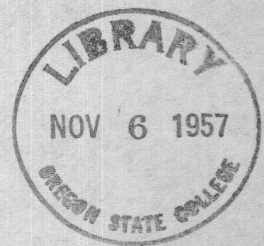


WILD LIFE ACTIVITIES
IN
THE NATIONAL FORESTS



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WILD LIFE ACTIVITIES IN THE NATIONAL FOREST

Statement of C. E. Rachford, Assistant Chief of Forest Service, in Charge of Division of Wildlife and Range Management.

One of the principal contributions, that the Forest Service has made since the meeting in August of last year, in addition to its regular administrative work on the 163,000,000 acres of national-forest land, is the work done by the C.C.C. in camps where fish and game were important considerations.

For instance, during the period from April 1, 1935, through December 31, 1935, we constructed 168 new fish-rearing ponds and did maintenance work on 96. We improved the food and cover for wildlife of various species on 2,806 acres, and maintained, in addition thereto, some 77 acres of our work of the year before.

We employed 93,093 man days' work on lake and pond development and by the use of the C.C.C. boys we planted some 46,000,000 fish.

There were 2,448 miles of stream improved, and over 30 miles of work previously done maintained during that year.

There was a total of more than 90,000 man-days work on other miscellaneous projects having some relation to wildlife.

The total value of the work completed by the C.C.C. boys on work having direct relation to wildlife was \$1,045,235. That includes work on national-forest land and State land.

The Forest Service have secured better cooperation between the different agencies involved in wildlife work on the national forests. We have extended that cooperation very materially during the past year, and the Biological Survey, the Bureau of Fisheries, and the State fish and game officials have helped very materially in working out our problems on the national forests.

Our plans contemplate further studies and surveys, both by the Biological Survey and the Bureau of Fisheries as the technical agencies helping us on the work, the extent of those surveys, however, being largely dependent on how far the Bureaus can go with us, in addition to their regular administrative work.

Insofar as the Forest Service organization is concerned, we have set up in the organization a definite division of wildlife management. It will be headed up in the Washington office by Dr. H.L. Shantz, who is a recognized world authority in many of the fields relating to wildlife, and who has recently resigned as president of the University of Arizona.

In addition to the force here in Washington, there is an expansion of the same plan through the various regions. We are also extending our personnel in the field to the extent that our funds will permit.

During this year we have worked out what appears to be rather effective agreements with a good many of the State fish and game commissions, and we will proceed to work out plans for the management of our administration of the areas in cooperation with those State officials.

Our idea, of course, is to get such management of the national forest areas as will restock depleted areas--and there are a number of them--with the species of wildlife best adapted to them. We feel that the same biological factors are involved on stream-improvement work as on our land work, and our ultimate goal is to get all of our national-forest streams as productive as they can be made.

The present plan contemplates that each area put under intensive administration will be covered by intensive surveys by specialists in the Biological Survey, or men having training along those lines, and plans developed which will include the restocking of areas, or

the improvement of environmental conditions, and full protection of the areas both from trespass, predatory animals, fire and etc.,

THE ESSENTIAL FEATURES OF A FOREST MANAGEMENT PLAN

- A. A concise description of the wildlife resources; the abundance, distribution, and importance of each species; the relation of wildlife to other uses and resources of the national forest; the potential importance of the wildlife resource; and the problems connected with game management.
- B. A statement of policy setting forth the wildlife species to be propagated and maintained, and explaining the degree to which the management of game is to be correlated with plans for grazing domestic livestock and other land uses.
- C. A definite plan for managing the game resources so as to accomplish the objectives as set forth in the policy statement.

The plan includes--

Provision for increasing the numbers of game where necessary and for their conservation.

a) Protection-

- 1) Control of predators by Forest Service, States, and individuals in cooperation with the Biological Survey.
- 2) Prevention and control of diseases and parasites by Bureau of Animal Industry, Biological Survey, and State institutions in cooperation with the Forest Service.
- 3) Protection of game and feed from fire. The joint responsibility of land owners and State and forest agencies.
- 4) Law enforcement: The joint responsibility of forest officers, State fish and game commissions, local fish and game organizations, and the Bureau of Fisheries.

b) Conservation of food supplies and the prevention of losses through starvation.

It is the function of the Forest Service to determine the numbers of animals that may be grazed on the national forests and we have endeavored to have the States assume the responsibility of restricting the numbers of game to that limit. If this responsibility is ~~not~~ assumed by the State, the Forest Service has the authority to reduce the number to a safe capacity.

c) Establishment of game refuges to protect breeding stock and permit of overflow to outside areas, both State and Federal refuges.

d) Restocking depleted areas or streams with species best adapted.

This work is performed in cooperation with States, individuals, game associations, National Park Service, Biological Survey, and Bureau of Fisheries. (Over 50 transplants of elk, numerous plants of deer and fish, plants of buffalo, mountain sheep, beaver, antelope, wild turkey, sage hens, have been made on different national forests.)

e) Adjusting conflicting land uses such as the grazing of domestic livestock and game.

This is the responsibility of the Forest Service, to be worked out in cooperation with stockmen and State agencies. (Under careful planning so as to make needed adjustments gradually, the conflicts are in a large measure avoided.)

D. Game administration--

1. Execution of game-management plans.

After plans are developed, we have depended upon the States to administer the game in accordance with the provisions of the plans in cooperation with the Forest Service and private owners.

Experience has shown that the best results can be secured

where there is a nonpartisan governing body with well defined and stable policies, and where the executive branch of the organization has wide discretionary authority. (It is encouraging to know that some of the more recently organized game departments such as that in Arizona embody the essentials as above outlined.)

2. Provision for progress--

a) Fact-finding personnel.

Lack of adequate information regarding the life histories of wildlife species, their food supplies, environmental needs, diseases, propagation, enemies, etc., limits the ability of forest and State officers to develop adequate management plans and to cope with game problems.

More game specialists including biologists and men experienced in game management are urgently needed. (The Biological Survey and the Forest Service now have a few such men.)

b) Development of public sentiment favorable toward adequate game management.

This is the responsibility of all agencies, including Federal and State officers and sportsmen's organizations.

c) Development of game management policy covering lands under all classes of ownership.

Satisfactory progress cannot be made until wildlife administration is applied to all lands alike regardless of ownership. The interests of all classes of owners must be fully considered and provision made for compensating private owners for the public benefits derived from game management.

d) Game laws must be revised with changing needs, and more adequately enforced.

Wildlife Activities by Regions

Game is recognized as a product of the forest, and one of the major national forest resources. The preservation of game animals, birds, and fish, the improvement of habitat, and the prevention and elimination of game violations are important duties of all forest officers.

Region 1

This Region, among other wildlife activities, is stressing studies of game in their summer and winter habitats, food habits and requirements, disease and starvation losses, and kills by man, leading up to practical game management plans for a given locality. The game specialist assigned to this Region directed 170 field observers and 10 technicians in first-hand studies of big game during the winter of 1935-36. \$12,150 was spent on the Lolo National Forest for 2,363 man-days of work, of which 2,040 days were on game studies on the forest and 267 man-days outside. Time of 56 man-days was in feeding starving upland game birds and ducks. At the present there is a provision for additional lands for wildlife purposes on the national forest, adjacent to the Yellowstone National Park.

Region 2

This Region has developed preliminary elk-management plans for each elk herd, numbering 25 herds in Colorado and that portion of Wyoming east of the Continental Divide. It is extending such studies to deer as problems in numbers and range requirements develop or are anticipated. Three aquatic specialists are working on stream and lake surveys, stream improvements, and fish cultural and planting plans in cooperation with the Bureau of Fisheries. Nearly all of the Region 2 national forests have been covered by stream surveys

within the past three and four years, resulting in revised and more adequate fish-planting plans.

Among concrete accomplishments have been the exclusion of livestock from 288,093 acres on different national forests to reserve feed for game, protecting nesting places of the sandhill crane on the Nebraska National Forest, assistance in shipping and planting 446 elk to national forests between 1912 and 1928, mostly from the Jackson Hole and Gardner, Montana, country, introduction of 29 mountain sheep from Canada and Jackson Hole to the Medicine Bow and Bighorn Forests, Wyoming, in 1928, 1929, and 1934; planting of 50 wild turkeys in 1935 on the Grand Mesa, Cochetopa, and Pike National Forests in Colorado; construction of 66 small reservoirs, mostly prior to 1933, on the Montezuma Forest for stock and game and now used also in nesting and resting places for migratory waterfowl. There was co-operation in 1935 with the game commission in Wyoming in the control of elk hunting on the Bighorn Forest. A dam is being constructed on Trout Creek on the Cochetopa Forest to restore that formerly important trout stream to fishing. This watershed has been closed to grazing by domestic stock. Important areas have been acquired through the exchange of national-forest timber stumpage for land.

Region 3.

Two men are assigned to the regional office for the supervision of wildlife work in Arizona and New Mexico, and three additional men are working in special field assignments. Among special field studies in progress are plans for game-bird management, studies of fish problems, preparation of planting budgets, food habits, and deer management on the Kaibab Forest, and game administration studies on the Sitgreaves National Forest, where elk constitute an important game factor. Besides maintaining patrols during the hunting season

the Forest Service plan and supervise most of the fish streams and lake improvement and fish planting on the national forests.

Seven areas have been acquired in Arizona, involving 167,946 acres on three national forests. These are valuable principally to round out big-game ranges. Six areas, involving 116,061 acres in four national forests, have been secured in New Mexico.

Region 4

In addition to the regional representative in wildlife matters, Region 4 employed eight aquatic specialists recommended by the Bureau of Fisheries to outline and supervise stream improvement work in 1935. Two fish specialists were also employed by the Bureau of Fisheries on the national forests of this Region in 1932 and 1934, the latter year in connection with the work of C.C.C. camps, also a survey which made biological studies of lakes in the Sawtooth and Challis National Forests. One of the principal phases in the wildlife resources is in stream improvement, capacity studies, and the determination of species and food adaptations for different waters. This will require additional trained men.

Plans have been prepared to acquire, through the A.A.A., sub-marginal lands within the national forests to facilitate management and to improve wildlife conditions.

Region 5

Specialists in this Region are at present engaged in a game survey and stream-improvement survey of the Trinity National Forest; lake and stream surveys were made in 1935 on the Tahoe and Sequoia Forests; a deer, mountain sheep, and bird study of the Inyo; and game surveys on the San Bernardino Forest; also the extension of quail range on waterless areas through water development. The ranger allots time to work with schools and sportsmen's organiza-

tions for the purpose of educating the youth as well as the hunters and fishermen in the need for conservative use of the fish and game resources.

Stock numbers are controlled on reclamation areas which are important sage hen nesting ground.

Fifteen purchase and land exchange areas have been consummated on eight national forests to January 1, 1936, involving 303,918 acres. These are important areas for deer, turkey, and upland game birds. Federal control makes possible the development of environmental factors; also lake and stream development on these areas will be among the more important considerations.

Region 6

This Region has seven specialists in addition to the regional representative. They are engaged on stream surveys under the C.C.C. program, beaver planting, rodent control, wildlife management program, game and furbearer surveys, deer survival studies, lake surveys, and the study of the Olympic elk. The Ochoco, Malheur, Willamette, Chelan, Snoqualmie, Columbia, and Olympic National Forests are represented in one or more of these above studies.

