



Thirty-two point buck.

TENTH BIENNIAL REPORT
OF THE
FISH AND GAME
WARDEN

OF THE
STATE OF IDAHO

1923-1924



R. E. THOMAS
State Game Warden


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January 1, 1925.

To His Excellency, Charles C. Moore, Governor, and the
Members of the Eighteenth Session of the Legisla-
ture of the State of Idaho:

Gentlemen:

In accordance with the provisions of law, I have the honor to present herewith the report of the Department of Fish and Game for the biennium of 1923-4, including statistics relative to fish and game, research work, a tabulation of the fish and game licenses issued, violations of the fish and game laws, total number of fines collected therefor and a tabulated statement of the receipts of the Department, together with a complete classification of the disbursements; also Department recommendation and plans for the next biennium.

Respectfully submitted,

R. E. Thomas,
State Game Warden.

OFFICIALS AND CLERICAL FORCE

R. E. Thomas State Game Warden
Boise, Idaho.

W. M. Keil Fish Commissioner
Boise, Idaho.

D. P. Rich Chief Deputy
Boise, Idaho.

J. W. Keeffe Chief Clerk
Boise, Idaho

Assistant Clerks
Martha Rubey
Boise, Idaho

Pearl Thompson
Boise, Idaho

CONSERVATION.

On those in whom is vested the administration of national and state affairs a grave responsibility rests—the preservation of our natural resources. This applies not only to wild life but to the forests as well, for the one is vital to the other. If your forests are gone, your game and fish go also. Destroy and waste your timber and what is left? Naked hills and stumps, where once virgin forests grew; dry lakes and streams, destitute of fish, and hunting grounds sadly lacking in game, its last refuge sacrificed to carelessness, cupidity and greed.

It is but a few years ago that the plains and the forests of these United States swarmed with countless thousands of game birds and animals, many the favored home of the buffalo and antelope, deer and elk in unbelievable numbers, while game birds of every description were found in abundance. Our natural streams were clear, cold and deep, unpolluted and literally filled with game fish. Those days, however, and those conditions are gone, the penalty of increased population and the march of civilization.

Buffalo and Antelope Doomed

The passing of the buffalo was perhaps inevitable. Colonel Cody, otherwise known as Buffalo Bill, is said to have made this statement: "Barb wire fence and the railroad doomed the buffalo. He was a migrant and when the barb wire fence and the railroad crossed his path, he was doomed." The antelope, also, had his habitat in the deserts or the plains and fled before the advance of the settler. While the buffalo is almost entirely extinct, except for a few private herds or certain head now on government reserves, the antelope are still to be found in remote portions of our remaining desert territory.

As to the rest of our vanishing game, the causes that have brought this about and the remedy therefor, even those who have given the matter deepest thought and study differ. On the one hand, it is claimed by one of our foremost authorities, commenting on the critical situation of American game, that, for the last seventy years, the American people have been industriously and, at times, frantically engaged in destroying their once magnificent heritage of wild life; that, in numerous localities, we have killed it down to practical extinction,



Almost sorry.

and that certain species have gone down to total extermination.

