

WILDLIFE MANAGEMENT IN NATIONAL PARKS



1962 - 1963



**NATIONAL PARK
SERVICE**

a wildlife management summary report

1962 - 63

*division of resources management &
visitor protection*

branch of wildlife management

PREFACE

The purpose of this report, which is to be issued annually, is to summarize the National Park Service's wildlife management activities and programs. We hope that this report will fulfill the objective of keeping all interested persons informed of Servicewide wildlife management programs and investigations.

None of the following sections of the report are complete. Our aim has been to relate the status of wildlife conditions, management programs and their associated investigations that were in effect during the period July 1, 1962, to June 30, 1963, as simply and briefly as possible. Most programs and studies, when completed, are reported in more detailed publications elsewhere.

Management has not been the only function of the Division of Resources Management and Visitor Protection's Branch of Wildlife Management. Indeed the control programs conducted by management biologists, wildlife rangers, and park rangers are programs resulting from the continual investigations, and knowledge obtained by management-oriented studies conducted by management biologists and wildlife rangers. The end results of basic research conducted by research biologists and naturalists are also utilized by the Branch of Wildlife Management.

All Service technical personnel must continue to provide sound and valid information needed for management of all resources in the National Park System. Both research and operations are essential aspects of wildlife management. Through planned development of all activities the Branch of Wildlife Management hopes to continue to play an effective role in maintaining park wildlife populations for the benefit of future generations.

CONTENTS

| | <u>Page</u> |
|---|-------------|
| INTRODUCTION | 1 |
| POLICIES AND GUIDELINES | 4 |
| DEPARTMENTAL WILDLIFE ADVISORY BOARD | 5 |
| GENERAL WILDLIFE CONDITIONS AND ACTIVITIES | 13 |
| Southeast Region | 13 |
| Northeast Region | 20 |
| Midwest Region | 24 |
| Southwest Region | 51 |
| Western Region | 65 |
| BRANCH OF WILDLIFE MANAGEMENT | 82 |
| APPENDICES | 83 |
| Annual Wildlife Inventory. | 84 |
| Wildlife and Related Statistics. | 86 |
| Summary of Certain Wildlife Control Programs | 87 |
| Summary of Bear Management Activities 1961 & 1962 | 89 |
| Fish Plantings - 1962 | 90 |

INTRODUCTION

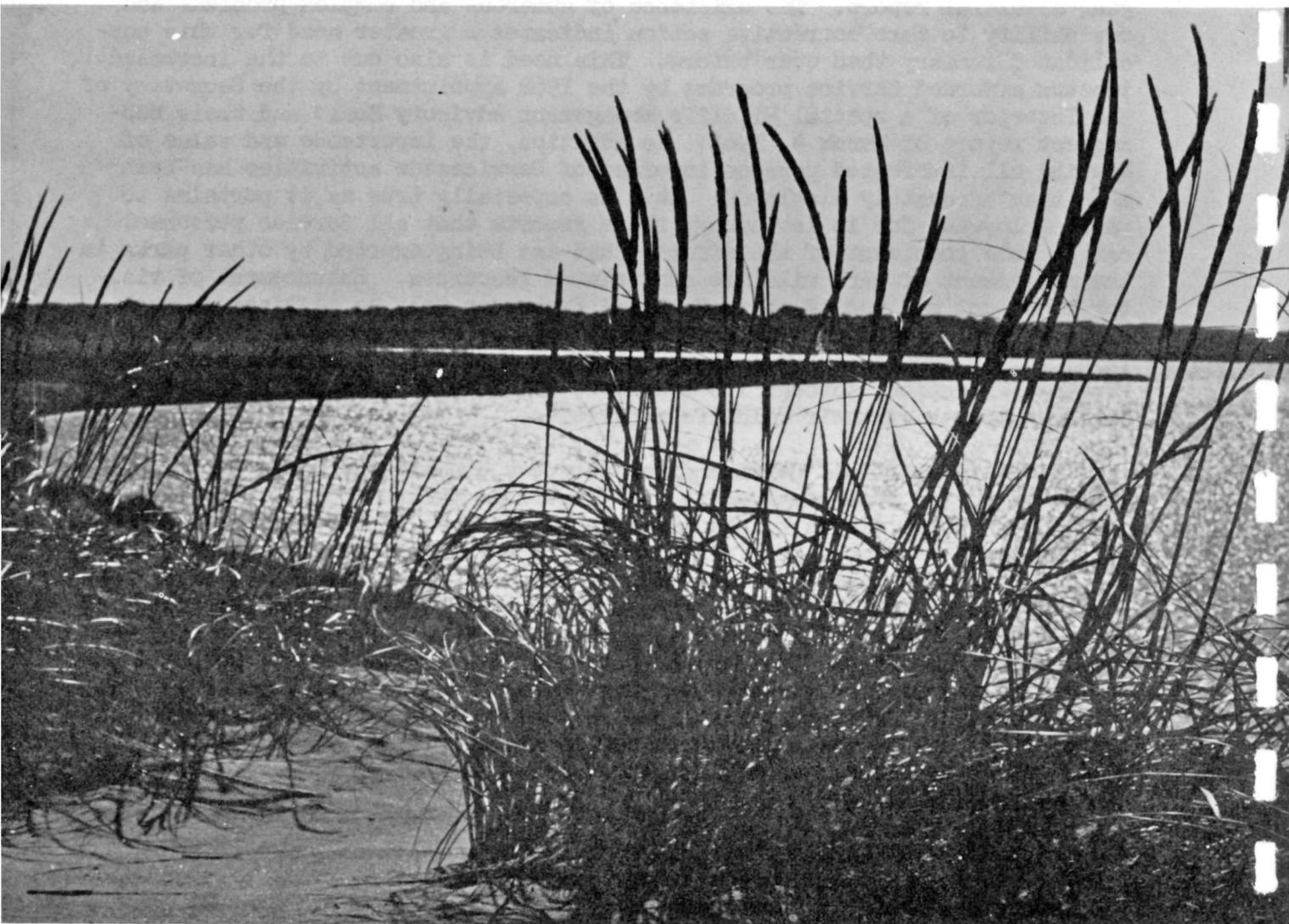
This second summary of National Park Service wildlife management activities and programs generally follows the pattern and scope of last year's initial report. The existence of numerous and complex problems and our ability to take corrective action indicates a greater need for this consolidated summary than ever before. This need is also due to the increased impetus afforded Service programs by the 1962 appointment by the Secretary of the Interior of a special Wildlife Management Advisory Board and their subsequent report of March 4, 1963. In addition, the importance and value of keeping all interested persons informed of Servicewide activities has been more than adequately displayed. This is especially true as it pertains to park employees, for it is through these reports that all Service personnel can be made cognizant of the efforts that are being exerted by other parks in the management of park wildlife and related resources. Enhancement of visitor enjoyment and use of their National Parks can only be realized through the complete knowledge of all activities by Service personnel. It is with this primary thought in mind that the Division of Resources Management and Visitor Protection, through its Branch of Wildlife Management, compiles these summary reports of their wildlife activities.

Visitor use of all Service areas showed a dramatic increase during this reporting period when compared to the comparable twelve-month period of 1961-1962. Total visits to the parks increased from 82,276,000 to 91,510,000 persons, and the number of visitor days of area use climbed from 91,758,000 to 101,870,700. These figures exclude the huge visitor use at 776 areas administered by National Capital Region in the Washington, D. C. vicinity. Nevertheless, they do illustrate the continuing increased impact upon approximately 192 areas which comprise the National Park System and its 26,003,213 federally administered acres of various features and natural resources. The recreational use of fishery resources as submitted by annual reports of thirty-four park areas indicated an angler-use figure of approximately 1,870,000 days. This use only includes those which originated from Service administered lands.

Although some data such as field area bear management programs are presently being reported on a calendar year basis, the majority of information contained herein is summarized for the July 1, 1962, to June 30, 1963, period. Major wildlife management programs are therefore being reported for the one-year period that generally coincides with the fiscal year that most adequately covers field area control program activities.

Inclusion of several new areas within the National Park System continued during this summary period due to the accelerated need of more areas for public outdoor recreation. The importance of conserving and managing nationally significant areas of scenic, historic, and of archeological value also remained as great as ever, and efforts to preserve these heritages

for future public enjoyment generally followed past establishment patterns with vital, yet limited, progress being accomplished. A notable recognition for reserving vanishing seashore areas of this country resulted in congressional authorization of Point Reyes and Padre Island National Seashores.



Cape Cod National Seashore is one of several new areas established to reserve vanishing seascapes for recreational use and enjoyment.

Designation of these two areas and Cape Cod National Seashore as administrative units of the National Park Service is expected in the near future. These actions follow the general trend of providing additional needed recreation

areas worthy of national recognition. Public hunting is recognized as a compatible use of National Seashore and Recreational Area resources; therefore, the need for accelerating their wildlife management activities through increasingly active Service programs which will provide for close cooperation with State fish and game departments is imperative.

POLICIES AND GUIDELINES

The complete reproduction of existing wildlife management policy guidelines within this summary is not felt to be necessary. This is primarily due to the fact that it should already be available from several different sources in each area of this Service. However, the presence of these policy guidelines in volume VI, part 2, chapter 5 of the "Administrative Manual" and the 1961-1962 summary of "Wildlife Management in National Parks" should not preclude the need for thorough periodic review by employees.

A revision of existing wildlife management policies has been included in the major realignment of all National Park Service administrative planning to be followed in future years. The decision to remodel and improve policies and the need for such an updating has been reviewed as an absolute necessity for some time. This belief is largely due to the difficulties of adhering to principles of the 1916 Organic Act and its resulting policies which are presently used in the administration of all field areas. Public hunting, which has been provided for in recreation and seashore areas through specific acts of Congress, is but one example of the many incongruities that presently exist.

Proper administration of a National Historical or Recreational Area is different in many respects from practices and conservation activities that are essential to sound management of a scenic and scientific park. Primary values are oftentimes different. Legislative responsibilities are almost invariably different. Therefore, these and other similar reasons are resulting in an evolution toward establishment of three basic policies. When completed, they will serve as a sound basis for administering (1) National Parks, Monuments and related natural areas, (2) areas of historical and archeological significance, and (3) national reservations set aside primarily for their recreational opportunities.

The future release of these required policy changes will require an even greater alteration or evolution. This will inevitably apply to the thinking that presently guides all park administrators in the accomplishment of their daily responsibilities.

DEPARTMENTAL WILDLIFE ADVISORY BOARD

The March 4, 1963, release of Secretary of the Interior Stewart L. Udall's special Wildlife Advisory Board report entitled "Wildlife Management in the National Parks" is a most significant report relating to sound management of park ecological resources. Its value to this Service is unquestionable.

In view of the important values this report will have in years to come, periodical reviews should be made by all Service personnel. Other significant and related items are available to the reader in exhibits A-C of this section.

This acceptable guide to future wildlife activities has not only established an authoritative structure for National Park Service administrators, due to the caliber of these board members and their report, but has also provided a thorough and competent treatise that is of value to many other natural resource management agencies. Reprints of their report have been widely distributed with several thousands of copies furnished to individuals and organizations outside of this Service. In addition to the many requests from other Federal and State land management agencies and related groups, conservation organizations and private individuals, a large number have been filled from foreign countries. It is felt that this wide distribution of their findings and recommendations is ample testimony to the high esteem that these foremost conservation leaders command within the field of wildlife management.

The Secretary of the Interior's acceptance of the Leopold committee's recommendations and his subsequent instructional memorandum to the Director of the National Park Service have resulted in appropriate action toward implementing these findings. Instructions and material were assembled for each regional director's use in effecting meetings with the staffs of various State fish and game departments in order to foster increased cooperative relations, solicit their counsel on wildlife matters, inquire into the possibilities of increasing public harvests of big game animals on adjoining lands to parks experiencing overpopulation problems, and to investigate possibilities of increasing cooperation regarding wildlife research and management programs of mutual concern. This action alone has already achieved favorable results for both this agency and the States.

As was mentioned earlier in this summary, an additional effort of implementing these recommendations is presently occurring through a major revision of existing Service policies. Individual statements and resulting guidelines for administration of (1) National Parks and Monuments, (2) historical and archeological areas, and (3) recreation and seashore areas can be expected in the future for improved guides to better management of all park resources.

The immediate effect of this report has been to strengthen the Service's position with regard to the control of excess animal populations. Several areas are continuing their present activities. Programs aimed at eliminating past practices, or strengthening present activities, have been initiated. In all, an improved general acceptance of Service wildlife management practices has resulted from the published findings and recommendations of this independently acting committee.

Progress toward achieving a maximum implementation has only begun. Nevertheless, future activities and programs will assist in the Service's responsibility of achieving this goal.



Fishing and hunting opportunities within Flaming Gorge National Recreation Area are expected to be significant resource uses.



UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.

Dear Dr. Leopold:

Last year I called upon you as a private citizen to help the Department upon one of its most difficult problems, the management of wildlife. You and the rest of the special committee completed the first phase of your assignment when you submitted your report on wildlife management in national parks.

I like the quality of the report and the broad base you have used to develop your observations and recommendations. It is a constructive report that will serve as a guide to this Department and to the National Park Service through the years ahead.

You have stated the fact well that protection alone cannot continue to preserve the wildlife and its environment. The effects of man inside the parks and beyond park boundaries cannot be dismissed. You ask us to face up to the realities of the situation. One of your recommendations is that research must be conducted at a much greater rate than in the past to guide management. I am in complete agreement with you on the need for more research. This must be followed by forthright management. I think, too, that we must make a greater effort to coordinate national park wildlife management with that of the surrounding states, but I agree with you that the National Park Service cannot abdicate its responsibilities nor delegate them to others.

As new national recreation areas are created by Congress, opportunities will increase for the development of public hunting throughout our land. I am pleased that you noted this. When the Land and Water Conservation Bill is enacted into law, certain types of lands will be purchased and developed by the Federal, State, and local governments for outdoor recreation, often including hunting. The total effect will be to enhance hunting opportunities.

President Kennedy's message on conservation to Congress gave us a new definition of conservation for the 1960's, that included the whole spectrum of resources with a cautionary note that we should not neglect human resources. Our conservation efforts must include the conservation of our natural, cultural and human resources for the betterment of society as a whole. National parks, with their wildlife resources as intact as we can manage them, are for people to enjoy. Your study will help us to sustain and, if necessary, to re-establish this situation.

On behalf of the Department, I wish to commend you and your committee for this act of public service. I know that every member of the committee is a busy man and, as such in great demand.

Sincerely yours,

Signed - Stewart L. Udall

Secretary of the Interior

Dr. A. Starker Leopold
Museum of Vertebrate Zoology
University of California
Berkeley 4, California

Va., President of the Wildlife Management Institute; Dr. Clarence Cottam, Sinton, Texas, director of the Welder Wildlife Foundation; Thomas L. Kimball, McLean, Va., executive director of the National Wildlife Federation; and Dr. Stanley A. Cain, Ann Arbor, Mich., professor and Chairman of the Department of Conservation, University of Michigan.

The Committee, which was directed by Secretary Udall last spring to re-examine the most hallowed of assumptions and to recheck basic premises, listed among its recommendations the following:

"Where other methods of control are inapplicable or impractical, excess park ungulates (hoofed animals, such as deer, elk, mountain sheep) must be removed by killing. It is the unanimous recommendation of this Board that such shooting be conducted by competent personnel, under the sole jurisdiction of the National Park Service, and for the sole purpose of animal removal, not recreational hunting. Only in this manner can the primary goal of wildlife management in the parks be realized.

"By precedent and logic, the management of wildlife resources on the National Recreation Areas can be viewed in a very different light than in the park system proper. National Recreation Areas are by definition multiple use in character as regards allowable types of recreation.

"Wildlife management can be incorporated into the operational plans of these areas with public hunting as one objective.

"Obviously, hunting must be regulated in time and place to minimize conflict with other uses, but it would be a mistake for the National Park Service to be unduly restrictive of legitimate hunting in these areas.

"Most of the existing National Recreation Areas are Federal holdings surrounding large water impoundments; there is little potentiality for hunting. But some of the new areas being acquired or proposed for acquisition will offer substantial hunting opportunity for a variety of game species. This opportunity should be developed with skill, imagination, and (we hopefully suggest) with enthusiasm."

The Board's summary of its report follows:

"The goal of managing the national parks and monuments should be to preserve, or where necessary to recreate, the ecologic scene as viewed by the first European visitors. As part of this scene, native species of wild animals should be present in maximum variety and reasonable abundance. Protection alone, which has been the core of Park Service wildlife policy, is not adequate to achieve this goal. Habitat manipulation is helpful and often essential to restore

or maintain animal numbers. Likewise, populations of the animals themselves must sometimes be regulated to prevent habitat damage; this is especially true of ungulates.

"Active management aimed at restoration of natural communities of plants and animals demands skills and knowledge not now in existence. A greatly expanded research program, oriented to management needs, must be developed within the National Park Service itself. Both research and the application of management methods should be in the hands of skilled park personnel.

"Insofar as possible, animal populations should be regulated by predation and other natural means. However, predation cannot be relied upon to control the populations of larger ungulates, which sometimes must be reduced artificially.

"Most ungulate populations within the parks migrate seasonally outside the park boundaries where excess numbers can be removed by public hunting. In such circumstances the National Park Service should work closely with the State fish and game departments and other interested agencies in conducting the research required for management and in devising cooperative management programs.

"Excess game that does not leave a park must be removed. Trapping and transplanting has not proven to be a practical method of control, though it is an appropriate source of breeding stock as needed elsewhere.

"Direct removal by killing is the most economical and effective way of regulating ungulates within a park. Game removal by shooting should be conducted under the complete jurisdiction of qualified park personnel and solely for the purpose of reducing animals to preserve park values. Recreational hunting is an inappropriate and non-conforming use of the national parks and monuments.

"Most game reduction programs can best be accomplished by regular park employees. But as removal programs increase in size and scope, as well may happen under better wildlife management, the National Park Service may find it advantageous to employ or otherwise engage additional shooters from the general public. No objection to this procedure is foreseen so long as the selection, training, and supervision of shooting crews is under rigid control of the Service, and the culling operation is made to conform to primary park goals.

"Recreational hunting is a valid and potentially important use of National Recreation Areas, which are also under jurisdiction of the National Park Service. Full development of hunting opportunities on these areas should be provided by the Service."

Copies of the Committee's full report are available upon request from the National Park Service, Department of the Interior, Washington 25, D. C.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.
May 2, 1963

Memorandum

To: Director, National Park Service

From: Secretary of the Interior

Subject: Report of the Advisory Board on Wildlife Management

The report of the Advisory Board on Wildlife Management of the National Parks, dated March 4, 1963, has been reviewed. It emphasizes clearly the ecological principles involved, defines the aesthetic, historical and scientific values of the parks, and sets forth the philosophy of management thus called for.

You should, accordingly, take such steps as are appropriate to incorporate the philosophy and the basic findings into the administration of the National Park System.

Signed - Stewart L. Udall

Secretary of the Interior

GENERAL WILDLIFE CONDITIONS AND ACTIVITIES

SOUTHEAST REGION

Blue Ridge Parkway, Virginia and North Carolina

An increasing population of whitetail deer is evident as a result of pellet group counts by Parkway personnel and comparable cooperative studies by game department personnel of both States and the U. S. Forest Service. However, range conditions appear to be generally good, and no control program is anticipated at this time on Parkway lands.

