

WILDLIFE MANAGEMENT IN NATIONAL PARKS



1961 - 1962

PREFACE

This is the first annual summary report of wildlife management activities in areas administered by the National Park Service. Former annual condition reports basically related to wildlife trends and status of animal populations in individual field areas. It is not the intent of this summary to report these particular items.

Recognition of the importance of active management of wildlife populations and habitat is continually increasing. This need has been illustrated by recent action taken by both the Department of the Interior and National Park Service. Secretary of the Interior Stewart L. Udall's appointment of a special five-member advisory board to survey wildlife management on lands administered by the Department prompted recent field area submission of specific data. Much of that information was presented to the advisory board for its consideration and evaluation of Departmental wildlife management programs and also forms a major portion of this summary. In addition, there has been a lack of general Service understanding of conditions, programs and activities in the wildlife management field.

Compilation of an annual wildlife management summary is anticipated in subsequent years. A need for such a report has been amply demonstrated. In this first attempt, some background information which predates the 1962 fiscal year reporting period was necessary for logical reporting of current control programs. Future reports, in most instances, should not require such material for adequate reporting of subsequently current wildlife management and population control programs.

Fiscal year reporting dates have been used for facilitating reportable material. Many control programs, range surveys and similar activities preclude use of normal calendar year reporting dates.

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INTRODUCTION

Many significant factors have affected wildlife populations during the past several decades. Western areas of the United States have experienced vast and often times drastic land-use changes that have dramatically altered the ecology of most wildlife species. These changes have proved beneficial to the existence of some faunal populations and detrimental to others.

In addition, the introduction of exotics has had varying effects upon native plant and animal species. Entire wildlife populations have sometimes been affected. Climatic conditions during the past decade that have generally been of a more mild nature have not only had decided effects upon the various vegetative processes, seasonal movements of migratory species, reproduction and decimating factors, but many other items that have definite effects upon wildland populations. The present population numbers of wildlife contained in State and Federal lands has also changed due to these and many other affecting forces of nature and actions by man.

Former preservation measures applied to the management of wildlife have in many instances become obsolete. The balance between land carrying capacity for wild populations and population numbers has reached and even surpassed the point where decided and definite action should be taken for a proper realignment. Only through attempts to realign these two items will other park resources such as soil and vegetation be conserved. The Service's obligation to conserve in an "unimpaired" manner is explicit. Waste or complete destruction is to be avoided.

This summary has been compiled to present field area data concerning wildlife management programs that were in effect during the July 1, 1961 to June 30, 1962 period. Certain special items and programs dealing with this management field are also included. An attempt to summarize activities and programs of each area in the National Park System has not been made. Only those areas which have significant, inherent or which possibly will be subjected to more extensive wildlife management problems are being considered. Limitations and omissions that should not have occurred are unavoidable due to this office's dependency upon submission of significant data from both field and regional offices.

The primary concern of this summary is to present management activities that developed with management of ungulates during early 1961. The controversy arising from some management programs continues to be the subject of considerable discussion and action among interested groups and individuals. The importance of direct reduction programs in National Parks for the conservation of several renewable and nonrenewable resources and maintenance of suitable biological relationships resulted

in the appointment of a special wildlife advisory board by the Secretary of the Interior. Additional information on this group of eminent conservationists and their work as an advisory committee is included in the section dealing with Special Wildlife Programs.

For a number of years, annual summaries or reports were published on the status and condition of wildlife in areas of the National Park System. They also included accomplishments in the various fields of biological research. Resumption of this annual accomplishment summary, on a recurring basis, is anticipated for future years.

In attempts to comply with the act of August 25, 1916, areas comprising the National Park System are administered in such manner as " * * to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations * * *." The conservation principle of wise use and its application to certain wildlife populations has been determined to be necessary in order that other resources of America's priceless heritages, as found in the National Park System, may be enjoyed by future visitors.

During this reporting period new additions, such as Haleakala National Park, City of Refuge National Historical Park and Buck Island Reef National Monument, were added to the 189 existing Service administered parks and related areas. These additions all contain varying quantities and diversified compositions of wildlife that will add to visitor enjoyment and experiences. In addition, 82,276,000 visits and 91,758,000 days of visitor-use were experienced in the approximately 25,957,901 acres contained in scientific scenic, historic and prehistoric reservations of national significance. Recreational use of fishery resources, which originated from lands administered by this Service and as submitted by annual reports of thirty-five areas, indicated an angler use day figure of approximately 1,750,000.

POLICIES AND GUIDELINES

Adopted wildlife management policies as found in Volume VI, Part 2, Chapter 5, of the Administrative Manual, have been issued as guidelines to all park activities or programs in this field. A review of this material by field offices will not only be of assistance in public presentations of current park activities, but should also assist in the formulation of an active management program.

Particular reference is made to the various regional office memoranda issued in conjunction with the Director's April 11, 1962 memorandum relating to Information on Bear Management Activities. Informational instructions contained therein should be sufficiently adequate and explicit for proper bear management in all applicable areas.

WILDLIFE

The animals indigenous to the parks shall be protected, restored, if practicable, and their welfare in a natural wild state perpetuated. Their management shall consist only of measures conforming with the basic laws and which are essential to the maintenance of populations and their natural environments in a healthy condition.

Hunting. Hunting in areas of the National Park System is incompatible with their preservation in the manner contemplated by the authorizations for their establishment and will not be permitted, except as specifically provided by law.

Wildlife problems, especially those in relation to overpopulation, are to be solved effectively, but use of public hunting as a method of wildlife management aimed at readjusting animal populations to approximate natural biotic conditions is definitely not to be a solution.

Predatory Animals. No native predator shall be destroyed because of its normal utilization of any other park animal or plant, unless such animal or plant is in immediate danger of extermination, and then only if the predator is not itself a vanishing form. When control is necessary, it shall be accomplished by transplanting, or if necessary, by killing offending individuals and not by campaigns to reduce the general population of a species.

Species predatory upon fish shall be allowed to continue in normal numbers and to share normally in the benefits of fish culture.

Exotics. Nonnative forms shall not be introduced into parks. Any exotic species which has already become established in a park shall be either eliminated or held to a minimum provided complete eradication is not feasible, and the possible invasion of the parks by other exotics shall be anticipated and steps taken to guard against the same.

Native Forms. Every native species in the areas of the National Park System shall be left to carry on its struggle for existence unaided as being to its greatest ultimate good, unless there is real cause to believe that it will perish if unassisted.

Where artificial feeding, control of natural enemies, or other protective measures are necessary to save a native species that is unable to cope with civilization's influences, every effort shall be made to place that species on a self-sustaining basis once more. The artificial aids, which themselves have unfortunate consequences, will then no longer be used.

Reintroduction. Any native species or subspecies which has been exterminated from a park shall be brought back if this can be done, but if a species has become extinct, no related species shall be considered a candidate for reintroduction in its place. If a subspecific variant of a species has become extinct, substitution of a closely related subspecies may be considered.

Adverse Biological Forces. Plants and animals which are inimical to the public health or welfare or which are destructive to historic, archeological or scientific structures, sites, features or records of primary importance shall be subject to neutralization or control.

Hoofed Animals. The numbers of native hoofed animals occupying a deteriorated range shall not be permitted to exceed its reduced capacity and, preferably shall be kept below the carrying capacity at every step until the range can be brought back to its original productiveness.

Artificial Feeding. No animal shall be encouraged to become dependent wholly or in part upon man for its support.

Captive Animals. Artificiality shall be avoided in the presentation of the animal life of the parks to the public. The preferred presentation shall be through wholly natural situations.

Management. Management measures or other interference with plant and animal relationships should be undertaken after properly conducted investigation. Approval of programs for the destruction and disposition of wild animals which are damaging the land, or its vegetative cover and of permits to collect rare or endangered species has not been delegated.

Endangered and Vanishing Species. The issuance of a scientific collector's permit must be based upon the abundance of the species in the park which the permit applies. Every request must be considered carefully, and the collection of endangered or vanishing species is restricted or prohibited.

FISHING

Recreational fishing within National Parks and Monuments shall be permitted under management programs directed toward the perpetuation, restoration and protection of native species and wild populations of fishes and the protection of the natural aquatic environments and the ecological relationships of the associated fauna and flora. This activity shall be directed so as to not decrease the wildlife, scenic, scientific or historic values of the park.

Where Fishing is Excluded. Fishing may be excluded from specific waters when necessary to preserve aquatic or terrestrial species or habitats which are limited in distribution or when such activity materially decreases the enjoyment of the areas by the general public.

Native Species. The perpetuation, protection and restoration of native species in safe numbers in waters where they originally were found shall be given primary consideration in any management plan whenever possible.

Native Nonsport Fishes. All species of fishes are fully protected, except those designated for recreational angling.

Native nonsport fishes shall not be reduced or eliminated except as may be unavoidable and incidental to the primary objective of extirpating an exotic unwanted population of fishes.

In any restoration plan, native nonsport fishes should be reintroduced as well as the sport fishes.

Hybrid Trout. Hybrid trout shall not be stocked in waters of National Parks and Monuments.

Stocking. Artificial replenishment of stocking may be employed:

1. To reintroduce native species into waters where they have become eliminated or seriously depleted by natural or man-made causes.
2. To maintain fish populations in selected and approved lakes which are capable of supporting fish life, but which lack sufficient natural spawning facilities to maintain an adequate fish population to meet the need of recreational angling.

Size of Fish to Stock.

1. Fingerling trout may be planted in lakes where competent study had determined a need for supplementary stocking.
2. The stocking of eyed-eggs, fry or fingerlings in streams shall not be practiced except to restore a depleted population of native trout. (Numerous qualified studies on streams of varying sizes throughout the country have demonstrated that where conditions are suitable for trout, natural populations are maintained at maximum carrying capacity by natural reproduction. Planting of eyed-eggs, fry or fingerling trout in streams to supplement this natural reproduction has proven to be of negligible or no benefit.)
3. Stocking of catchable size trout to provide "put and take fishing" is not compatible with the fundamental concept of the National Park Service, therefore, the planting of fish for immediate recovery by the angler shall not be made in waters of national parks and monuments.
4. Adult wild trout may be transplanted to re-establish native species or depleted populations.