Rangers act as deputy game wardens besides 38 forest officials being appointed as deputy United States wardens to aid in migratory-bird-law enforcement.

Beaver transplanting with satisfactory results has been initiated on 10 national forests and is meeting with enthusiasm by forest officers, stockmen, and conservationists. The Forest Service cooperates extensively in fish planting, especially in the back and more inaccessible and arduous country.

346,094 acres have been acquired, but not specifically for wildlife purposes, however, there is considerable wildlife on this area.

Region 7

Three men are especially assigned to the Allegheny National Forest of Pennsylvania on wildlife administration, and two to fish-cultural work, the latter in cooperation with the Bureau of Fisheries. One specialist is assigned to the Green Mountain National Forest of Vermont on game plans and the construction of stream improvements. Three men are stationed on the Virginia forests, one to stream improvement and fish distribution, one to general wildlife matters, and one is assigned to the Big Levels Wildlife Refuge as a cultural foreman. Five men have been assigned to West Virginia on special wildlife work, one in charge of stream improvement, one as staff assistant to the supervisor in wildlife matters, and two to this work on ranger districts.

In West Virginia, on the Monongahela Forest, the Beaver Dam Game Refuge has been established in cooperation with the State, involving an area of 4,700 acres. One hundred and fifty wild turkeys have been received from the Forestry, Fish and Game Commission. There is close cooperation with the Bureau of Fisheries, the Biological Survey, and the State Fish and Game Commission.

This Region has acquired 2,555,778 acres, with 619,400 more to be acquired in seven states, involving nine national forests within the boundaries and adjacent purchase units. Wildlife management is being or will be, developed on all such areas. On the Pisgah National Forest, North Carolina, 31,135 acres were acquired in November 1935, to be added to the present game refuge and to have the same plans and supervision as the original areas.

Region 8

Fourteen men have been placed in different field assignments, such as work on migratory bird refuges, on stream surveys and improvements in cooperation with the Bureau of Fisheries, on game surveys in preparation for game-management plans, recreational plans, emergency game administration, and some as wardens on the Pisgah National Forest and game preserve where game management has been highly developed by the Forest Service.

On the Ozark Forest each ranger has at least one Federal refuge. He sees to keeping an 8-foot wide strip on the boundary clean, posts entrance signs every 2 years, tuns down prosecutions, and destroys itinerant dogs.

In this Region 16,000 acres in Alabama have been acquired for a game refuge. In Arkansas, acquisition has increased the area under control and directly benefits game. On the Ozark National Forest, acquisition has made possible the establishment of five refuges involving 41,214 acres. In 1926 four Federal refuges were established by Presidential proclamation through the efforts of the forest supervisor. Game work has consisted of planting fawns, deer, and elk. It is planned to stock numerous lakes with fish. Other large areas have been acquired which will serve much wildlife.

Region 9

An assistant regional forester with a wide knowledge and experience in wildlife observations is directing the wildlife activities in Region 9. There are employed as specialists at present 10 additional men who are assigned to field positions on 8 different national forests and purchase units, with special duties in wildlife studies, plans and management.

The forest ranger is assigned to take care of the following work:

January -- Wildlife reports and statistics, checking the winter conditions of game animals, autopsies, and sending specimens to research laboratories.

February -- Lake surveys.

March -- Special checks on deer, feed, etc.

April -- Plans developed for planting fish.

May -- Bird surveys and fishermen contacts.

June -- Covey counts of sharptailed grouse, plans for moving beaver, duck food requirements, reports.

July -- Waterfowl census, rodent control inspection.

August -- Lake surveys of aquatic plants and water analyses.

September -- Supervision of the collection of wild duck foods and planting. Submission of fish requisitions for the following season.

October -- Fish planting of fingerling trout, bass, and crappies from rearing ponds. Browse surveys.

November -- Location of checking stations and deer census.

December -- Hunting reports and map of upland food patches.
(Close contact with local game warden throughout the year. Preparation of management plans.)

Purchase areas totaling 627,647 acres on the Chequamegon National Forest are important for summer and winter range for deer, grouse, and beaver. Some of the water areas included are important waterfowl areas. Food patches and rearing ponds are also important on these purchase areas.

Region 10.

This region comprises the Alaska national forests. The

principal work with wildlife up to the present has been the study of the brown bear on Admiralty Island, Alaska. This was supplemented in 1935 by a "bear patrol", in charge of a member of the Forest Service. The continuance of such patrol is considered highly essential.

The importance of big game in the Alaskan region of the Forest Service is shown in the estimates on moose, elk, mountain sheep, mountain goat, deer, black, brown, and grizzly bear, conservatively estimates the total at least 70,000 head.

The rangers work on the Alaska forests of 21,397,082 acres consists at present of field examinations and recommendations of areas for migratory sanctuaries and feeding grounds; also public shooting grounds. The ranger gives occasional assistance to the Alaska Game Commission in feeding deer in periods of extreme weather.

U.S.F.S. CENSUS ON BIG GAME
and
FUR-BEARERS FOR 1935

| Region | Antelope | Black Bear | Grizzly Bear | Deer | Elk | Moose |
|--------|----------|---------------|-----------------|-----------|---------|-------|
| 1 | 850 | 8,185 | 522 | 89,731 | 26,579 | 1,992 |
| 2 | 1,239 | 4,739 | 132 | 84,194 | 27,336 | 438 |
| 3 | 6,490 | 2,095 | 25 | 170,690 | 5,710 | |
| 4 | 4,918 | 4,330 | 84 | 156,000 | 32,003 | 1,998 |
| 5 | 2,326 | 12,074 | | 271,000 | 115 | |
| 6 | 775 | 12,700 | | 133,290 | 26,000 | |
| 7 | | 2,502 | | 28,878 | 50 | |
| 8 | | 716 | | 25,117 | 22 | |
| 9 | | 1,538 | | 282,629 | 11 | 1,193 |
| 10 | | 6,200 | 4,500 | 49,800 | 50 | 565 |
| Total | 16,598 | 55,079 | 5,269 | 1,291,329 | 117,916 | 6,186 |

| Region | Mountain Goat | Mountain Sheep | Badger | Beaver | Fox | Martin |
|--------|------------------|-------------------|--------|---------|---------|--------|
| 1 | 5,798 | 2,032 | | 23,916 | 2,700 | 15,647 |
| 2 | 18 | 4,240 | 5,923 | 51,047 | 4,788 | 10,545 |
| 3 | | 295 | 6,870 | 2,760 | 26,130 | |
| 4 | 1,485 | 4,280 | 20,150 | 14,861 | 4,315 | 11,210 |
| 5 | | 392 | 11,751 | 85 | 38,320 | 17,800 |
| 6 | 5,310 | 60 | 7,730 | 14,750 | 1,910 | 25,640 |
| 7 | | | | 1,008 | 17,774 | 104 |
| 8 | | | | 94 | 43,114 | 125 |
| 9 | | | | 10,829 | 11,456 | 1,095 |
| 10 | 5,900 | 1,625 | | 4,100 | 1,000 | 1,425 |
| Total | 18,511 | 12,924 | 52,424 | 123,450 | 151,507 | 83,591 |

| Region | Muskrat | Mink | Otter | Racoon | Skunk | Weasel |
|--------|---------|---------|-------|---------|---------|---------|
| 1 | | 14,845 | 755 | | | |
| 2 | 37,515 | 9,421 | 19 | 1,010 | 13,850 | 61,608 |
| 3 | | 870 | | 7,960 | 74,330 | 4,190 |
| 4 | 2,895 | 14,536 | 124 | 10 | 1,610 | 54,401 |
| 5 | 4,275 | 13,212 | 1,350 | 6,075 | 24,685 | 9,850 |
| 6 | 30,000 | 23,100 | 210 | 9,200 | 32,650 | 59,200 |
| 7 | 36,382 | 7,581 | 22 | 14,133 | 49,487 | 29,279 |
| 8 | 27,749 | 13,684 | 887 | 66,299 | 68,535 | 8,145 |
| 9 | 57,072 | 15,703 | 484 | 17,762 | 555 | 65,223 |
| 10 | 10,300 | 22,000 | 3,100 | | | |
| Total | 207,188 | 134,952 | 6,951 | 122,449 | 265,702 | 291,898 |

STREAM IMPROVEMENT PROGRESS

| Region | Number of Streams | Dams | Deflectors, Shelters, Bank Protectors, etc. | Retaining Ponds | Total |
|--------|-------------------------|-------|---|--------------------|--------|
| 1 | 8 | 54 | 34 | | 88 |
| 2 | 69 | 1,000 | 355 | 185 | 1,540 |
| 3 | 24 | 382 | 605 | 1 | 988 |
| 4 | 48 | 1,194 | 839 | 11 | 2,044 |
| 5 | 10 | 110 | 41 | | 151 |
| 6 | 6 | 39 | 3 | | 42 |
| 7 | 32 | 667 | 256 | | 923 |
| 8 | 38 | 581 | | 10 | 591 |
| 9 | 98 | 110 | 7,589 | | 7,699 |
| 10 | | | | | |
| Total | 406 | 3,755 | 19,298 | 207 | 31,084 |

CONCLUSIONS & RECOMMENDATIONS

Although the Forest Service census of game animals has been showing an increase from year to year on practically all species of game, I doubt very much the accuracy of these counts. In the first place, much of this data is based on estimates of guards and rangers who are not allotted proper time to make a thorough census and who usually give a rough estimate. There seems to be a tendency by the Forest Service to overestimate the wildlife populations. For the conservation of our wildlife this is incorrect psychology as illustrated in the conservation movement of our forest resource, when the emphasis swung to the opposite extreme of publicizing our destructiveness and the immediate danger of a timber famine. This publicity has much the desired results, namely, management plans, selective logging, closer utilization, more intense protection, etc. We should do likewise with our fish and game resources. Instead of boosting up the census each year to make favorable reports, the Forest Service should allot the necessary time to the field personnel to make accurate counts or hire specially trained men who are properly qualified to secure the data.

There is a very close relationship between forests and wildlife, and with the exception of upland birds and waterfowl, forest lands provide all or a large part of the habitat for our game as well as many valuable forms of non-game wildlife. Therefore, it would seem that the greatest good that we can do for wild life is to protect our forests, and to a certain extent this is true; however, game is a "phenomena of edges" and requires an interspersion of types, openings, brush land, grass land, timberland, etc. If this interspersion is not provided for by nature, it should be given a place in the forest management plan.

The Forest Service should include a portion of winter range for the species in question because in the winter season much of the game migrates to lower elevations off the forest, and out of federal control, which is, in some instances, very detrimental to the welfare of the game. Therefore a well rounded game management plan should make complete provisions for the species during the entire year. Game should be kept in a proper balance with the food capacities of the range, which capacity is usually determined by that of the winter range. That balance should be maintained regardless of the species or how near to extermination that species might have previously been. This can best be accomplished by determining the capacity of the range and the number of animals present. When the proper balance is reached, the amount equaling the annual increment should be removed each year. This can be accomplished by controlled hunting, limited licensing or by some other method whereas the exact number to be removed can be controlled.