Increased predator populations, a limited decrease in rodent numbers, and an increase in rabid foxes on adjacent lands near the north end of the Parkway were noted during the year. Control of rabid foxes may be necessary in view of current situations concerning fox and their relationship with the entire ecological scene.

Fish plantings in several streams and in Trout Lake were accomplished under the cooperative Memorandum of Agreement between Blue Ridge and the States of Virginia and North Carolina. Three wildlife management matters requiring attention are (1) protection of beaver and their habitat at Otter Lake, (2) consideration of a late fall or early winter aerial elk census, and (3) meeting with State game authorities with respect to hunting seasons.

Buck Island Reef National Monument, Virgin Islands

The Director, by memorandum dated November 8, 1962, approved the use of poisons in connection with an experimental program to eradicate the exotic mongoose. Subsequent control plans were finalized by the Chief, Branch of Wildlife Management with the U. S. Fish and Wildlife Service and personnel of the Virgin Islands' government and the Park. This program involved prepoisoning trapping to estimate the Island population, arrangements for execution of an aerial bait dropping technique, preparation and distribution of 300 pounds of poisoned fish and postpoisoning followup trapping which is continuing at the close of this reporting period.

This operation was hindered by isolation, lack of or limited quantities of supplies, bait, and equipment, and was also affected by the Cuban situation which prevented preliminary arrangements that had been made for use of U. S. Navy aircraft. Despite many logistical problems, the initial pilot program was accomplished between November 19 and December 21, 1962.

All field operations of the program except for post-trapping operations, were accomplished prior to the kit season which occurs in late March or April. The experimental aerial application of sun dried sprat, treated with zinc

phosphide and chlordane, is believed to have resulted in an 80-90 percent kill of mongoose on this Island. Subsequent trapping results have indicated the need for followup poisoning in order to achieve complete eradication of this exotic species.



Present knowledge indicates that under the existing physical conditions, habits of mongoose, and the limited information available concerning control techniques, this pilot poisoning program was carried out with a reasonably high degree of success. Although aerial broadcasting proved to be an effective technique, the suitability of dried, frozen, or fresh fish bait coated with poison remains questionable for large programs.

Mongoose cause major wildlife management problems in most Caribbean and Hawaiian areas of the National Park Service and require control programs.

Cape Hatteras National Seashore, North Carolina

The annual management plan for public hunting was released in November 1962. Copies were made available to interested Seashore waterfowl hunters accompanied with maps indicating all Service blind locations. A checking station was again operated for dispensing hunter information, law enforcement, collecting kill data, and for maintaining close liaison with the Bureau of Sport Fisheries and Wildlife and the State Wildlife Resources Commission in carrying out the waterfowl hunting program for this Seashore area.

Participation during the 1962-63 season by 1,308 hunter days use resulted in a 42.3 percent increase in numbers of hunters over the 1961-62 season. The hunter day kill figure of 1.1 birds almost doubled the previous season's figure of 0.6 with 1,504 geese, ducks, or coots being taken this season.

Discussions were held with officials of the U. S. Public Health Service concerning the Seashore's mosquito control program. Studies aimed primarily at the rapid manipulation of water levels during critical phases of the insect's life cycle were continued in the Public Health Service's abatement program.

Fort Jefferson National Monument, Florida

The annual bird banding program conducted in May 1963 resulted in new bandings of 3,325 sooty terns, 46 brown noddies, and 32 roseate terns. Partial results of 730 sooty tern retraps reveal that (1) there is perhaps a three to four year absence of these birds from the Tortugas prior to first nesting, (2) seven birds were in the 23 to 25 year old age classes as they were banded in 1938-40, and (3) six birds banded in 1959 as young of the year were recaptured.

Limited green turtle and roseate tern breeding populations were found to be in need of special protective measures by research biologist Robertson on his May 14-20 trip to the Dry Tortugas. Subsequent action resulted in postings against unauthorized landings on East Key for the duration of the turtle nesting season and on Hospital Key until completion of the tern breeding season by approximately August 1, 1963.

Great Smoky Mountains National Park, Tennessee and North Carolina

This area's control programs, which involve wildlife management activities relating to black bear and the elimination of exotic Russian boar, were continued as in previous years.

Live-trapping and relocation of these species resulted in nine bear transplants within the Park and a continuing cooperative program involving both States. Thirty-three boars were trapped and released to State game officials for subsequent release on State game management areas. An average of over 100 hours was spent in the boar eradication program for each disposed individual. Management oriented studies are desperately needed to improve control methods for this exotic. However, budgetary requests for purposes such as this continue to be eliminated from Park operational program requests.

Direct reduction of four bear and elimination of two additional boars were also necessary during this period.

A belief that whitetail deer in the Cades Cove area may pose future conservation problems has augmented the desirability of establishing a permanent management biologist position.



Fifteen parks conduct management programs in order to afford maximum visitor enjoyment with minimum disturbance from the American black bear.

The fish stocking program was continued under provision of a five-year plan which includes planting of fingerlings and catchable trout.

Mammoth Cave National Park, Kentucky

The 1958 cooperative agreement with the Kentucky Department of Fish and Wildlife Resources continues to provide for the Service's largest disposal program of excess deer. During the past year, 297 whitetail deer were live-trapped and relocated on State administered lands. Trap losses resulted in an additional reduction of 22 animals.

Despite this reduction of 319 animals, overbrowsing and deterioration of the Park habitat continues. Studies by State personnel disclose that the carrying capacity is still being exceeded but that a very limited improvement has occurred on the amount of browse utilization.

A wildlife management plan which emphasizes a need for increased management of the Park's acute overpopulation of deer is currently being formulated by the Acting Regional Chief of Wildlife Management. Increased Service participation in the annual reduction program and establishment of needed studies

to determine deer movements onto adjoining lands are particularly needed to effect more suitable control of excess deer.



Transplanting of surplus deer through cooperative management programs with State game and fish departments and the National Park Service exists in many areas of the System.

Recent reintroductions of river otter appear to have been unsuccessful. No observations have been made in approximately one and a half years.

Ruffed grouse are apparently surviving from recent plantings; however, the eventual success of this addition to the historical faunal population remains doubtful.

A bat which inflicted a neck bite on a tour leader on July 7, 1962, was initially judged to be nonrabid following preliminary tests. Despite these inconclusive findings, the Pasteur treatment was initiated as a precautionary measure. Inconclusive and negative tests soon became obsolete when the bat

died of hydrophobia in late July. Population sampling by the Public Health Service and installation of gates on several cave openings which will allow an adequate bat movement are being accomplished.

Pea Ridge National Military Park, Arkansas

Continuing complaints concerning the abundance of predators on Park and adjacent lands and indications that coyote and red wolf populations are increasing, has resulted in a continuation of the cooperative trapping program. The State program, which was previously reported to include Park lands, resulted in the trapping of two foxes and two dogs. Continued efforts by an adjoining landowner resulted in the elimination of several wolves; however, depredation on his sheep and goats continued.

A request to extend this control program was approved, and subsequent elimination efforts within Pea Ridge finally became successful when two large Texas red wolves were trapped and destroyed by the State trapper.

Shenandoah National Park, Virginia

Initiation of a browse study by the Park's Protection and Interpretive staffs for determining habitat utilization by whitetail deer was accomplished this year. Range conditions are presently described as being good; however,

future events affecting normal seasonal movement and harvest of animals on adjoining lands could alter the existing habitat utilization.



Fishing for fun programs are being developed in many National Parks to emphasize the recreational aspects of angling.

Approximately eleven skunks died within the Park or on adjacent lands although an active program involving control of fox densities was not carried out within the Park as in some previous years. Incidents of rabid animals, including the death of a horse, are reported to be common in this area.

An increasing black bear population continues the possible need for an active management program. To date, none has been required.

Virgin Islands National Park, Virgin Islands

The program aimed at total elimination of the exotic mongoose and feral pig, goat, donkey, and sheep continued this past year. At best, the area can only hope to reduce these populations within the Park to levels consistent with exerted control efforts. It is doubtful that a total eradication, under existing adjoining land use patterns and other prevalent conditions, can be expected. Local problems involving exotic and feral forms of wildlife continue to place this Park in a situation similar to the Hawaiian National Parks.

Nevertheless, poisoning, trapping, and occasional shooting of mongoose are continuing. Lines were rebaited approximately three times weekly in poisoning projects at Hawksnest and Trunk Bays. Localized poisoning of not more than 10 percent success has proved ineffective due to mongoose infiltration from outside areas.

Cooperative and public relation introductions of baby green turtles were continued for the second consecutive year. Approximately 1,000 were released. Last year's initial stocking amounted to 1,200 turtles.

A bird banding project in the Long Point area resulted in approximately 300 birds, which represented 22 species, being marked for future study. This project has revealed that 25 percent of the birds that are banded are migrants to this Park. Two new species recorded during 1962 were the blue grosbeak and scarlet tanager.



Over 2,000 green sea turtles were introduced into their former native habitats in Caribbean Service areas in 1962 and 1963.

NORTHEAST REGION

Acadia National Park, Maine

The whitetail deer control program during the past three years has resulted in a reduced herd size and abatement to further deterioration of existing overutilized browse species. Study plots, which were established for censusing purposes, and a greatly reduced automobile kill on State and Park roads indicate that significant progress is being attained in approaching a more realistic herd size.

It is interesting and perhaps significant that road kills have dropped progressively from 50 deer in calendar year 1960 to 12 in 1961 and six in 1962. In addition, increased vitality of these deer has been indicated through a general higher average weight for most sex and age classes since the control program was initiated. The greatest improvement in weight was noted in the doe and fawn classes.

Acadia's deer management program included live-trapping, marking and releasing of deer, and direct reduction of 94 deer during the period November 1, 1962, to February 21, 1963. Forty-five days were spent by the small permanent ranger staff in carrying out this program. A total herd reduction of 99 animals resulted from the additional removal of one poached and four road kill deer. The State biologist assisted in field dressing some of the reduction kills while conducting a study of post mortem changes in deer through collection of blood samples for further analysis. This continued cooperative program with the State Fish and Game Department has proven to be of significant value to both participating agencies.



Management of physical facilities and endangered habitats requires varying types of beaver management practices such as alteration or destruction of dams.

The beaver population in Acadia is believed to be increasing slightly. A total of nine beaver were trapped and moved by dynamite or other means during the past year. Dams were removed to protect domestic water supplies, provide access routes for fish to spawning areas, prevent clogging of ditches and flooding of roads, and afford protection to pockets of rare

eastern white cedar within the large 1947 Mt. Desert Island burn.



Beaver colonies at Acadia National Park require considerable management in order to conserve other resources.

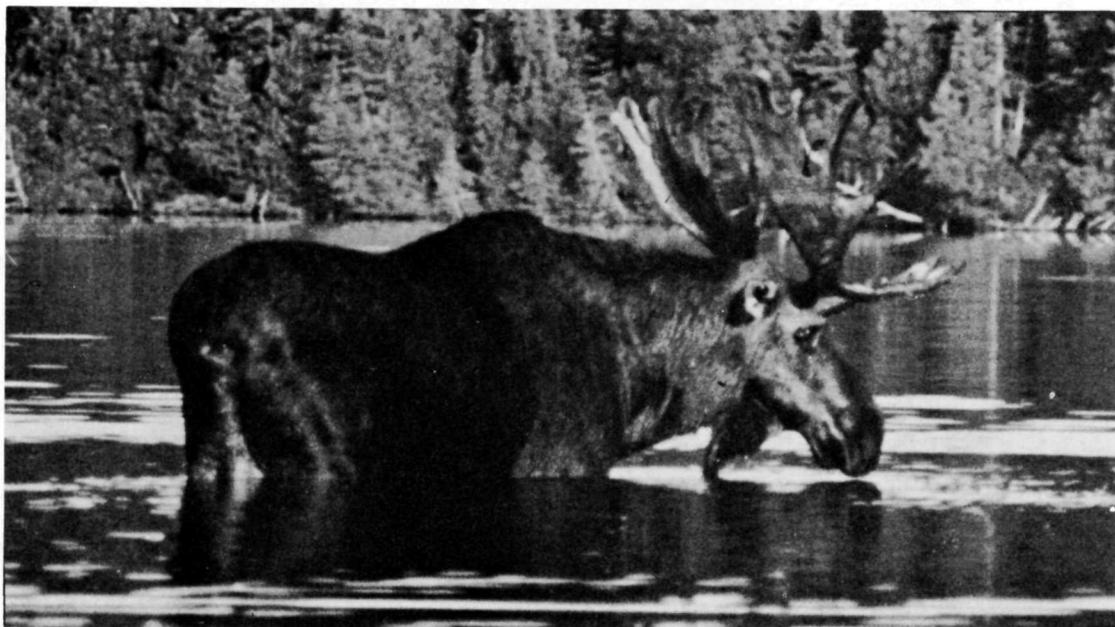
The snowshoe rabbit population is reported to be high and is causing damage to vegetative reproduction in the 1947 burn.

Legislation was reintroduced in the early portion of the 1963 meeting of the Maine Legislature to open State administered lands on Mt. Desert Island

to deer hunting. A favorable reaction is expected and will possibly result in a local referendum of the option to open or keep these lands closed to public hunting.

Isle Royale National Park, Michigan

Wildlife activities and programs continue to be limited to cooperative moose browse studies with the U. S. Fish and Wildlife Service, the moose-wolf survey being conducted by Purdue University and the more recent beaver study by this same cooperator. The moose-wolf relationship on Isle Royale was publicized in the February 1963 National Geographic Magazine by Dr. Durward L. Allen and L. David Mech in their article entitled "Wolves Versus Moose on Isle Royale." This year's winter study terminated on March 21, 1963, with minimum changes being noted on this interesting predator-prey relationship.



Isle Royale offers ecologists a prime area for studying wolf and moose, predator and prey relationships.

Although present browse conditions continue to be reported as being more than adequate for the existing moose population, future normal range rehabilitation from recessional effects of the 1936 fires will require a thorough management-oriented study aimed toward maintenance of suitable moose range. This Park presents one of the most optimum opportunities for managing the habitat through use of the four-step procedure recommended by Secretary Udall's special Wildlife Advisory Committee. An optimum condition exists here due to the favorable ecological conditions prior to any habitat damage or overpopulation problems that are more common within other National Parks.

Reports from Isle Royale indicate that snowshoe hare continued to be abundant, but little, if any, increase was noted over the 1961 population. Grand Portage National Monument, which lies on the adjacent westerly Minnesota mainland, noted that hawk owls were being reported for this general region and that lynx were quite plentiful. Furthermore, Acadia National Park also reported a large snowshoe hare population. These, plus indications from Alaska and other northern States, tend to confirm last year's statement from Isle Royale that the peak cyclic population of snowshoe hare and resulting cyclic predator populations were nearing or at their apex.

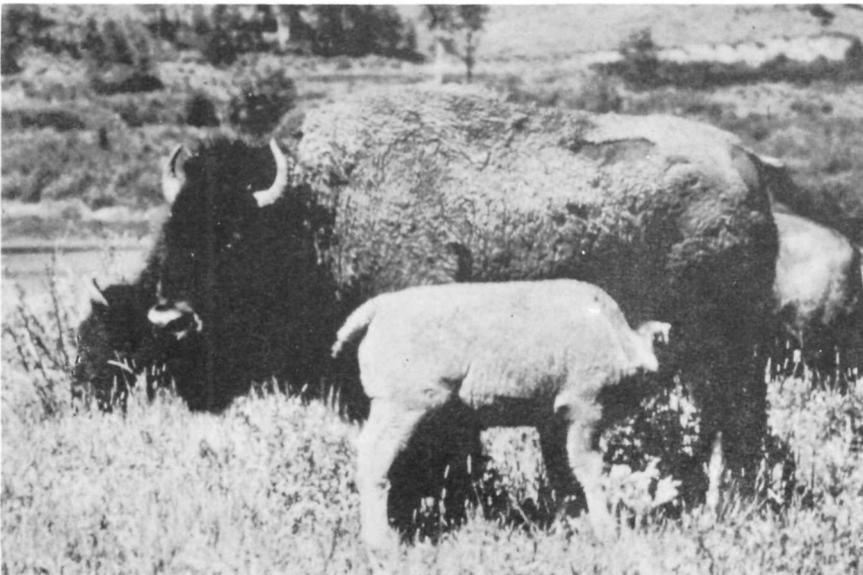
MIDWEST REGION

Badlands National Monument, South Dakota

Because of drought conditions in western South Dakota, permittee grazing of domestic stock in the Monument was extended through 1962. Above normal rainfall during the summer of 1962, however, made it possible to terminate a program which started as "Beef for Victory" during World War II and lasted for 19 years. Completion of the Monument's fencing program and the elimination of grazing by special permit brought an end to trespass grazing as well.

Fairly large bands of deer and pronghorn were observed in the Monument after the September 8-16, 1962, antelope season and November 1-15, 1962, deer season. No overpopulation problems are evident at this time for either of these species.

A preliminary wildlife restoration plan for Badlands has been initiated. This plan contemplates the ecological management of Monument natural resources and a reintroduction of extirpated wildlife. Bison will be the first species reintroduced followed by bighorn sheep. It is planned to confine bison to the 40,000-acre Sage Creek Basin following their release sometime this fall. Local ranchers have indicated an enthusiastic support for preliminary wildlife restoration proposals.



Bison and bighorn sheep are to be reintroduced into Badlands National Monument early in 1964.

Several of the Monument's prairie dog towns were mapped and appear to be in vigorous condition. Efforts to locate living black-footed ferrets have continued. The ferret is now on the endangered list of North American mammals, and has been given full protection by the State of South Dakota.

The first observation of a long-billed curlew within the Monument was made during May 1963.

Another first for the area was the finding of an Ord kangaroo rat.

Eight feral goats were eradicated from the Monument during the winter of 1962.

A request from the U. S. Fish and Wildlife Service at Fort Niobrara National Wildlife Refuge for Badlands chipmunks, was filled through cooperative activities of the local staff.

Black Canyon of the Gunnison National Monument, Colorado

The 1962-63 winter was one of the coldest on record. A prolonged cold, dry spring effectively retarded plant growth, but this situation was rectified by relatively heavy rains during June and July. There appeared to be a decided increase in bobcat and smaller predator numbers which may indicate a relatively high rodent population. Completion of a boundary drift fence along the South Rim has greatly reduced trespass livestock from that portion of the Monument. Trespass grazing, however, is still a serious factor along the North Rim.

Field data for a limnological study of the Gunnison River within the Monument was completed in early summer. Colorado State University hopes to have a report on predam (Curecanti) conditions completed this winter.

Elimination of sagebrush by the aerial spraying of 2-4-D on grazing lands adjacent to the Monument in June 1963 constituted a real and potential threat to Monument wildlife. The spray drifted across the boundary injuring, and perhaps killing, many serviceberry plants. What effects the reduced browse supply, both within and outside the Monument, will have on wildlife is not presently known.