Stocking National Parkways. Recreational fishing within National Parkways is permitted under management programs and stocking procedures normally practiced by the State or States in which the Parkways are located. This activity shall be regulated by the National Park Service.

Each Parkway Superintendent shall designate Parkway fishing waters. When the impact of fishing pressure would create damage to Parkway, features and facilities, would produce hazardous traffic congestion or would result in unusual enforcement problems, individual waters may be closed to fishing and to stocking.

Stocking Exotic Species. Exotic species of fishes or other exotic animals, or any exotic species of aquatic plants may not be introduced or stocked in waters of the National Parks and Monuments except:

1. In waters where exotic fishes are established and the restoration of native species is impracticable.
2. Where adequate investigations have demonstrated that additional planting is desirable and necessary to supplement limited or nonexistent natural reproduction.

Management of Exotic Sport Fishes. In waters where exotic sport species of fishes are established, and they are valuable for angling and are ecologically compatible with the existing environment, and their replacement by native species is impracticable, the fishery for the exotic species will be managed in a manner similar to that for native forms.

When replacement of the exotic by the native species is practicable, the latter shall be encouraged to take over its former place.

Removal of Exotic Species--Eradication or Control. Where exotic species have become dominantly established to the detriment of the native species, restoration of the original fish composition may be brought about by the removal of the undesirable exotics. Standard eradication methods; such as, chemical treatment or electric shocking may be employed. Also, these methods may be employed to control exotic species where complete elimination is not feasible.

The need for and techniques to be used for an eradication or control program shall be based upon adequate investigations by aquatic biologists.

Egg Taking. The taking of eggs from fishes for the purpose of artificial propagation within waters in national parks and monuments is rarely justified and should not be permitted until a thorough review has been made.

Protection of Virgin Waters. Lakes and streams which are barren of fish life shall remain in this virgin condition and shall not be stocked.

Artificial Improvement of Lakes and Streams. All forms of artificial improvement of streams or lakes for fishery management purposes which change the natural habitat and the surrounding landscape are prohibited, except that, when the aquatic environment has been so altered by man that restoration by natural means is improbable, measures may be taken to return the streams and lakes to a more natural condition.

Management by Regulations. To preserve the populations of native species and yet allow angling, sport fishing shall be controlled by regulations which provide for the conservation of native species of fishes and compatible management of introduced, established species. Limits shall be established so that the total catch will not exceed the natural productive capacity of the waters. Creel limits shall not be considered as "goals".

Fishery Investigations. The conservation and proper management of the fishery resources and angling as a recreational activity is dependent upon a complete knowledge of the status of the fish fauna and the angling pressures being exerted. Adequate and continuing investigations are vital to the successful preservation and management of this resource.

Commercial Fishing. Commercial fishing is generally noncompatible with National Park Service objective and shall be permitted only within national parks and monuments where this activity is specified by law. It will be conducted under restrictions which are designed to conserve and perpetuate the resource.

Publicity. Publicity regarding fishing within the areas of the National Park System shall be directed toward the recreational and esthetic values, and the appreciation of the unspoiled environment as a whole rather than emphasis on the catch. Information regarding angling will be factual and realistic with respect to fishing conditions.

Promotional types of publicity are discouraged but this does not apply to release of information on subjects of conservation of aquatic resources, fish regulations, care of fish by anglers, or the place of angling in the national park experience.

GENERAL WILDLIFE CONDITIONS AND ACTIVITIES

NORTHEAST REGION

Acadia National Park, Maine

The 17,000 acre fire in 1947 on Mt. Desert Island has influenced severe fluctuations in the resident whitetail deer population. Improved browse development after this fire helped to stimulate a large increase in deer abundance. Hunting is not allowed on State owned portions of the Island and effective predation is lacking; therefore, there is little control of this population other than by limited poaching. When it became apparent that deer were overutilizing and adversely limiting reproduction and development of native vegetation such as the white cedar, a deer control program was initiated by the Park in 1960.

Live-trapping and the use of the Cap-chur gun were not effective during the winter of 1961 as only two animals were removed from the Island. Sixty-five deer were shot by Park Rangers during the second year of the reduction program. Continuation of the program is anticipated until the herd is brought into balance with available browse or such time as hunting is allowed on lands adjacent to the Park. An effort was made in the last State legislature to open the State owned portion of Mt. Desert Island to deer hunting, but it was defeated.

Management activities also included live-trapping and relocation of beaver within the Park. This was required due to flooding of roads, trails, water supplies and sewage disposal fields by dam building activities of this species.

Cooperation with the State for research projects was obtained when a biologist was assigned to collect data from eliminated white-tail deer.

Isle Royale National Park, Michigan

The condition of the previously overbrowsed moose range has improved steadily since the advent of the timber wolf in about 1949. Sample browse plots maintained by the Bureau of Sports Fisheries and Wildlife on an intermittent basis since 1947 have revealed this gradual improvement. Due to an apparent optimum balance between moose, beaver, snowshoe hare and other herbivores and predation by primarily wolf and fox, no management or control programs have been found to be necessary.

This Park presents one of the best arguments for the natural balance of species by maintenance of a relatively stable food pyramid. A static predation situation, by approximately 20 wolves upon a population of about 600 moose, has occurred during the past four years according to studies conducted under Dr. Durward L. Allen.

The moose-timber wolf relationship has been the subject of continuing and intensive studies for the past four years by graduate students from Purdue University. In addition, a study of the beaver on Isle Royale was started in 1960 by a graduate student of this same university.

It has been noted that the cyclic snowshoe hare population is near the apex of its 10-11 year cycle. The peak is expected to occur during 1962 or possibly the following year.

SOUTHEAST REGION

Blue Ridge Parkway, Virginia and North Carolina

Although wildlife is protected in this elongated area, hunting on adjacent lands which are under State control is the primary management factor influencing abundance of game populations. Management within the Parkway is similar to other areas which lack active control programs in as much as hunting or disturbance of wildlife is prohibited. All matters pertaining to wildlife protection and management are closely coordinated with State officials and other Federal agencies through cooperative agreements.

Poaching and dogs appear to be keeping the Peaks of Otter elk herd of about 40 animals in a relatively static condition. Activities of the packs or individual dogs indicate a need for more positive control measures to curb their predation activities against both elk and whitetail deer. The report of wild bear near Montebello, Virginia may require future active planning and management if this exotic ranges onto Parkway lands.

A memorandum of agreement entered into with the States of Virginia and North Carolina and also of interest to the Bureau of Sports Fishery and Wildlife provides the following: (1) Parkway Superintendent designates fishing waters and limitations; (2) both States will manage Parkway waters in accordance with practices normally used in their respective States, including fish stocking and management studies; and (3) unforeseen management problems may be settled by temporary action by the Superintendent but unusual practices such as poisoning, and changing of species must be approved by the Director.

By mutual agreement with North Carolina, fly-fishing only was initiated on Basin and Cove Creeks in Doughton Park during the 1961 season. In the fall of 1961, the successful elimination of rough fish from Price Lake and its headwaters was accomplished by personnel of North Carolina, the Fish and Wildlife Service and the Parkway. Restocking with rainbow trout was also accomplished. Arrangements have been made by these same agencies for rehabilitation of Trout Lake in Cone Park during the fall of 1962, subject to the Director's approval.

Buck Island Reef National Monument, Virgin Islands

This small island off the coast of St. Croix Island is infested with mongoose. Since the Reef is not inhabited by people, a good opportunity exists for the elimination of mongoose without interference to other uses. A control program is to be developed in cooperation with the Bureau of Sport Fisheries and Wildlife and it is anticipated that actual control work will commence late in 1962.

The opportunity to increase the limited knowledge and information known about this exotic appears to be excellent in this area due to its isolation. Experimentation on direct reduction methods, particularly through the use of poisons, and the reintroduction of native species appears to be very good.

Protection of unique coral formations and marine life in adjacent waters is one of the principal conservation objectives. Skin diving and use of snorkle tubes for observation purposes is encouraged but spear fishing is looked upon as hunting. It is, therefore, discouraged in the interest of maintaining a balanced population of fishes which will not be made wary by spearing activities.

Cape Hatteras National Seashore, North Carolina

Waterfowl hunting has been permitted, as provided by law, during the past three years. Hunting has been managed by the National Park Service. However, the State of North Carolina assists in law enforcement work. Good cooperation and public relations have prevailed. A waterfowl management program, for which a formal plan will be submitted prior to the 1962-63 season, will continue indefinitely.

By agreement with local owners, free ranging ponies, cattle, and goats have been controlled on Ocracoke Island.

Nutria have been observed on the island of this National Seashore and their control is desirable. Private lands that are interspersed throughout the area complicate this problem and State cooperation towards any control program will be necessary.

An experimental mosquito control program which primarily involves waterlevel control has been initiated. Effects of this control upon other animals is being studied concurrently.

Colonial National Historical Park, Virginia

Although an active control program was not in operation during the period of this report, a potential for active management of this Park's whitetail deer herd does exist. During the winter of 1960-61 a removal program was initiated on Jamestown Island through use of Cap-chur gun and tranquilizers. Use of this equipment was experimental and not completely successful, since only eight of the intended 50 deer were removed.

Continuation of the removal program during 1961-62 was not found to be necessary as a population census indicated a herd slightly below desired numbers. Despite the favorable existing conditions during this reporting period, with respect to quality and quantity of deer forage, vigilance must be maintained on the deer population and natural foods that may be affected by future overpopulations.

Everglades National Park, Florida

No significant wildlife control problems exist in this Park of unusual and unique sub-tropical vegetation and birdlife. In the past, some concern has been voiced regarding raccoon predation on bird nests on some of the keys in Florida Bay. Several years ago, assistance was requested from the United States Fish and Wildlife Service to study the problem. Although a few raccoons were trapped, the study indicated that no serious problem existed and control has since been discontinued.