There should be a coordination between land uses, and wildlife should be given a high place, since much of the recreational use of our forests is dependent of the wildlife therein. Recreation is rapidly being recognized as a major land use. The greatest conflict on the forest will be between grazing stock and certain of our large game animals having similar food habits. In this case, neither should be entirely discriminated against in favor of the other, but a proper balance maintained. A possible exception may be made of the bison and grizzly bear or wilderness game which directly conflict with domestic stock, where it is impossible for the two to inhabit the same range. Such species are few and should be provided for by special reservations and parks so that they will not become entirely exterminated.

The history of game administration in this country has followed seven stages, namely, 1. Legislation 2. Predator control 3. Artificial propagation 4. Establishing refuges 5. Starting educational work 6. Research 7. Encouraging private initiative. The Forest Service can well profit by the past procedure in endeavoring to benefit wildlife. Any conservation movement should be based on scientific data and facts. The Forest Service should initiate game management plans based on the needs of the species in question, which in turn will necessitate complete life history studies of each species, and will determine which of the above steps are most necessary.

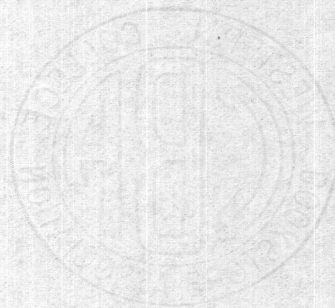
Refuges should be so placed that they will accomplish the purpose for which they were designed, namely, to supply stock to the surrounding range, with the exception of refuges established for resting places for migratory waterfowl. Future refuges should be much smaller than those established in the past, and so spaced that the migrations from one will just reach migrations from the next nearest, thus stocking the entire range; this will not be practicable in all cases, and for all species, although several states have worked out successful refuge patterns for the more mobile species.

I believe that more success can be obtained in wildlife conservation through research, education, and developing personal incentive than increased legislation. Legislation and law enforcement are necessary of course, but judging from results this element has not been successful.

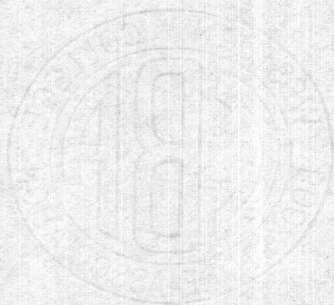
In many cases there has been an over-emphasis of predator control. The layman does not always understand the importance and interrelationship between all species of wild life, and that an upset

by destroying certain predators might be detrimental rather than beneficial to the increase of the species. Many predators prey on each other and certain predators feed largely on small rodents which in turn feed on range grasses, etc., upon which domestic stock and game depend. By removing the predator the prey may increase to the extent that a game food shortage is caused, necessitating an expensive poisoning campaign on the rodent. In some cases, predators may even be beneficial to game populations by removing the weak, unfit and ignorant individuals. As long as no great damage is being done the biological balance should be left undisturbed; at least, no action should be taken without some knowledge of the needs of the species and the results of such action.

Naturalness is what we should strive for, and the less the artificiality the greater will be the educational and recreational value of our game. Therefore, every effort possible should be made to conserve and increase our present stock, rather than resorting to artificial restoration after our game has become depleted.



APPENDIX



G
Fish & Game (Forest)
(Herd Designation)

Place and Date

Outline for Big Game Management Plan

I. Name of herd.

II. Unit covered by plan (Ordinarily plan should cover yearlong range)

1. Describe briefly (show on map)
2. Acreage. State approximate amount of private, National Forest or public lands involved if private or public lands are a factor in management.
3. Adaptability of area to game species involved.

III. Origin and early history of herd.

(If planted, give number, date, etc. If native, give short sketch early abundance, hunting practices, abuses, etc. and present status).

IV. Present use of unit.

1. By permitted livestock:

- cattle & horses*
- | | |
|---|--------|
| (a) No. of C&H | Season |
| (b) No. of <i>sheep & goats</i> S&G | Season |
| (c) No. of permittees, C&H | S&G |

(If unit extends outside National Forest, state such use separately).

2. By recreationists.

(a) Present and potential average number of tourists, campers, hunters.

3. By big game - kind and approximate numbers.

V. Game refuges (Federal, State, by Administrative Restrictions).

1. Name, area, need for preserve, restrictions in use.

2. Refuges needed, where? Why?

VI. Limiting factors affecting numbers.

1. Forage supply.

- (a) Winter range, Summer range, (If more range for winter or summer needed, how provide?)
- (b) Kind, amount and condition of forage.
- (c) Supplemental feeding, if advisable, is it needed regularly or during bad winters only? Who will supply and distribute feed?

2. Conflict with other uses.

- (a) Domestic stock. Demand for grazing permits. Economic value. Local need for, etc.
- (b) Other wild life species. Kind. Number.
- (c) Timber production, if any.
- (d) Watershed.
- (e) Damage to private property. How minimize?

3. Predatory animals. Kind and extent to which they should be controlled.

VII. Economic value of game herd.

- 1. Money spent annually by hunters, tourists, campers, etc. because of game herd.
- 2. Value of meat, hides, trophies.
- 3. Influence of game as a recreation and tourist attraction.
- 4. How can game be made more accessible to public? This can sometimes be done by closing to hunting small areas around camp ground, resorts, certain suitable parks and/or by construction of short driveways, trails, footpaths, lookouts and the establishment of salt grounds.
- 5. How can game in back country be made more accessible to hunters if greater utilization is necessary.

VIII. Correlation of use:

- 1. Approximate number at which herd should be maintained. (Your estimate will be correlated, modified and approved by Regional Office after consultation with State Fish and Game Departments as to numbers of game needed in State and where it will be produced.
- 2. Number of C&H to be grazed.
- 3. Number of S&G to be grazed.
- 4. Approximate number other wild life species to be maintained in area.

IX. Control plan:

- 1. Present size of herd.
- 2. Optimum desired. (Same as VIII, 1). How long will it require to reach?
- 3. Annual losses. Discuss potential increase; losses from predators, wounds, poachers, starvation, disease; net increase.
- 4. Approximate number and sex available for removal.
 - (a) Now.
 - (b) Annually, if and while herd is being increased.
 - (c) After herd has been built up to desired numbers and is on a sustained yield.

Discuss in general terms. Losses vary considerably from year to year and the number to be removed annually must be continually altered to fit conditions. Here state the number that can be expected for removal under normal conditions. The actual number to be removed each season will be shown currently under XIII.

5. Removal of surplus.

- (a) By hunting. Areas to be hunted. How will hunt be regulated? Checking stations, patrol, restrictions, etc.
- (b) By transplanting elsewhere.

6. Game salting. How will it be handled? Who will purchase, distribute, etc.

7. Game census. Who will make? When? Intensity? (Knowing the number of game animals to be managed is important and a most accurate census is desired. Consider how and when this can best be obtained. Some game units will be too large to cover intensely, in such cases select certain "sample plots" areas for checking which will give a good basis for computing numbers. Use of Form 37, R-4).

X. Cooperation, nature and extent of, necessary in carrying out plan as it relates to making census, law enforcement, conduct of hunting, trapping, control of predators, studies, etc.

- 1. With State Fish and Game Department.
- 2. With local Fish and Game Associations.
- 3. With Biological Survey.
- 4. With others.

XI. Studies.

1. Initiated.

- (a) Status and progress to date.

2. Needed: (Suggested only - take up as need arises).

- (a) Life history data.
- (b) Determine carrying capacity of range or of certain units.
- (c) Relative palatability table.
- (d) Integration and conflict of range use:

- (1) Extent of use by game of areas inaccessible to domestic stock.
- (2) Extent of use by game of plant species not used by domestic stock.
- (3) Extent of use by game of plant species only partially used by livestock and game but both together not resulting in over-utilization.
- (4) Extent of grazing by both game and domestic stock of the same plant species where dual use results in over utilization.

- (e) Relationship of wild life species one to another.
- (f) Enclosures, exclosures, quadrats and utilization plots.
- (g) Losses and causes.

XII. Special problems and how to meet.

1. Lands to be acquired for game purposes. How acquire?
2. Law enforcement.
3. Adverse public opinion.
4. Increase or decrease area of game preserves.
5. Etc.

XIII. Prepare map, showing:

1. Area of unit.
2. Summer range.
3. Winter range.
4. Drift routes between summer and winter range.
5. Congested areas.
6. Game refuges.
7. Private lands.
8. Ranches damaged by game.
9. Salt grounds. (game)
10. Location of checking stations.
11. Etc.

XIV. Annual statement of jobs to be done and action to be taken.

1. Number and sex to be removed by hunting.
2. Studies to be made.
3. PR work, "Show-me" trips, etc.

XV. Annual record and progress report:

1. Currently keep record of kill, sex ratio, losses, number of hunters, census, observations, studies, etc. Special jobs accomplished.

FISH DISTRIBUTION - BY NATIONAL FORESTS

G
Fish & Game, R-2
Annual Report, 1936

| FISH RECEIVED FROM FEDERAL HATCHERIES | | | | | | | | | | | | | FISH RECEIVED FROM STATE HATCHERIES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| State and Forest | :Native: | : | : | : | : | : | : | : | : | : | : | : | :Native: | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : 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(a) Fish Distributed by Grand Mesa Hatchery.

| | Rainbow | Native |
|--------------------------|---------|---------|
| Bonham Reservoir | 40,000 | 14,000 |
| Alexander Lake | 30,000 | 25,000 |
| Ward Lake | 30,000 | |
| Twin Lakes | 30,000 | |
| Island Lake | 30,000 | 50,000 |
| Trickle Park | 30,000 | 30,000 |
| Big Eggleston | 20,000 | |
| Deep Slough | 30,000 | 35,000 |
| Mesa Lake Retaining Pond | 50,000 | |
| Silver | 10,000 | |
| Granby No. 1 | 12,000 | 20,000 |
| " " 2 | 30,000 | |
| " " 5 | 30,000 | |
| Mesa | | 25,000 |
| Griffith | | 25,000 |
| Cottonwood | | 30,000 |
| Baxter Creek | | 7,000 |
| Atkins Creek | | 14,000 |
| | 372,000 | 275,000 |

Also sent 10,000 Native trout to Montrose, 130,000 to Cedaredge Hatchery for distribution up the North Fork and Muddy and Cimmaron.

(b) 3 M received from Taryall Reservoir.

(c) In addition, the following figures have been obtained from State Hatcheries. Parvin Lake Spawning Station and Hatchery. - The following number of rainbow trout eggs were taken from the Parvin Lake State Hatchery during the past season 5,507,000. The distribution was as follows:
1,770,000 - Denver State Hatchery
717,000 - Bellvue State Hatchery
546,000 - Estes Park
240,000 - Walden
234,000 - Parvin Lake

500 rainbow adult males from the Parvin Lake Hatchery, averaging from 10 inches to 14 inches in length, were planted in the following streams:

- 150 - South St. Vrain
- 250 - Big Thompson
- 125 - Poudre River

(c) - Continued. Fingerlings from the Parvin Lake Hatchery were planted in the following lakes:

- 100,000 - Parvin Lake
- 50,000 - Blair Lake
- 50,000 - Creedmore Lake

Bellvue State Hatchery

- 20,000 - Allens Park - Brook Trout
- 33,000 - North Poudre - Rainbow Trout
- 25,000 - Grease Creek - Brook Trout
- 25,000 - Pine Creek - Brook Trout
- 80,000 - Chambers Lake - Rainbow Trout
- 30,000 - Poudre River (below Yaugers) - Brook Trout
- 50,000 - Poudre River (above Yaugers) - Brook Trout
- 50,000 - Poudre River (above Yaugers) - Rainbow Trout

No figures have been obtained from the Estes Park State Hatchery.