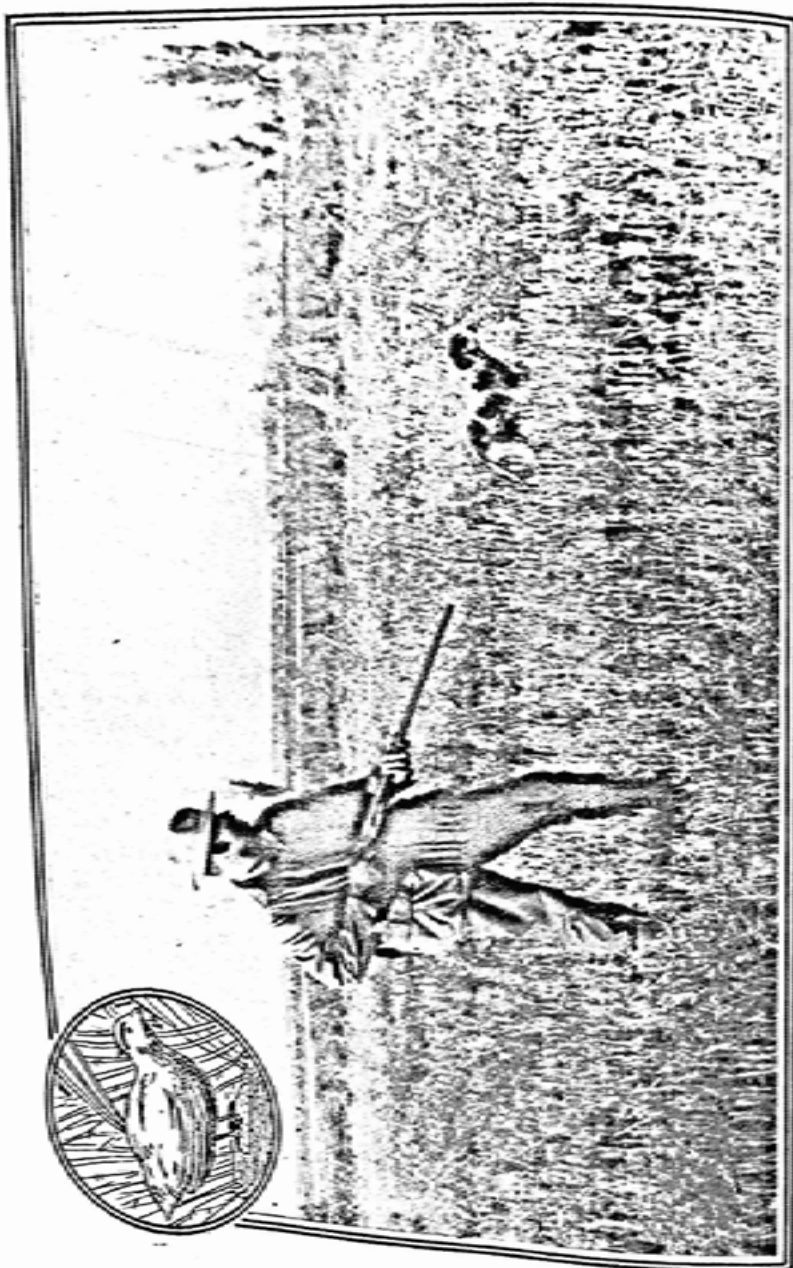
5,500,000 Guns Busily at Work

Reference is made to various kinds of game, both large and small, which have now almost disappeared. It is stated by this same authority that fully five million five hundred thousand guns are now busily at work during the hunting season on our upland and migratory birds, and that we have for years engaged in a bloody carnival of more or less idiotic slaughter, the responsibility for such wanton killing being laid to the sportsmen and the game hogs, the up-to-date arms and ammunition now in vogue, together with the connivance of the gun makers, cartridge loaders, guides and, last but not least, the automobile, through the medium of which the hunting fields are reached in as many hours as it took days and sometimes weeks in the earlier times of game history. On the other hand, taking the statement of another well known authority on the subject; for three hundred years, the people of this country have effectually caused the disappearance of the game of the United States with the dredging machine, the axe and the plow.

This authority states as a fact that agriculture is one of the most deadly agencies at work in this country today in the extermination of wild life and this, as he goes on to say, without any intention of pronouncing an indictment against agriculture.

Agriculture a Factor

He is quoted as saying that the axe rendered ten-antless millions of acres of land in this country that formerly sustained all kinds of wild life. The plow has turned millions of other acres into a desert and the dredge machine is now ending up the chapter in the far west. As a matter of fact, they are both right. It is a foregone conclusion that certain species of wild life could never withstand the inroads or advances of civilization. It is a question of the survival of the fittest. The buffalo and the antelope, our prairie chicken and certain species of the grouse family are fast disappearing, not entirely because of excessive shooting and the large number of hunting licenses sold and guns annually in the field, but by reason of the fact that their old haunts having been encroached upon and taken away, there is no refuge left. It is a well known fact that the buffalo seemed to disappear as in smoke in one season and the antelope fled before the intrusion of the barb



Upland shooting.

wire fences, as in early days did all wild game before the flames of the prairie fire. Still, shooting or the killing factor has also, in a measure, tended toward the destruction of wild life, but there are other elements to by either of the authorities mentioned. These, at times, have been known to take a greater toll in a given period than any of the other causes. We refer to excessive drouth, forest fires and the depredations of vermin or predatory animals.

Remedies Suggested

Thinking people have many different ideas to remedy these conditions. It is suggested that prohibitive measures be adopted relative to the kind or class of firearms that may be used, the open seasons be shortened or closed entirely, the bag limits reduced, and that stricter supervision be provided through the medium of largely increased license fees. Others, and rightly, advance the theory that birds cannot live in the air and that wild life, be it quadruped, bird or fish, must have suitable breeding and resting areas in which they can follow out the Biblical injunction to "increase, multiply and replenish the earth." Again they are correct. It is conceded that we have wasted our substance, squandered it without thought or plan for its replenishment. Regardless of these differences of opinion, however, it should be plain to even the uninitiated that, just as any business undertaking must be conducted along such lines as will insure an income in excess of disbursements, so should fish and game be protected and safeguarded. The supply should always exceed the demand. Unless provision is made for supervision, adequate restocking, the creation of refuges, smaller bag limits and shorter seasons where necessary to insure these conditions, you do not, and never will, operate on a strictly business basis, nor will you ever be successful in providing a remedy.

Our Shoulder to the Wheel

Idaho's problems are no different than those experienced by other states, although perhaps conditions are, in some instances, widely dissimilar. Obviously, if we are to better conditions, if we would solve these very difficulties; must we not stand together—put our shoulders to the wheel, so to speak, in one concerted effort to save and protect these assets to which thoughtlessly we have given little concern? Necessarily, the direct res-



Snake River sturgeon.

possibility for a campaign of conservation is vested in some department of state, the form of which is varied. In some cases, it is a department or board of agriculture or the secretary of state, matters pertaining to fish and game being administered by a separate division or bureau. Other and larger states, taking in more territory, have conservation commissions, with jurisdiction over natural resources other than fish and game. Several states operate on the commission form, while others, as does Idaho, have fish and game departments, under the direct supervision of the Governor, the presiding official being appointed. Opinions differ, naturally, as to the best method of government. All, we presume, have their exponents.