Colorado National Monument, Colorado

For the second consecutive year, no reduction program was conducted on the Monument's bison herd of approximately 20 animals. A range site and condition survey of the bison range was conducted by the Soil Conservation Service in June 1963. The survey is a valuable basic document for the management of the bison herd. In summary, Mr. Ernest A. Nicholson, Area Conservationist, reported to the Superintendent:

It is quite evident the buffalo are not making uniform use of the range. They seem to have preference for some areas and are definitely overusing them. It should also be noted there is only a small acreage really suitable for range use.

Present plans call for reducing the numbers of bison and initiating range trend demonstration plots.

With the construction of a game access road to the Black Ridge area west of the Monument, hunter harvest of the area's mule deer herd was heavier than in previous years. Hunting is now possible on three sides adjacent to the Monument.

Anticipated construction of deer exclosures will permit the study of deer impact on Monument rangelands. As the deer herd is common to State and Federal lands, it is hoped the Colorado Game, Fish and Parks Department and Bureau of Land Management will continue to cooperate in overall deer management.

Studies of porcupine-insect-pinon relationships is continuing, and ten porcupines have been eliminated from the southeast section of the Monument.

Mammal control was limited to the removal of feral cats and dogs from the Monument.

Devils Tower National Monument, Wyoming

The black-tailed prairie dog population appears to have stabilized at approximately 1,000 animals since the crash of a population high of 4,000 during the winter of 1960-61. Reproduction in 1962 was relatively low. The dogs are evenly distributed over the entire town. It was noted, however, that vegetation is beginning to come back, and we may anticipate that the prairie dogs may have to consolidate in order to maintain a favorable habitat.

Control of prairie dogs was limited to the removal of 35 animals from the campground and picnic area. One skunk and two porcupines were also removed from the above areas.

A 45-day, two-deer season on lands surrounding the Monument resulted in a successful hunter harvest of the whitetail deer. Epizootic hemorrhagic disease apparently did not become epidemic this year; no Monument deer are known to have died from the disease, and only a few deer found during the hunting season were suspected of dying from the disease. Range conditions were considered excellent throughout the deer habitat of the Monument. Wild turkey have become well established year-round residents of the Monument. Approximately 495 turkeys were taken by hunters from northwestern Wyoming during the 1962 season.

Dinosaur National Monument, Colorado and Utah

Rangelands remained open during most of the dry winter, resulting in relatively light use of the Monument's winter deer range. Mule deer observed in February appeared to be in excellent condition. A good spring rainfall combined with a reduction of domestic stock grazing in the Split Mountain section of the Monument favored wildlife habitat. Range conditions were

considered to be fair to good; however, cheat grass is still dominant and was noted invading areas where there was no domestic stock grazing.

Ecological changes on the Green River within Dinosaur, since closure of Flaming Gorge Dam, are being investigated by the Bureau of Sports Fisheries and Wildlife in cooperation with this Service. Predam conditions were studied by Service contracts with Colorado State University and Utah State University. Escape of rotenone used in the eradication program above the Monument resulted in a considerable kill of native fishes and aquatic insects within the Monument. However, radical changes of the volume of water in the Green River and subsequent drastic environmental changes make any evaluation of the abnormal kill difficult. It is hoped that sufficient suitable habitat remains to support native aquatic life.

During a three-day census of bighorn sheep, 101 animals were observed between the Lower Wade and Curtis area and Echo Park. Evidently, the population is increasing; however, there is no indication that sheep have as yet moved into either Yampa or Whirlpool Canyons, both of which were former bighorn range.

Stockmen located on the Yampa Bench, one to two miles south of the Monument boundary, complained of an increase in the coyote population and requested a control project by the Bureau of Sports Fisheries and Wildlife. As 1080 sets were placed well within the three-mile buffer zone, Monument personnel were assigned to assist in the establishment and observation of the stations.



Eighteen natural areas within the National Park System support bighorn sheep in their native habitat.

Girdling of cottonwoods is becoming more prevalent as the beaver population increases. It has been necessary to wrap individual trees with wire screening in the campgrounds to protect them from the beaver.

Flaming Gorge National Recreation Area Project, Utah and Wyoming

A study of future fishery resources in relation to public use and development of recreation facilities was initiated in November by the Bureau of Sport Fisheries and Wildlife in cooperation with this Service's Project Office.

In addition, several cooperative discussions were held during this reporting period by representatives of both States and Bureau of Sport Fisheries and Wildlife concerning rotenone treatment of the Green River, which was conducted in September 1962, and generated considerable concern over the failure of the program to effectively detoxify these waters prior to their entering Dinosaur National Monument. The reservoir's fish planting program, length of fishing season, creel limits, and licensing fee requirements for use of the reservoir and its fishery resources were also discussed. The States are considering proposals which would allow fishermen to fish the entire reservoir on a valid license from either State.

Kokanee salmon were the first game fish to be stocked in the reservoir by the Utah Fish and Game Department on Sheep Creek in early January. By the end of this reporting period, Utah, Wyoming, and the Bureau of Sport Fisheries and Wildlife had planted approximately 2,830,000 rainbow trout and 400,000 kokanee fingerlings.

Flaming Gorge Recreation Area Project, yet to be officially designated, is located on the Green River in northeastern Utah and southwestern Wyoming. The area is bordered on the south by the Uinta Mountains towering to elevations of 14,000 feet, and includes the deep and rugged canyon country of Flaming Gorge and Red Canyon. North of the canyon section and the juniper, pinon, and pine forests, the recreation area includes a rolling expanse of open sagebrush rangeland.

At normal maximum water elevations of 6,040 feet MSL, the I-shaped reservoir will extend 91 miles up the Green River, contain a water surface of 42,020 acres, and create a shoreline of about 375 miles.

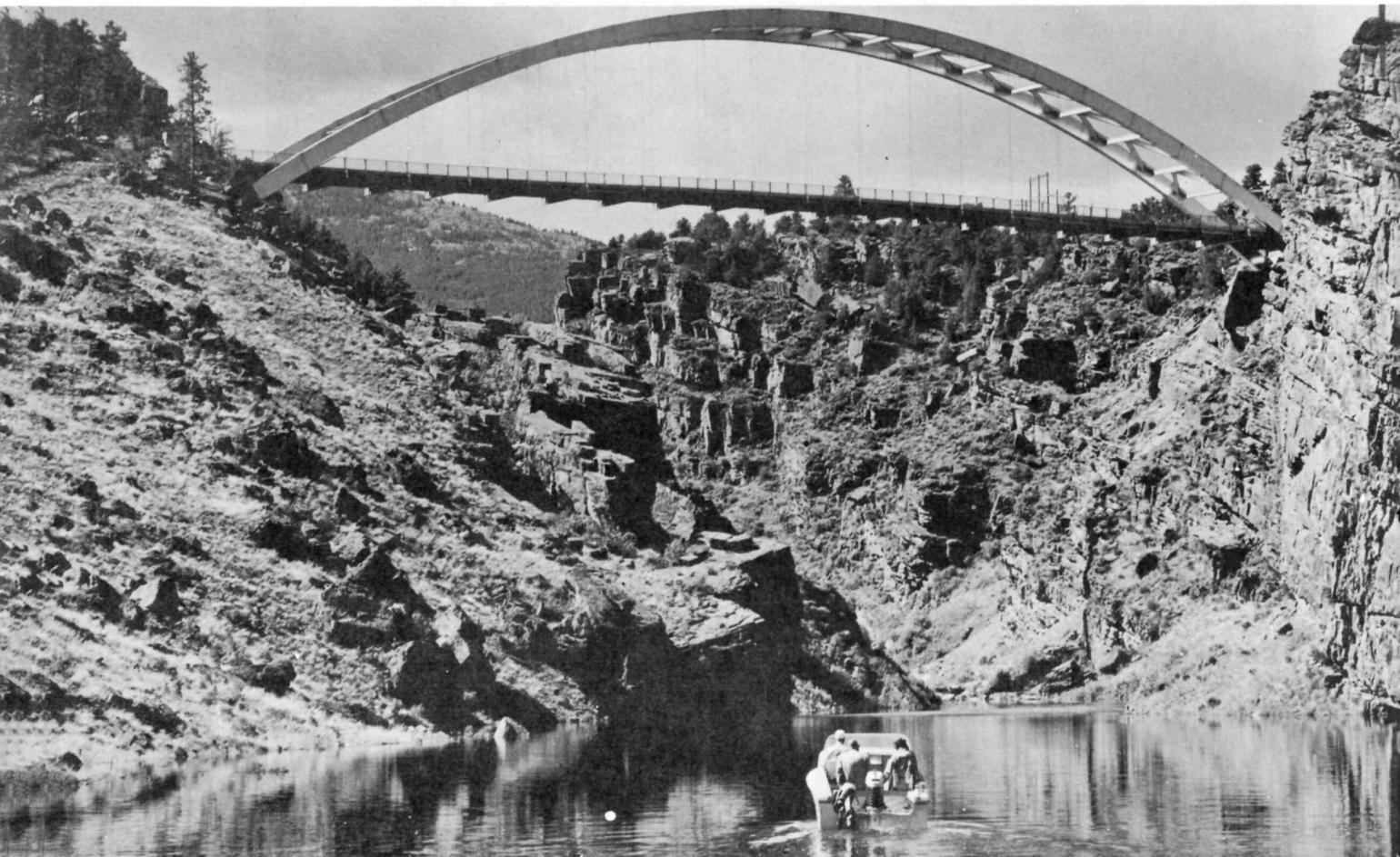
These lands and waters are jointly administered by the National Park Service and the United States Forest Service.

The primary purpose of the Flaming Gorge Project is control of the annual runoff from the Upper Green River Basin. In performing this function, it serves as the "Paymaster" for the other Colorado River Storage Projects. Hydroelectric power will also be manufactured. This operation will create a definite fluctuation pattern for the elevation of the reservoir surface. It is now estimated that under normal operations, the average annual fluctuation of the lake elevation will be approximately 15 feet, and the maximum drawdown will not exceed 68 feet. This drawdown will occur during the months of January to April, inclusive.

The lake surface will freeze during the winter. This, combined with varying lake elevations, will create definite problems relating to recreational use and fish and game management.

By authority found in Section 8 of the Act of April 11, 1956, (70 Stat. 105) and subsequent memoranda of agreement between the Bureau of Reclamation, U. S. Forest Service, and National Park Service, the National Park Service is responsible for the planning, development and administration of lands and waters included in the Recreation Area north of the Ashley National Forest boundary. The 116,000-acre area administered by the National Park Service includes 35,000 acres of lake surface. However, since the northern boundary of Ashley National Forest lies within three miles of the Utah State line, the majority of the area administered by the National Park Service is located in the State of Wyoming.

Exceptional recreational opportunities are available. Primary uses include boating, fishing, camping, water sports, picnicking, hunting, and a wide variety of allied activities.



Flaming Gorge is one of six existing National Recreation Areas or projects which are currently providing excellent boating and fishing recreation for landlocked Americans.

When fully developed and managed, the fish and wildlife resources of Flaming Gorge Recreation Area will make a significant contribution to the Nation's needs for outdoor recreation.

Big game, which contribute substantially to the fauna of the area and represent an economic resource to surrounding communities, include mule deer, pronghorn antelope, and elk. Waterfowl and upland game birds, through good management practices, may make similar contributions to the recreational resources of the area. Numerous small animals, primarily rodents and predators, are also found here.



Historical movements of many ungulates will require cooperative study and management by State Fish and Game Departments and the National Park Service.

The Reservoir has created a barrier which has affected big game migration to and from summer ranges on the northern front of the Uinta Mountains and may seriously affect future migration routes for deer herds. Formation of the lake has created new access into hunting areas heretofore used by a

limited number of sportsmen. Correlation of hunting with other recreational uses is mandatory if public safety and maximum use of all recreational resources are to be insured.

Administration and management of fish and wildlife resources is primarily the responsibility of the Utah Department of Fish and Game and the Wyoming Game and Fish Commission. To insure efficient utilization, and perpetuation of these resources, the two State Game and Fish agencies, in cooperation with the United States Fish and Wildlife Service, are now conducting research on factors which may tend to effect these resources. Limited research in this field is also being conducted by the National Park Service, with emphasis upon integrating hunting and fishing activities within the overall visitor use pattern of the area.

Fisheries will provide one of the area's major recreational resources. Following an extensive eradication program to eliminate nongame fish in 1962, approximately 4,000,000 rainbow trout will eventually be stocked in the lake to provide sport fishing. It is anticipated that this fishery will greatly influence total visitor use, as well as establish specific visitor use patterns.

Correlation of public use of this resource has been recognized as potentially the greatest administrative problem confronting all interested agencies. The National Park Service works closely with the State Fish and Game Departments, the U. S. Forest Service, Fish and Wildlife Service, and all other Federal and State agencies in cooperative endeavors to develop and adopt unified administrative procedures and regulations for all parts of the Reservoir.

Perpetuation of trout fisheries in Flaming Gorge Reservoir will require periodic stocking to be carried out by the State Fish and Game Departments and the Bureau of Sports Fisheries. To aid in this work, the National Park Service cooperates in furnishing such personnel, boats, docks, and other facilities as can be spared from current needs, subject to consummation of applicable interagency agreements.

Glacier National Park, Montana

A wildlife management biologist position was established for the Park in November 1962 in recognition of the necessity to place programs on a sound biological basis. Another major step toward increased wildlife management included formulation of a long-range interim wildlife plan. This plan, which is oriented primarily toward achieving a better balance between the St. Mary and Red Eagle Drainage elk population and their winter food supply, was submitted for review and approved by the Director on April 15, 1963. The plan outlines immediate and long-term objectives and calls for investigation of range and habitat requirements, and population dynamics of the Park mammals.

The winter of 1962-63 was relatively open and mild with below normal snowpack. Winter counts of the ungulates were difficult to make as the animals were scattered. Population estimates on some species may have been rather low; however, with hunting outside the Park boundaries and the direct reduction of 122 elk in Canada's Waterton Lake National Park, it was believed there was no need for reduction control of elk within the Park.

A bear population census indicates that black and grizzly bear numbers are down 20 and 18 percent respectively over last year. Begger bears continue



to be a nuisance. Twenty-six black bear were removed from visitor-use areas to remote sections of the Park, and 10 rogue bears were destroyed. Only one minor injury was attributed to a grizzly during the year. One male grizzly was trapped and shipped to the Columbus, Ohio, zoological gardens.

Cooperative creel census techniques, biological surveys of lakes and streams, and development of forms for recording use on Park waters were completed by the U. S. Fish and Wildlife Service and the Park for management of the St. Mary and Two

Other than the State of Alaska and in Canada, grizzly bears are now largely restricted to wilderness areas in or near Yellowstone and Glacier National Parks.

Medicine Lakes' fishery resources. The Bureau of Sport Fisheries and Wildlife has agreed to the State's request to replace the Yellowstone strain of cutthroat with the native Flathead River strain at the Bureau's Creston Hatchery. No cutthroat fry will be available for Park waters until 1964 or 1965.

Management-oriented studies were initiated by the Park management biologist in the St. Mary and Swiftcurrent Valleys during March. New deer and elk range utilization and pellet count transects were established in the Hudson Bay and Belly River districts during the spring.

In addition, cooperative biological studies within the Park made significant contributions to our basic understanding of the area. Noteworthy



among these was the continuation of the Anaconda Creek marten study by the Montana Fish and Game Department, and the initiation of a phytosociological study of the Park's forest communities by Dr. J. R. Hubeck, Montana State University.

Vigor measurements are a part of range studies currently being accomplished by park management biologists and wildlife rangers.

Grand Teton National Park, Wyoming

Public hunting of the Jackson Hole elk herd under Public Law 81-787 brought a total of 1,170 deputized park rangers into the Park during the October 1 through December 2 reduction programs. The deputized hunters killed 280 elk within the Park.

It is interesting to note that while this second year of authorizing 2,000 permits brought the greatest number of hunters into the Park since the inception of the program in 1951, it did not result in the greatest kill.

Yearly kills and percent hunter success (24 percent this year) are probably more dependent upon the presence of migrating



Grand Teton National Park annually provides an average of 2,900 tons of feed for the Jackson Hole National Elk Refuge.

elk than any other factor. Data from track counts indicate that there has been a differential harvest of the Northern Jackson Hole elk herd segments. Efforts are continuing through the use of unitized hunting to effect a more even dispersal of hunting pressure in the various areas open to hunting. A portion of the Jackson Hole National Elk Refuge was opened to hunting with the season coinciding with the Park's. This should have favorable results in attaining cooperative management goals for this herd.



A temporary elk hunter check station at Grand Teton National Park is installed annually for administration and management purposes of the public hunt.

Meetings between representatives of the Park and the Wyoming Game and Fish Commission resulted in cooperative management plan recommendations for the 1963-64 season, which were jointly approved by the Secretary of the Interior and the Governor of Wyoming. It is proposed to remove 1,000 animals from the herd of 5,400. Approximately 400 of these will be harvested outside the Park north of the special hunt units, and 600 to be taken within the Park. Two thousand special permits have been issued for the October 1 through November 15 reduction season.

Care of the small bison herd included a supplementary feeding program during late winter. The herd was increased to 18 head by the birth of three calves during May. Miscellaneous herd losses resulted in 16 bison being on the summer range by the end of June.

An increased frequency of observations indicates that the black bear population is increasing. However, they remain widely distributed in the wooded areas of the Park, and no serious problem has developed in campgrounds or along Park roads.

There appears to be little change in the moose population. The winter population, however, was not as high as in normal years, as a light snowfall made food available at higher elevations outside the Park. Use of willow by moose was noticeably light. The estimated summer population of 175 animals appears to remain static.

Trumpeter swans nesting within the Park dropped from 52 birds in 1962 to 26 birds in 1963. The swan population of the overall Jackson Hole area, however, seems to be about the same as last year. As the result of very few cygnets being observed, 1963 was a very poor nesting year.



Grand Teton and Yellowstone National Parks provide important breeding habitat for trumpeter swans.

Cooperative activities involving the study and management of wildlife and fishery resources continued with many Federal and State agencies. These included the Bureau of Sport Fisheries and Wildlife, U. S. Forest Service, Yellowstone National Park, Wyoming Game and Fish Commission and several private institutions.



Excessive wintering elk in the Jackson Hole-Grand Teton area have resulted in severe overutilization of browse and rangeland.

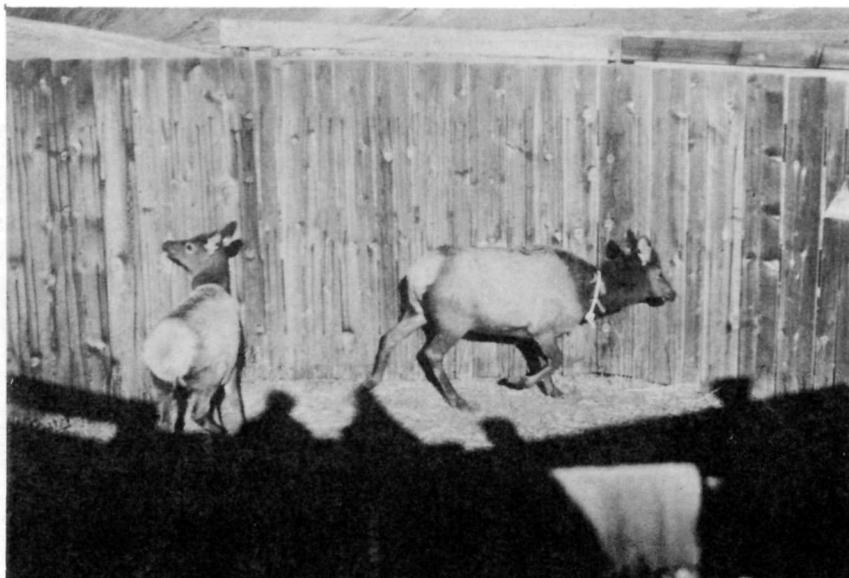
Rocky Mountain National Park, Colorado

The establishment of a permanent management biologist position in June of 1962 has resulted in an accelerated wildlife management program within this Park with increased purpose and an emphasized attention and direction through activities of the present incumbent, Neal G. Guse, Jr. A permanent and full-time program has resulted in increased study and management of the Park's elk and deer populations with future attention to be extended to other species and problems.