(d) All plants were made by State and local men. A total of 250,000 Brook and 250,000 Rainbow were planted in North Park by the Walden Hatchery.

(e) Following were planted by local people, Izaak Walton League and others, in cooperation with the Durango State Hatchery: 987 M Brook, 75 M Native, 989 M Rainbow, 72 M Loch Leven - Total 2025 M. (Compiled from records of State Hatchery at Durango, Colorado.)

(f) Fish distributed by State hatcheries: Glenwood Springs--Native, 46; Rainbow, 134; Eastern Brook, 74.5; Loch Leven, 25; Mackinaw, 24 - Total 303.5 M. Trappers Lake--Native, 479 - Total 479 M.

(g) Transplant of stock placed in Townner Lake in 1935:

| | | | | | | |
|------|------|------|------|-----------------|----------------|---|
| 1111 | 9/10 | 1111 | 9/10 | Marie Lake | Suc. | 6 |
| 1111 | 9/10 | 1111 | 9/10 | Mirror Lake | " | 6 |
| 1100 | 9/10 | 1100 | 9/10 | Telephone Lakes | Suc. | 6 |
| 1010 | 9/10 | 1010 | 9/10 | Lewis Lake | " | 6 |
| 1010 | 9/10 | 1010 | 9/10 | Libby Lake | " | 6 |
| 1855 | 9/10 | 1855 | 9/10 | Brooklyn Lake | " | 6 |
| 600 | 9/10 | 600 | 9/10 | South Gap by | " | 6 |
| 600 | 9/10 | 600 | 9/10 | Klondike Lakes | by pack horses | 6 |

Superintendent Seth M. Ainsworth of the Federal Hatchery at Saratoga submitted a report showing that 595,546 fish were planted with stock from that hatchery on and adjacent to the Medicine Bow Forest. Of this number 341,155 were planted direct by the hatchery men or forest officers. The remainder amounting to 254,191 were planted by other organizations and individuals.

(h) A large restocking program was carried out during the season through the cooperation of the State Game and Fish Commission, Lander Rod and Gun Club and the Soil Conservation Service. The entire hatch of the State Hatchery at Dubois was planted in forest waters and all surplus fish from the Federal Hatchery at Saratoga, Wyoming, was trucked to the Washakie, making a total of 117,100 fish.

GAME REFUGES IN NATIONAL FORESTS, R-2

December 31, 1936

| State and Forest | STATE GAME REFUGES | | | | | | | | | | FEDERAL GAME REFUGES | | | | | | | | | | GAME AREAS BY ADMINISTRATIVE RESTRICTIONS | | | | | | | | | |
|------------------------|--------------------|-------------------------|-------------------------|--|------------------------------|---|---------|-------------------------|------------------|--|------------------------------|---|---------|-------------------------|------------------|--|------------------------------|---|---------|-------------------------|---|--|------------------------------|---|---------|----|--|--|--|--|
| | No. | Acreage in Forest | Total Acreage (a) | Acreage Grazed by Domestic Stock | Number and Class of Stock | Per Cent Total Carry- ing Capacity Used by Stock | No. | Acreage in Forest | Total Acreage | Acreage Grazed by Domestic Stock | Number and Class of Stock | Per Cent Total Carry- ing Capacity Used by Stock | No. | Acreage in Forest | Total Acreage | Acreage Grazed by Domestic Stock | Number and Class of Stock | Per Cent Total Carry- ing Capacity Used by Stock | No. | Acreage in Forest | Total Acreage | Acreage Grazed by Domestic Stock | Number and Class of Stock | Per Cent Total Carry- ing Capacity Used by Stock | | | | | | |
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| C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | C. & H. | S. & G. | | | | | |
| COLORADO: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arapaho | 1 | 52179 | 79510 | 37000 | 331 | 63 | | | | | | | 4 | 58100 | 10500 | 520 | | | | | | | | | | 65 | | | | |
| Cochetopa | 3 | 330240 | 330240 | 269568 | 5187 | 3300 | | | | | | | 0 | | | | | | | | | | | | | | | | | |
| Grand Mesa | 0 | | | | | | | | | | | | 1 | 7680 | 3000 | 200 | | | | | | | | | | 50 | | | | |
| Gunnison | 3 | 355880 | 364880 | 297000 | 9139 | 24425 | | | | | | | 7 | 83213 | 4400 | 150 | 1000 | | | | | | | | | 13 | | | | |
| Holy Cross | 2 | 129000 | 130160 | 82000 | 640 | 11600 | | | | | | | 2 | 9500 | | | | | | | | | | | | | | | | |
| Montezuma | 0 | | | | | | | | | | | | 0 | | | | | | | | | | | | | | | | | |
| Pike | 3 | 396037 | 768357 | 331633 | 2279 | 13150 | | | | | | | 6 | 127896 | 6380 | 140 | | | | | | | | | | 26 | | | | |
| Rio Grande | 0 | | | | | | | | | | | | 4 | 31660 | | | | | | | | | | | | | | | | |
| Roosevelt | 1 | 627370 | 703115 | 651875 | 5145 | 13133 | | | | | | | 0 | | | | | | | | | | | | | | | | | |
| Routt | 2 | 78240 | 79680 | 79680 | 1112 | 2950 | | | | | | | 1 | 6500 | 1000 | | 800 | | | | | | | | | 25 | | | | |
| San Isabel | 4 | 147813 | 207653 | 125173 | 1835 | 1200 | | | | | | | 0 | | | | | | | | | | | | | | | | | |
| San Juan | 1 | 4760 | 8920 | | | | | | | | | | 7 | 91188 | 2250 | 25 | 1000 | | | | | | | | | 9 | | | | |
| Uncompahgre | 1 | 53120 | 53120 | 25560 | | 8000 | | | | | | | 2 | 15800 | | | | | | | | | | | | | | | | |
| White River | 1 | 432480 | 460000 | 400000 | 22000 | 29000 | | | | | | | 5 | 11490 | | | | | | | | | | | | | | | | |
| Total Colorado | 22 | 2607119 | 3185635 | 2299489 | 47668 | 106758 | | | | | | | 39 | 443027 | 27530 | 1035 | 2800 | | | | | | | | | 40 | | | | |
| NEBRASKA: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nebraska | 1 | 206026 | 206026 | 197300 | 13700 | | | | | | | | 0 | | | | | | | | | | | | | | | | | |
| SOUTH DAKOTA: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Black Hills | 2 | 34200 | 44700 | 40150 | 360 | 2000 | | | | | | | 50 | | | | | | | | | | | | | | | | | |
| Harney | 0 | | | | | | | | | | | | 24 | | | | | | | | | | | | | | | | | |
| Total South Dakota | 2 | 34200 | 44700 | 40150 | 360 | 2000 | | | | | | | 31 | | | | | | | | | | | | | | | | | |
| WYOMING: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bighorn | 9(b) | 353154 | 348956 | 341780 | 9525 | 35600 | | | | | | | 5 | 44200 | 1500 | 60 | | | | | | | | | | 4 | | | | |
| Medicine Bow | 4 | 206075 | 257635 | 229928 | 4525 | 13600 | | | | | | | 0 | | | | | | | | | | | | | | | | | |
| Shoshone | 2 | 712960 | 712960 | 115920 | 4100 | 11000 | | | | | | | 1 | 20000 | | | | | | | | | | | | | | | | |
| Washakie | 4 | 795963 | 1783400 | 364400 | 6485 | 13830 | | | | | | | 0 | | | | | | | | | | | | | | | | | |
| Total Wyoming | 19 | 2068152 | 3102951 | 1052028 | 24635 | 74030 | | | | | | | 6 | 64200 | 1500 | 60 | | | | | | | | | | 4 | | | | |
| TOTAL R-2 | 44 | 4915497 | 6539312 | 3588967 | 86363 | 182788 | | | | | | | 18 | 45 | 507227 | 29030 | 1095 | 2800 | | | | | | | | 40 | | | | |

(a) Acreage in forest plus adjoining outside not in another forest.

(b) Changes made in lines in 1936 for Shell Creek, Tensleep, Rock Creek and Powder River.