Sportsmen's Support Necessary

It would not appear, however, that the modus operandi is so vital, provided those having charge are conscientious, capable, devote their entire time to the work and are sincerely lending their best energies to improve conditions. But, regardless of the particular form of government or control of these departments, without the confidence and support of those who should be just as vitally interested, success cannot ever be entirely achieved.

Admittedly, one of the greatest problems concerning the American people today is conservation of our natural resources, and yet the very word and any suggestions toward protection or proposed legislation along these lines are invariably met with suspicion. The purposes of any departments, fish and game commissions or conservation bodies are not to deprive the sportsmen or the people of their natural enjoyment or of their free shooting, but to protect and conserve our natural resources, in order to perpetuate this very enjoyment or sport.

Preserves Provide Better Hunting

We are firmly convinced that one of the greatest factors in the protection of wild life is through the medium of game refuges. It has been demonstrated, we think beyond a doubt, that, where such refuges or game preserves are selected intelligently and in appropriate places, an increase in game, both large and small, has resulted. To bear out this contention, where shooting grounds have been leased, restocked from time to time and maintained by private individuals, even though this action was taken for the purpose of providing plenty of shooting during the open seasons, game has increased to

a large extent, not only in these private reserves, but has afforded better hunting as well in lands adjoining. This is not, by any means hearsay, but our opinion is based upon the fact that we have in our own state numerous game preserves and in each and every instance where these game preserves have been created, a large increase in upland birds and big game has been noted.

PUBLIC SHOOTING GROUNDS BILL

There is pending today in Congress a bill to provide for the establishment of refuges for migratory water fowl and the creation of public shooting grounds. This bill carries with it, also, a provision for an additional federal license, the fee for which shall be one dollar, a portion of this fee to be used for the purchase or securing of tracts of land for game refuges or bird sanctuaries and the balance to be used in defraying the expenses incurred by additional federal supervision. We favor the enactment of this measure for the reasons heretofore given. Our contention is that, in view of the enormous slaughter of migratory water fowl each year and excessive drainage operations, occasioning the destruction of natural breeding grounds and resting places, only through the medium of these bird refuges can water fowl be saved from elimination. Arrayed on each side, both for and against this measure, are the minds of those who have had years of experience in conservation matters. Good arguments are advanced pro and con. The preponderance of opinion, however, we believe is in favor of the enactment of this legislation.

Many Objections Offered

Since the amendment of the bill now pending in Congress, providing that "no deed or instrument of conveyance shall be accepted or approved by the Secretary of Agriculture under the act until the legislature of the state in which the area lies shall have consented to the acquisition thereof by the United States for the purpose of the act," the main objections seem to be on account of the federal license fee, the manner of its application and the additional control or supervision vested in federal agencies, some of these objections being occasioned through doubts or suspicions that a vast fund is to be accumulated, not to be expended so much in the protection of water fowl, but to afford positions to many government employment seekers. Many of the objections are apparently offered in the spirit of honest criticism, and are quoted with our views in similar order.

First, on account of the policy or lack of policy of the federal bureaus, alleged mismanagement and general laxity in game conservation. Second, because of a possibility of the control of wild fowl being vested in a federal bureau and the federal government would have to prosecute and try all cases of violation, hundreds of jobs would be created, presumably federal deputy game wardens, and that there would be an overlapping of authority between state and federal officials.

Opportunity to Retrieve

Third, that it would place the power to control shooting in political hands of a Washington bureau, desiring shorter seasons and smaller bag limits. Fourth, because it provides for a federal license fee, necessitating the handling and expenditure of large sums of money, which might result in graft or inefficiency. We hold no briefs for these various bureaus, but it should be borne in mind that state supervision has, in certain instances, proved no better. Many mistakes have been made. The entire people have been wholly indifferent and even the sportsmen have, until recently, been more or less careless of vital things. It should be remembered that we are all prone to error. Should we, therefore, censure them, ourselves included, and just because of errors in judgment postpone or defeat a measure which, on the face of it, appears to be constructive, or shall we give these same authorities an opportunity to retrieve and profit by former mistakes?

Federal Statutes Govern

Federal statutes already regulate and control wild fowl, the open seasons, bag limit, etc. The Migratory Bird Treaty Act was passed in 1918, vesting control in the U. S. Department of Agriculture. The United States courts are now called upon to prosecute all cases of violations of the above act, so that, in neither instance will the status be changed. The number of federal game wardens in this country is ridiculously small and it is an utter impossibility for the United States government to enforce the present federal laws and restrictions or those pertaining to the Lacy Migratory Bird Treaty Acts. The enactment of additional legislation or the passage of the Game Refuge-Public Shooting Grounds bill would enable the federal government to place in the field an adequate force and co-operate with the game wardens of the respective states in seeing that all provisions of law pertaining to migratory water fowl were enforced.



A raid on the treasury.