In accordance with understandings reached at the time the Park was established, commercial fishing is permitted in Florida Bay. In cooperation with the State, commercial fishing methods being used and allowable harvest are regulated within sound sustained yield principles. The vast brackish water zone of this Park and other inshore water areas provide outstanding spawning or nursery grounds for fishes and shrimp. The value of this habitat in connection with offshore fisheries, particularly the Tortugos shrimp fishery, is well appreciated. Maintenance of the quality of this habitat in the face of the adverse influences of outside water control programs and the encroachment upon Park boundaries of municipal and industrial developments is a very serious problem.

Recent drought conditions have apparently resulted in habitat losses or increased predation activities and failure of reproduction success for river otter and several of the unique bird species such as the wood ibis and roseate spoonbill. Recent activities aimed towards a better management of the fresh water resources is imperative for the maintenance of all vegetation and wildlife in Everglades National Park.

Great Smoky Mountains National Park, Tennessee and North Carolina

A goal of complete elimination of the exotic wild boar has presented a considerable management problem in this Park since extensive rooting damage became apparent in the late 1950's. In accordance with Service policy, the ultimate objective of complete elimination has been attempted through both live-trapping and direct reduction.

Between August 10, 1959, when a cooperative control program was initiated, and January 31, 1962, a total of 22 boars were live-trapped and transferred to the Tennessee Game and Fish Commission for transplanting on State administered lands. The Park will continue its cooperative transfer program with both North Carolina and Tennessee.

In addition to this trapping program, 36 wild boars have been shot by Park Rangers during this same program period. Three trapped and transferred, and five direct reduction eliminations were realized during the winter of 1961-62.

Management of black bear has also required control through trapping and removal of campground and roadside animals to remote areas of the Park. It was also necessary to destroy six individuals during the summer of 1962.

The fishery management program in selected waters of Great Smoky Mountains is of particular interest, and was reported in Lennon and Parker's 1960 report, "Fishing for Fun Program on Trout Streams in Great Smoky Mountains National Park." The introduction and continuation of this program to preserve sport fishing, improve its quality and make available the use of the resource to increasing numbers of anglers, has not only met with success but has been favorably received by most Park fishermen.

Mammoth Cave National Park, Kentucky

During the 1930's whitetail deer were reintroduced into Kentucky and also the Mammoth Cave National Park area. A continuing population increase has followed this reintroduction and in 1956 Kentucky opened its first deer hunting season in about 100 years.

Indications that deer were becoming too abundant within the Park first appeared in 1954. The State Department of Fish and Wildlife Resources was asked to cooperate in a study of this situation. Browse studies indicated that there was overutilization of the vegetation and control measures should be initiated. In 1956 adjacent counties were opened to hunting by the State but the 1957 browse studies indicated that overutilization continued.

Approval of a cooperative agreement on August 4, 1958 by the Director provided for trapping and removal of deer by the State of Kentucky. Each year since 1957, deer from this Park have been live-trapped and released in other areas of the State. An average of more than 200 deer per year has been removed under this arrangement.

Despite the removal of 272 deer during the current reporting period and a limited poacher-accident reduction of population numbers, an overpopulation of Virginia whitetail deer still exists.

The limited hunting period of three days for guns and thirty days for bow and arrow hunters in counties adjacent to the Park should be extended in order that additional reductions may be realized. Continued trapping, with a possible increased activity

in this management practice, is another alternative for reducing the area's overpopulation of deer prior to drastic reductions or elimination of native forage species. Extension or increased activity in either or both of these reduction methods would undoubtedly result in sufficient population reductions without resorting to direct control.

No other wildlife control measures have been found to be necessary within this Park.

Pollution of the Green River by salt brine from upstream oil fields threatened the welfare of aquatic resources in the 24-mile portion of the River within the Park and its underground tributaries. The salt content of the water became intolerable in 1959 and 1960, and the National Park Service cooperated with the State pollution control people and United States Public Health Service in efforts to reduce this problem. Particular concern was felt for the welfare of the blind fish in the Mammoth Cave waters. Reduction of oil production and better disposal of brine has alleviated this problem but its importance to Park resources continues to require close observation.

The restocking program of bobcat and ruffed grouse continued with the release of five bobcats and 18 grouse. Few grouse sightings have left the success of this particular program in doubt. One bobcat fatality is known to have occurred. Success of the reintroduction of river otter is also in doubt due to the all time high water mark reached during February by the Green River. No otter signs were noted after this high water mark was attained. A subsequent release of two otters during September 1961 resulted in a total of five releases for the year.

Pea Ridge National Military Park, Arkansas

Complaints that wolves were present in this area and that local stockmen were losing animals to these predators led to cooperative investigations with the Bureau of Sports Fisheries and Wildlife. Results indicated that the predators were coyotes.

After the Director's approval of September 18, 1961, a cooperative agreement was reached with the Arkansas Fish and Game Commission whereby State trappers were permitted to trap coyotes within the Park for a one-year period. A maximum quota of five coyotes was set. Trapping activities from December 1961 to January 1962 were unsuccessful within the Park and only one coyote was trapped during the period by an adjoining landowner.

As was provided in the agreement, a program review and analysis of trapping results will be made in September 1962, at which time a decision will be made as to the future continuation of this program.

Shenandoah National Park, Virginia

Although no problems exist which require immediate control programs, both whitetail deer and bear could present potential management problems in this Park. Big game hunting is permitted on all adjacent lands and thus assists in the control of species abundance within the Park. This is particularly true during severe winters when deer move into adjoining lowlands.

There is no evidence, as yet, of overbrowsing by deer within the Park, but some complaints have been made by fruit growers near this Service area because of damages they attribute to these deer.

Black bear show signs of a population increase and a few are beginning to raid campgrounds. Close adherence to the Service's bear management policy should prevent the development of any future bear-human relationship "problems." To date, there has been no direct control or other forms of management of deer or bear in this area.

During the winter of 1958-1959 cooperation with local counties because of rabies in a fox control program resulted in a few individuals being trapped within the Park. At present, the incidence of rabies has subsided in this general area and no additional need has been found for immediate control work with this species.

Sponsorship of a "Fishing for Fun" program on the Rapidan and Stanton Rivers in cooperation with the Virginia Fish and Game Commission is presently being accomplished. Fishery management is aimed toward maintaining wild populations of native fish. The objective is also aimed toward a harvest of fish within the productive capacities of Park trout streams, most of which are marginal in productivity. Although some criticism has resulted from the enforced nine-inch limit for trout, this regulation is aimed toward maintenance of the above type of fishery without resorting to put-and-take stocking.

Virgin Islands National Park, Virgin Islands

The major wildlife problem being encountered in this new National Park is the exotic mongoose. The population explosion of this Asian import has resulted in the predation and even extermination

of some indigenous forms of birds, mammals and reptiles. Attempts to completely eliminate this common to abundant member of the St. John Island fauna began in 1961. Trapping, shooting and poisoning are being employed in this new control program. Complete eradication of the mongoose and reintroduction of native species such as the iguana and several forms of ground nesting birds is the ultimate goal.

Elimination of feral pigs, goats, and donkeys that stray onto Park lands is also being attempted. A campaign of local resident education as well as active control is necessary and is also being developed.

A sand fly control program has been initiated in a portion of the Park and is being watched carefully for possible adverse effects.

Marine environments adjacent to the area as yet are not legally a part thereof. Protection of the marine fauna, particularly the rare types and coral formations, is largely by persuasion and education. As a management measure, the planting of 1,200 young green turtles was made at Lameshur Bay in October 1961. Success of this effort to increase a native population and assure future nesting success hinges upon control of the mongoose. The Service cooperated with the Virgin Islands government, the Jackson Hole Preserve Inc., and Mr. Archie Carr of the Tortuguero Turtle Hatchery in Costa Rica for this planting program.

MIDWEST REGION

Badlands National Monument, South Dakota

Relatively small populations of mule deer and antelope occur in the Monument. Past permit grazing, which was to terminate on December 31, 1961, but was extended for a one-year period, accompanied by severe drought conditions during the past three years, has resulted in some damage to available range. Recovery of park lands from past use will depend upon many variable factors which in turn may require control measures of native ungulates at a later date.

Although no control of native species was necessary this year, complaints of a nearby rancher resulted in a State organized and directed December 1960 deer reduction hunt. Eleven deer were taken from an area of one to two miles distance from the Monument's north boundary.

Native bighorn sheep have been extinct in this general area for approximately 50 years. With the State of South Dakota's introduction of bighorn into Custer State Park for later release on the Scenic Bombing Range, it is anticipated that range extension will reintroduce this extirpated member of Badlands National Monument fauna.

Research attempts on the black-footed ferret continued during 1961 and 1962. It is hoped that applicable information can be derived for preservation of this near extinct animal.

Colorado National Monument, Colorado

The small bison herd in this Monument has required periodic reductions due to limited capacity of the area for the species. Animals that are killed in this program have been transferred to Ute or Navajo Indians. The first reduction program was held in 1942 with the last occurring in January and February of 1961.

Population reductions of approximately 10 to 20 individuals are made very few years. Although limited participation by the State has occurred in the past, reductions made in early 1961 were entirely by Monument personnel.

Elk and mule deer are winter migrants into the area. Due to outside hunting pressures their numbers are apparently kept in check.

Limited control work has been authorized for reducing porcupine damage to pinyon pines both in this area and on the North Rim of Black Canyon of the Gunnison National Monument.

Devils Tower National Monument, Wyoming

Wildlife management activities in this first National Monument are restricted to approved minor direct control measures. These involve a rather extensive prairie dog colony and a relatively high porcupine population. Limited predator abundance has apparently resulted in excessive small mammal populations.

Dinosaur National Monument, Utah and Colorado

Utah Fish and Game Department personnel cooperated with the Service by live-trapping and tagging 18 deer during this reporting period from the Island Park area of the Monument. In its first attempt to mark mule deer for migration studies, only one individual was tagged two years ago. Poor weather conditions were apparently responsible.

Deer populations within the area are not considered to be excessive. However, ranger utilization by permittee domestic livestock grazing complicate the situation. Proposed minor boundary adjustments have stimulated debates on the movement of deer on and off the Monument and the extent to which Monument deer are subjected to outside hunting. Hunting pressures outside of this area are relatively heavy; winter die-offs few if any, and generalized observations have resulted in the opinion that an overpopulation of deer does not exist at present.