Fish & Game, R-2
Annual Report, 1936

| Forest and State | CENSUS OF GAME ANIMALS | | | | | | | | | | CENSUS OF PREDATORY ANIMALS | | | | | | | | | | CENSUS OF FURBEARING ANIMALS | | | | | | | | | |
|--------------------------|----------------------------|-------|-----------|----------|-----------|------------|--------|-------|---------|---------|-----------------------------|----------|--------|------|--------|-------|--------|--------|---------|-------|--|---------|-------|---------|------|-----|------|--|--|--|
| | Elk | Moose | Mt. Sheep | Antelope | Mt. Goats | White-tail | Arctic | Brown | Grizzly | Coyotes | Lynx | Mt. Wolf | Beaver | Fox | Marten | Mink | Badger | Ermine | Muskrat | Skunk | Otter | Raccoon | Civet | Opossum | Coon | Cat | Sum. | | | |
| COLORADO: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (a) Arapaho | 4210 | | 123 | | | 12125* | | 169 | 2 | 1960 | 250 | 12 | | 2310 | 385 | 455 | 435 | 345 | 6550 | | | | | | | | | | | |
| (a) Cochetopa | 494 | | 350 | 200 | | 5645 | | 137 | | 1060 | 450 | 52 | | 3709 | 230 | 355 | 450 | 325 | 1340 | 2200 | 365 | | | | | | | | | |
| Grand Mesa | 400 | | | | | 3900 | | 40 | 80 | 1450 | 125 | 5 | | 2150 | 110 | 160 | 300 | 270 | 2800 | 4100 | 240 | | | | | | | | | |
| Gunnison | 2800 | | 290* | | | 14950 | | 450 | | 3000 | 606 | 31 | 2 | 4350 | 175 | 640 | 1145 | 247 | 5150 | 3050 | | | | | | | | | | |
| Holy Cross | 1095 | | 255 | | | 12150* | | 130 | | 1875 | 395 | 31 | 4 | 2020 | 225 | 1140 | 1085 | 160 | 4500 | 1400 | | 5 | | | | | | | | |
| (a) Montezuma | 366 | | 25 | | | 1390 | | 385 | | 1225 | 209 | 10 | | 1175 | 42 | 250 | 205 | 224 | 950 | | 420 | | | | | | | | | |
| Pike | 1555 | | 389 | | | 5125 | | 104 | | 1375 | 635 | 50 | | 2900 | 203 | 166 | 470 | 625 | 3375 | 855 | | | | | | | | | | |
| (a) Rio Grande | 950 | | 150 | 12 | | 1435 | | 94 | 1 | 1190 | 250 | 10 | | 4075 | 250 | 320 | 375 | 130 | 2240 | 4110 | | | | | | | | | | |
| (a) Roosevelt | 830 | | 155 | | | 5200 | | 255 | | 1475 | 750 | 48 | | 5060 | 450 | 1325 | 1290 | 585 | 3200 | | 1110 | | 20 | | | | | | | |
| (a) Routt | 1125 | | 155 | | | 2185 | | 675 | | 2325 | 360 | 5 | | 6845 | 425 | 1030 | 955 | 364 | 10400 | 6275 | | | | | | | | | | |
| (a) San Isabel | 30 | | 113 | | | 2320 | | 111 | | 650 | 615 | 30 | 1 | 1010 | 530 | 365 | 25 | 330 | 1375 | 745 | 900 | | | | | | | | | |
| (a) San Juan | 966 | | 155 | | | 1760 | | 585 | 4 | 1475 | 210 | 25 | 1 | 2105 | 157 | 830 | 465 | 240 | 1400 | | 2700 | | | | | | | | | |
| (a) Uncompahgre | 325 | | 250 | | | 1875 | | 450 | | 1225 | 250 | 23 | | 1300 | 175 | 325 | 275 | 230 | 2650 | 475 | 310 | | | | | | | | | |
| (a) White River | 1733 | | 90 | | | 11000* | | 302 | | 2025 | 215 | 10 | | 5350 | 120 | 432 | 610 | 199 | 370 | 5625 | | | | | | | | | | |
| Total Colorado, 1936 | 16879 | | 2510 | 212 | | 82060 | | 40 | 3936 | 7 | 22310 | 5330 | 342 | 8 | 44950 | 3477 | 8013 | 8095 | 4274 | 49680 | 28835 | 6045 | 5 | 20 | | | | | | |
| Total Colorado, 1935 | 15259 | | 2750 | 212 | | 55490 | | 50 | 3665 | 5 | 22530 | 5319 | 320 | 9 | 43447 | 3478 | 7600 | 7800 | 4073 | 48998 | 29115 | 6085 | 5 | 20 | | | | | | |
| NEBRASKA: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (a) Nebraska, 1936 | | | | | | | | | | 400 | | | | | | | | | 50 | | 100 | 275 | | | | | | | | |
| Nebraska, 1935 | | | | | | 189 | | | | 400 | | | | | | | | | 35 | | 100 | 175 | | | | | | | | |
| SOUTH DAKOTA: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (f) Black Hills | 110 | | | | | 1200 | 2100 | | | 1900 | 230 | | | 1530 | | | 25 | 20 | 3450 | 100 | 2450 | | 410 | | | | | | | |
| Harney | 307 | | | 14 | 18 | 500 | 1650 | | | 2500(b) | 400(b) | 1 | | 400 | | | | | 600 | 1000 | 600 | 3000 | | 200 | | | | | | |
| Total South Dakota, 1936 | 417 | | | 14 | 18 | 1700 | 3700 | | | 4400(b) | 630(b) | 1 | | 1930 | | | | 25 | 620 | 4450 | 700 | 5450 | | 610 | | | | | | |
| Total South Dakota, 1935 | 211 | | | 12 | 18 | 1775 | 3700 | | | 4100 | 1250 | 5 | | 1680 | | | | 25 | 1015 | 3700 | 2000 | 6000 | | 820 | | | | | | |
| WYOMING: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bighorn | 5350 | | 75 | | | 9270 | | 272 | 1 | 1600 | 355 | 4 | | 612 | 300 | 880 | 125 | 110 | 2300 | 2025 | | | | | | | | | | |
| Black Hills | 154 | | | | | 700 | 1400 | | | 1100 | 270 | | | 1050 | | | | 20 | 1250 | 400 | 1700 | | 340 | | | | | | | |
| Medicine Bow | 407 | | 12 | 144 | | 6050 | | 282 | | 2092 | 315 | 9 | | 3190 | 395 | 565 | 1400 | 465 | 3430 | 1830 | 710 | | | | | | | | | |
| (a) Shoshone | 2645 | 221 | 875 | 610 | | 6060 | | 355 | 56 | 1250 | 232 | 13 | | 590 | 450 | 720 | 175 | 410 | 1315 | 1050 | | 14 | | | | | | | | |
| (a) Washakie | 2370 | 250 | 560 | | | 1330 | | 135 | 45 | 505 | 265 | 5 | 4 | 750 | 190 | 590 | 285 | 60 | 2000 | 875 | 350 | | | | | | | | | |
| Total Wyoming, 1936 | 10925 | 481 | 1542 | 754 | | 23410 | 1400 | 1044 | 102 | 6547 | 1497 | 31 | 4 | 6392 | 1365 | 2275 | 1985 | 1085 | 10285 | 6180 | 2760 | 14 | 340 | | | | | | | |
| Total Wyoming, 1935 | 11866 | 438 | 1490 | 1015 | | 21640 | 1350 | 1074 | 127 | 6755 | 1160 | 28 | 1 | 5520 | 1310 | 2945 | 1596 | 800 | 9010 | 6300 | 1590 | 14 | 170 | | | | | | | |
| TOTAL REGION 2, 1936 | 28222 | 481 | 4052* | 980 | | 1810710* | 5150 | 40 | 4980 | 109 | 33657 | 7457 | 374 | 12 | 53282 | 4842 | 10888 | 10105 | 6029 | 64415 | 35815 | 14530 | 19 | 970 | | | | | | |
| TOTAL REGION 2, 1935 | 27335 | 438 | 4240 | 1239 | | 18 | 79094 | 5050 | 50 | 4739 | 132 | 33785 | 7729 | 351 | 10 | 51047 | 4788 | 10545 | 9421 | 5923 | 61608 | 37015 | 13860 | 19 | 1010 | | | | | |
| Forest and State | GAME ANIMALS KILLED BY MAN | | | | | | | | | | KILLED BY PREDATORY ANIMALS | | | | | | | | | | PREDATORY ANIMALS KILLED ON AND ADJOINING NATIONAL FORESTS | | | | | | | | | |
| | Elk | Moose | Mt. Sheep | Antelope | Mt. Goats | White-tail | Arctic | Brown | Grizzly | Coyotes | Lynx | Mt. Wolf | Beaver | Fox | Marten | Mink | Badger | Ermine | Muskrat | Skunk | Otter | Raccoon | Civet | Opossum | Coon | Cat | Sum. | | | |
| COLORADO: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (a) Arapaho | 3 | 35 | | | | 200 | | | | 800 | 290 | 15 | 700 | | | | 350 | | 10 | | | | | | | | | | | |
| (a) Cochetopa | 6 | | | | | 108 | | | | 359 | 6 | 9 | 223 | | | | 395 | 1 | 34 | | | | | | | | | | | |
| (a) Grand Mesa | 2 | 30 | | | | 90 | | | | 280 | 200 | | | | | | 701 | 1 | 184 | | 5 | | | | | | | | | |
| (a) Gunnison | 14 | 60 | 205 | 681 | | | 10 | | | 1415 | 48 | 30 | 1225 | | | | 644 | 1 | 55 | | 16 | 10 | 100 | | | | | | | |
| Holy Cross | 10 | 40 | 15 | 875 | | | | | | 875 | 20 | 20 | 250 | | | | 400 | 2 | 29 | | 5 | 1 | | | | | | | | |
| (a) Montezuma | 8 | | | 46 | | | | | | 192 | | | 28 | | | | 366 | | 2 | | | | | | | | | | | |
| Pike | 7 | 20 | | 169 | | | 3 | | | 730 | 5 | 33 | 260 | | 10 | | 222 | 1 | 17 | | | 80 | | | | | | | | |
| (a) Rio Grande | 6 | 3 | | 74 | | | | | | 225 | 1 | 12 | 44 | | | | 110 | | 31 | | 4 | | | | | | | | | |
| (a) Roosevelt | 5 | 25 | | 492 | | | 2 | | | 370 | 5 | 5 | 135 | | | | 172 | | 34 | | | | | | | | | | | |
| (a) Routt | 11 | 54 | | 80 | | | | | | 300 | | 1 | 10 | | | | 533 | | | | 14 | | | | | | | | | |
| (a) San Isabel | 2(d) | | | 132 | | | | | | 328 | | | 27 | | 1(e) | | 110 | 14 | 36 | | | | | | | | | | | |
| (a) San Juan | 21 | | 17 | 70 | | | | | | 279 | | 8 | 138 | | | | 95 | 1 | 8 | | | | | | | | | | | |
| (a) Uncompahgre | 30 | | | 150 | | | | | | 450 | 10 | 25 | 200 | | | | 404 | 2 | 50 | | | | | | | | | | | |
| (a) White River | 25 | 140 | | 931 | | | | | | 1975 | 50 | 7 | 230 | | | | 563 | 1 | 40 | | | | | | | | | | | |
| Total Colorado, 1936 | 151 | 410 | 237 | 4098 | | | 15 | | | 9088 | 635 | 165 | 4470 | | 10 | 1(e) | 5065 | 24 | 530 | | 44 | 11 | 180 | | | | | | | |
| Total Colorado, 1935 | 82 | 367 | | 655 | 2735 | | 1 | | | 8325 | 120 | 376 | 2872 | | 13 | | 4553 | 25 | 384 | 2 | 21 | 3 | | | | | | | | |
| NEBRASKA: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (a) Nebraska, 1936 | | | | 7 | | | | | | 1 | | | | | | | | | | 201 | | | | | | | | | | |
| Nebraska, 1935 | | | | 10 | | | | | | 2 | | | | | | | | | | 159 | | | | | | | | | | |
| SOUTH DAKOTA: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (f) Black Hills | | | | 100 | 250 | | | | | 2000 | | 15 | 50 | | | | 70 | | 12 | | | | | | | | | | | |
| Harney | 40(g) | | | 70(g) | 225(g) | | | | | 1500 | 10(h) | 20(h) | 35(h) | | | | 109 | | 17 | | | | 5 | | 50 | | | | | |
| Total South Dakota, 1936 | 40(g) | | | 170(g) | 475(g) | | | | | 3500 | 10(h) | 35 | 85 | | | | 179 | | 29 | | | | 5 | | 50 | | | | | |
| Total South Dakota, 1935 | 75 | | | 195 | 500 | | | | | 3000 | | 32 | 36 | | | | 183 | | 63 | | | | 5 | | 50 | | | | | |
| WYOMING: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bighorn | 8 | 481 | | 1239 | | | | | | 3975 | 22 | 445 | | | | | 332 | | 22 | | 8 | | | | | | | | | |
| Black Hills | | | | 50 | 150 | | | | | 500 | | 10 | 25 | | | | 119 | | 9 | | | | | | | | | | | |
| (a) Medicine Bow | 14 | 27 | | 265 | | | 5 | | | 1685 | 1 | 187 | | | | | 506 | | 127 | | 5 | | | | | | | | | |
| (a) Shoshone | 20 | 230 | | 316 | | | 35 | | | 7 | 1035 | 37 | 35 | 257 | | 15 | | 311 | | 42 | | | | | | | | | | |
| (a) Washakie | 5 | 300 | | 100 | | | 5 | | | 550 | 30 | 20 | 75 | | | | 329 | | 25 | | 5 | | | | | | | | | |
| Total Wyoming, 1936 | 47 | 1038 | | 1972 | 150 | | | | | | | | | | | | | | | | | | | | | | | | | |