The control of all matters relating to migratory birds now being administered through a Washington Bureau, it does not appear just how the passage of the proposed measure would change the situation. As for the Bureau's attitude on open seasons, we have seen nothing as yet to indicate that it favors any curtailment, and the liberal bag limit of twenty-five ducks now provided by federal statute is in our opinion, entirely too large. The Western Association of State Game Commissioners has gone on record, asking for a substantial reduction in bag limits.

Are Opposed to Bureaucracy

The handling of other people's money is a public trust and one which is, after all, seldom abused. If we are going to voice objection to or question the integrity of a commission, consisting of men selected by the President of the United States, Senate and the Speaker of the House, the Secretary of Agriculture and the Postmaster General, how can we have confidence in our state fish and game commissions, other conservation officers or, for that matter, anyone else? Frankly, we are opposed to bureaucracy. We are opposed to invasion by federal authorities of states' rights or even any additional authority in federal agencies regarding matters that can be handled to greater advantage by the respective states or which will interfere with state legislation or state laws. If we believed, as intimated in some of the criticisms put forth, that this measure was merely a stepping stone to additional federal supervision, or was camouflaged to such an extent that its passage would mean the end of state supervision of wild life or the cessation of free shooting, then we would not hesitate to express our disapproval. Conceding, for argument's sake only, that supervision has not been all it should be, is it not better to prepare for the future and look forward to a day of plenty than to oppose remedial measures, thus resulting in dearth?

Co-ordinated Efforts Preferable

Out of chaos something tangible has been presented—an anchor to which we can pin our faith. Confidence in our government and governmental institutions to do the right thing must be retained. Without that confidence or that faith in our state and national governments, we have resort only to the Father of us all. It should be remembered, however, that God helps those who help themselves.

In the work of conservation, various agencies are engaged, principally our national and state governments. For this reason, co-operation is essential, and, in the course of time, when the activities of these organizations have been co-ordinated, greater efficiency is bound to result. Just as the federal government depends on the various states today for their co-operation in the enforcement of the Migratory Bird Treaty Act and other statutes, so must the various state conservation com-



Best big game sections reached by pack horse route.

missions rely on the support of their federal government in a similar capacity. In our relations with the various bureaus and with their representatives, we have found this to be true. We appreciate this co-operation and are glad to make such return as may be possible.

IDAHO'S TOPOGRAPHY.

Geographically, Idaho might be considered as two separate states, there being no rail communication between the northern and southern parts, except by way of the States of Oregon and Washington. The North and South Highway, in process of construction, will, of course, greatly facilitate travel between these portions but, even then, this avenue will be open only during the summer and early fall months, except possibly in very mild winters. The topography of the state is entirely dissimilar—so, also, are the climatic conditions. In that portion of the state better known as the Panhandle country are located our heaviest stands of timber, large lakes and mining sections. There, irrigation is not a problem and there is sufficient precipitation for agriculture. It is different in Southern and Eastern Idaho. Here, vast sage brush deserts have been converted, seemingly over night, into fertile plains, green fields and bounteous crops through the medium of irrigation projects. In certain portions dry farming is carried on but, in the main, artificial methods of supplying water are necessary for the thousands of acres of orchards, growing fields of grain, pastures and gardens.

Impenetrable Except by Trail

This dissimilarity, not only in the nature of the state itself, but in its climatic conditions, necessarily has a considerable bearing on the many difficult problems of fish and game supervision. There are portions of the state still practically inaccessible, virgin forests, impenetrable except by trail; sections where rugged peaks interpose a formidable barrier to the coming of the settler. One can readily understand, therefore, that the cost of supervision and the administration of the affairs of a conservation body is much greater than it would be in some of the states in the east and middle west, where travel and accessibility from the standpoint of railway and highway are not so difficult. To arrive at equitable or the right open and closed seasons for big game, game birds and fish, as between both sections of the state, is

a perplexing question. Particularly is this so, when, regardless of conditions existing even in adjoining counties, our constituents in one will demand a certain open season, while those in others will ask for something of an entirely different order. The nature of the waters, the conditions of our streams and the methods of keeping them stocked to capacity is another grave proposition, all this necessitating deep consideration.

INSPECTION AND FUTURE OUTLOOK.

Appointed State Game Warden in April of 1923, I was, of course, on account of having served as Assistant Chief Deputy under the former administration in Northern Idaho, decidedly familiar with the extreme northern portion of the state. It became necessary, however, for me to immediately inform myself relative to conditions existing throughout the larger portion of the state, that is, Southern Idaho. Fully ninety per cent of my time during the past two years has been occupied in visiting various localities throughout this section and acquainting myself with their requirements. In these two years I have visited nearly every section of the state and points which have been more or less neglected in the past. I am frank to say that, with all this journeying, which has been undertaken with considerable hardship at times, I have acquired as yet only a superficial knowledge, but, at the same time, these inspection trips have given me a working basis or first hand information which will be invaluable in carrying out future plans for these separate communities.

Greater Respect for Laws

Prior to 1919, no great effort had been made to obtain necessary data on fish and game conditions and no particular attempt had been made to adequately supervise or protect wild life. The former administration, in taking charge of affairs, was successful in building up the Department to some standpoint of efficiency. This was accomplished by means of research, co-operation with other agencies and the doubling and sometimes trebling of the field force, thus providing more supervision and active enforcement of the fish and game laws. This brought about much improvement in the supply of the fish and game and a greater respect for the laws. Incidentally, through the efforts and with the encouragement of the Department, numerous fish and game clubs

and associations were organized, all of which have been a factor in general education and improvement. By the employment of a larger number of deputy game wardens or field men, revenue of the Department was correspondingly increased.