A small population of Rocky Mountain bighorn occurs here and was the subject of a Masters Degree study by Mr. William Barmore, Management Biologist, Yellowstone, under the direction of the Utah cooperative Wildlife Research Unit.

Glacier National Park, Montana

In 1954 the St. Mary elk herd numbered about 900 head. The range showed severe damage due to overbrowsing and overgrazing of vegetation. Initiation of range studies indicated an excess herd population of approximately 650 head. With establishment of a maximum population of 250 head, protection and recovery of this range was expected.

A limited direct reduction program, with emphasis on hazing elk out of the Park for Indian harvest, was fairly successful during the first three seasons of active herd management. However, the elk later became accustomed to the hazing and refused to leave the Park. An increased direct reduction program within the Park then augmented the existing control program. Direct control within

Glacier National Park has resulted in a herd reduction of 200 head from its beginning through this reporting period. The kill outside of the Park has undoubtedly exceeded this figure.

Cooperative activities related to this program are limited to those involving the Blackfeet Indian Tribal Council. It has furnished horses, men, trucks and oversnow equipment. In addition, four Indians have been appointed as seasonal Park Rangers to assist in the direct reduction within the Park. Limited cooperation with the State Fish and Game Commission has occurred through a salting program to draw elk out of the Middle and North Forks of the Flathead River. They have also cooperated with the Park by extending hunting seasons adjacent to the southern Park boundary in order to reduce the Middle Fork herds.

Campground and roadside nuisance black bears have also required control programs. Thirty-nine were live-trapped, marked and relocated to remote areas of the Park. Destruction of five individuals was also required. Control measures were not required with grizzly bears, although precautionary visitor-informational warnings and instructions were installed at practically all trail heads.

Grand Teton National Park, Wyoming

The large Jackson Hole elk herd, most of which summer in the southern portion of Yellowstone National Park and Teton National Forest, presents a complex management problem. Direct reduction of migrating elk through this Park from northerly summer ranges to winter feeding grounds of the Jackson Hole National Elk Refuge, are covered under the section on Special Wildlife Programs, of this report. Attempts to offset the loss of winter range in Jackson Hole have been made through establishment of the National Elk Refuge which is administered by the Bureau of Sport Fisheries and Wildlife and also the setting aside of U. S. Forest Service lands for this purpose.

Despite the large and complex cooperative venture that exists for overall management of these migratory elk by Federal and State agencies, overutilization of the summer and winter ranges is still evident. This complex problem is discussed by Acting Chief, Branch of Wildlife Management, Robert H. Bendt, in his paper, "The Jackson Hole Elk Herd in Yellowstone and Grand Teton National Parks" which was presented at the March 1962 North American Wildlife and Natural Resources Conference. Direct reduction of 272 elk under Management Provisions of Public Law 787 occurred during this reporting period.

A black bear reduction of six individuals and live-trapping and removing of 12 nuisance bears was also found to be necessary. Roadside

and campground incident bears have been disposed of through use of both control methods as advocated by Service management guidelines. Outside hunter reductions and decimating factors other than starvation appear to be handling population abundance for other species.

Rocky Mountain National Park, Colorado

Control programs affecting mule deer and elk herds in Rocky Mountain National Park were first initiated during the winter of 1944-45. The objective, as in all other areas, is to maintain these populations within the carrying capacity of the range they use. Continuation of the program through direct reduction is expected to continue until productivity of the range is restored.

Annual direct reduction has been continuous since its inception during the 1944-45 season. The Colorado Department of Fish and Game has cooperated with the Park in the direct control program since it was initiated. The State originally provided a small crew to assist in the reuction, and disposed of the carcasses. Since the mid-1950's, an employee of the Department has assisted in the shooting activities as a Deputy Park Ranger. However, during 1961 the Game and Fish Department requested that its participation be terminated and this was agreed upon by the Service prior to the 1961-62 reduction year.

During this reporting period, 59 elk were killed and subsequently disposed of through channels of the U. S. General Service Administration. Tentative programs include a trapping program for study of migration and herd movements and a long-range program for determining winter range carrying capacity. Trapping for transplanting is not anticipated at this time unless animals are requested for this purpose.

Management practices involving this area's small black bear population were restricted to trapping and releasing four individuals from Timber Creek Campground to the Milner Pass area. No direct reduction was necessary.

Formal long-range and annual plans have been developed for elk and deer management in this Park. Present planning has set maximum elk and mule deer populations on winter ranges at 400 and 450 head, respectively. Rehabilitation of ranges, results of studies and effects of harvests on adjoining lands are a few considerations which will influence future programs.

Theodore Roosevelt National Memorial Park, North Dakota

This relatively new area presently has a management program aimed at restoring populations of native animals and maintaining them

at levels within the carrying capacity of the range. This program can be visualized as having three basic phases. Reintroduction of the species, development of populations, and eventually the maintenance of population levels which would be consistent with the carrying capacity of the habitats. In general, the present situation regarding the reintroduced bison, bighorn sheep and pronghorn antelope finds these species nearing the final stages of the herd development phase. Limitation plans will be required in the near future.

Protection to native mule and whitetail deer has resulted in considerable population increases. However, as the deer, as well as antelope, move on and off of the area at will, hunting on adjacent State administered lands tends to keep their numbers in check.

Success from the 1956 introduction of 29 bison into the South Unit may result in further stocking of the species into the North Unit. If this consideration becomes a reality, herd reductions will be delayed beyond the present 1963 or 1964 estimate. Present plans call for a maximum South Unit bison herd of 200 animals.

North Dakota introduced bighorn from British Columbia about five years ago, and at their request, the South Unit of the Park was stocked with nine animals in 1960. The bighorn have done well and two rams were removed in January 1962 from the Unit enclosure for release into the North Unit. Additional releases will be made in the North Unit in future years. It is anticipated that bighorn will also eventually be free to move onto and off Park lands as this population increases.

Coyote control has been carried out on adjoining lands by the Bureau of Sports Fisheries and Wildlife in conjunction with its predator and rodent control program. As no predator problem exists within the Park, an active control program is not in effect.

Good cooperative activities with State and other Federal agencies has resulted from Service programs in this Park. In addition to those mentioned, the State Game and Fish Commission has participated in a tagging program to study deer movements.

Wind Cave National Park, South Dakota

Elk and bison control work in this relatively large, fenced Park has been carried out over the past 25 years. However, during this particular reporting period, elk herd reduction was not necessary. Bison control was realized through direct reduction of 150 head. Live-trapping and transplanting of bison was not used. Future control of antelope abundance within carrying capacities of the range is anticipated.

When reductions are needed, the animals are sometimes herded into adjacent Custer State Park where they are then slaughtered. At other times, they are killed within the Park with the assistance of deputized State Park employees. Carcasses are then removed to the State Park meat processing center. In recent years, South Dakota has taken all of the surplus elk and 80 percent of the surplus bison meat. The Park's 20 percent share of dressed bison meat is distributed to Indian tribes in South Dakota as designated by the Bureau of Indian Affairs. The good to excellent condition of the Wind Cave range, compared to Custer State Park and other adjacent lands, is testimony to the effectiveness of managed herds.

The cooperative agreement concerning management of these herds with the State Department of Game, Fish and Parks expires July 1, 1962. A review for possible revisions that may be necessary is anticipated.

Extensive prairie dog towns exist in this Park, but no control work has been necessary.

This is one Service area where re-establishment and protection of the black-footed ferret could be feasible. However, a satisfactory stocking source has not been found thus far.

Yellowstone National Park, Wyoming, Montana, and Idaho

Both the intensive and extensive nature of this Park's wildlife management program, which is being carried out in accordance with a formal long-range management plan, is reported more thoroughly under the Section on Special Wildlife Programs.

Briefly, it is being noted at this point that both direct and indirect reduction programs are necessary in Yellowstone for the protection of overutilized ranges. These programs have been carried out for over 28 years. Bison, elk, grizzly and black bear are involved in the control programs. Of primary concern is the management of the northern Yellowstone elk herd which is but one of three major Park elk herds.

Cooperative activities are numerous, particularly as they concern the States of Montana and Wyoming and the live-trapping and removal of surplus elk.

Overuse of ranges, a lack of natural predation, limited effects of outside hunting on the northern elk herd, migration patterns and characteristics, and other similar items have all had decided effects upon Yellowstone's large wildlife populations.

Several basic and management orientated research projects are presently being conducted or are planned for in the near future.

SOUTHWEST REGION

Big Bend National Park, Texas

No wildlife control work has been practiced in this area during the 1961-62 season as the need for such management was not demonstrated. During the past decade, a number of feral burros have been destroyed. Control of cougar has been a pressing problem in past years, with two direct reductions required by Park Rangers.

The continued presence of exotic horse, burro and infrequent goat will require a continuing control program.

Bryce Canyon National Park, Utah

No recent control of species abundance has been accomplished at Bryce Canyon. Direct control of porcupine was practiced in the past, but casual observations indicate no major changes in damages now attributed to this animal.

Moderate to severe overutilization of browse has been observed on mule deer migration routes through the Park. Any type of Service control will be dependent upon the State game management agency and its hunting regulations on adjacent lands.

Grand Canyon National Park, Arizona

Mule deer on the South Rim have been subject to control during most of the past 17 years. Management activities under the approved 1961 plan provided for a reduction of 167 animals. A total reduction of 75 head, with successful transplanting of 69 deer to the Navajo Reservation, was accomplished. This live-trapping program was carried out through use of Cap-chur gun and trapping. Possible use of increased direct reduction methods is being considered to effect adequate herd reduction and protection to park vegetation.

The Grand Canyon deer management program is carried out in cooperation with the Bureau of Indian Affairs and the Fish and Wildlife Service. Although the Arizona Game and Fish Department is informed of Park activities, it has not actively participated since 1960-61.

Material is presently being gathered for a deer management plan on the North Rim and being prepared by Management Biologist, James Blaisdell.

Feral burro control has been sporadic over a period of many years. Plans are being made for an intensive future reduction program. A total of 20 head were eliminated during this summary period.