Accomplishments of this past year included the revision of the long-range deer and elk management plan; establishment of the annual management plan; formalization and initiation of studies to be conducted under provisions of the "Memorandum of Understanding Concerning the Rocky Mountain Cooperative Elk Studies;" preparation and submission of a special report for consideration by the Secretary's special Wildlife Advisory Committee, entitled "Effective Management Program Requirement for Eastern Rocky Mountain Deer and Elk Herds;" and the activation of a major elk neckbanding program.

Population trend counts and results of the State's unprecedented and highly successful special postseason elk hunt on adjoining National Forest and private lands precluded any need for direct reduction of elk within the Park. The January hunt was particularly appreciated by the National Park Service as it conformed with and complemented the Service's basic wildlife management objectives.

Ninety-four elk were trapped, neck-banded and released, and 36 retraps recorded in an elk migration study by the cooperative elk study group which includes the Colorado Game, Fish and Parks Department, Roosevelt National Forest and the Park. Two elk calves were also trapped and released to the State College for radiological and feed experimentation purposes. One young bull elk was shot during May as symptoms of paralysis which may possibly have been induced by a tick infestation, were observed.

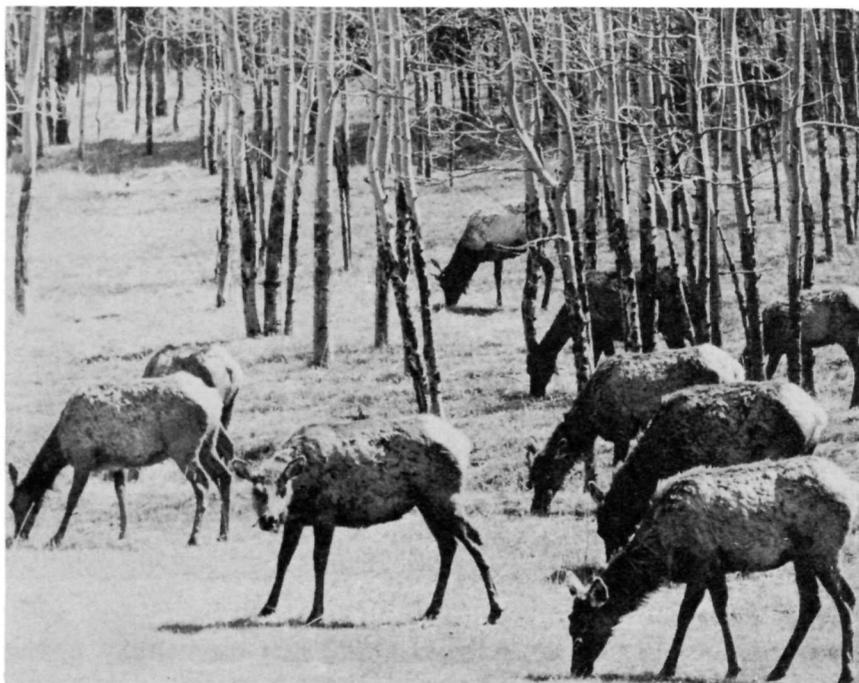


Elk migration studies are currently being accomplished through four cooperative agreements involving Rocky Mountain, Grand Teton, and Yellowstone National Parks, the U. S. Forest Service, and the State Fish and Game Departments of Colorado, Wyoming, and Montana.

Park personnel participated at several meetings with other members of the cooperative study group to formulate this coming year's research plans, the live-trapping phase of this program, and also to evaluate effects of the January postseason elk hunt. In view of the success of the special hunting season, the Park and Roosevelt National Forest have recommended against another postseason hunt, and believe the State's forthcoming fall big game hunting season will be adequate to hold the elk population in check.'

A further cooperative effort resulted in the Park's November approval for establishing equipment on the Colorado River for an annual kokanee spawn-taking operation. The State Game, Fish and Parks Department took approximately six million kokanee eggs from waters between Shadow Mountain Lake and Lake Granby.

Initiation of a major ecological study was undertaken by the Park's staff to determine specific aspects of the vegetation-wildlife relationship in four drainages of the winter deer and elk range. Vegetational type mapping, plant analysis, inventory, production, utilization and age-form composition of abundant browse species were largely completed by the end of this reporting period.



Excessive elk populations have adversely affected aspen stands and reproduction through barking activities.

Theodore Roosevelt National Memorial Park, North Dakota

In addition to browse utilization studies that have been carried out within the bighorn sheep enclosure by the State Game and Fish Department, Park investigative activities are reported to be increasing. A photographic browse study was initiated by the Park staff to complement the State's investigation. Results of these cooperative efforts will guide future control of this population and maintenance of proper range-carrying capacity.

On December 5, 1962, 17 of the Park's 21 bighorns were trapped and vaccinated against brucellosis, blackleg, and hemorrhagic septicemia in a cooperative Park, U. S. Forest Service, and North Dakota Game and Fish Department project. Ten of these animals were later returned to the enclosure; three



Photographic range utilization studies are necessary for maintaining proper ungulate densities in many National Parks.

from either Park or adjacent lands; and, therefore, the causative organisms of this localized epidemic remain questionable. Research leading toward the planned reintroduction of extirpated wildlife was started by the Regional Office. Mapping of the north unit's prairie dog towns for inclusion in this area's "Prairie Dog Status Report" was also accomplished.

In conformance with the long-range and individual bison management plan for both units of this Park, 20 head of bison were transferred from the south to north unit during November. This initial stocking of the north unit was accomplished after construction of a holding pen which will also have considerable value in future reduction and removal activities. Acceptance of proposed Federal regulations regulating the interstate transport of brucellosis infected bison will undoubtedly increase the importance of this Park's herds by perhaps requiring a restocking program in other Service areas from the brucellosis-free stock that is presently found at Theodore Roosevelt.

Wind Cave National Park, South Dakota

Range utilization studies involving the establishment of thirteen 25-foot line point intercept transects were cooperatively established with assistance from the U. S. Soil Conservation Service. These permanently marked transects will facilitate future investigations of vegetation utilization and should prove to be of invaluable assistance to the local staff in determining and maintaining an improved range environment.

rams were released within the south unit, and four bighorns were turned over to the State for outside stocking purposes.

Whitetail deer in the Little Missouri Badlands area reportedly showed signs of a disease infection late in 1962. A cooperative State-Park removal of three whitetail and one mule deer was accomplished and samples from these animals examined. A positive identification was apparently not made, but a mucosal or hemorrhagic virus was suspected or may possibly have been involved with other causative organisms. No further deer losses were reported in the following winter and spring

Although a cooperative live-trapping and transfer reduction of excess antelope was planned, State officials were unable to carry out their portion of this program. Cancellation was reported to have been due to a low antelope aerial census of the Park by the State; however, the Park's count was somewhat higher during subsequent late winter and early spring tabulations. Also, the State is finding it increasingly difficult to release animals on range that is not already saturated with antelope.

Wind Cave's excess bison reduction program began on December 4 and was temporarily halted on the 18th. Fifty-six head were removed during this period. This cooperative program, with assistance of Custer State Park personnel and equipment, was later resumed and hence terminated on January 16. This season's program was accomplished within the confines of the Park. A selective direct reduction of animals displaying conformation weaknesses, those possessing atypical characteristics, or of dry cows, was included. Fifteen work-days in which four to eight animals were taken, field dressed and transported to the State park each day for processing and storage, were required to complete the 1962-63 reduction program, which involved 100 head.

A Cooperative Memorandum of Agreement relating to disposition of excess elk and bison was entered into on August 17, 1962, by this Service and the South Dakota Department of Game, Fish and Parks. It is scheduled to be in effect for a three-year period starting July 1, 1962.

A reduction of elk population numbers was not required during this reporting year.



Range transects provide information from which necessary control programs are developed.



Brucellosis regulations prohibiting interstate transport of infected animals now necessitates more direct reduction programs as a means of controlling bison herds.

Yellowstone National Park, Wyoming, Montana and Idaho

Complexities of Yellowstone National Park's large and diversified wildlife management program continued during this reporting period. Expansion of certain phases and general operation of the entire wildlife management program were largely accomplished under leadership and efforts of the Park's two management biologists.

Four animal species were involved in control programs in order to reduce overpopulation or hazards to the visiting public. These included the live-trapping and relocation of 671 elk, 228 black and grizzly bear, 369 bison, and a direct reduction of 404 elk, one bison, four grizzly, and 48 black bear. All live-trapped elk and bison were relocated to lands outside of the Park.



While the National Park Service encourages requests for live animals, most suitable elk ranges are becoming fully stocked.

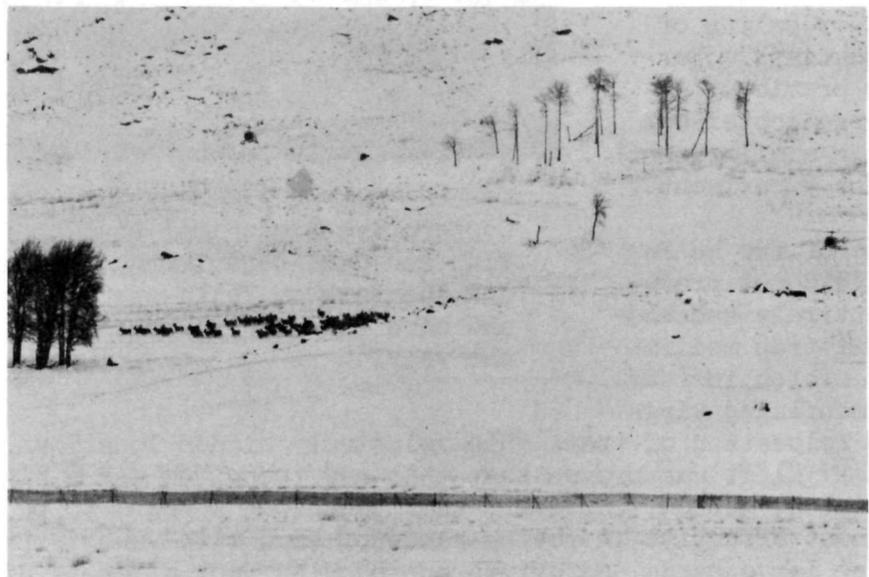
various programs was noticeable. Increased availability of live-trapped elk, which was made possible through development of a new trapping technique, and a maintenance reduction rather than a large-scale reduction program for retaining a proper herd size on the northern Yellowstone elk range, undoubtedly had favorable effects upon public reactions. Many of the adverse comments are still directed toward the 1961-62 elk reduction program.

A contract was awarded to the B-B Buffalo Ranch at Gillette, Wyoming, for removal of live bison. Helicopter drives associated with this contract

Despite a lower direct reduction of Park elk, this area's management program once again received some public criticism through a continued wave of adverse publicity. Discontentment and charges of mismanagement of the wildlife resources continued until the winter of 1962-63. Release of the Secretary's special Wildlife Committee report on March 4, 1963, appears to have resulted in a more favorable public reaction to existing management practices. A corresponding decrease in attacks upon the area's



Development of a new hazing technique at Yellowstone National Park through use of two helicopters has completely revised live-trapping operations.



Note the two helicopters above and to right of elk as they first see snow fence trap wing and turn away during live-trapping operations at Slough Creek Trap, Yellowstone National Park.

resulted in the removal of 357 animals from the west end trap at Nez Perce Meadows. Some animals were driven to the trap site from as far away as Hayden Valley. A total reduction of 369 bison was made during the entire course of this removal project.

The 1962-63 elk reduction program was once again restricted to the northern herd; although it is reported that due to existing Montana State hunting regulations, a similar reduction program may be necessary for the Gallatin herd during 1963-64. Highlights of the elk program during this reporting period included the September 19 resumption of collecting specimens for cooperative biological studies. Baiting and operation of live traps was initiated on December 3; however, a

relatively mild winter resulted in few live-trappings, and it appeared as if direct reduction would necessarily play a more important part than was previously anticipated. On January 8, 1963, two helicopters were contracted by the Park for experimental driving or hazing of elk into traps. During the previous season one copter was used in a similar, but fruitless experiment.



Cooperative biological studies involving Montana Fish and Game Department, Montana State College, and the Park on Yellowstone's northern elk range and herd continue to be carried out throughout the year.

Use of two helicopters did not prove to be entirely successful until trap modifications, which include long camouflaged wings and the relocation of traps into relatively hidden locations, were completed. On January 11 it was proven that this new technique was a highly effective and efficient method. However, this technique appears to be sex selective and is most effective in moving bands of cows with young. Later drives, involving large bands and drives approaching four miles in distance, were accomplished.

Direct reduction of elk in isolated and inaccessible areas was initiated on January 16. In addition, the State of Montana was constructing dipping



tanks and chutes for blood tests prior to the hauling and relocation of animals on State-administered lands. Traps were also reported to be practically full, and shipments of live elk to both Montana and Wyoming were in progress.

On January 22, the State of Montana announced that a special postseason elk hunt would begin on the 26th. This announcement met with enthusiastic approval of the Department and Service, inasmuch as the Secretary of the Interior's attempt to seek similar cooperative action during the previous year had

In addition to hazing, scouting, and censusing, helicopters oftentimes provide the only means of transporting elk carcasses from isolated areas where direct reduction of elk is sometimes necessary.

failed. The State's announcement resulted in a hasty reappraisal of the Park's elk reduction program on January 24, and all direct reduction was terminated. A very good hunter harvest resulted in a February 3 termination date for this special postseason elk hunt.

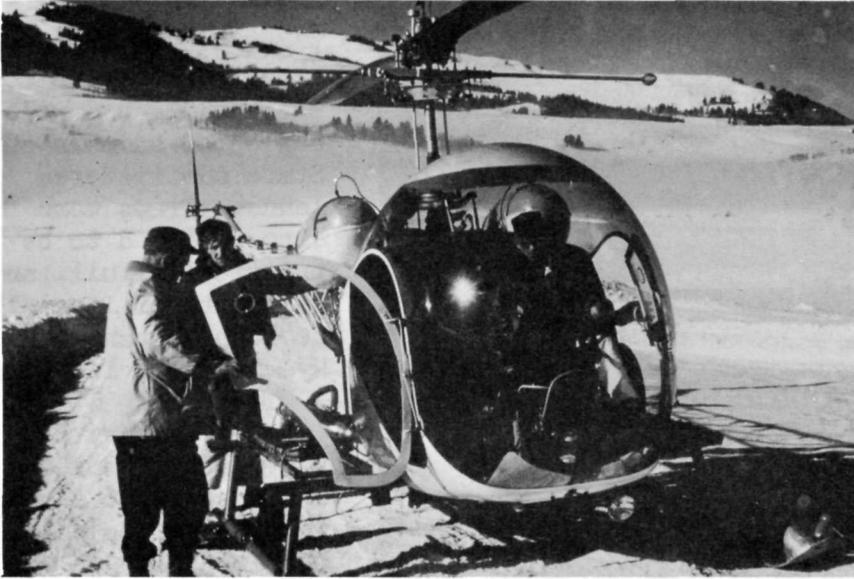
Elk reduction figures were tabulated soon thereafter, and final totals for the 1962-63 reporting year are as follows:

| | |
|------------------------------|--------------|
| Hunter kills outside of Park | 530 |
| Live-trapped and shipped | 671 |
| Direct reduction in Park | 404 |
| Biological collections | 215 |
| Trapping losses | 16 |
| Miscellaneous losses | 10 |
| Total herd reduction | <u>1,846</u> |

Cooperative assistance rendered to and received from both the States of Montana and Wyoming consisted of:

Disposition of Live Elk

| | |
|----------------------------------|------------|
| Montana Fish and Game Department | 295 |
| Wyoming Game and Fish Department | <u>376</u> |
| | 671 |



Helicopters and oversnow vehicles play a major part in both live-trapping and direct reduction operations in Yellowstone National Park's elk management program.



Blackfeet Indian children receiving an elk hot lunch in Browning, Montana, are among the many recipients of Yellowstone's direct reduction program.

Rental of one helicopter for portions of the reduction program by each of the States was of considerable assistance to the Park. This assistance, as well as Montana's postseason hunting season, favorably influenced the area's elk management program for the northern herd.

In addition to the above reduction figures, 390 elk were live-trapped, neckbanded and released for cooperative migration studies with the State of Wyoming. Retrapped animals are not included in this figure. As in past reduction programs, elk carcasses from direct reduction and biological kills were primarily made available to several Indian tribes, schools, public agencies or related groups. Orders for these carcasses again exceeded the supply.

The continuing need for a stringent bear management program was again reflected by recorded incidents and personal injuries. Nevertheless, it is encouraging to note that progress has been made in providing a safer visitor enjoyment of all Park features and facilities. The 112 personal property damages and 42 injuries caused by bear were at a new low since 1958.

Despite this progress, several complaints were received concerning a lack of black and grizzly bear. Park population estimates, based upon current research by the Craighead grizzly study group and Service census figures, do not indicate any significant population decrease. Factual reasons for fewer bear observations by Park visitors resulted from an early dispersal, particularly of grizzly bear, due to an abundant mast from white pine cones and weather conditions that were extremely favorable for maximum forage growth. The exceptional success of new experimental bear-proof garbage cans may also have contributed to bear dispersals.

Several existing management-oriented or financed research projects were either continued or initiated this past year. These included:

1. Service participation in the cooperative Craighead grizzly bear project.
2. Elk physiological and bacteriological studies which are also a cooperative arrangement involving participation of the Service, Montana State College Endowment and Research Foundation.
3. Cooperative biological collections and investigations by the Service, Montana Fish and Game Department, and the Endowment and Research Foundation of Montana State College, with additional financial assistance requested from the National Science Foundation.
4. Cooperative elk migration study of the North Yellowstone herd with the wildlife research unit, Montana State University.

Biological samples from approximately 2,000 elk collected over the past two years are providing data for one of the most comprehensive research projects ever undertaken and, in addition, these carcasses provide valuable food to various Indian and charitable organizations.



Future management of Yellowstone's three major elk herds will be enhanced through this year's initiation of a cooperative migration study between the Park and the U. S. Fish and Wildlife Service's University of Montana wildlife research unit.