LAW ENFORCEMENT

| State and Forest | (1) | | (2) | | (3) | | (4) | | | | | | | |
|------------------------|-----------------|--------------|----------------|--------------|--------------------|------------------|---------------------|--------------------|--------------------|--------------|-----------------|-----------------|------------|-----------------|
| | Total Number | Violations | Total Number | Violations | Total Number | Violations | Cases Dismissed | Total Arrests | Convictions | Total Number | Number State | Number Licenses | Violations | Examinations |
| | Reported to | Secured from | Reported to | Secured from | Reported to | Secured from | by Forest Officers | by Forest | by Forest Officers | by Forest | Licenses Sold | Examined by | by Forest | Forest Officers |
| | State Officers | (1) | State Officers | (2) | by Forest Officers | Handled Entirely | Without Assistance | Without Arrest (3) | (3) | (4) | (1) + (2) + (3) | Officers | | |
| | for Prosecution | | for Investiga- | | Without Assistance | tion | from State Officers | | | | | | | |
| | | | | | | | | | | | | | | |
| <u>COLORADO:</u> | | | | | | | | | | | | | | |
| Arapaho | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 3 | 0 | 40 | | |
| Cochetopa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | | |
| Grand Mesa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | | |
| Gunnison | 1 | 1 | 2 | 0 | 2 | 0 | 0 | 2 | 2 | 5 | 0 | 257 | | |
| Holy Cross | 0 | 0 | 2 | 0 | 2 | 0 | 1 | 1 | 0 | 4 | 0 | 102 | | |
| Montezuma | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 4 | 0 | 63 | | |
| Pike | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 0 | 74 | | |
| Rio Grande | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 182 | | |
| Roosevelt | 2 | 1 | 7 | 2 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 72 | | |
| Routt | 0 | 0 | 4 | 0 | 3 | 0 | 3 | 1 | 0 | 7 | 0 | 60 | | |
| San Isabel | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 137 | | |
| San Juan | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 60 | | |
| Uncompahgre | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 | | |
| White River | 2 | 0 | 10 | 0 | 3 | 0 | 1 | 2 | 0 | 15 | 0 | 195 | | |
| Total Colorado | 12 | 4 | 38 | 2 | 16 | 8 | 9 | 5 | 66 | 0 (a) | 1380 | | | |
| <u>NEBRASKA:</u> | | | | | | | | | | | | | | |
| Nebraska | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| <u>SOUTH DAKOTA:</u> | | | | | | | | | | | | | | |
| Black Hills | 5 | 3 | 20 | 18 | 1 | 1 | 0 | 0 | 26 | 0 | 30 | | | |
| Harney | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 30 | | | |
| Total South Dakota | 5 | 3 | 24 | 19 | 1 | 1 | 0 | 0 | 30 | 0 | 60 | | | |
| <u>WYOMING:</u> | | | | | | | | | | | | | | |
| Bighorn | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 113 | | | |
| Medicine Bow | 18 | 15 | 4 | 0 | 1 | 1 | 0 | 0 | 23 | 0 | 81 | | | |
| Shoshone | 0 | 0 | 13 | 2 | 3 | 1 | 2 | 2 | 16 | 86 | 345 | | | |
| Washakie | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 40 | 40 | | | |
| Total Wyoming | 21 | 17 | 19 | 2 | 4 | 2 | 2 | 2 | 44 | 126 | 579 | | | |
| TOTAL REGION 2, 1936 | 38 | 24 | 81 | 23 | 21 | 11 | 11 | 7 | 140 | 126 | 2019 | | | |
| TOTAL REGION 2, 1935 | 44 | 34 | 69 | 15 | 36 | 33 | 3 | 2 | 149 | 128 | 1738 | | | |

(a) Policy adopted in spring 1927 with the State Game and Fish Commissioner, whereby the selling of hunting and fishing licenses by forest officers was discontinued.

C O P Y

RC98

G - Fish & Game

Game Census

REPORT ON GAME CENSUS

Pisgah Game Preserve

Introduction

The primary purpose of the Census is to determine the deer population of the Pisgah Game Preserve. Additional objectives of the project are:

1. To determine the sex ratio existing in the deer population.
2. To determine as far as possible the population of other game animals, birds, and predators on the Preserve.
3. To obtain a method whereby censuses can be made in the future with a minimum expenditure of funds.

The census was started on December 4, 1935, by the drive method and completed on the 29th of January. During February the areas were surveyed by chain and compass to obtain the acreage. A portion of the district, namely Davidson River watershed, excluding Avery Creek, was examined for game by the strip method. A total of thirty-five areas were driven, fifteen of which were on Davidson River. It was intended to use CCC Camp F-1 for all drives, but the fact that it was abandoned January 1st made it necessary to use both Camp F-14 and F-22 to complete the drives. The roads were practically impassable during a large part of January which also hindered the progress of the work considerably.

This report will stress only the major points brought out on the Census. The data will be filed for detailed analysis in the future.

Field Work

It has been mentioned that three CCC Camps were used in making the drives. In one way this may be considered a disadvantage due to the necessity of instructing and training each camp. On the other hand, this disadvantage is outweighed by other considerations. The men have intense enthusiasm for the first few days and when the novelty wears they become bored and lose their efficiency. By dividing the drives up among the three camps I believe it kept their interest throughout the Census.

A few suggestions regarding the technique are as follows:

1. Before the first drive is made a talk should be given at the Camp, giving them general instructions. After this, if possible, each

MAILED SCHEDULE No. 2

Mail Room R-8

one of the men should receive a mimeographed copy of the instructions. During the talk the tally sheets should be explained thoroughly and each species gone over carefully.

2. Quite often it is advisable to give the enrollees a short talk before each drive is made, explaining to them the general topography of the area to be driven and it will also act as a "pep talk" to keep up their interest.

3. New tally sheets clipped on a small cardboard should be given out just before each drive and collected immediately afterward.

4. All pencils should be collected at the end of each day.

5. Tally sheets reporting game should be signed, thus enabling a check if questionable data are found.

6. Stress daily the importance of counting only the wildlife that leaves the area crossing between the one man and the man on his right.

7. Stress daily the importance of no noise during the placing of men about the area to be driven.

8. No smoking to be allowed except between drives.

9. Stress the importance of the men keeping within sight of each other on the drive line, especially in rough country and laurel thickets.

10. Use the best transportation facilities available.

11. Have men organized on trucks, that is: drivers on certain trucks and standers on the remaining trucks.

12. In a country where the topography is rough it is advisable to drive from the head of the coves down.

13. If possible, drive toward the narrower side of the area, thus closing the drive line rather than lengthening it.

14. Drive toward an old logging road or trail where possible as the deer are reluctant to cross a wide open area.

15. If possible, place a member of the supervisory personnel, a warden, or a leader with every ten men on the drive line. It will be their responsibility to keep their ten men in line and correctly spaced.

16. A member of the supervisory personnel or a warden should be placed at each end of the drive line and it should be their duty to follow through the drive, placing the standers in the drive line wherever the drive line widens out or to decrease the number of men accordingly.

17. The drive may be started by a shot from a firearm or by shouting along the drive line.

18. The drivers should be urged to make all the noise possible during the drive.

19. The spacing of drivers or standers can not be set up by any certain distance due to the great variation both in topography and cover type. Often in dense laurel thickets it is necessary to place men thirty or forty feet apart, while in an open area as much as eight to ten chains may separate some standers.

20. Standers should remain perfectly quiet and attentive until the drive line has passed their stand. They will then fall behind the drive line and follow along the side "stand line" to the trucks unless instructed by the member of the supervisory personnel on their end of the line to fall in with the drive.

Method of Selecting Areas

It was originally planned to drive twenty-three areas mechanically picked from the entire Game Preserve. After driving a number of these areas and the data analyzed by Mr. A. L. MacKinney of the Appalachian Forest Experiment Station, the standard error was found to be so high it would be necessary to examine more areas than originally selected. It was also decided that statistical analysis is not a true criterion of accuracy of the drive method in view of the fact that there are so few plots on which to base this analysis; and thus it was decided to drive thirty-five areas in all. Davidson River watershed, excluding Avery Creek, was picked as an experimental area in which fifteen areas were driven and afterwards the entire area was examined by the strip method. The data of both methods were worked up in order to get a comparison of the results and costs on this area of the two methods. It might be well to mention that the twelve other areas to bring up the total to thirty-five were also picked mechanically, that is: all areas were driven as near as possible to the location picked on the map mechanically, although topography necessitated changes to a certain extent. The remaining areas (twenty) gave a good average representation for the rest of the Game Preserve.

It was planned to survey each area and blaze a line around it before the drives. However, in order to complete the drives before the bucks had shed their horns, it was necessary to drive the areas first and then survey them afterwards to obtain the acreage. These surveys were made and plotted on a scale of 1 in. = 10 chains. These sketches show the chief topographical features of the areas. The areas vary considerably in acreage due to the topography of the land, the number of men available for a drive, and the fact the majority of the areas were driven before being surveyed.

Costs of Field Work

The number of drives per day by each camp varied from one to three drives, three drives being made only on one occasion. Due to the inaccessibility of the majority of areas the average per day was one and one-half areas.

The following table gives the approximate labor and costs for this work:

Cost for Drive Method on Pisgah Game Preserve

| | Totals |
|---|------------|
| 1. Number of units driven | 35 |
| 2. Total area driven | 4537 acres |
| 3. Per cent of Game Preserve Driven $4537 \div 98351 =$ | 4.61% |
| 4. Total number of man days (ECW) | 3515 |
| 5. Total cost of ECW (\$1.50 per day)° | \$5272.50 |
| 6. Total cost of Forest Service Personnel | 276.00 |
| 7. Truck mileage total 4,140 mi. @ \$.05 per mi. . | 207.00 |
| 8. Total cost of surveying areas (ECW) | 111.00 |
| Total cost | \$5866.50 |

Average cost per unit:

$$\frac{5,866.50}{35} = \$167.61$$

Cost per acre examined:

$$\frac{5,866.50}{4537} = \$1.29$$

° Note: All ECW Supervisory Personnel rated at \$1.50 in working up costs.

Cost for Drive Method on Davidson River

| | |
|---|------------|
| 1. Number of units driven | 15 |
| 2. Total area driven | 1947 acres |
| 3. Per cent of Davidson River driven $1947 \div 20855 =$ | 9.33% |
| 4. Total number of man days (ECW) | 1500 |
| 5. Total cost of ECW (\$1.50 per day)° | \$2,250.00 |
| 6. Total cost of Forest Service Personnel | 114.00 |
| 7. Truck mileage total 1410 miles @ \$.05 per mile | 70.50 |
| 8. Total cost of surveying areas (ECW) | 40.50 |
| Total Cost | \$2,475.00 |

Average cost per unit:

$$\frac{\$2,475.00}{15} = \$165.$$

Cost per acre examined:

$$\frac{\$2,475.00}{1947} = \$1.27$$

o Note: All ECW Supervisory Personnel rated at \$1.50 per day in working up costs.

