bighorn Sheep Foundation (SNBSF), the California Fish and Game Commission classified those animals as Endangered. In 1999, the USFWS gave them federal protection with a temporary Endangered listing.

As those events unfolded, the editors of *Western Outdoor News*, a weekly dedicated to the conservation of wildlife and the preservation of hunting and fishing in California, challenged its readership to raise funds for the conservation of bighorn sheep in the Sierra Nevada. In response, sportsmen contributed thousands of dollars to help the beleaguered bighorn sheep. Those funds were held in trust for CDFG by the Foundation for North American Wild Sheep, and have been used to purchase equipment needed in recovery efforts.

On January 3, 2000, wild sheep in the Sierra Nevada were formally classified as Endangered by the U.S. Fish and Wildlife Service, and were thereby granted permanent protection under the Federal Endangered Species Act. That action mandated the preparation of a recovery plan, and required that individuals or agencies contemplating actions within the range of those sheep con-

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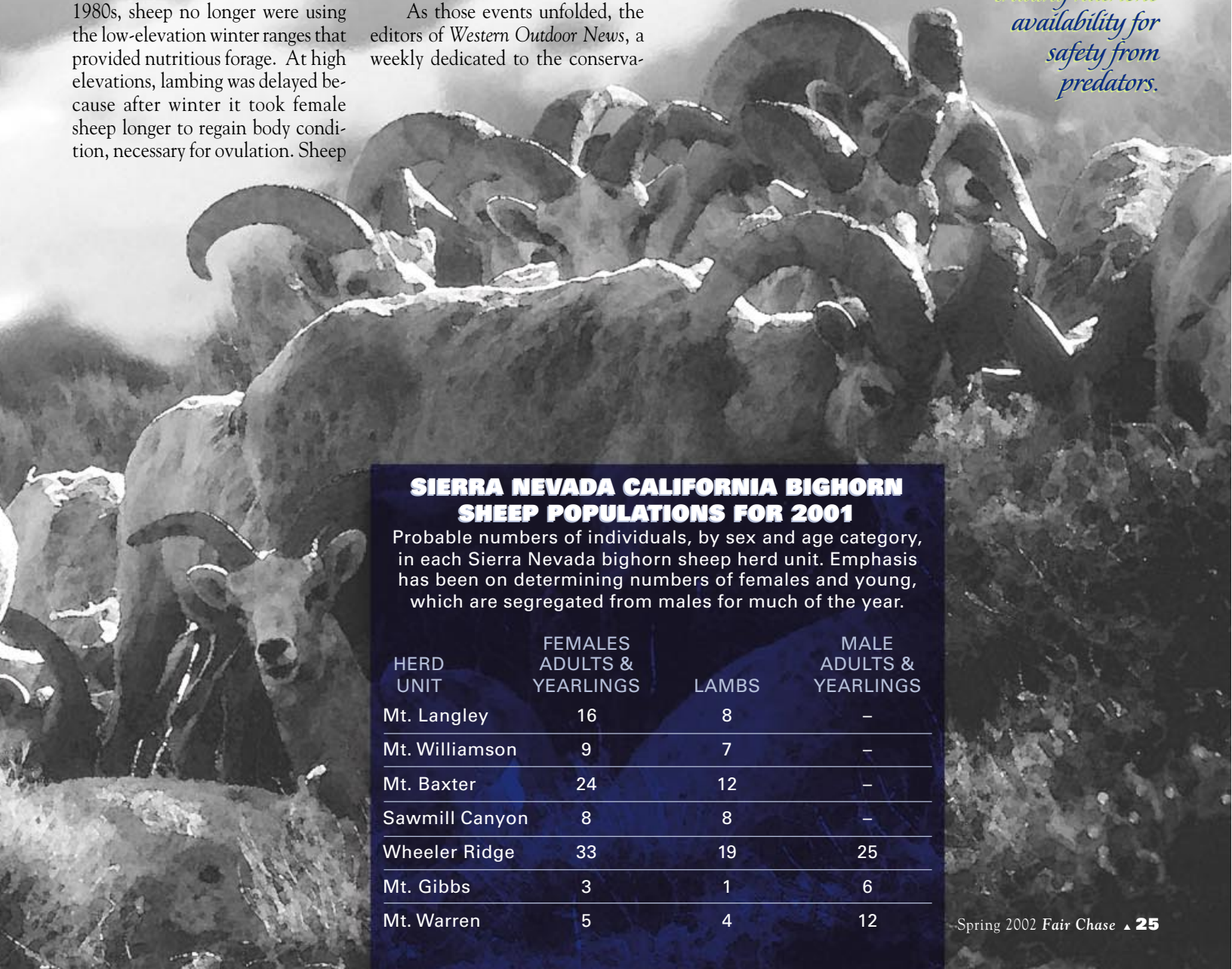

## SIERRA NEVADA CALIFORNIA BIGHORN SHEEP POPULATIONS FOR 2001

Probable numbers of individuals, by sex and age category, in each Sierra Nevada bighorn sheep herd unit. Emphasis has been on determining numbers of females and young, which are segregated from males for much of the year.

