

WILDLIFE CONSERVATION UNDER ECW IN THE NATIONAL PARKS AND MONUMENTS

by

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The following account represents a continuing report of progress on conservation work under ECW which was described last year on the occasion of the seventeenth annual meeting of the American Society of Mammalogists.

The very large number of CCC projects and activities in the national parks has required constant inspection and study by wildlife technicians in order to safeguard wildlife habitats and maintain primitive conditions. Projects such as trail construction, fire hazard reduction, and stream restoration, have therefore required a particularly careful review.

In addition to this work, special investigations of range conditions, stream biology, and the status of seriously depleted species such as the bighorn have been continued, while examinations of certain new areas important for wildlife protection have also been made in cooperation with other Federal conservation agencies. A special project of the Wildlife Division has been the preparation of a vertebrate check-list for all the national parks within the continental United States and Alaska. All wildlife technicians have contributed extensively to this project, which is not yet completed.

In the eastern national parks and monuments, wildlife problems are complicated by long human use of the areas and by their proximity to large

population centers. Stream restoration has been undertaken involving the removal of such artificialities as old railroad trestles and log jams resulting from lumbering operations of earlier days. The species of fish planted in park waters have been subject to recommendations of the Wildlife Division in order to prevent the further spread of exotic species into streams and lakes still occupied only by native forms.

Wildlife technicians also have advised in the selection of plant species used for erosion control along highways and for treatment of gullies resulting from past misuse of the land. Only native species are used, and, when possible, those known to benefit wildlife directly are recommended.

The problem of mosquito control has been important in several of the eastern national monuments where human concentration is great, particularly at Colonial National Monument. In these areas wildlife technicians have assisted in the development of special methods of control which will interfere as little as possible with the natural balance of ponds and marshes. A very light fuel oil which disappears without a trace a few hours after application has shown great promise.

One of the most important and yet most difficult tasks assigned to wildlife technicians has consisted in passing on proposed locations of new roads in order that adjacent outstanding natural features may not be irreparably destroyed. In the Great Smoky Mountains National Park, some fifteen miles of road survey lines have been checked and various changes in grade and alignment were made for this purpose.

In the Great Smokies, also, three biotic succession research areas have been permanently reserved for scientific study. One of these affords exceptional opportunity to observe plant and animal succession in a stand of mature

dead chestnut; no fire hazard reduction activities will be carried on in this area. Two of the park's grassy balds, the origin of which has long been a subject of scientific controversy, have been set aside for special botanical study.

Another important botanical project carried on during the past year in the Great Smoky Mountains National Park has involved the collection of some 3000 plant specimens representing approximately 2000 species. In spite of its central location in the eastern United States, the Great Smokies area has received comparatively little taxonomic and ecological study from botanists, so that many of the findings resulting from this study are new. About 130 species of trees alone have been recorded from this heavily wooded area.

In this same park, following what seems to have been a cyclic increase of considerable magnitude in the water snake population, considerable pressure was exerted by those in charge of fish culture to launch a control campaign against the reptiles, which they believed to be serious enemies of the trout. Prior to any decision regarding a control policy, arrangements were made for an analysis by the Wildlife Division of 500 water snake stomachs. However, by the next season the cyclic peak had passed, and the snakes had become so reduced by natural causes that only 98 stomachs were obtained. Of these, one third were empty, and of the remainder only two contained trout, which seems to indicate that the water snake ranks as a competitor of the trout rather than as a predator.

In the northwestern and Rocky Mountain parks, the lack of winter range for the migratory big game animals has always presented an acute problem and has continued to receive study. The need of boundary adjustments which would provide more suitable biotic units is well illustrated by the disappearance of

the white-tailed deer from Yellowstone as a result of the destruction of its winter habitat in the river bottom areas, which lie outside the park.

In cooperation with the United States Biological Survey, wildlife technicians of the northwestern region investigated and reported favorably upon the proposed Red Desert Antelope Refuge in southern Wyoming and the Lodore Wildlife Refuge along the Green River in Colorado. Both of these areas are on the public domain.