Great Sand Dunes National Monument, Colorado

Porcupine damage to local vegetation resulted in the direct reduction of one animal and removal of another.

A range analysis study was accomplished during the 1961-62 reporting period. Natural predation and hunting pressures on adjacent lands appear to be keeping local mule deer in close balance with available food.

Re-establishment of pronghorn antelope was initiated by the Superintendent on February 15, 1962, after a lapse of seven years from the original approved program and memorandum of agreement with the State. Eight males and 14 females were relocated into the Monument by Colorado Fish and Game Department.

Lake Mead National Recreation Area, Arizona and Nevada

No Service wildlife reduction programs with native species have been carried out in this area.

Feral burros have been subjected to removal and direct reduction controls over a period of approximately 20 years. During this reporting period, eight permits were issued for the live-capture of 110 animals. However, at most, only 14 burros were removed under these permits.

Wildlife management, including hunting, is regulated in the Recreation Area by the States of Arizona and Nevada in cooperation with the National Park Service and Fish and Wildlife Service. Limited hunting in designated portions of the area is carried out under this arrangement. Fishing license fees have resulted in reciprocal agreements between the States of Arizona and Nevada. Either State's fishing license, with a valid fishing use stamp from its counterpart across the imaginary state line, is valid on any portion of the Recreation Area's water surface. This arrangement eliminates the possibility of jurisdictional disputes as the common state boundary line follows the center of the former Colorado River which is presently inundated by Lakes Mead and Mohave. Shoreline fishing only requires a valid license from the applicable state having jurisdiction.

Mesa Verde National Park, Colorado

An overabundance of mule deer has been apparent during most of the past ten years. Between 1952 and 1956 a total of 139 deer were removed by live-trapping and released outside of this Park.

In 1961 the Park urged the Colorado Fish and Game Department to hold an extended open season on deer in surrounding areas. Reduction results of this 15-day extended season on adjacent lands was very successful. A satisfactory harvest was accomplished. The resulting decrease in deer abundance within the Park is apparently sufficient. No direct control action is being considered at this time.

Platt National Park, Oklahoma

Wildlife control work has not been necessary during recent years in this relatively small Park. Five bulls have been removed from the small local bison herd to prevent excessive inbreeding. One young bull was added from the Wichita Wildlife Refuge herd.

There are indications of overutilization of available vegetation by beaver on both Rock and Travertine Creeks that will require future control of their abundance and a cooperative agreement with the State Game and Fish Department.

Walnut Canyon National Monument, Arizona

Two minor control programs were carried out during 1961-62. Live-trapping and removal of three skunk and direct reduction of an additional four resulted after an outbreak of rabies in the local population.

A porcupine reduction program was approved and in operation from October 1961 to April 1962. Although poisoning attempts did not result in a reduction of these animals, fresh damages were not noticeable. It was determined that a movement of porcupine, out of damaged portions of the habitat, had occurred.

Zion National Park, Utah

A complex mule deer problem exists in this Park. During the late 1930's, the Zion Canyon area was characterized as being "deer-devastated." Sporadic and generally small scale control operations have been carried out since the 30's. The present lower density of deer in Zion Canyon may be due to a forage scarcity rather than past control work.

An area known as the "Rock Pasture" is in particular need of protection from mule deer overutilization. Preferred browse species are becoming very scarce in this remote area that is located on a main deer migration route through this Park. The shifting nature of

the population that uses this area, due primarily to deer yarding following heavy snow falls, precludes a feasible control plan that will adequately effect animals using this route.

Cooperative investigations on the Rock Pasture situation with State Fish and Game Department personnel has resulted in a common agreement that no apparent solution is in sight. Near extermination of the east side deer herd, both within and outside of the Park, would be necessary to effect any type of range rehabilitation of preferred browse.

Heavy hunting pressure in the East Zion Unit outside the Park and on inholdings within the Kolob section is having a controlling influence upon the overall deer population. Predation in the Parunv-weap and Kolob sections is also helping to limit deer abundance. However, a thorough review of the current situation is needed and planned for development of a future management plan.

WESTERN REGION

Alaskan Areas

Except for an occasional need to control rogue bears, active wildlife management programs have not been necessary in Mt. McKinley National Park or Katmai and Glacier Bay National Monuments. These extensive wilderness areas of low visitor use are the finest Service examples of the often referred to "balance of nature." Natural interrelations of all animals with their environment and other species are spectacularly illustrated by the variety of native forms found in the water and land habitats of these areas. Man's disrupting influences upon the life processes are at a minimum.

State officials sought to open both Katmai and Glacier Bay to hunting and trapping during 1961. However, they were convinced by the State Attorney General that this could not be done without consent of the United States.

Channel Islands National Monument, California

An extensive control program involving direct reduction of the exotic Belgium Hare through use of poison and by shooting has been carried out for the past few years. A lack of additional information precludes further comment on this control program which is aimed toward a complete eradication of this animal.

Crater Lake National Park, Oregon

Present management activities are limited to live-trapping and removal of nuisance black bear. Direct reduction of habitually troublesome individuals is also carried out.

A cooperative program involving the State's Board of Health vector control program provides for annual small mammal live-trapping activities within heavy visitor-use areas.

Death Valley National Monument, California and Nevada

The feral burro is subject to control in order to keep population levels compatible with range-carrying capacity and conservation requirements of native plants and animals. There is no control program for native animals in the Monument.

Control of burro abundance has been carried on for 23 years. A realization of their historical significance precludes any plan for complete elimination. The 1961 publication, "The Bighorn of Death Valley" by Ralph E. and Florence B. Welles also presents a discussion

of the burro situation. Present management involves permittee live-trapping which has resulted in a total of 100 head being removed during a portion of this reporting period. The period of January 1960 to April 1962 resulted in 626 removals and 14 direct reduction kills. The quota for this coming season's operation is 250 head, which, as in past years, are sold by the permittee for pack animals, pets and exhibit purposes.

Hawaii Volcanoes National Park, Hawaii

An intensive direct control of feral pigs and goats is presently being carried out in this Park in the interest of maintaining native flora and fauna. A control program has been in effect since 1937. Complete extermination of these goats is desirable but, due to the nature of the terrain and constant influx of animals from outside the Park, is an extremely difficult objective to obtain.

Presence of the exotic mongoose also constitutes a considerable management problem due to physical characteristics of the Park and Island, the vegetation, and relative abundance of these animals. Direct control is carried out by poisoning primarily in the vicinity of nene goose enclosures which have been established for the restoration and preservation of the species. Cooperation is extended by the State Division of Fish and Game and Bureau of Sport Fisheries and Wildlife on the nene goose restoration project. A total of 29 native nene geese were obtained from England and released in the Crater in 1962.

The two Hawaiian National Parks present probably our most complex and difficult exotics control problems.

Lassen Volcanic National Park, California

The State has cooperated in construction of four deer exclosures to determine effects of local mule deer on Park vegetation. This activity and tentative range studies to be conducted by the personnel of the Western Regional Office are expected to provide information concerning the possible over-population of Park summer ranges.

No control program is in effect at this time. Populations of mule deer are depleted by hunting on adjacent areas which, with limited predation, has had questionable reduction effects upon these seasonally migratory deer. It appears as if a larger harvest of deer outside of the Park would be helpful to this over-population, but recent attempts to schedule either sex hunts and doe seasons in areas west of the Park have met with violent negative reactions on the part of some sportsmen.

Minor control of black bear have generally been necessary in past years. This reporting season followed past trends with employment of both direct reduction and relocation control methods.

Lava Beds National Monument, California

Intermittent overutilization of range land by severe winter seasonal movements of Glass Mountain mule deer from higher elevations adjacent to the Monument has occurred. This range is also on the fringe of overbrowsed winter and summer ranges of the Inter-State Deer Herd. Increased harvest of both herds has been advocated by game managers of both Oregon and California.

Several studies have been initiated or completed and are aimed toward providing ecological data for future management programs.

Mt. Rainier National Park, Washington

Control programs in this area are presently limited to live-trapping and removing raccoon from an abnormal localized population in the Longmire area. Direct reduction and live-trapping controls for black bear have also presented a minor management situation.

An increasing elk population may present future management problems.

Olympic National Park, Washington

Aside from minor black bear problems, no wildlife species have caused serious conditions that have resulted in a need for an active control program. The Roosevelt elk population, which is hunted on surrounding lands, does not require control measures at this time. In addition, a fair cougar population exerts some influence on local wildlife including the blacktail deer.

Pinnacles National Monument, California

Although no control programs are in effect at this time, studies by the Western Regional Office have revealed that many mule deer in this area are suffering from malnutrition and disease. Vegetation is reported to be overbrowsed with a lack of reproduction due to removal of seedlings by deer.

Feral goats are located within the area. A control program for these animals has not been established.

A general ecological study was initiated this year and is scheduled to be a long-term project.

Sequoia-Kings Canyon National Parks, California

Management control activities, outside hunting, cougar predation and the seasonal vertical movement patterns of mule deer in these areas are similar to the situations found at Yosemite National Park. The tendency of an abnormal, localized resident herd in Sequoia National Park is displayed by the deer in Giant Forest. Visitor feeding, discouragement of natural predation through visitor concentration and related natural and man-caused conditions have resulted in overutilization of natural forage.

Efforts were made to control this resident population in 1944 and 1948 but an annual approved program of reducing the Giant Forest deer herd was not initiated until 1955. Direct reduction shooting of an average 95 deer per year since 1955 has resulted in good range recovery and some progress in vegetative reproduction. A relatively small reduction program in 1961, which resulted in a kill of 24 deer, is to be increased during the 1962-63 reduction season.

All controlled deer are field dressed and distributed to public institutions. Cooperation with the State Fish and Game Department is obtained for disposition of the kills.

As in previous years, an active management program for control of black bear was carried out. Live-trapping and removal plus direct reduction were employed in managing this Park's bear population.