Expansion Paramount Object

However, owing to the necessity for this supervision during the past few years, little, if anything tangible, had been accomplished in the way of department improvements, such as the construction of additional and badly needed fish hatcheries and the establishment of a game farm. This condition might go on for years; in other words, we could continue to expend the larger portion of our revenue in law enforcement or supervision. The time has come, however, just as it will in the course of any legitimate business or enterprise, when, if you get anywhere, you must expand. Fully realizing this fact, my paramount object in endeavoring to canvass the state in the time allowed me has been for the purpose of investigating possible hatchery sites, spawning beds, localities for temporary holding ponds and such other matters as would tend to result in real undertakings of a permanent nature. The importation and propagation of game and the adequate restocking of streams, which latter can be accomplished only with sufficient hatchery capacity, are of the greatest importance.

All Your Eggs in One Basket

We have no thought of doing away with active supervision, but you must successfully carry out a proper program of restocking, both as applicable to fish and game, otherwise what will there be left to supervise? On the other hand, an intensive stocking and propagation program, without the required supervision would be equally unwise. It is error to put all of your eggs in one basket. It would seem, since during the past four or five years, the sportsmen and their organizations have evinced much interest in the program of conservation, that, with the assistance of these organizations and sportsmen individually, we can rely on this support for the enforcement of the fish and game laws, without depending on so large a force of wardens, and the outlay on this account. The game laws are placed on the statutes for a specific purpose and must be obeyed. No law, however, can be enforced unless the bulk of the population favors it. No law is any better than the sentiment which was responsible for its passage.



A sportsman's limit.

Looked Upon with Disfavor

The influence of the sportsman is well exerted when a friend, several friends or groups of friends are converted to the principles of sensible conservation. Public opinion has much to do with the results attained. Where public sentiment is against violators of the game laws, where they are looked upon with disfavor and classed with other offenders, they have no longer any standing in their community. Men who love real sport, obey the game laws to the letter and make it their business to see that others do likewise, by their precept and example, acquire the respect of others and create a sentiment for game protection.

The sportsmen, therefore, and their organizations, can be no small factor in relieving their Game Department of some of the responsibility for law enforcement, and with this aid on their part, we will, with the money thus saved, be enabled to go ahead with our plans and program to a realization of our hopes. We must have the co-operation, not only of the sportsmen, but of all good citizens.

Doubtful Comparisons Made

Recently, an attempt was made to compare, adversely to the Idaho Game Department, the number of fish hatcheries owned and operated by a western state and the number of fish planted from such hatcheries with the number of hatcheries now in operation in the State of Idaho and the output of such hatcheries. A comparison of this nature without an explanation as to how or in what manner the hatcheries of the particular western state were acquired is decidedly unfair. As a matter of fact, four or five of the hatcheries mentioned as being owned and operated by this western state were acquired by gift or in some other manner, at small cost. On the other hand, we are fully aware that our hatchery capacity is not adequate. Like anything else, what might have sufficed years ago or under different conditions, when our streams were well stocked, when we had a smaller population and were not confronted with increased tourist travel and the prospect of depletion of our waters, will not answer at this day.

Expert Fishculturist Secured

From my preliminary inspection of such streams and lakes as I was able to visit in 1923, I became satisfied that considerable research work would be necessary to determine, primarily, the kind or species of fish best

had been done along these lines in the past and when an opportunity presented itself for the state to secure the services of the best talent procurable in the United States, with the hearty approval of the Governor, we engaged our present Fish Commissioner, Mr. W. M. Keil, of Tuxedo Park, New York. Since his arrival in Idaho, the Fish Commissioner has been in the field practically all of the time. Much of a constructive nature has been accomplished. By reason of its run-down condition, it was necessary to rebuild the Ashton Hatchery. We had constructed a large dam to provide water supply, established rearing ponds and erected buildings.

Hatcheries and Field Stations

A 10-trough hatchery, with a capacity of 250,000 fingerlings was constructed, equipped and put in operation early in the summer of this year at Cascade, in Valley County. A field station was established in the Henry's Lake section; another on the Blackfoot River. A permanent field station was also established at Mackay, on Lost River, in Custer County. In addition, a 20-trough hatchery has just been completed at Grangeville, Idaho County, fully equipped for next season's work. It is not my purpose to enter into details on this branch of the Game Department's work, these matters being fully covered in the report of the Fish Commissioner, which is included herein. Suffice it to say, however, relative to the above, that we have numerous plans for increasing our hatchery capacity throughout the state. Rome was not built in a day, but we hope and believe that the plans we have in contemplation will place Idaho second to none in the western states from the standpoint of fish culture.