5. Establishment of five new five-acre exclosures by the Park on the northern elk herd winter range to augment data from the five exclosures established in 1958.
6. Initiation of miscellaneous new Park population trend studies involving primarily black bear and mule deer.
7. Cooperative site condition study of the northern elk range with the U. S. Soil Conservation Service.
8. Park establishment of a black bear study of the West Yellowstone to Madison Junction bear-proof garbage can protected zone and other control areas.
9. Photo plots on northern elk range remapped and analyzed with browse utilization transects being established for additional information of this same range.
10. Continuing Yellowstone Lake fishery studies by the Service and Bureau of Sport Fisheries and Wildlife.



Yellowstone National Park's intensive management-oriented study program involves many cooperative and local projects by the Park's management biologists.

11. Annual cooperative surveys of the Gallatin elk herd with Montana Fish and Game Department, U. S. Forest Service, and interested sportsmen's organizations were completed in March 1963. An excess elk population within the Park and noticeable herd increase due to limited hunting pressures were noted.

12. Wyoming State Game and Fish Department-Park cooperation continued and the Game Department was authorized to carry out the following study projects which will assist both agencies in future resource management: (a) elk tagging in Pelican Cone area, (b) goose banding project at Turbit Lake with the Bureau of Sport Fisheries and Wildlife, and (c) blood samples taken from 200-500 Yellowstone Lake cutthroat trout for serological investigations.

In addition to the existing formal cooperative wildlife management agreements, Yellowstone initiated action toward formalizing a northern Yellowstone elk herd agreement which will include representatives of the U. S. Forest Service, Montana and Wyoming Departments of Game and Fish, and the Park. The Bureaus of Indian Affairs and Land Management will also be represented as ex officio members due to their indirect involvement in the northern elk herd management program.

SOUTHWEST REGION

Arches National Monument, Utah

Rabies was reported in bats this year and also in the grey fox. Animals in the high-use areas are being trapped for study and transplanting to reduce populations. One captured fox being held for observation died and was later found to have rabies.

Bandelier National Monument, New Mexico

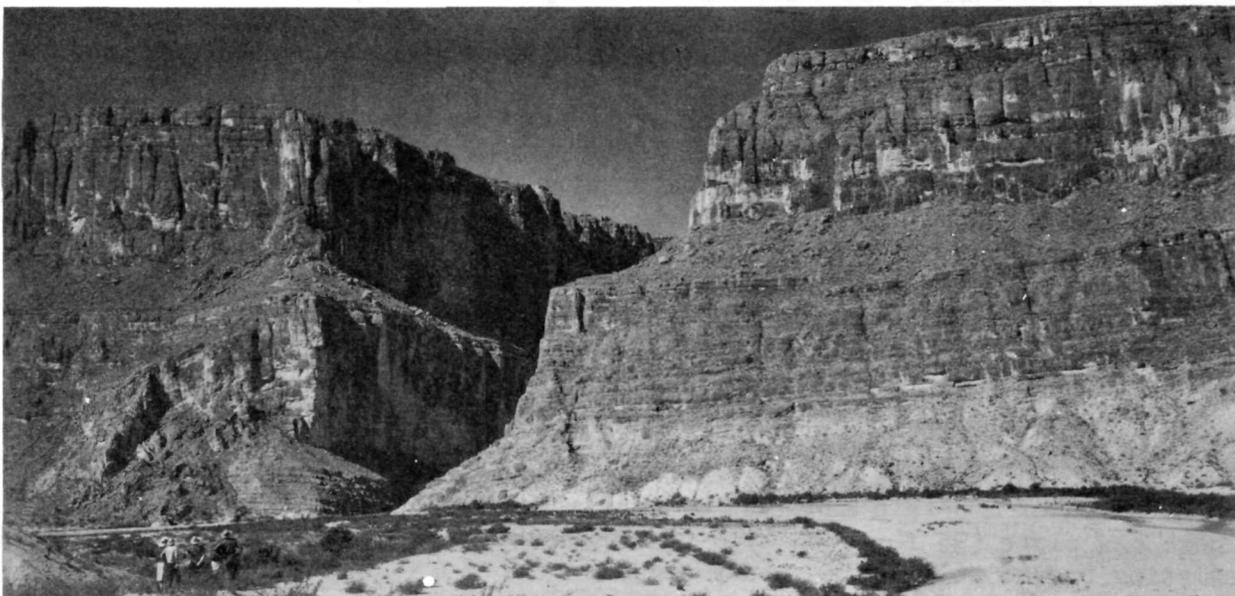
An active wildlife management plan has not been initiated for this area outside of the approved control plan for feral burro. Current reports of increasing visitor-skunk problems may require a more active program to improve camper and picnicker enjoyment of the area.

A transect established by the State Department of Game and Fish with data gathered by park rangers is being used for population trend and range usage purposes of local migratory mule deer. Monument use by larger animals is largely limited to the late fall through early spring period.

Big Bend National Park, Texas

A population buildup of skunks in the Basin campground has made necessary a trapping and transplanting project.

There is no evidence at present that rabies is present in the animals, but continuing checks are made periodically.



Wildlife management programs vary considerably within the many different Park environments, and even desert areas such as Big Bend National Park present various problems in fulfilling Service objectives of conserving all native resources.

Bryce Canyon National Park, Utah

Pellet group transects for recording deer utilization within the Park portion of the summer range are maintained by Park personnel. The State maintains additional transects in Bryce Canyon and a one-acre exclosure that was cooperatively built by the Park and Utah Fish and Game Department. No control programs were reported for this period, but cooperative interagency recommendations regarding the 1963 fall hunting season were presented by the Park, Bureau of Land Management, U. S. Fish and Wildlife Service, State Fish and Game Department, and the adjoining Dixie National Forest.

Carlsbad Caverns National Park, New Mexico

Bat population trend counts were continued as in past years, and a 1962 peak population count of 250,000 was the same as the previous year's high.

Newly initiated programs include the establishment of five transects within the Park and McKittrick Canyon areas for mule deer pellet group counts during April 1963 and cooperative arrangements with the U. S. Soil Conservation Service for a range condition survey which will assist in establishing a carrying capacity for Park rangelands. Small deer exclosures were also established in conjunction with the deer utilization studies that were initiated.

Chiricahua National Monument, Arizona

Deer pellet transects, which were established in 1959 to determine the Monument deer density, indicated a decidedly lowered population this past year. Adjacent hunting pressures are reported to be heavy and have apparently contributed to a minimum whitetail and mule deer population range utilization.

A minor rehabilitation project involving two existing water pools in extremely porous soil was proposed. Completion results are expected to provide more water over a longer period of time with a minimum amount of effort and cost involved.

Completion of a coati-mundi study by a graduate student of the University of Arizona was continued.

Coronado National Memorial, Arizona

Seventy browse exclosures were established in March 1963 for studying utilization of mountain mahogany by cattle only--whitetail deer and cattle. These new plots (35 for each type of animal exclosure) will augment previously existing browse utilization study areas.

The presence of 1080 poison stations in proximity to the Memorial boundaries resulted in corrective action being taken by the area staff. The U. S. Fish and Wildlife Service has since removed these stations and has instructed the local trapper to re-establish stations that are in accordance with provisions of the existing July 12, 1951, supplement to the cooperative agreement of March 5, 1946.

An April 30 cooperative meeting was scheduled with representatives of the U. S. Forest Service, State Game and Fish Department, and Arizona Game Protective Association to initiate a range survey for grazing permittee use of Memorial and adjacent rangelands. It is hoped that competitive overutilization of range vegetation may be relieved or averted through improved future grazing activities. Permittee grazing within this area and on adjacent National Forest lands are under the administration of the U. S. Forest Service.

Field work and first draft of a graduate thesis relating to local coati-mundi were completed.

Glen Canyon National Recreation Area, Arizona and Utah

Cooperative fish plantings by both State Fish and Game Departments and the Bureau of Sport Fisheries and Wildlife occurred during this reporting period after closure of the Glen Canyon Dam diversion tunnels and several conferences between these agencies and the Recreation Area staff. Formation of Lake Powell proceeded to a satisfactory degree this year and resulted in a May 20-24, 1963, initial fingerling stocking of two million largemouth bass and three million rainbow trout. An additional two million trout are scheduled to be planted in the fall of 1963 with another five million in 1964. Stocking was reported to have been accomplished from State and Federal airplanes after initial trucking to the Page, Arizona, area. Catchable rainbow trout were scheduled to be planted in the Colorado River below Glen Canyon Dam.



Rising Lake waters have presented the area's staff with a considerable cattle rescue project. The "Noah's Ark" detail is reported to have saved several stranded Herefords from different locations within this new area.

Domestic stock continue to play an important role in fish planting activities despite the use of newer techniques in many areas.

Grand Canyon National Monument, Arizona

Nine new forage and pellet group count transects were installed during November by the Grand Canyon National Park and Monument management biologist. Overutilization of available browse and high pellet group counts have required a more thorough evaluation of mule deer range utilization. Installation of three deer exclosures was also scheduled for the 1963 calendar year.

Although no antelope were observed within the area, it is believed that movements of a 1961 plant on adjacent lands to the north by the Arizona Game and Fish Department resulted in their occasional occurrence within the Monument.

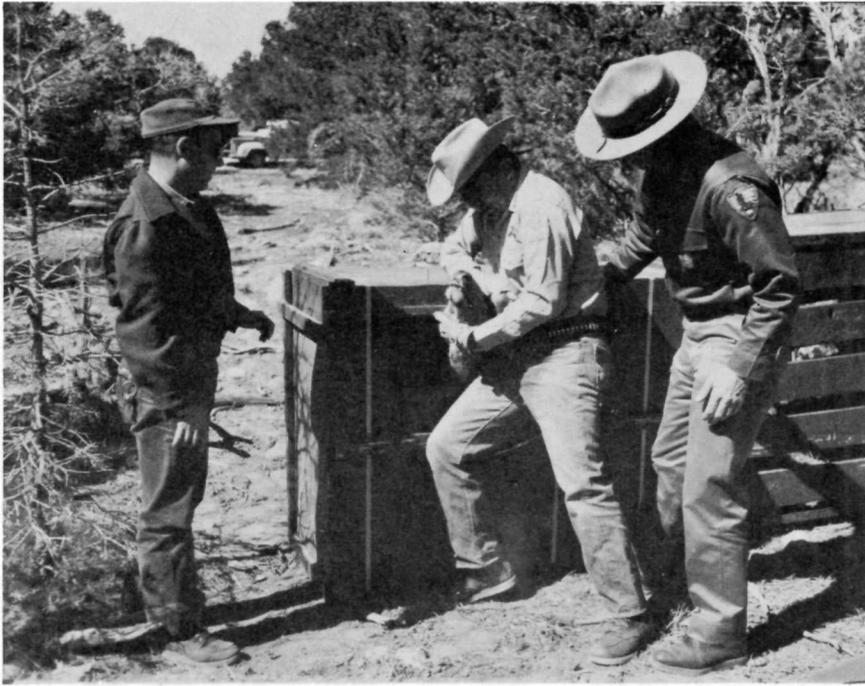


Overutilization and regeneration of cliffrose, a preferred browse species in many southwestern parks, are being dealt with through control of excessively large populations of deer.

Grand Canyon National Park, Arizona

An overabundance of Rocky Mountain mule deer in specific areas of the Park and maintenance of proper densities in former concentration areas resulted in the continuation of a population control and removal program. A total of 88 deer were removed this year. Forty-four were captured and then released on Navajo Reservation lands as in former years under the cooperative arrangements with the tribal council and through limited assistance of the State Game and Fish Department. An additional 10 deer were reduced by accidental trap or Capchur gun and poaching deaths. Road kills accounted for the remaining 34 animals.

It is becoming increasingly obvious that the current capture and removal program is not a completely suitable solution to overutilization of browse by these deer. The area's management biologist reports that weather and



Navajo tribal ranger and National Park personnel tagging a captured deer for transportation and restocking historical deer range of the Navajo Reservation.



A deer captured by use of a dart gun employing a tranquilizer drug. The drugged deer will be released on Navajo tribal lands.



Marking deer for distribution studies and collecting biological information on herd productivity is necessary for establishing proper herd levels.

topographical conditions have made trapping or capturing removal programs impossible in certain remote sections of the Park. It has also been noted that a direct reduction program will have to be initiated in specific back-country locations if range improvements are to be realized throughout a larger portion of the Park.

Direct control of feral burro was continued with approximately 60 animals being shot. One additional burro was removed by a permittee. Despite the favorable effects that have resulted from this and previous annual control measures, a more intensive removal program is necessary to effect an adequate control or elimination of current destruction to Park resources. Development of a greater interest for special-use permit applications for removal of live burro is felt to be necessary for attaining management goals.

Abbreviated long-range and 1963-64 South Rim management plans were submitted during May. Formal approval of the extensive February 1961 management plan



Feral burros which are highly competitive with native animals and plants are presently found in five southwestern National Parks and Monuments.

served as the basis and guide for these shorter versions of a formalized management plan for Park wildlife resources.

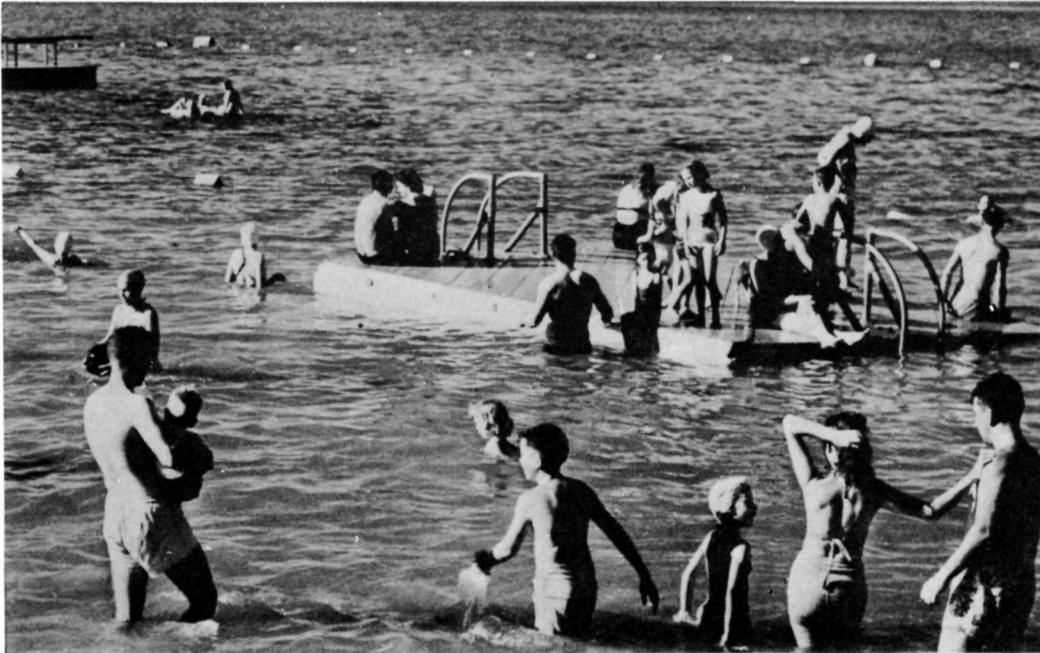
Great Sand Dunes National Monument, Colorado

Although favorable habitat conditions continue to prevail for the area's wildlife, winter range conditions and utilization studies were carried out during this reporting period. The February 1962 reintroduction of 20 prong-horn antelope has apparently been successful. The latest census of 31 animals indicates that a survival of 11 kids, from an original stocking of 14 does and eight bucks, has occurred unless this initial cooperative stocking was augmented from outside sources.

No control programs were reported for this period.

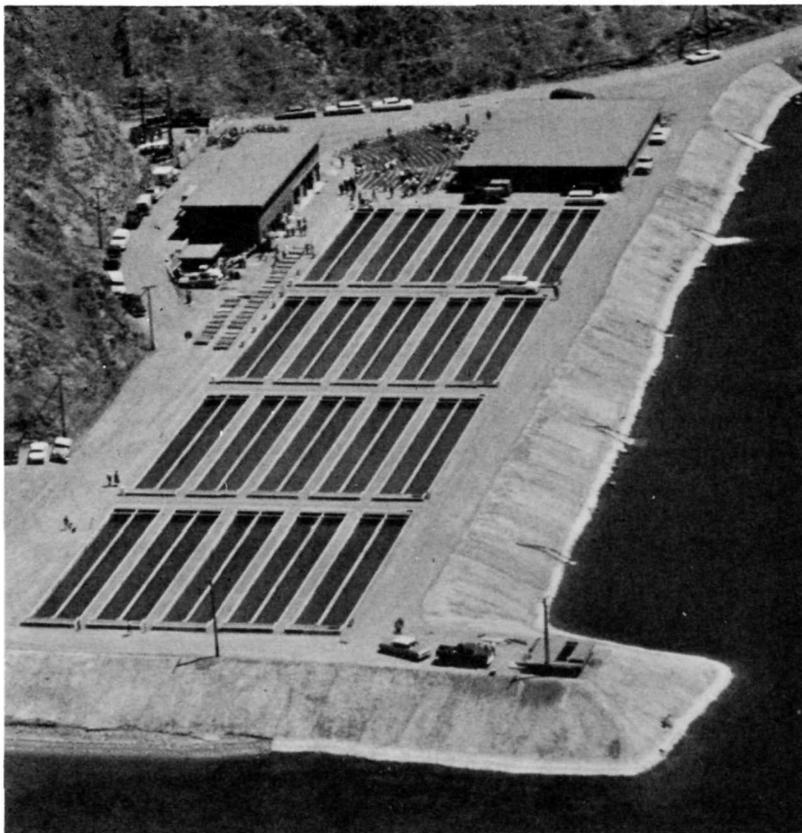
Lake Mead National Recreation Area, Arizona and Nevada

Three bighorn sheep were reported to have been officially taken by public hunters during the fall season. The significance of this area, under existing land uses and inherent environmental capabilities, remains insignificant for public utilization of terrestrial wildlife resources. On the other hand, public fishing at Lakes Mead and Mohave continues at a high level. The productivity of these waters for bass fishing continues to place them in the uppermost bracket of western fishing locales.



Water impoundments such as Hoover Dam's Lake Mead are providing excellent outlets for America's ever increasing need for Federal and State recreational areas.

Cooperative programs involving both of the States and U. S. Fish and Wildlife Service were continued at a high level in management of local waters. Examples of this were the collection of fish specimens from Lake Mohave by the Arizona Game and Fish Department through use of electrical shocking equipment and the extensive stocking program of several catchable trout species by



The Bureau of Sport Fisheries and Wildlife fish hatchery at Lake Mead National Recreation Area is presently a supplemental stocking source for Colorado River impoundments and other waters of the Southwestern United States.

of significantly different, yet basic, area use of natural resources. A realignment of wildlife management policies, which will encourage the utilization aspect as being compatible to recreational area uses, is not only long overdue but has received an increased impetus from the Secretary's special Wildlife Committee report of March 3, 1963.

the Federal Hatchery at Willow Beach. This recently completed hatchery facility not only provides a supply of trout to the rich waters of Lake Mohave, where reproduction is practically nonexistent yet growth rates fantastically high, but is also serving as a source of fingerlings for planting at Lake Powell in the Glen Canyon National Recreation Area.

Reconnaissance surveys for a study of feral burro - bighorn sheep competition, under a cosponsorship of the Universities of Arizona and Nevada, were completed. This new research project will hopefully determine needs and methods for herd reduction or elimination of exotics.