Yosemite National Park, California

The overabundance of mule deer in this Park is very localized and does not involve many animals. Normally, Park deer migrate out in the fall and drift back when snow leaves in the spring. However, this seasonal movement, as found in most of the high elevation western parks, does not hold true for localized groups in the Yosemite Valley and Mariposa Grove. The latter groups become year round residents because of feeding and frequent attention by Park visitors. These problem deer generally refuse to leave in the fall and excessive population build-ups result in heavy overutilization of vegetation. Periodical reductions of these two localized herds are required. About 40 head were removed from Mariposa Grove and Yosemite Valley two years ago through use of a Cap-chur gun. A removal program is anticipated for the 1962-63 season.

Hunting on adjacent lands and some predation within the Park tends to maintain this area's deer population at a relatively acceptable level.

An effective bear management program involving both removal and direct reduction has resulted in a decrease in personal injuries and property damage. This active program in the heavy concentrated visitor use area of Yosemite Valley has been of particular necessity due to unusually large concentrations of visitors in a very restricted area.

In August 1961 a rabid coyote was collected near Glacier Point Campground. Direct reduction of 37 additional animals was then accomplished in a limited area between Glacier Point and Chinquapin. Results were an interesting indication of the relative abundance of coyote in this habitat in view of the knowledge that this was not a complete eradication program.

Minor trapping and removal programs involving porcupine, skunk and bobcat were also carried out.

Cooperative programs with the U. S. Forest Service and California Department of Fish and Game are in effect for evaluations of winter range utilization outside of the Park and with the U. S. Public Health Service in its continuing study of wild animal plague and rodent abundance.

SPECIAL WILDLIFE PROGRAMS

YELLOWSTONE ELK MANAGEMENT

Previous limited reduction programs of the northern Yellowstone elk herd and a continuing deterioration of its winter range, resulted in both an active and decisive control program during this reporting period. It is doubtful that any other wildlife management program in the history of this Service has been so loudly disputed nor resulted in such a controversy.

Vociferous, largely misinformed, and selfishly motivated groups of individuals were particularly offended by announced and carried out direct reductions. Their insistence upon opening the Park to public hunting was not always due to a lack of knowledge regarding the overpopulation of elk, but was primarily based upon selfish interests that were generated by various sources. These included many State Fish and Game Commissions, several "sportsmen" organizations, members of the United States Congress, misguided newspaper sports writers and a few individuals who had direct or indirect benefits to be gained from public hunting in a National Park.

Another small segment of this loud negative group were the uniformed who could see no justification for any type of reduction program.

Approval and affirmative support for the Park's control program was not lacking. Many competent and renowned conservationists in the field of wildlife management, or closely related areas of natural resource conservation, recognized the needs for such a program. In considering public hunting as a means of direct reduction, they well realized the many drawbacks that are inherent to such a program. Many conservation organizations and some Federal and State agencies were also satisfied that the proposed program was suitable and preferable to others that may have been proposed.

The long-range management plan based on years of study and analysis for the northern Yellowstone elk herd includes establishment of a herd not exceeding 5,000 animals. This maximum population is to be maintained until such time as the recovery of heavily overutilized winter range is accomplished. Range trends and soil conditions will largely determine future management practices and herd size which are presently aimed towards rehabilitation of the range. The 5,000 herd limitation that is now in effect may require future adjustment in accordance with proper practices for goal attainment.

During this reporting period, it was determined that a minimum reduction of 5,000 head of elk would be necessary. This reduction figure was determined upon (1) a March 14-16, 1961 census of 8,150 elk and (2) an annual increment of about 20 percent added to this spring census count was allowed. A resulting fall herd count of approximately 10,000 head was established from these two determinants. To obtain the maximum population goal of 5,000 head, a similar number were scheduled for herd reduction.

Basically, this year's program for actual herd reduction was identical to previous programs. The primary desired means for eliminating elk was to be through hunter kills on adjoining lands. However, usefulness of this primary reduction means is largely limited to the effectiveness of severe and early winter snows in driving elk out of the Park, and cooperation of the State of Montana in establishing extended or post season hunting. However, such cooperation was not obtained in 1961-62.

The second reduction method was the historically well known live-trapping and removal program that is most favorable to the public. Success of this program has been largely dependent upon requests for elk by the States, other Federal agencies and zoos. Near saturation of available ranges through stocking programs has occurred during the past years and orders for live animals have been small, sometimes vague in quantities, or completely non-existent for various other reasons.

Direct reduction, through the use of trained park ranger shooting teams, is the third means of reducing elk surplus in this Park. Extensive, but necessary and required use of this type of herd reduction during the 1961-62 season lead to the controversial outbursts "disgraceful, wasteful slaughter" by Service personnel. These unwarranted criticisms were made by those individuals or organizations who were not familiar with, or refused to accept the following facts:

1. A Department of the Interior request for a post season hunt in Montana was declined by the State of Montana.
2. Winter conditions for such a hunt were favorable, but would have been difficult.
3. Requests for live elk were limited early in the reduction period and extremely vague towards the end of the program.
4. Direct reduction was the only remaining disposal method left for Park officials.

5. Elk meat was not wasted. Standing orders from Indian agencies, schools, hospitals and tribes; public school lunch programs in three States; and other charitable means of disposal, exceeded the season's available kill.

Final reduction figures for the 1961-62 season were as follows:

Hunter kill (outside)	125
Live shipped	297
Lost in trapping operations (unsalvageable)	13
*Direct reduction (inside)	4,309
Winter mortality (natural)	476
Total reduction	5,220

*Biological collections were made from a total of 1,682 animals. Included were 94 elk that were specifically collected for biological information.

Many other management or basic research activities were carried out in conjunction with the direct reduction phase of this program. These included:

1. Neck-banding and ear-tagging of 174 elk in the Lamar and Mammoth areas for future cooperative Park-State migration studies, etc.
2. Retrapping 98 animals a total of 506 times.
3. Experiments were held in testing three trap baits; use of liquid feed supplement for trapping enticement; relationship of blood and entrails from direct reduction to trapping success; changing trap sizes and the use of wing traps with a drive by one helicopter; pathological blood samples taken and analyzed; testing of helicopter effectiveness in "holding" a herd for efficient direct reduction; and miscellaneous biological collections made from 1,682 animals.

Cooperative activities relating to this entire program were very extensive. They included arrangements, agreements or contracts with the States of Montana and Wyoming; Bureau of Indian Affairs and many individual tribes; public schools in Montana, Wyoming, and Idaho; sportsmen's clubs; private meat locker contractors; Montana State College, and Montana State University; Animal Disease Eradication Division of the Department of Agriculture; and numerous public relation meetings with various sportsmen groups, individuals, and personnel of other Federal agencies and the States of Montana and Wyoming.

Studies associated with management of elk was also extensive in scope. The following list of projects were either in progress during this reporting period or have been proposed:

1. Expansion of range trend and appraisal studies to occur with establishment of five new five-acre exclosures. Associated with this program will be a contract with the University of Wyoming for establishment, mapping and inventory of plots both in and out of exclosures. This work began in June 1962.

2. A contract with the Endowment and Research Foundation at Montana State College to collect elk biological specimens for physiological, chemical, and pathological studies. During this reduction period, collections were made from 1,682 elk. Five to ten elk per week will also be collected during the 1962-63 period. An additional contract to assist in this program has also been established.

3. Long-range ecological studies of the Northern Yellowstone area are also planned.

4. A research contract with the University of Montana for a migration study has been implemented through Service banding and release of elk over the past two seasons. Cooperation with Montana and Wyoming is desirable and has been attained to varying degrees.

5. Area investigation of biological controls is accompanied by encouragement toward research in the field relative to large mammals.

6. The Service has an agreement with the Michigan State National Guard to prepare new aerial maps of the Northern Yellowstone elk range. This project is scheduled for an early period in the forthcoming season.

7. A doctorate's dissertation of Lamar Valley ecology of phytophagous insects is to be completed. Its value will be in insect utilization of range grasses.

8. The Old Dominion Foundation is studying the impact of man. Related information is expected from this work.

9. Grizzly bear studies have been and continue to present valuable information. These are being conducted by the Montana Cooperative Research Unit with cooperative assistance from the Service and Park concessioner.

GRAND TETON ELK MANAGEMENT AND PUBLIC LAW 787

Management of Grand Teton elk and the relationship of Public Law 787 are but two considerations of a complex situation. Although this Park has a limited resident elk herd, difficulties arise from management obligations that have been imposed in regard to the large migratory herd that traverses portions of the Park. Migratory patterns are basically from a northerly summer range to the winter range on, or adjacent to, the Jackson Hole National Elk Refuge.

A brief summary of the past history concerning elk of this general area is necessary for an understanding of the present situation. Elk herds from the southern portion of Yellowstone National Park, Grand Teton, and Jackson Hole areas formerly migrated to southern Wyoming and eastern Idaho. Changing land uses through settlement by white men, weather conditions and hunting all assisted in destruction of this seasonal migratory pattern. Increased protection and eventual establishment of a refuge with necessary winter feeding programs soon developed the largest and most expensive elk concentration in the world. Nine State of Wyoming feeding grounds plus the National Elk Refuge feed approximately 70 percent of the Jackson Hole herd during the winter months. Winter feeding programs are carried out for 5,000 to 9,000 elk (11,019 during the winter of 1956) on just the National Elk Refuge.

Feeding arrangements involve use of 1,500 acres for hay production within Park boundaries. This is a cooperative activity involving this Service, the State of Wyoming and the Bureau of Sport Fisheries and Wildlife. Approximately 23,000 tons of hay, at a value of about \$575,000, has been harvested since 1952.

Enlargement of Grand Teton National Park by Public Law 787 in 1950 resulted in several specific items and provisions. Included was the applicable portion permitting public hunting.

"Sec. 6. (a) The Wyoming Game and Fish Commission and the National Park Service shall devise, from technical information and other pertinent data assembled or produced by necessary field studies or investigations conducted jointly by the technical and administrative personnel of the agencies involved, and recommend to the Secretary of the Interior and the Governor of Wyoming for their joint approval, a program to insure the permanent conservation of the elk within the Grand Teton National Park established by this Act. Such program shall include the controlled reduction of elk in such park, by hunters licensed by the State of Wyoming and deputized as rangers by the Secretary of

the Interior, when it is found necessary for the purpose of proper management and protection of the elk.