| HERD UNIT | FEMALES ADULTS & YEARLINGS | LAMBS | MALE ADULTS & YEARLINGS |
|---|---|---|---|
| Mt. Langley | 16 | 8 | – |
| Mt. Williamson | 9 | 7 | – |
| Mt. Baxter | 24 | 12 | – |
| Sawmill Canyon | 8 | 8 | – |
| Wheeler Ridge | 33 | 19 | 25 |
| Mt. Gibbs | 3 | 1 | 6 |
| Mt. Warren | 5 | 4 | 12 |

sult with the USFWS regarding potential impacts of proposed projects to the population. An important outcome of this process has been a successful effort to alleviate the threat of contact with domestic sheep, which can be a source of fatal pneumonia to bighorn sheep.

Despite the protection afforded by Federal listing, that action provided no funds with which to implement a recovery program. Further, actions to remove mountain lions required the preparation of an Environmental Assessment and a mandatory period for public review and comment. Several events occurred during the spring and summer of 1999 to facilitate recovery. First, the California Department of Fish and Game and the USFWS agreed that the Department would assume primary responsibility for efforts to reverse the downward trend and restore bighorn sheep to historical ranges in the Sierra Nevada. As a result, the Department established an interdisciplinary group of scientists to prepare a recovery plan. Further, as a result of a member's request, the California Legislature provided funding for the initial phases of the recovery program. Finally, and following a nearly unanimous vote, the Legislature passed a law that provided CDFG the authority to remove mountain lions. The Mountain Lion Foundation and the Society for the Conservation of Bighorn Sheep helped secure the funding package and the legislation.

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Between 1999 and 2001 a research project on the genetics of sheep remaining in the Sierra Nevada, initiated by the SNBSF, was fully funded. One animal was translocated to the critically small population at Mt. Williamson. Further, one mountain lion was removed from each of three areas occupied by bighorn sheep.

The early phase of the recovery effort has been largely administrative. Currently, the recovery plan is undergoing internal review by the USFWS and, following any necessary revisions, it will be circulated for review and comment by the public. The Boone and Crockett Club, the Foundation for North American Wild Sheep, the Society for the Conservation of Bighorn Sheep, the Mountain Lion Foundation, and other organizations and individuals that have expressed an interest in this project will be provided the opportunity to review and comment on the plan.

In May of 2001, I was asked to oversee implementation of the restoration effort. I hope to integrate the restoration of bighorn sheep with efforts to understand the dynamics of mule deer and mountain lion populations, and their relationships to bighorn sheep. Dr. Becky Pierce will lead efforts to protect bighorn sheep from predation, and will investigate why and how lions affect the dynamics of sheep in the eastern Sierra. Becky conducted her graduate research on the relationships between mountain lions and mule deer in Round Valley, adjacent to the population of bighorn sheep on Wheeler Ridge. She will be joined in her efforts by Jeff Davis and Jeff Ostergard, both of whom are professional lion trackers employed by USDA Wildlife Services, and each of whom worked on the Round Valley Project for eight years.

Dr. Tom Stephenson, who has a strong background in nutritional ecology, has conducted research on several North American ungulates over the past 15 years. Tom will oversee efforts to monitor populations of wild sheep, and to restore them to the Sierra Nevada. He will be responsible for designing and implementing specific projects to capture, mark, and translocate bighorn sheep, and will administer any captive-breeding program that may be developed.

Dr. John Wehausen, a biologist with the University of California, will concentrate on demographic aspects of the restoration project. John conducted his graduate work on bighorn sheep in the Sierra Nevada, and has played an important role in the conservation of these wild sheep for more than 25 years. He will work with Dr. Rob Ramey, a researcher with the University of California, to investigate population genetics of wild sheep remaining in the Sierra Nevada. Rob wrote his senior thesis on the first translocation of wild sheep in the Sierra Nevada, and his Ph.D. dissertation was a comprehensive treatise on the genetics of wild sheep in North America.

As noted earlier, captive breeding may be an important facet of the restoration effort. Dr. Holly Ernest, a Research Associate and veterinarian at the University of California (Davis) Wildlife Health Center, has explored virtually all aspects of a captive breeding program, should it be necessary to establish one.

The recovery and restoration of bighorn sheep will be a long process, despite strong funding and able personnel. The effort will be supported indirectly by other people from CDFG, most notably John Carlson (acting Chief of the Wildlife Programs Branch and Supervisor of the CDFG Wildlife Investigations Lab), Dr. Ben Gonzales (Wildlife Veterinarian at WIL), and Bob Teagle (Capture Specialist at WIL).

I hope that, besides restoring bighorn sheep to native ranges, and perhaps in suitable habitat where sheep were not common, that we will find answers to many of the questions associated with the decline of wild sheep in the Sierra Nevada. If we fail there, the recovery effort will fall short of its potential. ▲▲▲