IRRIGATION VERSUS TROUT STREAMS

Reclamation of public lands, which follows irrigation projects, the development of power sites, etc., are matters that do not come within our jurisdiction. The right to divert the public waters of this state for irrigation and to erect dams and power sites is conceded. Our courts have held that, to the use of all or any portion of such waters, agriculture or reclamation has a right. So far as it is possible, the original



Famous trout waters of Idaho.

adapted to such streams or lakes. Little, if anything, had been done along these lines in the past and when an opportunity presented itself for the state to secure the services of the best talent procurable in the United States, with the hearty approval of the Governor, we engaged our present Fish Commissioner, Mr. W. M. Keil, of Tuxedo Park, New York. Since his arrival in Idaho, the Fish Commissioner has been in the field practically all of the time. Much of a constructive nature has been accomplished. By reason of its run-down condition, it was necessary to rebuild the Ashton Hatchery. We had constructed a large dam to provide water supply, established rearing ponds and erected buildings.

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or natural state of streams so used is maintained. In the construction of dams of ordinary heights, particularly in such streams or the outlets of lakes where game fish abound, the construction and maintenance of adequate fishways or fish ladders is insisted upon, in order that game fish may not be deprived of their natural spawning places. Regardless of any precautions that may be taken by conservation departments or the efforts of irrigation companies to conserve water, conditions entirely unforeseen may ensue.

Floods, Drouths and Fires

The elements must needs be taken into account. Affecting game, there are disastrous forest fires, excessively severe winters and, too, floods and drouth, or extremely dry years, requiring that every inch of water available must be utilized in the conservation of crops. This latter is a condition which confronted us during the year 1924. A drouth or shortage of water, the like of which cannot be remembered by the "oldest inhabitant," was our misfortune. Springs, the supply of which had never in previous years failed, creeks and other streams practically went dry. Naturally, the storage waters held in enormous reservoirs by irrigation companies were heavily drawn upon. In some instances, it became imperative to drain these reservoirs, there being not sufficient run-off prior to the irrigation season to anywhere near take care of the actual needs of agriculture.

Magic Reservoir

In the eastern part of the state, or in Blaine County, some years ago, there was constructed a dam on Big Wood River, impounding acres of water, known as the Magic Reservoir, which reservoir supplies water for irrigation purposes to miles of country below. Big Wood River being one of the finest natural trout streams in Eastern Idaho, this reservoir naturally abounds in game fish. Annually, these trout run up Big Wood River and its tributary streams for the purpose of spawning. In 1919, on the representations of the sportsmen of Blaine County, an order was issued by the former State Game Warden, closing to all fishing the Magic Reservoir and Big Wood River up as far as Stanton Crossing. This order was issued to protect the fish during the spawning season. Later, this order was amended to provide for a closed season on trout in the Magic Reservoir as far up as the mouth of the Malad. Subsequent events

proved that to close this reservoir at any time of the year was a grievous error. Under normal conditions, or when there was an adequate supply of water, no loss of fish was incurred.

Loss of Fish in 1919

In 1919, there was a decided shortage of water and a large loss of fish in the Magic Reservoir, such loss being variously reported as running into tons of large-sized fish. Conditions were thoroughly investigated at that time by the former State Fish and Game Warden and, so far as could be ascertained by him, there was nothing to be done. In the spring of 1923, or shortly after taking over the Department, it was represented to me that there was a possibility of another water shortage, and, while the Magic Reservoir, under the terms of the last closing order issued by the former administration, did not reopen until the 1st of July, an order was issued formally opening the Magic Reservoir to fishing. As it turned out, we had, in 1923, some very heavy rains, storms occurring generally during a period of thirty days, with a large precipitation, and, for the first time in several years, there was a raise in water during the month of July. Little, if any, loss to fish occurred in 1923. As a precautionary measure, however, we continued in force our order permitting fishing the year round in the Magic Reservoir.

Salvage by Seining Impossible

Knowing of the extreme shortage of water in all of our streams, Big Wood River included, we anticipated there would be some loss of fish on account of this shortage in the Magic Reservoir during the year 1924. Our Assistant Chief Deputy and Deputy Game Warden in that territory were instructed to keep closely in touch with the situation. Personal trips of investigation were made to that point, not only by myself personally, but by the Fish Commissioner, to ascertain just what, if anything, could be accomplished, either through seining or other methods, to salvage these fish. In our efforts, we were assisted by John E. Badley, Manager of the Big Wood River Canal Company. It was ascertained that seining of this reservoir was an impossibility. Therefore, all that the Department could hope for, in the event of the reservoir being drained dry, was that the trash screens in the reservoir gates would be pulled, as was promised by Mr. Badley, and that the natural run-off from Big Wood River, which would provide fresh

water, together with the ability of the trout to go through below, would relieve the situation. We were informed by the Canal Company of the date when the water would go out.

We Had Our Men on the Ground

We had our men on the ground when the trash screens were pulled as promised, and, at that time (which fact is borne out by Mr. Badley's report to this Department), there was not a dead fish in the reservoir, and there was plenty of fresh water running in and out. It was reported, at the time these gates were opened, that there still remained a body of water a half a mile long and a quarter of a mile wide, twenty feet deep in places, and with fifty-two second feet running through it, and there never was less water than that running through the reservoir during the season. What, then, caused the loss of large fish? This loss, however, was not nearly so great as it was in the year 1919. Backing up as it does on all sides for miles around, necessarily the bottom of the reservoir is deep with silt, which washes, in time, toward the center of the reservoir, or what was the natural channel of Wood River. When the reservoir started dropping so rapidly, the fish naturally went up the stream and as the water receded below the mud flats or silt that had been formed above, the running water cut a channel through that mud and silt, and the trout, in attempting to go by, were smothered with the loose flowing mud or silt.