(b) At least once a year between February 1 and April 1, the Wyoming Game and Fish Commission and the National Park Service shall submit to the Secretary of the Interior and to the Governor of Wyoming, for their joint approval, their joint recommendations for the management, protection and control of the elk for that year. The yearly plan recommended by the Wyoming Game and Fish Commission and the National Park Service shall become effective when approved by the Secretary of the Interior and the Governor of Wyoming, and thereupon the Wyoming Game and Fish Commission and the Secretary of the Interior shall issue separately, but simultaneously such appropriate orders and regulations as are necessary to carry out those portions of the approved plan that fall within their respective jurisdictions. Such orders and regulations, to be issued by the Secretary of the Interior and the Wyoming Game and Fish Commission, shall include provision for controlled and managed reduction by qualified and experienced hunters licensed by the State of Wyoming and deputized as rangers by the Secretary of the Interior, if and when a reduction in the number of elk by this method within the Grand Teton National Park established by this Act is required as a part of the approved plan for the year, provided that one elk only may be killed by each licensed and deputized ranger. Such orders and regulations of the Secretary of the Interior for controlled reduction shall apply only to the lands within the Park which lie east of the Snake River and those lands west of Jackson Lake and the Snake River which lie north of the present north boundaries of Grand Teton National Park, but shall not be applicable to lands within the Jackson Hole Wildlife Park * * *."

Annual meetings between the State and Park are held for establishment of management practices including annual public hunting of the migratory elk which pass through Grand Teton National Park. Management results from Public Law 787 over past seasons are:

<u>Year</u>	<u>Season</u>	<u>Permits Requested</u>	<u>Permits Utilized</u>	<u>Elk Killed</u>	<u>Hunter Success</u>
1951	9/10 - 10/31	1,200	510	184	36%
1952	9/10 - 10/16	1,200	455	27	6%
1953	9/10 - 10/5	1,200	568	112	20%
1954	9/10 - 10/12	1,200	600	104	17%
1955	10/20 - 11/20	1,200	624	310	50%
1956	10/20 - 11/20	1,200	776	325	42%
1957	10/20 - 12/10	1,200	748	160	21%
1958	10/20 - 11/30*	1,200	583	110	19%
1959	Closed Season				
1960	Closed Season				
1961	10/15 - 11/30	<u>2,000</u>	<u>1,002</u>	<u>278</u>	<u>28%</u>
Totals		11,600	5,866	1,610	
		Average	50%	178	27%

* Originally scheduled to 12/15, State requested emergency closure.

Illegal kills of wildlife continue to present a problem in conjunction with the management of this Park under provisions of Public Law 787. Patterns reflect deliberate disregard by some individuals for management or conservation regulations. Thirty-three elk, 11 moose, two coyote and two waterfowl were known illegal kills during the 1961 season. In addition, one hunter was killed and another hunter accident resulted in the eventual loss of an arm at the elbow.

A biological collection was initiated this reporting period with requests for the opportunity to age all elk kills.

BEAR MANAGEMENT PROGRAM

Management of black and grizzly bears is one illustration of a program that should be progressing beyond the policy statement stage to an active and strict management procedure. A two-fold necessity, consisting of visitor safety and the need for re-establishing and maintaining wild behavior characteristics in bear, require such a change.

Continuing increases in the public use of National Parks has resulted in expected increased visitor exposure to bears. A direct relationship between these increased exposures and abnormal bear population concentrations has resulted through augmented availability of improper foods utilized by bears. Other conditions have also adversely affected the Service policy in relation to bear and other wildlife.

Despite many adverse factors, the elimination of former spectator feeding programs, recent development and use of bear proof garbage containers, development of area construction programs aimed at elimination of open refuse burning pits, regular and more frequent garbage collection programs, and decisive and positive handling of troublesome individuals, have all assisted in reaching bear management policy objectives. Any relaxation from development or continuation of a suitable program and use of guidelines as stated in the memorandum of July 6, 1960 (FO-15-60), should not exist.

Progress in restoration and maintenance of bears in relatively wild conditions that are compatible with man's enjoyment and use of National Parks is occurring. However, fulfillment of policy objectives require a continuing and active management program. A review of the following summary clearly illustrates recent progress towards these objectives and the need for continuation of sound bear management practices.

<u>Park</u>	<u>Incidents</u>		<u>Personal Injuries</u>		<u>Bears Trapped</u>		<u>Bears Killed</u>	
	<u>1960</u>	<u>1961</u>	<u>1960</u>	<u>1961</u>	<u>1960</u>	<u>1961</u>	<u>1960</u>	<u>1961</u>
Crater Lake	32	13	4	0	7	4	4	0
Glacier	102	7	10	4	33	40	17	5
Glacier Bay	1	0	0	0	0	0	0	0
Grand Teton	18	12	0	0	18	12	14	6
Great Smoky	164	147	16	10	23	35	3	6
Katmai		25		0		0		0
Lassen Volcanic	16	34	0	0	0	1	1	1
McKinley	3	41	0	1	4	5	2	0
Mt. Rainier	9	6	0	2	9	6	0	1

(Continued)								
<u>Park</u>	<u>Incidents</u>		<u>Personal</u>		<u>Bears</u>		<u>Bears</u>	
	<u>1960</u>	<u>1961</u>	<u>1960</u>	<u>1961</u>	<u>1960</u>	<u>1961</u>	<u>1960</u>	<u>1961</u>
Olympic	17	18	0	0	3	2	4	0
Rocky Mountain	3	17	0	0	3	4	0	0
Sequoia-Kings	277	195	1	2	41	26	19	28
Yellowstone	696	305	69	58	134	192	107	71
Yosemite	<u>63</u>	<u>118</u>	<u>3</u>	<u>5</u>	<u>25</u>	<u>48</u>	<u>7</u>	<u>30</u>
Totals	1,401	938	103	82	300	375	178	148
	Decrease		Decrease		Increase		Decrease	
	of		of		of		of	
	463		21		75		30	

WILDLIFE MANAGEMENT IN NATIONAL RECREATION AND SEASHORE AREAS

Agreements for areas classified as National Recreation Areas presently provide for primary recreational development and use by the National Park Service in cooperation with other Federal agencies such as the Bureau of Indian Affairs, Bureau of Land Management, and Bureau of Reclamation.

While there are various similarities and differences between these two classifications of Service areas, they have one common feature. Public hunting and trapping is permissible in accordance with applicable laws in areas other than developed or concentrated public use areas as may be designated by the Superintendents.

Management of the wildlife and fishery resources within these field area classifications is generally not the responsibility of this Service. Cape Hatteras is presently the one exception. Management of the waterfowl hunting program, except for State assistance in enforcement of applicable Federal and North Carolina laws, is entirely carried out by the National Park Service. In this particular case, a good management plan and appropriate regulations as found in Part 7 of Title 36, Code of Federal Regulations, are in effect for utilization of this recreational resource.

DEPARTMENT OF THE INTERIOR WILDLIFE ADVISORY BOARD

An apparent Departmental need for advice in formulation of wildlife management programs and policies for all administered lands resulted in the April 25, 1962, establishment of the Secretary of the Interior special wildlife advisory board.

Secretary Udall established this five-man board of eminent conservationists and wildlife managers and requested that they review existing policies and programs on wildlife and game management to determine their adequacy under increasing public land use pressures and constantly changing ecological conditions.

Members of this Board are: Chairman - Dr. A. Starker Leopold, Assistant to the Chancellor, University of California, Berkeley; Dr. Ira N. Gabrielson, President of the Wildlife Management Institute and a former director of the U. S. Fish and Wildlife Service; Dr. Clarence Cottam, director of the Welder Wildlife Foundation and a former assistant director of the Fish and Wildlife Service; Thomas L. Kimball, executive director of the National Wildlife Federation; and Dr. Stanley A. Cain, professor and chairman of the Department of Conservation, University of Michigan.

The report of this group is expected to be available for Departmental use and implementation by early 1963. It is anticipated that National Park Service programs may be modified or changed next year by Departmental action on advice furnished by the advisory board.

THE BRANCH OF WILDLIFE MANAGEMENT

Previous efforts to provide a more suitable organizational structure within the Division of Ranger Services and recognition of an active need for increased management rather than wildlife protection only resulted in the establishment of the Branch of Wildlife Management during July 1961. Various limitations prohibited immediate staffing. However, organization of the Washington Office Branch structure was initiated during January 1962 with the appointment of Robert H. Bendt as Acting Chief.

Although a few field management biologist positions were already established within the framework of local park protection organizations, progressive action has continued. Regional Office Branch Chief positions were requested for the Midwest, Southwest, Northeast and Southeast Regions. Adequate staffing to properly handle the many existing problems in several field areas has not yet been obtained. Continuation of this vital phase of the overall wildlife management program at all organizational levels is expected to continue during the coming year.