This is but one of several areas that will particularly benefit from the Service's current efforts to establish more realistic and separate policies for the administration and management

Mesa Verde National Park, Colorado

Cooperative activities with the Colorado Game and Fish Department in the management program of Park wildlife, continued to be numerous as in previous years. Included among these 1962-63 activities were (1) a continuation of the rodent live-trapping and release program that was initiated in 1958 for census-ing and winter rodent plant use purposes; (2) a scheduled bighorn population census which, unfortunately, did not materialize; (3) the establishment of deer range production and utilization transects; (4) consultations between the State, Park, and Ute Indian Reservation for recommending hunting seasons of migratory mule deer on adjoining State administered lands; and (5) State deer pellet group counts in the Far View area of Mesa Verde.

No major control programs were carried out within this Park. Results of deer habitat utilization from pellet group counts in the vicinity of Far View and transects on Long Mesa disclosed that generally lower resident and migratory populations were present this year. Range conditions appeared to have had a decided effect upon normal deer movements and relocations to adjacent lower terrain where a decided increase in hunter harvest was recorded over the previous year's figure. The 1962 kill was 1,962 animals which compared with a harvest of 1,212 deer during 1961.

Recommendations for a preseason and continuation of the extended regular season deer hunt were made at the annual State sponsored interagency meeting in May. The preferred Service method of securing more suitable harvests of deer through public hunting outside of parks rather than reducing excess populations from within, continue to guide this area's deer management program.



Overuse and alteration of native plant life by deer requires active wildlife management programs in many areas.

The 1956 attempt to reintroduce prairie dogs has apparently failed. Moreover, the Park reports that a desired future attempt may be more successful if a larger initial stocking is accomplished.

In addition to an experimental rodent control test involving poisoned bait preference, 70 specimens were collected by the Park staff for epidemiological investigations by the U. S. Public Health Service. No indications of bubonic plague were reported by the San Francisco Field Station.

Organ Pipe Cactus National Monument, Arizona

Extensive predator poisoning programs were reported by this area for adjoining lands to the north and west of Monument boundaries. Although 1080 poison stations were apparently not used in this Bureau of Predator and Rodent Control project, there were several reports of various types of poisoning programs that indicate a definite need for closer cooperative relations between this Service and other Federal or State agencies involved in wildlife or related management fields. Poisoning programs on lands adjacent to southwestern areas particularly illustrate this need. Grand Canyon, Capitol Reef, Coronado, and Dinosaur are some of the other areas which were involved during the year in approving or disapproving placement of 1080 stations within the three-mile limit or, of experiencing other poisoning programs on nearby lands.



The coyote's value to man is being recognized more each year, but public acceptance of research facts continues to have limited acceptance in many portions of this country.

Two exclosures were recently established in extremely heavily used cattle and horse grazed portions of the area to study adverse effects and habitat changes that can be expected. Remedial action to eliminate this adverse use of a natural area, and allow the seriously affected range of this fragile desert area to recover, received specific and renewed attention late in this reporting period.

Cooperative study arrangements with the adjoining U. S. Fish and Wildlife Service's Cabeza Prieta game range were continued. Recording and assistance in making field observations and bighorn sheep population counts, which require additional manpower due to the limited staff in both areas, have primarily resulted from this interagency arrangement.

Petrified Forest National Park, Arizona

The recently completed Accelerated Public Works project of fencing this area's entire boundary is expected to be of significance to present wildlife values as well as other past conservation and protection problems. Exclusion of trespass grazing on several portions of the Petrified Forest, including 6,000 acres of good grassland in the Painted Desert Area, should be of particular benefit. However, it is also recognized that the management of wildlife resources may also be required from future results of this project; therefore, the importance of observing and recording animal activities and effects upon their habitat are becoming more important than in past years. A close survey and study of existing ecological communities is definitely warranted.

Platt National Park, Oklahoma

The continued damage to the Rock Creek watershed by an excessively large beaver population that was reported last year resulted in positive action during 1963. Accordingly, both a long-range and annual beaver management plan were drawn up by the Acting Regional Chief of Wildlife Management. A subsequent approval on December 12, 1962, led to the initiation of a Park live-trapping and removal program. Seven trapped animals from the Black Sulphur Bridge - Black Walnut areas were turned over to State Department of Wildlife Conservation officials. An additional five beaver were removed from Veteran's Lake by the City of Sulphur.

This excellent cooperative program involving a common watershed has not only provided more favorable situations for rehabilitation of the Park habitat, but has also resulted in the State's ability to stock beaver on other drainages where public harvest is permissible.

Initiation of this removal program has reportedly had several other beneficial effects. Included, is the displayed benefit from a control of an excess



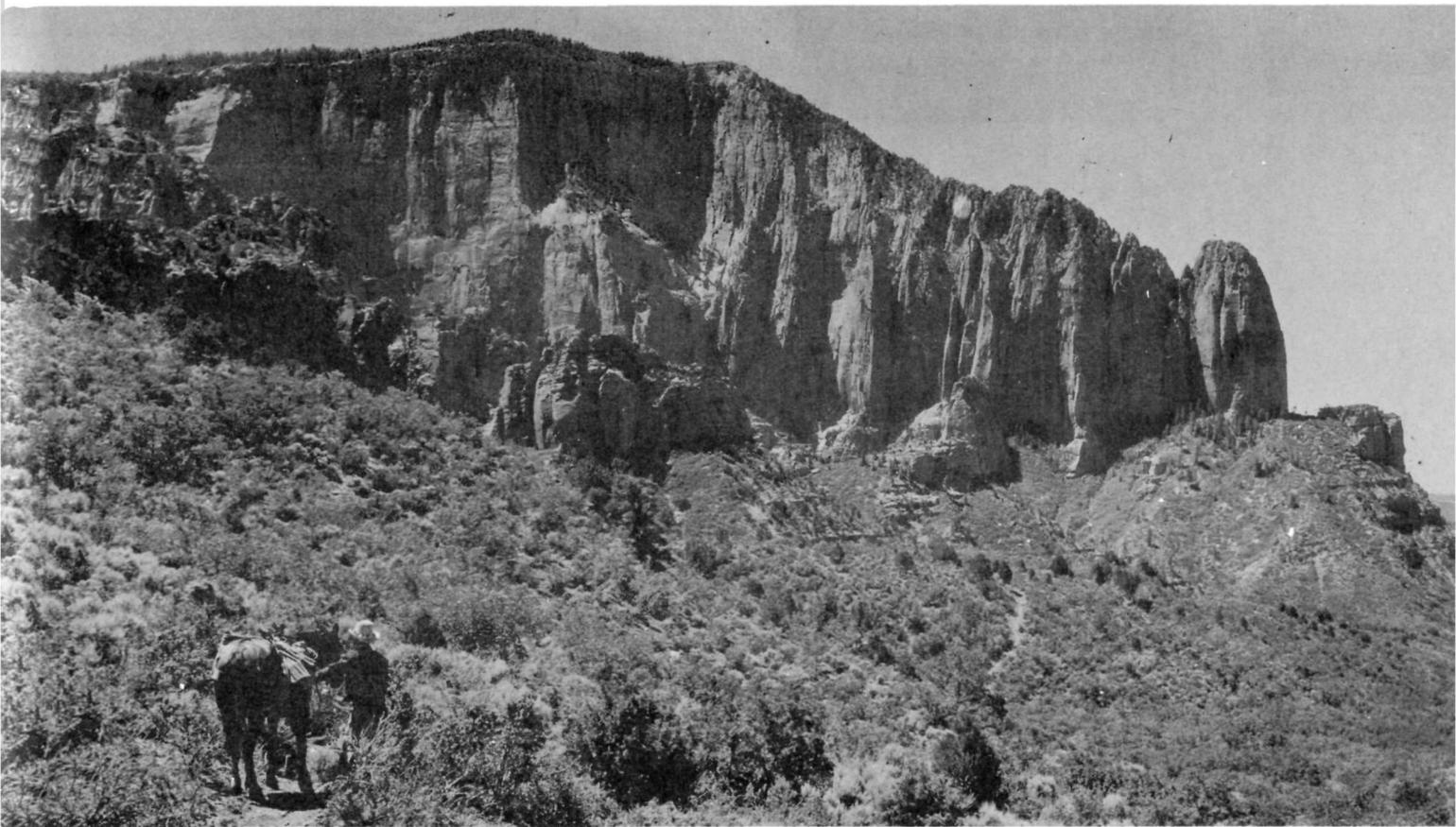
The beaver control program at Platt National Park was completed through close cooperation with State officials.

population that has developed from a lack of natural predation and for conserving vegetation and other native resources that are apparently being depleted on other lands as well. The Service's determination to act in lieu of normal decimating processes may result in favorable action on these other lands where local public pressure for conserving resources, through an increased harvest of beaver, has not met with favorable results.

Four bison calves have been reported as the annual increment to the area's small bison herd. Although no herd reduction was necessary this period, future required control work will be accomplished when the need arises.

Zion National Park, Utah

A notable increase in wildlife management activities is currently being reported. Although no control projects are presently being accomplished, preliminary intensive studies are being carried out by both the park ranger and naturalist staffs in an effort to obtain a more concise picture of the mule deer-range relationship. It is recognized that portions of the Park are utilized by a sizeable deer population during the winter and that large increases are known to occur during the summer.



Plans are presently being formalized for intensifying Zion National Park's deer management program.

Present projects involving visual deer counts and the establishment of 200 small study plots for pellet group counts and forage utilization investigations are primarily located in the heavily utilized Zion Canyon and Rock Pasture deer ranges. Cooperative surveys with the Utah Department of Fish and Game were also carried out on adjoining lands that form a portion of the total and mutually administered winter and/or summer ranges.

Fish management activities during the first six months of 1963 included the planting of 3,800 catchable rainbow trout in the Virgin River. A total annual plant of 7,500 is anticipated.

WESTERN REGION

Alaskan Areas

Mount McKinley National Park reported that the snowshoe hares again showed a decided population increase during this period. Expected increases of predators, particularly lynx, wolf, and wolverine were also noted. Another interesting and possibly related observation of the Park's predator-prey relationship involved an estimated wintering population of 2,000 caribou between Park headquarters and Savage River. This is believed to have been the largest number of Park wintering caribou during the past ten years.

Due to the large size of Katmai National Monument and the small number of personnel, wildlife censusing in this wilderness area has been extremely difficult. Any improvement for more accurate population estimates and trends will undoubtedly require extended and lengthy aerial censusing. The same can generally be said for Mount McKinley and Glacier Bay which are both confronted with somewhat similar situations.

Glacier Bay National Monument has reported that normal ecological changes appear to be progressing as tidewater and other glaciers retreat in this extremely dynamic area. Increased area accessibility due to glacier recession and subsequent development of plant communities has resulted in several range extensions by certain forms of Alaskan wildlife. The movement of moose into this area is now firmly established after continued track and sight observations. This substantiates observations made during the late 1950's.

Sitka deer have also extended their range to several islands which now provide basic species requirements. The trend toward an increasing coyote population continues to be reported. Normal range extension of this extremely versatile animal resulted in their first Alaskan observation in about 1934 with a later arrival date in this Monument. A corresponding decrease in wolf density continues to be noted with the increase of coyote within this Monument.

No control programs were required nor expected in these wilderness areas.



Caribou, Dall sheep, and Alaskan brown bear are only a few species of Mt. McKinley's wilderness wildlife display.



Channel Islands National Monument, California

The direct control program involving exotic rabbits on Santa Barbara Island was continued due to incomplete eradication success over approximately the past ten years. A cooperative effort initiated during the 1950's by the Service, U. S. Fish and Wildlife Service, and the California Department of Fish and Game has involved shooting and poisoning programs with the use of strychnine and 1080 in rolled barley and carrot baits.

Physical characteristics and several inherent ecological and climatological conditions of this Island have apparently precluded total eradication of this exotic. Since 1960, it has been estimated that the rabbit population has consisted of approximately 60-70 individuals, but prior reduction programs resulted in kills of as many as 2,500 rabbits annually.

The Western Regional Office reports that its present three-day semiannual program is a maintenance operation. The existing control program of shooting and poisoning plus environmental changes are suppressing the rabbits' biological potential to some degree. Recent climatic conditions have also had favorable effects as the spread of the exotic ice plant has greatly reduced suitable habitat and restricted the former movement of animals. It has also been noted that only one litter is produced annually.

In addition to Santa Barbara Island's exotic rabbit problem, nearby Anacapa Island is reported to have a limited population of feral cats. No eradication control activity has been initiated as yet. Recent reports indicate that exotic black rats, Rattus rattus rattus, are relatively abundant and may prove to be a menace to ground nesting birds.

Coulee Dam National Recreation Area, Washington

Although the 1962-63 hunter kill of game was unusually small, this Recreation Area and general vicinity continues to provide a good big game hunting opportunity for individuals interested in this compatible National Recreation Area activity. The total seasonal harvest of five black bears, ten mule deer, and 75 whitetail deer from estimated respective populations of 60,500 and 7,200 animals was extremely low. An unusually open winter is believed to have had a significant effect upon animal dispersals and a resulting lower hunter harvest.

Several cooperative programs were reported in the management of fish and wildlife resources. The annual beaver trapping program by the State Department of Natural Resources resulted in live-trapping and removal of two animals. The State was also reported to be conducting a feasibility study for supplemental fish stocking. Technicians from the Bureau of Sport Fisheries and Wildlife have agreed to assist area personnel in a ground squirrel control program in the Fort Spokane District.

A 1961 release of Merriam turkeys by the State in the nearby Rice area, south of Kettle Falls, appears to have been successful. A population increase was noted this past year, as well as a range extension into the Kettle Falls area.

Death Valley National Monument, California and Nevada

This area's greatest wildlife management problem continues to involve the feral burro. Control of an estimated population of about 700 head was continued, and 328 additional animals were removed during the past year. Range recovery in critical areas is reported to be apparent, following the live-trapping and removal program by Death Valley's one special use permittee.

Despite the magnitude of this removal program, it is quite obvious that a complete eradication can never occur within the Monument under existing conditions. Lowered densities and vacated niches, particularly in critical summer watering areas, are quickly filled through movement of animals from the surrounding burro sanctuary. It is reported that this adjoining California burro refuge has a population exceeding 2,000 head. California law, lack of human controls on these adjacent lands, and a contained density on Monument lands can only result in continued range impoverishment. It is hoped that by providing a maximum protection to Monument vegetation through continued control, the environmental and adverse interrelationships between burro and other wildlife can be suppressed without a total disruption of the ecological scene.

As in most other National Park Service areas, cooperative programs have either been initiated or are being continued at Death Valley for the safety and well-being of area visitors. Vector control personnel of the California Department of Public Health checked ectoparasites on rodents in Wildrose Canyon during February. This action followed a wood rat control program in the area of Park personnel dwellings. Spraying of kissing bug harborages and direct control of rodents in buildings was conducted by Park personnel and by U. S. Fish and Wildlife Service specialists during the previous December. Poisoned bait was used to control the wood rat population which is a host of kissing bugs. In addition, a cooperative meeting was held with California Department of Fish and Game personnel to seek an effective means of working with the U. S. Department of Agriculture for interstate transportation of trapped burros.

Hawaiian Areas

The existence of feral and exotic plants and animals in both Hawaii Volcanoes and Haleakala National Parks continues to preclude any major restoration of former pristine conditions. At best, current exotic wildlife control programs can be considered as stopgap measures aimed toward the conservation of limited remaining native vegetation and wildlife resources. Nevertheless, the importance of eliminating feral wildlife cannot be underestimated if a total loss of certain elements of rare native flora is to be prevented.

The recent contract, financed by the Western Regional Office, with California's Humboldt State College for research at Haleakala and a cooperative study agreement with the State Department of Fish and Game in Hawaii National Park, both provide for an evaluation of feral animal impact on the existing ecological scenes and for formulation of wildlife management recommendations. It is reported that these respective one and two-year programs will indicate methods and means of control most feasible for reducing feral pig, cat, goat, and exotic mongoose populations.

Despite constant control of detrimental forms of wildlife, it appears that total eradication is impossible. Hawaii Volcanoes reported a 1962-63 kill of 287 pigs, 2,285 goats, and 20 mongooses. It is additionally interesting to note that an average of approximately 950 goats have been killed over a 13-year period, and the kill during each of the past three years has been approximately



The largest direct reduction program involves the control of feral goats in five National Parks and Monuments.

areas where excessive grubbing and disruption of soil and vegetation indicates the need.

The present status of the first cooperative State and Park reintroduction of 30 nene geese from the Severin Wild Fowl Trust in England and five from the fish and game propagation project at Pohakuloa is good. Thirty-five birds were originally planted in a holding pen located in the Paliku section of Haleakala Crater. The birds soon left the pen and 27 remained in the general

2,000 head. Despite these invaluable and necessary conservation efforts, the pressure upon the habitat continues due to the continued influx of feral animals from population reservoirs that exist beyond Park boundaries.

Pigs may be considered to be natural to the Hawaiian Islands due to their introduction by the early Polynesians. However, their destructive feeding habits require that control efforts be made, especially in the favored moist habitats of both Parks. Control is, therefore, restricted to limited

area. During May it was observed that all but three of the geese had dispersed from the pen area to other locales within the Crater. The geese found dead in the Paliki area during December were autopsied by the State Fish and Game Department. Both had been killed by mongoose. A nene with a broken wing was removed to Honolulu for addition to the limited captive breeding stock of the Hawaiian Islands. There are no reports to date as to nesting attempts of this first plant.

Joshua Tree National Monument, California

The future threat of feral goats becoming a portion of this area's wildlife population has been present since the 1961 release of these animals near the town of Eagle Mountain. This area is immediately adjacent to the southeastern portion of Joshua Tree and could have serious effects upon the native communities of this fragile desert area. Their dispersal into the Monument could have adverse effects on the meager vegetation and result in serious competition with the local bighorn sheep population. Continued observation of the area is a requirement.

A two-year investigation of Joshua Tree bighorn was consummated in June 1963 under a contract agreement between the National Park Service, Western Regional Office and Mr. Ralph E. Welles, author of "The Bighorn of Death Valley." The study will not only provide data valuable for species management and protection but material for interpretation of this important Monument animal.

Management activities have included minor improvements and maintenance of existing waterholes. It appears that with the increasing infringement by humans upon former bighorn ranges in the Eagle Mountain area, the importance of Monument seeps and waterholes will continue to increase.

Lassen Volcanic National Park, California

After years of known extensive overpopulations of mule and blacktail deer in this smaller Park, a priority for establishing a formal wildlife management plan has been established. It is recognized that control of both the Tehama and Hat Creek herds can best be regulated by public hunting outside the Park. However, sufficient data on range overutilization and similar information will be obtained within the Park prior to the formulation of a management program which may necessitate direct control within the Park.

Less than five percent of the total available summer range for these two herds is found within the Park, so it is obvious that a control program inside of Lassen Volcanic's boundaries would, therefore, be of limited value to total herd welfare unless adequate measures for reducing existing overpopulations on adjacent portions of these ranges are also initiated. Nevertheless, initiation

of long overdue Service control work within the Park can have several beneficial effects. Temporary benefits to the habitat would undoubtedly be enjoyed through a relief of excessive deer browsing. Removal of habitual returnees to specific Park niches, which under recent prevailing climatic conditions have generally been too late for outside hunter harvest, should provide some favorable results. An additional benefit could possibly arise through providing an added impetus to the continuing efforts of the State Department of Fish and Game to liberalize the harvest of these herds. It is recognized that benefits from this latter item would be of foremost significance to any deer management activities within the Park.