An important problem in many of the national parks has been raised by the need of moderating various control measures proposed against bark beetles, liver flukes, mosquitoes and other small forms of life whose activities become obvious at times in more or less cyclic recurrence. In general it is the belief of the Wildlife Division that control campaigns constantly tend to become too widespread and too complete unless carefully held within bounds.

Bark beetles have increased in recent years, probably as a result of drought, until their effect on trees in certain areas is quite noticeable. However, since these cycles are a natural phenomenon and in most places are not of serious extent, it is felt by wildlife technicians that there should be little if any interference outside of developed areas where the destruction of individual trees would constitute an irreparable loss.

Control of the liver fluke in Glacier National Park by treating the lakes and streams with copper sulphate to destroy the snails harboring these parasites has been urged by those representing livestock interests. In this case the Division contended that snails are an important part of the park fauna and that control operations directed against them for the

benefit of the wool growing industry should be confined to regions outside the park where sheep are raised. An experiment by the Bureau of Fisheries has also demonstrated that copper sulphate in concentrations sufficient to kill snails is extremely deleterious to trout.

In Rocky Mountain National Park, eradication of the exotic foxtail grass, the awns of which have caused suffering and death among big game animals, has been completed by the CCC.

In Mount Olympus National Monument, life history studies of elk, deer, cougar, and other forms have continued whenever time could be spared from other activities. Here, as elsewhere, it is desired to preserve the primitive picture with as little interference as possible, and it is our hope that the final boundary adjustments will permit the natural interrelations of the animal and plant communities in this magnificent region to remain undisturbed. Special attention has been given to the various natural factors, such as the cougar, and various diseases which operate to control the deer and elk on the area. Cougars still are present but the local sentiment against them is intense and they have been much hunted during the past year as a result of a \$25 bounty. The elk and deer, on the other hand, are present in good numbers and are doing well.

Various problems of local and more or less incidental character arise from time to time to test the ingenuity of the wildlife technician. In Yellowstone National Park, the intake pipe at the source of the water supply for a large development center was continually plugged by beavers. Here it was recommended that the intake be located in the middle of the pool, away from the dam, thereby circumventing the instincts of the animals.

In another instance, one of the ponds in which trumpeter swans have nested was continually visited by fishermen who were making their own road in order to drive to the fishing area. In this case a long string of large boulders bordering the main highway was necessary to prevent the cars from entering the swan area.

In the southwestern parks and monuments, approximately 300 specimens of birds, mammals, and reptiles were added to the various museum collections during the past year. Most of these were new to the park collections while several represented state or regional records. Such specimens provide secure basis for the check-lists which are being prepared for these areas.

Special study has been made of the numbers, distribution and food habits of the bighorn, antelope, deer and certain predatory animals in the southwestern region. Through the cooperation of the Bureau of Biological Survey and the National Park Service, it is hoped that several new monuments and game refuges can be created in the southwest in the near future, in which case the bighorn will receive a greater benefit than any other species. Wildlife technicians investigating these proposed refuges found that bighorn were present in the Organ Pipe and Kofa areas in Arizona, in the Canyons Of The Colorado area in Utah, in the Desert Range in Nevada, and in the Yampa-Lodore area in Colorado. These areas are large enough to provide real protection to bighorn and other species.

A large portion of the Petrified Forest National Monument was recently fenced in such a manner that antelope have access to the region but domestic stock do not. Already the vegetation shows a decided improvement over the range outside, and on April 10 of this year the regional wildlife technician

counted eighteen antelope inside the monument. It is expected that these animals will continue to increase as the range improves and as they become acquainted with the water supplies developed under ECW to compensate for the loss of other sources as a result of human utilization.

The boundaries of Wupatki National Monument have been extended to give added protection to the antelope there, thus fulfilling our hopes as expressed at last year's meeting of the Society. Similarly, a 200 acre marsh of great importance to wildfowl has been added to the White Sands National Monument and is now being fenced against stock.