Strip Method

As already mentioned, Davidson River watershed was picked as an area on which to compare the cost and resultant data of the two methods.

The census method used was a modification of the parallel strip timber survey. A strip width of two chains was adopted; one-man crews were used; a set of status Atlas sheets was used as a base map. Strips were run approximately twenty to thirty chains apart and they were generally run at right angles to the topography. Strips were referenced to topographic features and distances scaled from the Atlas sheets.

Wardens Edmundson, Huffman, and Eller were assigned to the work of stripping Davidson River, under the direction of Assistant Ranger Seely. A total of thirty man days were required to complete the field work. This estimate covered 6.44% of the total area (20,855 acres).

The following table gives the approximate cost for the strip method:

| | |
|--|-----------------|
| Total cost of truck mileage | \$21.40 |
| Total cost of Forest Service personnel | \$131.00 |
| (Actual Wardens' salary used in working up costs. Possibility of training ECW personnel thus reducing cost). | |
| Total cost | <u>\$152.40</u> |

Results

Following are tables which briefly summarize the resultant data obtained from the drive method on Davidson River Experimental area, the remaining areas on the Preserve, the strip method on Davidson River, and a comparison of the above mentioned tables as to the number of acres per deer:

Drive Method on Davidson River

| Area | Date | No. Men | Acreage | Buck | Doe | Fawn | Deer | Rab-bit | Squir-rel | Tur-key | Grouse | Large Hawk | Sm. Hawk | Large Owl | Sm. Owl | Fox | Quail |
|------------------------|----------|---------|---------|------|-----|------|------|---------|-----------|---------|--------|------------|----------|-----------|---------|-----|-------|
| Laurel Fk. | | | | | | | | | | | | | | | | | |
| Davidson R. | 12/10/35 | 130 | 225 | 11 | 15 | 1 | 27 | 1 | 6 | | 34 | 3 | 5 | | | 1 | 4 |
| Neills Cove | 1/10/36 | 130 | 111 | | 7 | | 7 | | 15 | 15 | 3 | 1 | | | | | |
| Osteen Cove | 1/10/36 | 130 | 113 | 5 | 12 | 7 | 24 | 3 | 8 | | 14 | | | 1 | | | |
| Hd.wt.Rd.- | | | | | | | | | | | | | | | | | |
| Pis.Mot.Rd. | 1/11/36 | 80 | 103 | 5 | 11 | 2 | 18 | 2 | 9 | 1 | 2 | | | | | | 4 |
| Grogar Cr. | | | | | | | | | | | | | | | | | |
| PicklesimerF | 1/13/36 | 130 | 195 | 1 | 4 | 4 | 9 | 2 | 4 | | 3 | | 1 | | | | |
| 1.Hd.Pounding | | | | | | | | | | | | | | | | | |
| Mill Cr. | 1/23/36 | 158 | | 15 | 3 | 18 | | 2 | 3 | 5 | | | | | | | |
| 8.Cherry Cove | 1/23/36 | 100 | 128 | 1 | 4 | | 5 | 1 | 5 | | 8 | | | | | | |
| 33.Hamilton- | | | | | | | | | | | | | | | | | |
| Neill Cove | 1/20/36 | 100 | 101 | | | | | 6 | 1 | | 3 | | | | | 2 | 1 |
| 60.Cove Cr. | 1/20/36 | 100 | 131 | 2 | 10 | | 12 | | | | 10 | | | | | | |
| 95.Farlow Gap) | 1/21/36 | 100 | 162 | 5 | 4 | 1 | 10 | 3 | 1 | | 6 | 1 | | | | 1 | |
| 96.Farlow Gap) | | | | | | | | | | | | | | | | | |
| 120.Hd. | | | | | | | | | | | | | | | | | |
| Laurel Fk. | 1/21/36 | 100 | 124 | 5 | 1 | | 6 | | 2 | | | 1 | | 1 | | | |
| 129.Stillwater | | | | | | | | | | | | | | | | | |
| Br. | 1/22/36 | 100 | 106 | | 3 | 3 | 6 | 1 | 2 | | 14 | 1 | | | | | |
| 131.Caney Br. | 1/24/36 | 100 | 159 | | 2 | 2 | 4 | | 1 | | | 1 | | | | | |
| 160.Hd.Grogan | | | | | | | | | | | | | | | | | |
| Cr. | 1/22/36 | 100 | 131 | | | | | | | | 3 | 1 | | | | | |
| Total Davidson R. Area | | 1500 | 1947 | 35 | 88 | 23 | 146 | 19 | 56 | 19 | 108 | 9 | 6 | 2 | 3 | 1 | 9 |

Drive Method on Pisgah Game Preserve (Davidson River Excluded)

| Area | Date | No. Men | Acre- age | Buck | Doe | Fawn | Total Deer | Rab- bit | Squir- rel | Tur- key | Grouse | Lg. Hawk | Sm. Hawk | Lg. Owl | Sm. Owl | Pole- cat | Quail |
|----------------------|----------|------------|--------------|------|-----|------|---------------|-------------|---------------|-------------|--------|-------------|-------------|------------|------------|--------------|-------|
| Andy Cove | 1/24/36 | 100 | 180 | 4 | 26 | 4 | 34 | 3 | 2 | | 7 | 1 | 1 | 1 | | | |
| Boyd Cove | 12/12/35 | 120 | 125 | 3 | 8 | - | 11 | 3 | 2 | 1 | 6 | 1 | 1 | 2 | | 1 | |
| Banks Place | 12/12/35 | 90 | 70 | - | 2 | - | 2 | 4 | 1 | | 12 | | | | | | |
| Pilot Cove | 12/11/35 | 120 | 137 | 9 | 20 | 4 | 33 | 2 | 1 | | 11 | 2 | 1 | 1 | | | 4 |
| Bradley Cr. | 12/11/35 | 120 | 145 | 11 | 10 | 1 | 22 | 1 | 5 | | 11 | 5 | | 1 | | | |
| Newman Cove | | | | | | | | | | | | | | | | | |
| Avery Cr. | 1/20/36 | 90 | 100 | 2 | 2 | - | 4 | 2 | 2 | | 3 | | | | | | |
| Avery Cr. | | | | | | | | | | | | | | | | | |
| Back of deer trap | 12/ 4/35 | 140 | 191 | 14 | 42 | 1 | 57 | 2 | 11 | | 8 | 1 | 2 | 2 | 3 | 1 | 23 |
| Mince Cove | | | | | | | | | | | | | | | | | |
| Rocky Fork | 1/17/36 | 130 | 98 | 4 | 11 | - | 15 | 1 | 4 | | 1 | | 2 | | | | |
| Engram Cove | | | | | | | | | | | | | | | | | |
| Big Cr. | 1/17/36 | 130 | 70 | 1 | 6 | - | 7 | 4 | 2 | | 5 | | | | | | |
| Beaverdam | 1/21/36 | 80 | 87 | 2 | 5 | 1 | 8 | 1 | 2 | | | 1 | | | | | |
| Stony Fork | 1/21/36 | 80 | 82 | - | - | - | - | 2 | | | 6 | | | | | | |
| Billey T. Cove | 1/22/36 | 80 | 140 | - | 5 | 1 | 6 | 1 | 1 | | 1 | 1 | | | | | |
| Turkey Cr. | 1/23/36 | 80 | 200 | 1 | 3 | - | 4 | 1 | 1 | | 3 | | | | | | |
| Foster Cr. | 1/20/36 | 80 | 92 | | | | | | | | 1 | | | | | | |
| Bear Wallow | | | | | | | | | | | | | | | | | |
| Cr.(P.Bed) | 1/24/36 | 80 | 84 | 2 | 5 | - | 7 | - | 10 | | 1 | 2 | 1 | | | | |
| Walnut Cove | | | | | | | | | | | | | | | | | |
| (Cathey's) | 1/21/36 | 95 | 114 | 1 | 2 | 1 | 4 | 1 | 1 | | 9 | 1 | | | | | |
| Panel Cove | | | | | | | | | | | | | | | | | |
| (King's Cr. | 1/28/36 | 100 | 141 | 2 | 3 | 1 | 6 | 1 | 1 | | 5 | 1 | | | | | |
| Brushy Ridge | | | | | | | | | | | | | | | | | |
| Br.(Cathey) | 1/31/36 | 100 | 107 | 1 | | 1 | 2 | 1 | 1 | | 1 | | | | | | |
| Courthouse Cr | 1/29/36 | 100 | 158 | - | 5 | 1 | 6 | | | | 13 | | | | 1 | | 1 |
| Shoal Cr. | 1/29/36 | 100 | 269 | - | 5 | 1 | 6 | 2 | | | 3 | | | | | | 1 |
| Total Other Areas | | 2015 | 2590 | 57 | 160 | 17 | 234 | 32 | 47 | 1 | 107 | 16 | 8 | 7 | 4 | 1 | 29 |
| Total Davidson R. | | 1500 | 1947 | 35 | 88 | 23 | 146 | 19 | 56 | 19 | 108 | 9 | 6 | 2 | 3 | 1 | 9 |
| GRAND TOTAL | | 3515 | 4537 | 92 | 248 | 40 | 380 | 51 | 103 | 20 | 215 | 25 | 14 | 9 | 7 | 2 | 38 |

Strip Method - Davidson River

| No. | Bear | | Rabbits | | Grouse | | Squirrel | | Unclass. | | Does | | Bucks | | Fawn | | Total Deer | |
|--------|------|-----|---------|-----|--------|-----|----------|-----|----------|-----|------|-----|-------|-----|------|-----|------------|-----|
| Chains | On | Off | On | Off | On | Off | On | Off | On | Off | On | Off | On | Off | On | Off | On | Off |
| 6725 | - | 2 | 3 | 2 | 34 | 18 | 18 | 9 | 21 | 36 | 15 | 15 | 2 | 4 | 1 | 4 | 39 | 59 |

Number of Acres Per Deer

Drive Method for all of Preserve:

$$4537 \div 380 = 11.94$$

Drive Method for Davidson River:

$$1947 \div 146 = 13.33$$

Drive Method for other areas than Davidson River:

$$2590 \div 234 = 11.06$$

Strip Method, Davidson River (Deer on strip)

$$1345 \div 39 = 34.48$$

Strip Method, Davidson River (Deer on and off strip)

$$1345 \div 98 = 13.72$$

Sex Ratios

Areas Excluding Davidson River (Drive Method) -

3 Fawn : 10 Bucks : 28 Doe

Davidson River watershed (Drive Method) -

2 Fawn : 3 Bucks : 7.6 Doe

Total areas driven on Preserve -

3 Fawn : 7 Bucks : 19 Doe

Strip Method on Davidson River -

1 Fawn : 2 Bucks : 15 Doe : 21 Unclassified

Analysis

There has been much discussion relative to the value of the drive method of making a game census. True, this method is costly and probably not absolutely accurate due to various factors entering in such as: the mobility of wildlife, a crew of unskilled workers, rough topography of the country, and the small number of sample areas examined due to the excessive cost. On the other hand, the drive method gives a reasonable estimate of the deer population -- has the least chance of error compared with other methods developed to date. From the map accompanying this report it may be seen that the mechanically selected areas are fairly well distributed. Many of the areas are close to the boundary where it is generally thought there is a low concentration of deer. An interesting point brought out in the analysis is that there appears to be a less number of acres per deer on the group of areas including the boundary than on the Davidson River watershed.