Mud and Silt Occasioned Death

Many of the dead fish which were found were examined and it was seen that their gills were filled with this mud, indicating the manner and cause of their death. This explanation of the situation at the Magic Reservoir has been made in detail by reason of the fact that the condition referred to was used to discredit the present administration during the past campaign. It was used by people claiming to be well informed as to conditions, for the purpose of reflecting on this Department, even though they had the statements of game officials, Mr. Badley and responsible people, who had lived in the Wood River section for years, that the condition was unavoidable. Once and for all, there are conditions that are beyond the control of men, and sportsmen should understand that, while we are exerting every effort to stock and maintain their trout streams and to guard against just such contingencies, in the matter of pro-

tection of crops, or the use of water for this purpose, the farmers and those having claim to such water have the right, if they so desire, to use all the water of such streams for irrigation purposes, regardless of the result.

BLACK CANYON DAM

Another matter beyond the control of the state authorities is that pertaining to United States reclamation projects and dams that are constructed for the purpose of supplying power or irrigation to various lands. We have, in the State of Idaho, two dams which well might be mentioned, the Arrow Rock Dam, which is the highest dam in the world, and the Black Canyon Dam, on the south fork of the Payette River, now just completed. Our statutes provide for the construction and proper maintenance of a fish ladder in various streams, yet the impracticability or, rather, the impossibility of building a fish ladder over the Arrow Rock Dam, even were there any necessity so to do, should be obvious. In the appropriation for the construction of the Black Canyon Dam (which dam, by the way, is over ninety feet in height), no amount was included for the building of a fishway or fish ladder, the cost of which would run into many thousands of dollars, which expenditure would ultimately fall upon the taxpayer. It is the feasibility of construction, however, to which we desire to refer. It has been the experience of other states, covering years of experiments, that no fish ladder is practicable, or should be constructed over a dam more than fifty feet in height.

Experience of Other States

In California and, I believe, in other states, it is required that, where a dam more than fifty feet in height is constructed, the power company or private enterprise shall, in lieu of the building of a fish ladder, maintain and operate a fish hatchery at its own expense. This probably would apply to private undertakings. I doubt if our authority would extend to forcing the government to build and maintain a fish hatchery in connection with any dams or projects it might construct. In any event, the state authorities have no power to force the construction of a fish ladder over the Black Canyon Dam, and, as a matter of fact, it is doubtful whether such a fishway would really serve any useful purpose, owing to the fact that this artificial barrier will prevent thou-

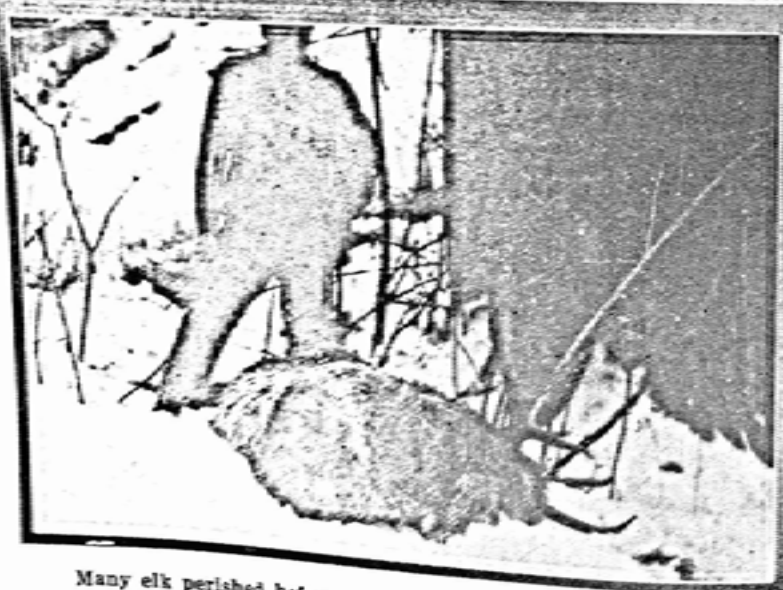
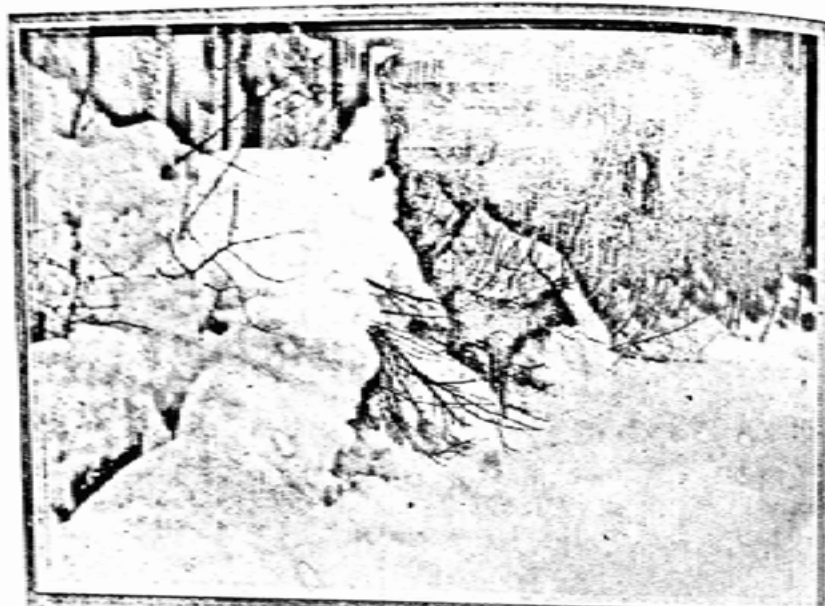
sands of non-game fish from going up that stream, to the detriment of the trout. On the other hand, we have devised a way whereby trout may be transported and held in holding ponds until they have attained sufficient size to fend for themselves, and, when planted in the waters above the Black Canyon Dam, greater results will ensue than could ever be accomplished by the building of a fish ladder at that point.