Additional studies were scheduled for the summer of 1963 by personnel of the Western Regional Office and Park to supplement the information obtained from existing deer exclosures. These exclosures have reportedly had rapid and beneficial recovery of enclosed range vegetation.

Cooperative meetings with California Fish and Game personnel resulted in recommendations for the 1963 fish planting program. In addition, Butte Lake was tested during March for residual toxicity from previous rotenone treatment through a four-day test involving 15 trout. It was proved that 100 percent detoxification had occurred, and 20,000 rainbow trout were subsequently planted later in the month. A stocking date of April 5 was also planned for Reflection Lake in accordance with earlier poisoning and rehabilitation program plans.

Ecological studies of Snag, Horseshoe, and Juniper Lakes were contracted for during May 1963. Funds for the study were provided by the Western Regional Office. Investigators from Humboldt State College will conduct the program which will provide data valuable to the management of these Lakes. All three Lakes have had non-native rough fish introductions which are adversely affecting their ecology.

Observations of a recent range extension by antelope was



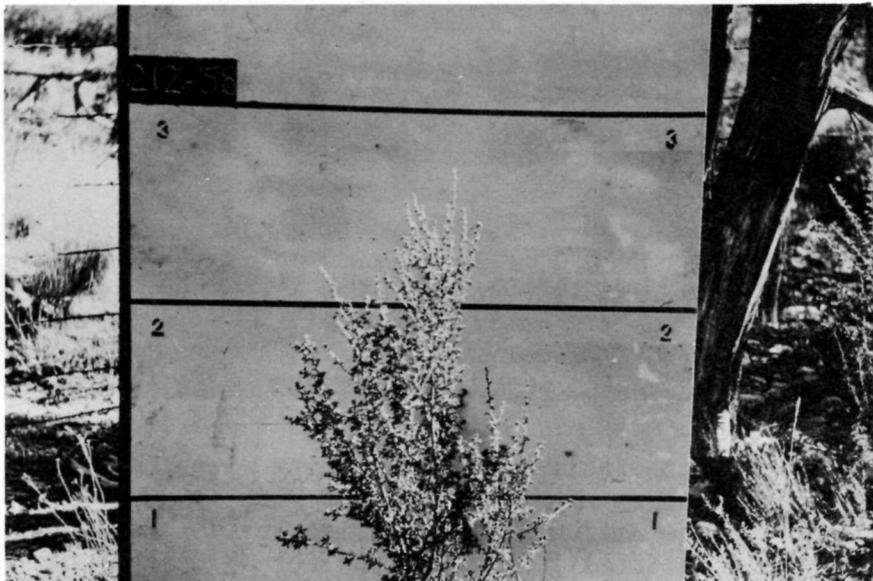
Cooperative aerial stocking with the California Department of Fish and Game and the National Park Service in Lassen Volcanic National Park accounted for 85 percent of all planted fish during 1962.

apparent by May 1963. Two animals were observed along the Butte Lake Road outside of the Park's northeast boundary. Their infrequent use of specific Park habitats can be assumed due to inherent similarities of the range on the extreme eastern Park boundary and adjoining areas.

Lava Beds National Monument, California

Although special-use permit sheep grazing and utilization of Monument ranges by resident mule deer have resulted in depletions in the northeastern sections and serious damages have occurred in migrant winter ranges on the southeastern half of the Monument, recent mild winters have favored more extensive animal dispersals and aided in bitterbrush recovery. A need for increased harvests and antlerless deer hunts in areas outside the Monument would result in a continued and more permanent improvement of habitats. However, public opposition to many biologically sound deer management practices continues to hinder proper harvest programs throughout most of northern California. At present, sheep grazing is allowed to a single permittee who grazes 1,250 sheep over a 60-day period annually.

The area's comprehensive wildlife range analysis is being continued. It is perhaps among the more intensive and long-term investigations yet to be initiated in Service areas, particularly in view of the area's exclusive use of qualified seasonal ranger personnel investigators. Guidance from the Western Region and a methodical scheduling of study projects by the Monument staff have had favorable results in accumulating needed range information. This season's work has included the accumulation of browse composition data from 20 transects and measurements from the 14-key bitterbrush browse utilization plots. Mapping of these 14 plots was also completed.



Cooperative activities with the State Department of Fish and Game were continued and included participation in a spring forage utilization survey training session by the wildlife ranger.

The need for more intensive deer browse utilization studies within many National Parks has been accelerated in recent years due to increased outside influences upon resident and migratory herds.

Mount Rainier National Park, Washington

Minor live-trapping and removal programs involving black bear and raccoon were continued as in previous years. Although the number of bear incidents showed a decided increase during 1962, this was one of the few areas in the Western Region that indicated an increase in bear management activities. A reduction in the number of personal injuries resulted from direct reduction of seven bears and live-trap removal of 12 individuals.



Although most Western National Parks contain extensive summer wildlife ranges, minimum winter range problems often require close cooperation with adjacent land management agencies.

Recommendations for a cooperative study of exotic Rocky Mountain elk by the U. S. Forest Service were made in November. Track and pellet group counts were suggested for the Ohanapecosh area as a means of determining population trends, particularly of wintering animals. In addition, it was proposed that

three exclosures be built during 1963 in the Cedar Flats, Shriner Burn, and White River Valley near the north boundary of this Park. The cooperative elk study committee held an additional meeting in March to formulate a program to determine elk impact on the Park habitat along East Side Road.

Experimental use of plastic bags filled with fingerling trout and a minimum quantity of water and pure oxygen for aerial fish planting at Mt. Rainier National Park has proved to be a successful technique.



Olympic National Park, Washington

Minor direct control programs involving feral goats in the Elwha River Valley and three black bears were carried out in accordance with Service policies. Live-trapping and removal of rogue bears were not required this year.

The Park management biologist position remained unfilled at the end of this period, but title reclassification and receipt of a register was expected to speed up plans to fill this vacancy.

Roosevelt elk forage study plots in the Elwha and Bogachiel Valleys were photographed and vegetation measurements taken during March. Cooperative discussions with the U. S. Fish and Wildlife Service concerning the 1963 fish planting program were also accomplished during this same month, and a subsequent planting of several thousand rainbow trout in Lake Mills occurred in May.



Dipping for smelt is one type of surf fishing available immediately adjacent to the coastal strip of Olympic National Park.

Pinnacles National Monument, California

The report "Study of Deer - Deer Browse Relationships at Pinnacles National Monument," by Peter S. Bennett, clearly points out an overpopulation of deer on a depleted range. Generally, poor physical condition of the herd, low fawn survival, and lack of replacement of certain browse species were indicated. One favorable item was noted in this study project. Increased natural predation has resulted in a lowered population density, but continuation of herd losses through this natural activity is uncertain due to predator control practices of ranchers in the area surrounding the 40-square mile Monument.

Limited public hunting on adjacent lands under present hunting regulations concerning antlerless deer hunts complicates any Service conducted deer control program in the Monument at present. The Monument comprises seven percent of the range of the deer herd involved.

Although feral goats inhabit certain sections of the Monument, no control program was inaugurated.

Sequoia-Kings Canyon National Parks, California

Cooperative establishment of the 1963 "Big Game Management Plan for Bishop Deer Management Unit" by the Inyo National Forest, California Department of Fish and Game, Bureau of Land Management, and these Parks marked a significant step forward in the future conservation of mutually affected wildlife resources. Specific assignments and jurisdiction for portions of the management plan were assigned to each cooperator. The Parks will include a specific study of the Sierra bighorn sheep. Information such as pellet group count and range production indices; deer herd population trend data; habitat improvement projects and priorities; plans for educational and interpretive activities; recommendations for hunting seasons; and action plans for the ensuing year will be commonly discussed and acted on by participating members in accordance with their agencies' respective policies. Review and revisions of the plan and discussions of management recommendations, through a cooperative approach that will not abrogate individual agency policies and programs, will assist in unification of project efforts.

Vegetation utilization and mule deer population studies by the Park management biologist indicated that a smaller number of animals would have to be eliminated during this summer's reduction program. Deer numbers in the Park's four management units were considerably lower than previously estimated, and reduction quotas were revised downward. An unexplained cyclic phenomenon affecting deer numbers throughout a good portion of California, mild winter weather conditions, and generally improved rehabilitation of the Park management units all influenced the lowered reduction estimate needed for a continuing range recovery. Only 31 animals were shot compared to 130 during the

1961-62 period. Direct reduction and live-trapping removal programs of troublesome black bears were continued at a decreased rate from previous years. Three animals had to be eliminated and two trapped and removed. Despite a 48 percent increase over 1961 bear incidents, personal injuries showed a corresponding reduction from two to no injuries during the 1962 calendar year.

Other wildlife management activities that were carried out included: (1) fishing condition report and recommendations for the 1963 fish planting program, (2) several conferences with State and other Federal agencies concerning mutual studies and problems relating to mule deer and bighorn sheep, (3) initiation of the bighorn sheep study through activities such as a preliminary survey of winter range, (4) cooperative sighting and location of California condor for individuals making a study of this nearly extinct bird, and (5) completion of a summary report of the "Deer Reduction Program in Sequoia National Park, December 1962."

The wildlife management program of these two Parks was formally recognized through establishment of a staff park ranger (Wildlife Management) position during January 1963. The establishment and filling of this vital position by a biologically trained individual was required for annual reduction program, biannual evaluations of ranges, studies of wildlife population densities and changes, determination of reduction needs, herd compositions, species distribution and migrations, cooperative meetings with sportsmen groups, and other Federal and State natural resource management agencies. Future wildlife management activities should be greatly enhanced through the benefits of a full-time program supervisor.



Tranquilizers enable permanent marking and release of rogue bears in order to identify habitually offensive individuals from park populations.

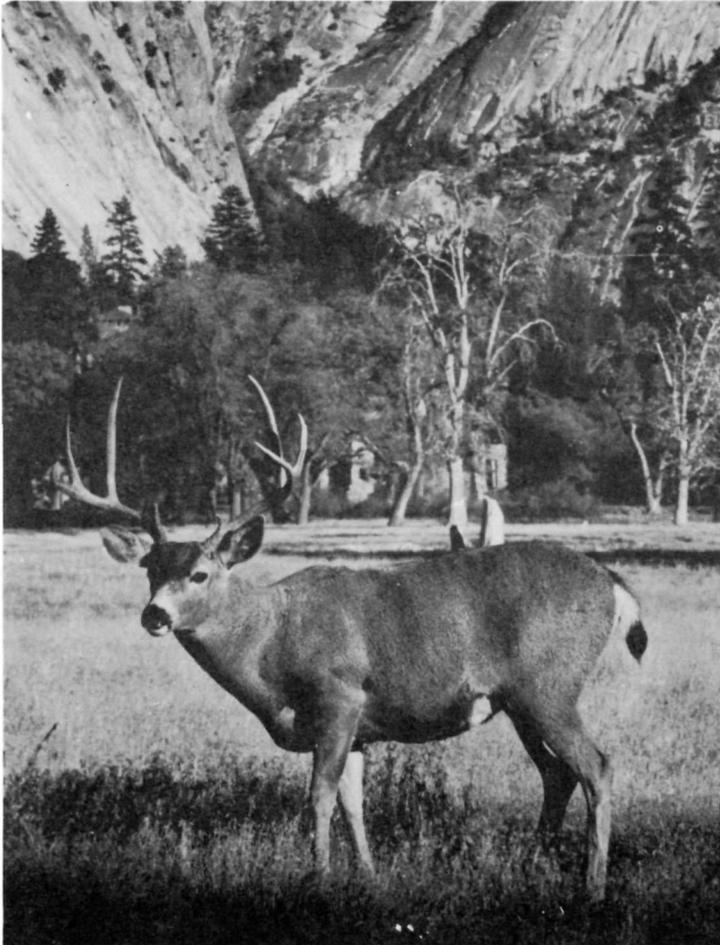


Culvert traps are also used throughout the National Park Service for trapping and relocating bears from concentrated visitor-use areas to remote sections of parks.

Yosemite National Park, California

Despite specific reduced efforts toward fulfilling certain wildlife management program requirements, the inherent black bear management problems of Yosemite Valley resulted in the necessary killing of 13 animals and the

trapping and relocation of 23 others. Both of these figures reflect a considerable decrease in effort over the previous years and, as could be expected, resulted in over a 100 percent increase in personal injuries. The number of bear incidents, however, apparently improved as fewer were reported. A mild winter and increased control activities resulted in considerable Capchur gun removal during the latter portion of this period. An accelerated control program has been found to be necessary due to the complete closure of the Curry Dump and new bear-proof garbage disposal storage. During the first six months of 1963, an increased management program resulted in the removal of 51 bears primarily from Yosemite Valley.



Yosemite National Park's world renowned glacial valley poses several wildlife management problems due to limited habitat and intensive visitor concentration.

Mule deer management activities included capture and removal or the direct reduction of "beggar" herds or individuals through exclusive use of appropriate Capchur gun tranquilizer dosages. Seventeen animals, most of which were taken from the Valley, were captured and relocated to other Park areas and 22 were killed. An estimated road kill of 30 additional deer resulted in a total reduction of 69 animals from various Park areas.

In addition to these control programs, 14 ringtail cats were captured in developed areas and relocated. Three troublesome skunks were eliminated through direct reduction.

The mild winter resulted in good deer herd dispersals and a poor public hunting harvest outside of Park boundaries. Continued overbrowsing of vegetation on the range utilization transects of Bishop Creek and South Fork winter deer ranges indicates that an increased reduction program will be necessary during the forthcoming winter.

Cooperative discussion with the State Department of Fish and Game concerning extended and/or special hunts on adjacent lands are being considered. New introduced legislation in the State of California relative to the discontinuation of bounty payment for mountain lions should have favorable results in all California Service areas. All of the Sierra Nevada and Cascade Mountain Range parks and Pinnacles and Lava Beds National Monuments would benefit from this protection to the only currently effective major predator as all of these areas are experiencing the ailment of too many deer.

Yosemite reports that positive identification was made of a wolf killed near Woodlake, California, in March of 1962. Past observations of this species in Sequoia-Kings and Yosemite National Parks can not altogether be discounted as being large coyotes. On the basis of this report, Yosemite has added the wolf as a rare Park faunal form. It is interesting to note that the last previously known wolf kill in California occurred in 1924 near Lassen Volcanic National Park and that it has been over 100 years since one was killed on the west slope of the Sierra Nevada.

The cooperative small rodent trapping program in connection with sylvatic plague studies was again carried out over a five-day period by the U. S. Public Health Service.

Lake winter floods resulted in the loss of the brown trout hatch in upper Yosemite Valley. Arrangements were made in February to secure 5,000 fingerlings for stocking purposes this year, and an additional 5,000 brown trout for a tentative 1964 plant. Supplemental stocking to the remaining native population was deemed necessary due to the detrimental flood scouring that

resulted from mild temperatures, heavy rainfall, and resulting loss of the snow pack in lower elevations of the Merced River and nearby watersheds during the winter of 1962-63.



The annual fungus infection of trout at the Happy Isles Nature Center occurred in April. Treatment with malachite green was scheduled.

Cooperative fish planting activities involving the National Park Service, other agencies, and State fish and game departments vary according to accessibility to park waters.

Whiskeytown National Recreation Area Project, California

Despite an initial, yet limited, field staffing during the 1962-63 report period, a preliminary meeting for future fish stocking in this reservoir was held in January. Cooperative planning with the Shasta County Recreation Commission for tentative stocking of largemouth bass and rainbow trout by the California Department of Fish and Game resulted from this meeting.

ORGANIZATION OF THE BRANCH OF WILDLIFE MANAGEMENT

Continued increases have occurred at all Service organizational levels for fulfillment of the Branch of Wildlife Management's responsibilities.

In addition to the following permanent employees who are occupied on a full-time basis for fulfilling wildlife management activities, many areas have stepped-up their programs to include the use of seasonal and permanent wildlife rangers. Two such notable examples are at Dinosaur and Lava Bed National Monuments where necessary and added emphasis to wildlife and range management-oriented study programs are being conducted. The present permanent technical staff includes the following university-trained wildlife biologists:

Washington Office

Chief, Branch of Wildlife Management - Robert H. Bendt
Staff Biologist - Francis H. Jacot

Northeast and Southeast Regions

Acting Regional Chief, Branch of Wildlife Management - Merle E. Stitt

Midwest Region

Regional Chief, Branch of Wildlife Management - Neil J. Reid

Glacier National Park

Management Biologist - Charles R. Wasem

Rocky Mountain National Park

Management Biologist - Neal G. Guse, Jr.

Yellowstone National Park

Management Biologist - Robert E. Howe

Management Biologist - William J. Barmore, Jr.