From the table giving the Sex Ratio, it is plainly seen that there is an excessive number of does. This may be lowered to some extent as it is very likely that the CCC enrollees in tallying often classed a fawn as a doe deer due to poor visibility in the brush or to inexperience. Another factor relative to this is that the last few drives were made as the bucks began to drop their antlers. The sex ratio on the strip method may also be affected slightly as the strips were run during the shedding season of the bucks. But this cannot be too heavily weighed as experienced game wardens ran the strips and they can often distinguish a buck from a doe by its general appearance.

Four areas were driven from which no deer were tallied; two of these areas were close to the boundary, while the other two were centrally located on Davidson River.

In going through the data, a considerable difference is found between the number of acres per deer as found by the drive method and the number "on strip" indicated by the strip method. The number of acres per deer as seen from the table is nearly the same when all the deer seen on and off the strip are considered. To check further, the data on the 1935 strip method census were looked up; and it was found by considering all the deer seen on and off a strip on Davidson River that a figure of eleven acres per deer was obtained which also appears to follow fairly closely the results of this year's census. This may aid in solving one of our objectives: that of finding a correction factor for the strip method and thus lowering the cost of a game census.

Small game generally hunt cover before they will go through the line. It was noticed that rabbits jumped by the drivers went to dens while the squirrels hid in the treetops. The only game bird or animal other than deer to which the drive method may be practically applied seems to be the grouse and then only if the men are spaced fairly close throughout the drive.

Nocturnal animals cannot be tallied with any degree of accuracy. The few individuals that had been tallied constitute those that chanced to

have been in the direct path of the drivers.

Advantages of the two Methods

| <u>Drive Method</u> | <u>Strip Method</u> |
|---|--|
| 1. More certainty of accuracy. | 1. Fast (smaller) crew would |
| 2. Important initial survey in country for which no facts or figures are available. | average about 1000 acres per man day on 5% estimate. |
| 3. A standard on which to base other census methods. | 2. Relatively cheap method. |
| 4. Gives a more accurate ratio. | 3. Data can be taken over the entire area. |

Disadvantages of the two Methods

| <u>Drive Method</u> | <u>Strip Method</u> |
|--|--|
| 1. Excessive cost. | 1. Observer must be a well-trained woodsman, use a compass, accurate conception of two chain strip, etc. |
| 2. Location of areas to drive depends to a certain extent on topography and natural barriers | 2. Most arduous method if topography is rough. |
| 3. Requires a large amount of supervision | 3. Likely not all deer are seen on the strip. |
| 4. Hard to keep 100 to 150 men interested after making a few drives. | 4. Accuracy varies, depending on numerous conditions as: litter, visibility, wind direction, etc. |
| 5. Only a small area (100 to 150 acres) can be driven where country has rough topography. | 5. Differential response to alarm of bucks, does, and fawns. |
| | 6. Dependent on more accurate and costly method of court for correction factor. |

Conclusion

More detailed analysis of methods will be made at a later date.

If possible, another game drive in the future should be made of at least one drainage for experimental purpose; obtain additional proof to

support the correction factor of the strip method as found by these censuses.

Future censuses should be made in the fall before the bucks shed their horns to insure an accurate sex ratio tally.

Submitted by

T. S. Seely /s/

T. S. Seely
Junior Forester

March 4, 1936

(8)

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

COOPERATIVE AGREEMENT
with the
DEPARTMENT OF GAME AND FISH, STATE OF GEORGIA

THIS AGREEMENT, made on the 9th day of March 1936, by and between the Department of Game and Fish, State of Georgia, hereinafter known as the Commissioner, and the Regional Forester, Region 8, for and in behalf of the U. S. Department of Agriculture, Forest Service, hereinafter known as the Forest Service:

WITNESSETH:

WHEREAS, the United States is the owner of lands within the boundaries of the Nantahala and Cherokee National Forests, located in the State of Georgia, in accordance with the Act of Congress approved March 1, 1911 (36 Stat. 961); and

WHEREAS, pursuant to the Act of Congress, May 23, 1908 (35 Stat. 251, 259), the Forest Service desires to cooperate with the State of Georgia in developing and managing the fish and game resources within the National Forest and Purchase Unit boundaries located in the State of Georgia; and

WHEREAS, in accordance with the Act of General Assembly of Georgia approved March 28, 1935, the Commissioner desires to cooperate with the Forest Service in developing and managing the fish and game resources on the said National Forests:

NOW, THEREFORE, this memorandum witnesseth:

FIRST. The Commissioner agrees:

1. To perfect and obtain contracts of agreements with the owners of

private lands within the boundaries of the areas covered by this Agreement, relative to the development and management of fish and game.

2. To provide necessary game wardens and deputies for the proper enforcement of the game laws, and obtain the approval of the Regional Forester of each warden or deputy before final selection.

3. To provide, in cooperation with the Forest Service, a complete set of instructions for each game warden.

4. To appoint such Forest Service employees as recommended to him by the Regional Forester, as deputized State of Georgia Game wardens without compensation.

5. To cooperate with the Forest Service in authorizing state game wardens to accept federal game warden appointments at a nominal salary of \$1.00 per annum.

6. To post or erect no signs without submitting the design, wording and location to the Regional Forester for his approval.

7. To erect no structures and perform no construction or other acts not herein binded without first securing the express approval of the Regional Forester.

8. To recognize the U. S. Bureau of Fisheries and the U. S. Biological Survey as qualified agencies bound in cooperative agreement with the Forest Service.

9. To provide the Forest Service with reports and copies of vital correspondence, directly related to this cooperative agreement.

10. To establish, in cooperation with the Forest Service, bag limits and season, which will assure the development and perpetuation of the fish and game resources on the areas under cooperative agreement.

11. To close the season for deer and turkey within the areas covered by this agreement, for a period of five years.

12. To limit the use of dogs in connection with legal hunting upon the areas, covered by this agreement, to the hunting of game birds.

13. To remit to the Forest Service Fiscal Agent annually by December 30, 50% of the revenue derived from the sale of special licenses issued for hunting and fishing privilege on the areas under this cooperative agreement.

(a) To submit to the Regional Forester annually and prior to March 15 for his approval a statement revealing the charges to be made for special fishing and hunting licenses and the manner the special licenses are to be distributed.

(b) To provide the Regional Forester a certified statement as to the number of licenses sold and the total proceeds derived therefrom.

14. (a) To cooperate with the Regional Forester prior to March 15 in the preparation of an annual fish and game management plan and trapping district plan pertaining to the areas under this agreement, recommending the number of man days fishing, number of fish to be taken per man day, number of hunters, number of trappers, bag limits, seasons and the streams, hunting areas, and trapping areas to be opened or closed, the number and species of fish to be stocked and the places and methods of stocking, the number and species of game animals and birds to be stocked and the place and methods of stocking.

(b) To execute these mutually agreed upon plans as described under 14 (a).

15. (a) To stock the streams and lakes within the area covered by this agreement and in accordance with the recommendations of the Bureau of Fisheries and in cooperation with the Regional Forester, with fish from both federal and state hatcheries, and in accordance with the availability of the

fish from the said hatcheries.

(b) To stock game animals and birds of different species and in various places in accordance with the annual management plan.

SECOND. The Regional Forester agrees:

1. To place all funds transferred under this agreement from the State to the Forest Service in a cooperative fund and to use these monies only for the development and management of the fish and game resources within the National Forest boundaries located in the State of Georgia.

(a) To provide the Commissioner annually by July 30 an itemized statement, showing the disbursement of the funds for the previous fiscal year.

2. (a) To provide the Commissioner prior to March 15 an annual fish and game management plan, and trapping district plan, recommending the number of man days fishing, number of fish to be taken per man day, number of hunters, number of trappers, bag limits, seasons, and the streams, hunting and trapping areas to be opened or closed, the number and species of fish to be stocked, the places and methods of stocking, the number and species of game animals and birds to be stocked and the places and methods of stocking.

(b) To cooperate with the Commissioner in the execution of these mutually agreed upon plans as described under 2 (a).

3. To cooperate with the Commissioner in establishing bag limits and season upon the National Forest areas.

4. To provide recommended and approved state game wardens with federal game warden authority and to instruct each individual given this authority, in detail, as to the use of the authority.

5. To cooperate with the Commissioner in the preparation of instructions and duties of game wardens.

6. To require Forest Service employees deputized as state game wardens

faithfully and adequately to fulfill the duties connected with the appointment.

7. To provide the Commissioner annually by July 30 a list of recommended Forest Service employees to act as deputized game wardens.

8. To provide, where necessary and desirable, state game warden dwellings on lands owned by the Federal Government within the boundaries of the National Forests and to maintain the same and to prescribe conditions of occupancy and use.

(a) To construct on properties belonging to the United States within the National Forest or purchase unit boundaries all development pertaining to the fish and game resource.

9. To provide, within his authority, and as he may deem necessary, equipment, personnel and knowledge to develop the fish and game resource upon the areas described in this agreement.

10. (a) To cooperate with the Commissioner in stocking the streams and lakes within the area covered by this agreement and in accordance with the recommendations of the Bureau of Fisheries and in cooperation with the Commissioner, with fish from both federal and state hatcheries, and in accordance with the availability of the fish from the said hatcheries.

(b) To cooperate with the Commissioner in stocking wild animals and birds of different species and in various places in accordance with the annual management plan.

11. To provide the Commissioner reports and copies of vital correspondence, directly related to this cooperative agreement.

It is mutually agreed:

That nothing herein contained shall be construed as limiting or affecting in any way except as to fish and game conservation, the authority

of the Regional Forester in connection with the proper administration and protection of the National Forests in accordance with the purposes for which the lands contained therein were acquired and reserved.

Nothing in this agreement shall be construed as obligating the Regional Forester to expend or as involving the United States in any contract or other obligation for the future payment of money in excess of the appropriations authorized by law.

Nothing in this agreement shall be construed as obligating the Commissioner to expend or as involving the State of Georgia in any contract or other obligation for the future payment of money in excess of the appropriations authorized by law.

That this agreement shall apply to such portions of National Forest lands within the boundaries of the Nantahala and Cherokee National Forests located in the State of Georgia as indicated by the attached map, which is made a part of this agreement.

Amendments to this agreement may be proposed by either party upon thirty days notice to the other and such amendments shall become effective immediately upon approval by both parties.

This agreement shall become effective as soon as signed by the parties hereto and shall continue in force until the close of the calendar year 1945 unless terminated at an earlier date by either party upon thirty days notice in writing to the other of his intention to do so.

IN WITNESS WHEREOF, the Regional Forester and the Commissioner by
virtue of the authority in them vested, have hereunto subscribed their
names as of the day and year above written.

DEPARTMENT OF GAME AND FISH
STATE OF GEORGIA

By /s/ ZACK D. CRAVEY
Commissioner

UNITED STATES OF AMERICA

By /s/ JOSEPH C. KIRCHER
Regional Forester