Present Structure, Division of Ranger Services - Washington Office

Branch of Visitor Protection

Branch of Park Protection

Branch of Wildlife Management

APPENDICES

Annual Wildlife Summary

Wildlife Reductions

Wildlife and Related Statistics

Fish Plantings - 1960
1961



WILDLIFE INVENTORY

ESTIMATED POPULATIONS OF CERTAIN SPECIES IN AREAS ADMINISTERED BY THE NATIONAL PARK SERVICE FROM 1961 FIELD REPORTS

NATIONAL PARKS	ANTELOPE	BLACK BEAR	GRIZZLY BEAR	BIGHORN	BISON	CARIBOU	COUGAR	COYOTE	MULE DEER	WHITE TAIL DEER	ELK	FISHER	MOUNTAIN GOAT	LYNX	MOOSE	PECCARY	WOLF	WOLVERINE	EXOTICS
Acadia		R-S					17-S	400-S	300-U	1,000					I				Butte, 80 Horse, 30
Big Bend	30-U	I-S					I	I	A-S	50-S						350-S	I		
Bryce Canyon							I-S	I-S	350-S		I-S								
Carlsbad Caverns	15-S						R-S	R-S	900-S		15-U								
Crater Lake		20-D					R-S			I-S	5-S	I-S							
Everglades		R-S					28-U	115-S	650-S	C-U									
Glacier		240-D	115-S	150-S						380-S	2,375-U	I-D	465-D	40-S	115-S		10-U	6-U	Butte 350-S
Grand Canyon	I	3-R		150-S			10-S	A-S	5,650-D		800-U			R-S	275-S			R-S	
Grand Teton		200-U	R-S	50-U	20-S		I-S	A-U	175-U										
Great Smoky Mtns.		150-S								200-U									
Haleakala																			
Hawaii Volcanoes																			
Isle Royale																			
Lassen Volcanic																			
Mammoth Cave							5-S	150-S	700-S						600-S		21-S		Boar, 150-U
Mesa Verde		4-S																	Goat 1,000
Mt. McKinley		25	200-S	80-U		10,000-S	14-U	150-U	450-D	3,000-U				10	300-U		25	50-S	Pigs, 100
Mt. Rainier		75-S		3,500-U			6-S	75-S	400-S		200-U		I						Goat 2,000-U
Olympic		C-S					C-U	C-U	C-U		A-S	I-S	C-S						Mongoose 750-S
Platt					8-S			R											
Rocky Mountain		30-U		225-S			6-D	40-S	600-U		1,200-U							I-S	
Sequoia-Kings				R-U			R-S	C-S	C-D			R-S						R-S	
Shenandoah		120-U								800-S									
Virgin Islands										R									Pigs-C Mongoose-A Goat-C
Wind Cave	300-U				397-U			8-S	125-S	I-S	280-U								
Yellowstone	300-S	500-S	200-S	200-S	800-U		R-S	C-S	C-U		13,000-U				400-S				
Yosemite		C-S					R-S	A-S	A-S			R-D							
Zion				R-D			25-U	20-S	900-S										
NATIONAL RECREATION AREAS																			
Coulee Dam		60-U					2-U	90-D	500-S	7,000-U	I-S			8-S					Butte-C
Lake Mead				C			R	C	C										
Glen Canyon				R			C	C	R										
NATIONAL SEASHORE AREA																			
Cape Hatteras										C									Mutria-C Horse, 25
NATIONAL PARKWAYS																			
Blue Ridge		60-S								1,500-U	40-U								
Natches Trace										30-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 INVENTORY

Page 2

ESTIMATED POPULATIONS OF CERTAIN SPECIES IN AREAS ADMINISTERED BY THE NATIONAL PARK SERVICE FROM 1961 FIELD REPORTS

NATIONAL MONUMENTS, HISTORICAL AND MEMORIAL PARKS	ANTELOPE	BLACK BEAR	GRIZZLY BEAR	BIGHORN	BISON	CARIBOU	COUGAR	COYOTE	MULE DEER	WHITE TAIL DEER	BLK	FISHER	MOUNTAIN GOAT	LYNX	MOOSE	PECCARY	WOLF	WOLVER- INE	EXOTICS
Arches	100-S			I-S			I-S	6-S	100-S										Goat, 14-U Burro, 30-U
Badlands		10-U						16-U	150-S	I									
Bandelier							I	22-U	400-U		4-I								
Black Canyon of The Gunnison		2-I		12-S			2-S	C-S	200-S		6-S								
Canyon De Chelly		6-S						C-D											
Chaco Canyon							I-W	20-U	10-S								10-S		
Chiricahua	I-S							C-U		35-D									
Colonial NHP	I-S									100-S									
Colorado	I-S				16-U		I-S	R-S	200-S		20-S								
Coronado	I-S						3-S	C-S	300-I	25-D									
Craters of Moon																			
Cumberland Gap NHP										20-U									
Death Valley		I-S		800			I-D	200	20-S										Burro, 700
Devils Postpile									6-S	25-S									
Devils Tower	I-S	I-U		C-U			R-D	C-S	A-S		I-S								
Dinosaur		400-S	150-D					250-U	200-U				1200-U		20-U		100-D	100-S	
Glacier Bay	I			50-S			10-S	C-S	300-U										
Grand Canyon		I-U		23-S			6-U	75-U	250-U		20-U								
Great Sand Dunes				150-S			I	150-U	40										
Joshua Tree																			
Katmai			C											R	C		C	C	
Lava Beds							I-S	35-S	2000-S										
Morrison										70-S									
Mt. Rushmore								R-S	10-S	3-S	6-S		10-U						
Muir Woods									R-D										
Natural Bridges				R-S			I-S	2-S	20-S										
Oregon Caves		R					C-D	C	25										
Organ Pipe	29-U			50-U			5-S	250-U	50-S	18-S									Burro, 30-U
Petrified Forest	C-S						I-U	C-U											
Pinnacles							I-S	R-S	100-D										Goat, 10-U
Saguaro		I-D					I-S	A-S	100-U	80-S							200-U		
Saratoga NHP		1-S								47-U									
Scotts Bluff							R-S	R-S	30-S										
Theodore Roosevelt NHP	240-U			21-U	115-U		4-I	115-U	900-S	950-S					I-S				
Timpanogos Cave		I-S					3-S	C-S	C-S										
Tonto							I	C-S	C-S	R-S							12-S		
Walnut Canyon	I						2-D	6-U	30-U		I						I		

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 CONTROL PROGRAMS

The following table is a brief summary of the 1961-62 control programs to date:

<u>Area</u>	<u>Species</u>	<u>No. transplanted</u>	<u>No. Killed</u>
Acadia	Deer	2	65
Crater Lake	Bear	4	0
Death Valley	Feral burro	100	0
Glacier	Elk	0	94
	Bear	40	5
Grand Canyon	Deer	75	0
Grand Teton	Elk	0	278
	Bison	3	0
	Bear	12	6
Great Smoky	Russian Boar	3	5
	Bear	35	6
Lassen	Bear	1	1
Lake Mead	Feral burro	14	0
Hawaii	Feral pigs	0	366
	Feral goats	0	2,036
Mammoth Cave	Deer	271	0
McKinley	Bear	5	0
Mt. Rainier	Bear	6	1
Rocky Mountain	Elk	0	59
	Bear	4	0
Sequoia-Kings	Deer	0	24
	Bear	26	28
Wind Cave	Bison	0	150

Yellowstone	Elk	297	4,798
	Bison	143	5
	Bear	192	71
Yosemite	Bear	48	30

Other minor control programs involving rodent species undermining historical ruins, government or concessioner buildings, etc., were also conducted in several areas.

WILDLIFE AND RELATED STATISTICS

The following statistics will be helpful in realizing the complex biological problems that we have on these 24,000,000 acres:

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. Parks with important wildlife population	79
6. Acres of valuable wildlife habitat	14,433,329
7. Parks with known deer problems	24
8. Parks with deer control programs	8
9. Parks with elk problems	6
10. Parks with elk control problems	4
11. Parks with bighorn sheep	20
12. Parks needing restoration of bighorns	9
13. Parks impaired by exotics	10
14. Parks with black bear population	38
15. Parks with bear problems	14
16. Parks with grizzly populations	6
17. Parks with cougar population	40
18. Parks with wolf population	7
19. Parks with buffalo management programs	6
20. Major species needing investigation	50
21. Parks needing reintroduction of extirpated species	25
22. Parks having wildlife as a major visitor interest	57

FISH PLANTING IN NATIONAL PARKS - 1960

National Park	Total	Source of Fish ¹	Total Numbers by Species
Acadia	46,800	S-F	37,800 brook; 2,000 lake; 7,000 Atlantic Salmon
Blue Ridge	19,310	S-F	2,450 brook; 14,420 rainbow; 2,440 brown
C&O Canal Project	9,803	S	Misc. warm water fishes
Glacier	60,012	F	60,012 rainbow
Grand Teton	241,495	S-F	142,737 cutthroat; 98,758 lake
Great Smoky Mtns.	41,500	F	15,000 brook; 26,500 rainbow
Lassen Volcanic	193,007	S	8,500 brook; 179,507 rainbow; 5,000 brown
Mt. Rainier	33,100	F	15,000 rainbow; 18,100 cutthroat
Olympic	607,805	F	607,805 rainbow
Rocky Mountain	5,000	F	5,000 rainbow
Sequoia-Kings Canyon	101,676	S	4,000 brook; 59,676 rainbow; 38,000 golden
Yosemite	592,568	S	28,000 brook; 550,568 rainbow; 14,000 golden
Zion	2,400	S	2,400 rainbow
TOTAL	1,954,476		

Summary of Numbers Planted by Species:

Brook trout	95,750
Lake trout	100,758
Rainbow trout	1,520,888
Golden trout	52,000
Cutthroat	160,837
Brown	7,440
Salmon, Atlantic	7,000
Misc warm water fishes	9,803
TOTAL	1,954,476

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

FISH PLANTING IN NATIONAL PARKS - 1961

National Park	Total	Source of Fish ¹	Total Number by Species
Acadia	13,800	F-S	13,100 brook; 700 Atlantic Salmon
Blue Ridge	44,800	F-S	4,650 brook; 37,350 rainbow; 2,800 brown
C&O Canal	2,100	S	Misc. warm water fishes
Glacier	30,000	F	30,000 rainbow
Grand Teton	595,310	F-S	5,110 brook; 110,921 lake; 479,279 cutthroat
Great Smoky	53,000	F	27,000 brook; 26,000 rainbow
Lassen Volcanic	206,341	S	14,719 brook; 189,621 rainbow; 2,001 brown
Mt. Rainier	78,300	F	53,300 rainbow; 25,000 kokanee
Olympic	474,174	F	474,174 rainbow
Rocky Mountain	5,000	F	5,000 rainbow
Sequoia-Kings Canyon	53,060	S	53,060 rainbow
Yellowstone	10,000	F	10,000 grayling
Yosemite	600,800	S	73,600 brook; 527,200 rainbow
Zion	2,700	S	2,700 rainbow
TOTAL	2,169,385		

Summary of Numbers Planted by Species:

Brook trout	138,179
Lake trout	110,921
Rainbow trout	1,398,405
Cutthroat trout	479,279
Brown trout	4,801
Grayling	10,000
Atlantic Salmon	700
Kokanee (Salmon)	25,000
Misc warm water fishes	2,100
TOTAL	2,169,385

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