Southwest Region

Acting Regional Chief, Branch of Wildlife Management - Stanley E. Broman

Grand Canyon National Park

Management Biologist - James A. Blaisdell

Western Region

No Regional position established

Olympic National Park

Management Biologist - Rodney D. Royce

Sequoia-Kings Canyon National Parks

Management Biologist - Richard Riegelhuth

Yosemite National Park

Management Biologist - Robert D. Metherell

APPENDICES

Annual Wildlife Inventory

Wildlife and Related Statistics

Summary of Certain Wildlife Control Programs

Summary of Bear Management Activities 1961 & 1962

Fish Plantings - 1962



WILDLIFE INVENTORY

ESTIMATED POPULATIONS OF CERTAIN SPECIES IN AREAS ADMINISTERED BY THE NATIONAL PARK SERVICE FROM 1962 FIELD REPORTS

| NATIONAL PARKS | ANTELOPE | BLACK BEAR | GRIZZLY BEAR | BIGHORN | BISON | CARIBOW | COUGAR | COYOTE | MULE DEER | WHITE TAIL DEER | ELK | FISHER | MT. GOAT | LYNX | MOOSE | PECCARY | WOLF | WOLVER-LINE | EXOTICS |
|---------------------------|----------|------------|--------------|---------|-------|----------|--------|--------|-----------|-----------------|----------|--------|----------|------|-------|---------|------|-------------|---|
| Acadia | | | | | | | | | | 800-D | | | | | | | | | |
| Big Bend | 30-U | | | | | | 17-S | 400-S | 3,000-U | 500-S | | | | | | | | | |
| Bryce Canyon | | I | | | | | R | R | A-S | | | I | | | | | | | Burro 100-U, Horse 30-S |
| Carlsbad Caverns | I-D | | | | | | I-D | I-S | 350-S | | | 7-S | | | | | | | |
| Crater Lake | | 15-D | | | | | R-S | R-S | 700-D | | | 15-S | I-S | | | | | | |
| Everglades | | R-S | | | | | R-S | R-S | | | | | | | | | | | |
| Glacier | | 200-D | 95-D | 130-D | | | 26-S | 150-U | 450-D | 330-D | 2,200-D | I-D | 325-D | 41-S | 90-D | | 10-U | 25-U | |
| Grand Canyon | I | I-D | | 150-S | | | 10-S | A-D | 3,285-D | | | | | | | | | | Burro 300-S |
| Grand Teton | | 200-U | R-S | 50-S | 15-D | | I-S | A-S | 175-S | | 900-U | | | R-S | 275-S | | | R-S | |
| Great Smoky Mtns. | | 140-S | | | | | | | | 225-U | | | | | | | | | |
| Haleakala | | | | | | | | | | | | | | | | | | | Boar 175-U |
| Hawaii Volcanoes | | | | | | | | | | | | | | | | | | | Pig 100-S, Goat 1,000-U, Mongoose C-S |
| Isle Royale | | | | | | | | | | | | | | | | | | | Pig 700-S, Goat 2,000-S, Mongoose 750-S |
| Lassen Volcanic | I-U | 10-S | | | | | 5-S | 25-S | 1,000-U | | | 5-S | | | 600-S | | 21-S | | |
| Mammoth Cave | | | | | | | | | | 2,600-S | | | | | | | | | |
| Mesa Verde | | 4-S | | 85-U | | | 6-D | 150-S | 370-D | | | | | | | | | | |
| Mt. McKinley | | 25 | 200-S | 3,500-U | | 10,000-S | | 10-S | | | | | | | | | | | |
| Mt. Rainier | | 75-S | | | | | 6-S | 75-S | 410-U | | 200-U | | I | 15 | 300-U | | 25 | 50-S | |
| Olympic | | C-S | | | | | C-U | C-U | C-U | | A-S | I-S | 350-S | C-S | | | | | Goat I-D |
| Petrified Forest | C-S | | | | | | R-U | C-U | | | | | | | | | | | |
| Platt | | | | | | 9-U | | C | | R | | | | | | | | R | |
| Rocky Mountain | | 30-U | | 225-S | | | 6-S | 50-S | 600-U | | 1,000-U | | | | | | | | |
| Sequoia-Kings | | C-S | | R-U | | | R-S | C-S | C-D | | | R-S | | | | | | | I-S |
| Shenandoah | | 130-U | | | | | | | | 800-S | | | | | | | | | R-S |
| Virgin Islands | | | | | | | | | | R | | | | | | | | | |
| Wind Cave | 350-U | | | | | | | 10-S | 130-S | | | | | | | | | | |
| Yellowstone | 350-U | 500-S | 200-S | 200-S | 435-U | 819-U | I-S | C-S | C-U | | 13,000-U | | | I | 400-U | | | | |
| Yosemite | | C-S | | | | | R-S | A-S | A-U | | | R-S | | | | | | | |
| Zion | | R | | | | | 25-S | 20-S | 3,000-U | | | | | | | | | | |
| NATIONAL RECREATION AREAS | | | | | | | | | | | | | | | | | | | |
| Doulee Dam | | | | | | | | | | | | | | | | | | | |
| | | 60-U | | | | | 2-S | 90-D | 500-S | 7,200-U | | I-S | | | | | | | |
| Lake Mead | | | | | | | | | | | | | | | | | | | |
| | | | | C | | | R | A | C | | | | | 8-S | | | | | |
| Whiskeytown | | | | | | | | | | | | | | | | | | | |
| | | R-S | | | | | R-S | C-S | C-U | | | | | | | | | | Burro C, Horse R |
| NATIONAL SEASHORE | | | | | | | | | | | | | | | | | | | |
| Cape Hatteras | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | C-S | | | | | | | | | Mutria C-S |

Estimate of relative abundance: A - abundant, C - common, R - rare, I - infrequent (transient through area).

Estimate of population trend: U - up, S - static, D - down.



WILDLIFE INVENTORY

ESTIMATED POPULATIONS OF CERTAIN SPECIES IN AREAS ADMINISTERED BY THE NATIONAL PARK SERVICE FROM 1962 FIELD REPORTS

| NATIONAL MONUMENTS, HISTORICAL AND MEMORIAL PARKS | ANTELOPE | BLACK | GRIZZLY | BIGHORN | ELSON | CARIBOU | COUGAR | COYOTE | MULE | WHITE | ELK | FISHER | MT. GOAT | LYNX | MOOSE | PECCARY | WOLF | WOLVER- INE | EXOTICS | |
|---|----------|-------|---------|---------|-------|---------|--------|--------|-------|--------------|------|--------|-------------|------|-------|---------|-------|----------------|---------|--------------------|
| | | BEAR | BEAR | | | | | | DEER | TAIL DEER | | | | | | | | | | |
| Badlands | 80-U | | | | | | I | 20-U | 100-U | I | | | | | | | | | | |
| Bandelier | | 13-U | | | | | I | 23-U | 450-U | | 6-U | | | | | | | | | Burro 38-U |
| Black Canyon | | 2-S | | 10-D | | | 2-S | 20-D | 200-S | | 8-S | | | | | | | | | |
| Chaco Canyon | R-S | | | | | | R-S | 25-U | 10-S | | | | | | | | | | | |
| Chiricahua | | I-S | | | | | I-S | 6-S | R-S | 25-D | | | | | | C-D | | | | |
| Colonial N.H.P. | | | | | | | | | | 200-S | | | | | | | | | | |
| Colorado | | I-S | | | 17-U | | I-S | R-S | 150-S | | 20-S | | | | | | | | | Sheep I-S |
| Coronado N.M. | | I-S | | | | | 3-S | 4-S | | 15-D | | | | | 10-D | | I-S | | | |
| Craters of the Moon | I | | | | | | I-S | C-S | 300-S | | I | | | | | | | | | |
| Cumberland Gap N.H.P. | | | | | | | | | | 30-U | | | | | | | | | | |
| Death Valley | | | | 750 | | | | 200 | 20 | | | | | | | | | | | Burro 700, Horse 6 |
| Devils Postpile | | I-S | | | | | I-D | | C-U | | | | | | | | | | | |
| Devils Tower | | | | | | | | | 6-S | 25-S | | | | | | | | | | |
| Dinosaur | I-S | | | 101-U | | | R-S | C-S | C-D | | I-S | | | | | | | | | Horse I-S |
| Effigy Mounds | | | | | | | | | | 16-S | | | | | | | | | | |
| Gettysburg N.M.P. | | 400-U | 150-D | | | | | | | 200-S | | | 1200-U | | 25-U | | 100-D | 100-S | | |
| Glacier Bay | | | | | | | | 250-U | 200-U | | | | | | | | | | | |
| Grand Canyon | I | | | 50-S | | | 10-S | C-S | 300-S | | | | | | | | | | | |
| Great Sand Dunes | 31-U | I-S | | 25-S | | | 10-U | 20-S | 250-S | | 10-S | | | | | | | | | |
| Hopewell Village N.H.S. | | | | | | | | | | | | | | | | | | | | |
| Joshua Tree | | | | 150-S | | | | 150-U | 40-S | 35-S | | | | | | | | | | |
| Katmai | | | C | | | | | | | | | | | R | C | | C | C | | |
| Lava Beds | 5-S | | | | | | | I-S | 30-S | 500-D | | | | | | | | | | |
| Morristown N.H.P. | | | | | | | | | | 50-S | | | | | | | | | | |
| Mt. Rushmore N.M. | | | | | | | | | R-S | 10-S | 5-S | 5-S | 11-U | | | | | | | |
| Muir Woods | | | | | | | | | | 12-D | | | | | | | | | | |
| Oregon Caves | | I-S | | | | | I-S | 3-D | 15-S | | | | | | | | | | | |
| Organ Pipe Cactus | 25-S | | | 70-S | | | 4-D | 225-D | 75-S | 18-S | | | | | | 125-U | | I-S | | Burro 40-U |
| Pea Ridge N.M.P. | | | | | | | | 7-U | | 8-U | | | | | | | | R-S | | |
| Pinnacles | | | | | | | 3-S | 2-S | 418-D | | | | | | | | | | | Goat 10-S |
| Saguaro | | R | | | | | R | 100-U | 150-S | 100-S | | | | | | C-U | | | | |
| Saratoga N.H.P. | | | | | | | | | | 51-U | | | | | | | | | | |
| Scotts Bluff | | | | | | | | R-S | 25-S | R-S | | | | | | | | | | |
| Theo. Roosevelt N.M.P. | 200-D | | | 21-U | 146-U | | I-D | 115-U | 500-S | 300-S | | | | | | | I-D | | | |
| NATIONAL PARKWAYS | | | | | | | | | | | | | | | | | | | | |
| Blue Ridge | | 72-S | | | | | | | | 1650-U | 40-S | | | | | | | | | |
| Natchez Trace | | | | | | | | | | 40-U | | | | | | | | | | |

Estimate of relative abundance: A - abundant, C - common, R - rare, I - infrequent (transient through area).

Estimate of population trend: U - up, S - static, D - down.

WILDLIFE AND RELATED STATISTICS

The following approximate figures may be helpful in realizing the complex biological problems that are encountered in management of wildlife and related natural resources within the exterior boundaries of areas administered by the National Park Service:

| | |
|--|------------|
| 1. Parks with important fish populations | 59 |
| 2. Parks with fish stocking programs | 17 |
| 3. Acres in lakes supporting fish | 1,183,065 |
| 4. Miles of streams supporting fish | 7,857 |
| 5. Acres of valuable wildlife habitat | 14,433,329 |
| 6. Parks with known deer problems | 24 |
| 7. Parks with deer control programs | 8 |
| 8. Parks with elk problems | 7 |
| 9. Parks with elk control programs | 5 |
| 10. Parks with bighorn sheep. | 18 |
| 11. Parks needing restoration of bighorns | 8 |
| 12. Parks impaired by exotics | 14 |
| 13. Parks with black bear population | 31 |
| 14. Parks with bear problems | 15 |
| 15. Parks with grizzly populations | 6 |
| 16. Parks with cougar population | 40 |
| 17. Parks with wolf population | 10 |
| 18. Parks with buffalo management programs | 7 |
| 19. Major species needing investigation | 50 |
| 20. Parks needing reintroduction of extirpated species | 25 |
| 21. Parks having wildlife as a major visitor interest | 57 |

1962 - 1963
Summary of Certain Wildlife
Management Control Programs

| <u>Native Species</u> | Area | No. trapped and relocated | No. directly reduced in park | Outside hunter kill affecting park programs | Road kills affecting park control programs | Misc. reduction affecting park program |
|-----------------------|------------------|---------------------------------|---------------------------------|---|--|--|
| Antelope, Pronghorn | Wind Cave | | | | 3 | 2 |
| Bear, Black | Crater Lake | 7 | 2 | | | |
| | Glacier | 26 | 10 | | | |
| | Grand Teton | 14 | 1 | | 1 | |
| | Great Smoky Mtn. | 9 | 4 | | 2 | 1 |
| | Katmai | | 1 | | | |
| | Mt. Rainier | 12 | 7 | | | |
| | Olympic | | 3 | | | |
| | Sequoia-Kings | 2 | 3 | | | |
| | Shenandoah | | | 3 | | |
| Yellowstone | 227 | 48 | | 5 | 1 | |
| Yosemite | 23 | 13 | | | | |
| Bear, Grizzly | Yellowstone | 1 | 4 | | 1 | 1 |
| Sheep, Bighorn | Theo. Roosevelt | 3 | | | | 4 ¹ / ₄ |
| Bison | Theo. Roosevelt | 20 | | | 1 | 1 |
| | Wind Cave | | 100 | | | 5 |
| | Yellowstone | 369 ¹ / ₁ | 1 | | | |
| Deer, Mule | Glacier | | | | 1 | 11 |
| | Grand Canyon | 44 ¹ / ₁ | | | 35 | 9 |
| | Mesa Verde | | | 1,962 | | |
| | Rocky Mountain | | | | 13 | 2 |
| | Sequoia-Kings | | 31 | | | |
| | Yellowstone | | | | 19 ³ / ₃ | |
| Yosemite | 17 | 22 | | 30 ³ / ₃ | | |
| Deer, Whitetail | Acadia | | 94 | | 4 | 1 |
| | Glacier | | | | 2 | 4 |
| | Mammoth Cave | 297 ¹ / ₁ | 22 | | | |
| Elk | Glacier | | | | 1 | 52 |
| | Grand Teton | | 280 | 1,053 | 1 | 30 |
| | Rocky Mountain | 2 ¹ / ₁ | 1 | 225 | | |
| | Yellowstone | 671 ¹ / ₁ | 404 | 530 | | 241 |
| Subtotals | | 1,744 | 1,051 | 3,773 | 119 | 365 |

Feral and Exotic

| <u>Species</u> | <u>Area</u> | <u>No. trapped and relocated</u> | <u>No. directly reduced in park</u> | <u>Outside hunter kill affecting park programs</u> | <u>Road kills affecting park control program</u> | <u>Misc. reduction affecting Park program</u> |
|----------------|------------------|----------------------------------|-------------------------------------|--|--|---|
| Boar and Pig | Great Smoky Mtn. | 33 ^{1/} | 2 | | | |
| | Haleakala | | 2 ^{2/} | | | |
| | Hawaii Volcanoes | | 28 ^{1/} | | | |
| | Virgin Islands | | 2 ^{2/} | | | |
| Burro | Death Valley | 328 ^{1/} | | | | |
| | Grand Canyon | | 60 | | | |
| | Lake Mead | | | | 3 | |
| | Virgin Islands | | 2 ^{2/} | | | |
| Goat | Badlands | | 8 | | | |
| | Haleakala | | 2 ^{2/} | | | |
| | Hawaii Volcanoes | | 2,285 | | | |
| | Olympic | | 2 | | | |
| Mongoose | Virgin Islands | | 2 ^{2/} | | | |
| | Buck Island Reef | | 95 ^{3/} | | | |
| | Haleakala | | 2 ^{2/} | | | |
| | Hawaii Volcanoes | | 20 | | | |
| | Virgin Islands | | 2 ^{2/} | | | |
| Subtotals | | 361 | 2,759 | | 3 | |
| TOTALS | | 2,105 | 3,810 | 3,773 | 122 | 365 |

Remarks:

1/ Removed to outside of Park

2/ No reduction figures available

3/ Estimate

4/ Live animals to State

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON 25, D. C.

SUMMARY OF BEAR MANAGEMENT ACTIVITIES 1961 & 1962

| Parks | Incidents | | Personal Injuries | | Property Damage (Value) | | | | Bears Trapped | | Bears Killed | | Arrests | |
|------------------------------|-----------|------|-------------------|------|-------------------------|---------|---------|---------|---------------|------|--------------|------|---------|------|
| | 1961 | 1962 | 1961 | 1962 | Visitor | | Govt. | | 1961 | 1962 | 1961 | 1962 | 1961 | 1962 |
| Crater Lake | 13 | 5 | 0 | 0 | 565 | 5 | 25 | 31 | 4 | 7 | 0 | 2 | 0 | 0 |
| Glacier | 7 | 30 | 4 | 2 | 55 | 412 | 0 | 360 | 40 | 26 | 5 | 10 | 0 | 0 |
| Glacier Bay | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Teton | 12 | 8 | 0 | 0 | 250 | 120 | 0 | 0 | 12 | 14 | 6 | 1 | 0 | 0 |
| Great Smoky Mt. | 147 | 131 | 10 | 8 | 1,787 | 745 | 10 | 62 | 35 | 9 | 6 | 7 | 6 | 3 |
| Katmai | 25 | 2 | 0 | 0 | 0 | 10 | 0 | 500 | 0 | 0 | 0 | 1 | 0 | 0 |
| Lassen Volcanic | 34 | 0 | 0 | 0 | 0 | 0 | 78 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Mt. McKinley | 41 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| Mt. Rainier | 6 | 22 | 2 | 1 | 300 | 900 | 0 | 50 | 6 | 12 | 1 | 7 | 0 | 0 |
| Olympic | 18 | 46 | 0 | 1 | 200 | 230 | 150 | 25 | 2 | 0 | 0 | 3 | 0 | 0 |
| Rocky Mountain | 17 | 19 | 0 | 0 | 50 | 170 | 10 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Sequoia-Kings | 195 | 289 | 2 | 0 | 1,500 | 815 | 400 | 0 | 26 | 2 | 28 | 3 | 0 | 0 |
| Shenandoah | | 10 | | 0 | | 60 | | 95 | | 0 | | 0 | | 0 |
| Yellowstone | 305 | 112 | 58 | 42 | 12,830 | 3,478 | 308 | 32 | 192 | 228 | 71 | 52 | 0 | 15 |
| Yosemite | 118 | 74 | 5 | 9 | 2,107 | 2,534 | 145 | 215 | 48 | 23 | 30 | 13 | 0 | 0 |
| Totals | 938 | 748 | 82 | 63 | \$19,644 | \$9,479 | \$1,126 | \$1,370 | 375 | 321 | 148 | 99 | 7 | 18 |
| 1962 Increase or Decrease | | | | | | | | | | | | | | |
| Number: | -190 | | -19 | | -\$10,165 | | +\$244 | | -54 | | -49 | | +11 | |
| Percent | -20% | | -23% | | -51% | | +22% | | -14% | | -33% | | +157% | |

| Year | Personal Injuries | Incidents | Visitor Property Damage | Government Property Damage |
|------|-------------------|-----------|-------------------------|----------------------------|
| 1958 | 58 | | | |
| 1959 | 71 | 2,025 | \$18,868 | \$1,610 |
| 1960 | 103 | 1,401 | 24,864 | 2,506 |
| 1961 | 82 | 938 | 19,644 | 1,126 |
| 1962 | 63 | 748 | 9,479 | 1,370 |

FISH PLANTING IN NATIONAL PARKS - 1962

| <u>National Park</u> | <u>Total</u> | <u>Source of Fish¹</u> | <u>Total Numbers by Species</u> |
|----------------------|----------------|---------------------------------------|---|
| Acadia | 6,060 | F | 6,060 brook |
| Blue Ridge | 42,369 | F-S | 4,200 brook; 32,119 rainbow; 6,050 brown |
| C&O Canal | 5,530 | S | Misc. warm water fishes |
| Glacier | 337,546 | F | 172,362 rainbow; 5,184 cutthroat; 160,000 grayling |
| Grand Teton | 645,323 | F-S | 5,185 brook; 461,501 cutthroat; 178,637 lake |
| Great Smoky | 50,000 | F | 27,000 brook; 23,000 rainbow |
| Lassen Volcanic | 159,829 | S | 16,212 brook; 138,613 rainbow; 5,004 brown |
| Mt. Rainier | 80,000 | F | 80,000 cutthroat |
| Olympic | 516,165 | F | 516,165 rainbow |
| Rocky Mountain | 41,500 | F | 41,500 cutthroat |
| Sequoia-Kings Canyon | 75,789 | S | 15,000 brook; 37,989 rainbow; 22,800 golden |
| Yosemite | <u>537,760</u> | S | 68,400 brook; 469,360 rainbow |
| TOTAL | 2,497,871 | | |

Summary of Numbers Planted by Species

| | |
|-----------------------------|--------------|
| Brook trout | 142,057 |
| Lake trout | 178,637 |
| Rainbow trout | 1,389,608 |
| Golden trout | 22,800 |
| Cutthroat trout | 588,185 |
| Brown trout | 11,054 |
| Grayling | 160,000 |
| Misc. warm water species | <u>5,530</u> |
| TOTAL | 2,497,871 |

¹F--U. S. Bureau of Sport Fisheries and Wildlife Hatcheries
S--State Hatcheries