During the past year, as fast as the expiration of old grazing permits has made it possible, all domestic stock has been removed from Mesa Verde and from additional portions of Grand Canyon, Zion and Bryce National Parks, as well as from large portions of Petrified Forest, Bandelier and Colorado National Monuments. Thus the National Park Service continues to move toward its ultimate objective which is to free all park areas from the disastrous effects of overgrazing to which the southwest in particular has been subjected for many years.

In the Pacific Coast region perhaps the most important single ECW accomplishment of the Division, from the standpoint of policy establishment, has been the study of the Yosemite National Park pack and saddle horse problem together with recommendations for future management. For many years it has been the custom of the public utility operator to graze some 200 head of horses and mules during the spring and summer months on certain of the choicest meadows in Yosemite. The practice of grazing pack and saddle stock in this region goes back even to the days before the park was established, and has been so firmly entrenched there that provision for its continuance,

subject to the control of the Secretary of the Interior, was included in the operator's contract.

Recently it has been shown that some of the meadows have suffered severely from overgrazing, particularly during the spring months when the sod is wet and easily injured. During the investigation conducted by the Wildlife Division, forage requirements of the stock were calculated for every week of the grazing season, based on number of horse days, and the required acreages were checked against the acreages actually available for the same periods.

Forage requirement figures and range studies both demonstrated that spring grazing should be discontinued in order to save the meadows and to avoid undue competition with wildlife. It was also shown that a reduction would be necessary in the total number of stock which could be allowed on the range at any given time. It is hoped that the management plan evolved as a result of this study can be applied for the protection of wildlife to other national park areas where grazing cannot be discontinued immediately.

Among various research areas which have been reserved in the Pacific Coast parks for scientific study, the most notable is the fisher reserve in Sequoia National Park, which constitutes the last important stronghold of this rare mammal in California. Another research area in this same park has been set aside for the study of the native golden trout, of which the stock has been diluted elsewhere in its restricted range by introductions of other species of trout. A "peregrine reserve" has been set aside in the Pinnacles National Monument for the observation of a pair of duck hawks, a pair of prairie falcons, and various other persecuted raptorial species which are nesting there.

In Death Valley National Monument a survey has been made of the springs and water holes, which of course are vital to all life in that desolate region, and measures have been recommended for the protection of those water sources which so far have escaped preemption by miners. It is hoped that the bighorn, which have been decreasing alarmingly there, will benefit most from this work.

Investigations were made of several areas in the Pacific Coast region which have been proposed as wildlife refuges. A reconnaissance trip was made through the celebrated King Canyon region of the Sierra Nevada which has been proposed in Congress for national park status. This last remaining California wilderness must be set aside very soon if it is to be protected from the rapidly advancing tide of development and commercial exploitation.

In Oregon, the Malheur Lake and Hart Mountain Wildlife refuges, both administered by the Biological Survey, were studied as a cooperative enterprise by Wildlife Division technicians, and recommendations were made that these areas be enlarged to afford additional protection^{to}/sage hen and antelope.

In the Lava Beds National Monument, in northeastern California, a food habits study of the local coyote population recently has been launched at the suggestion of the Bureau of Biological Survey, which operates a Federal wildfowl refuge immediately adjacent to the monument.

From the life history standpoint probably the most important current activity of the Wildlife Division is its nationwide survey of the status of the hardpressed bighorn. Limitations of time hardly allow more than brief mention of this project here, but it is expected that the findings eventually will be of sufficient bulk and importance to warrant publication,

when it is to be hoped that the information presented will stimulate concerted action on the part of all conservation organizations.

In the southwest the bighorn are suffering from poaching, overgrazing of their ancestral range by domestic livestock, and preemption of vital water supplies by man. In the Sierra Nevada, where less than a dozen of these animals are now known to survive, they appear to be victims of poaching and perhaps of disease originally brought into the country by domestic sheep. In the Rocky Mountain region they are known to be afflicted with various parasitic ailments, many of which may have been introduced by domestic sheep, and it is also possible that they suffer to a certain extent from poaching. Only in Mount McKinley National Park, Alaska, does the status of the bighorn appear to be uninfluenced by man.

In conclusion, may we state that we hope, at a later meeting, to report on other field activities and the treatment of current wildlife problems described in this paper.