RESEARCH

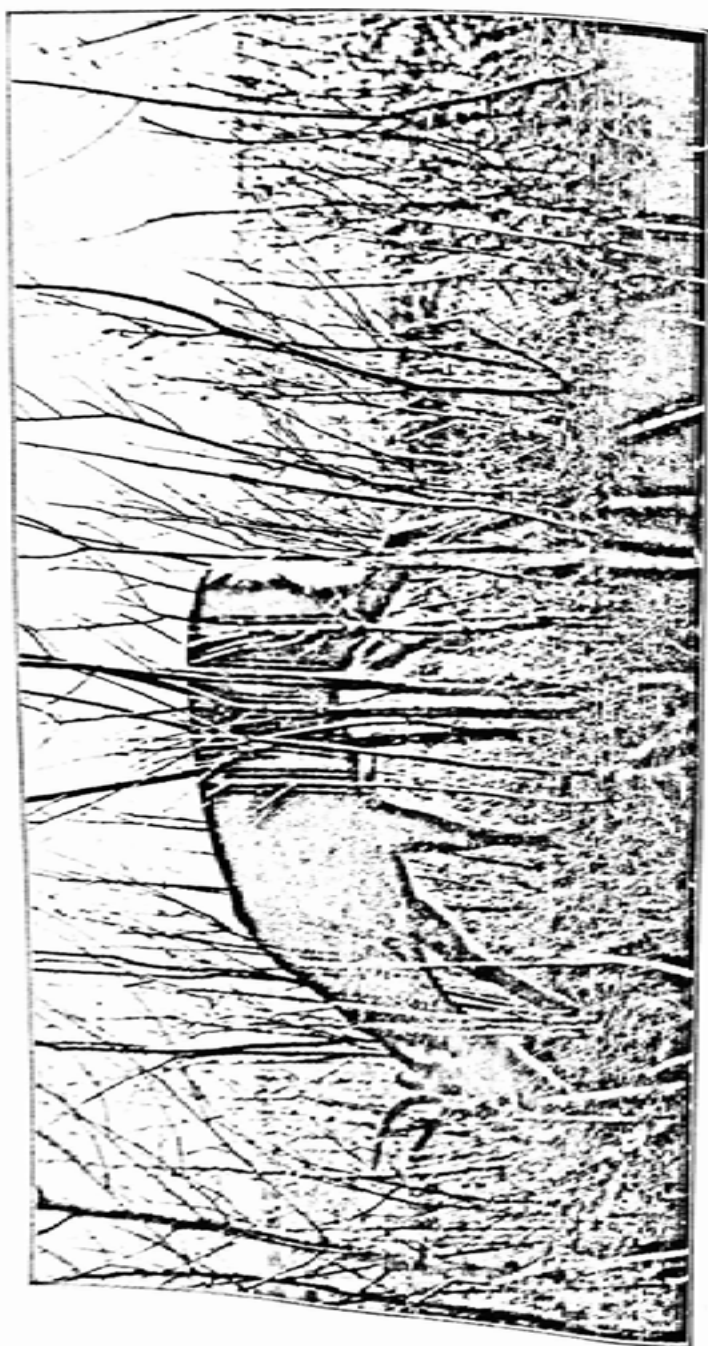
The work inaugurated by our predecessor during the year 1920 in the lake regions of the Sawtooth Mountains and the East Fork of the Salmon River Districts was continued during the year 1923. Mr. S. B. Locke, Forest Examiner of the Ogden Forest Office, who, in company with the former State Game Warden, participated in this work, was, on account of his wide experience, given full charge in 1923, and we are frank to say that we could have secured no man more eminently fitted to handle the matter. A trip was made into this district, in company with Mr. Locke, early in August of 1923, at which time many of these interior lakes were visited. Similar inspection trips were made by Mr. W. M. Keil and Mr. Locke during the past year. A detailed report of these trips and findings is included in the reports of Mr. Keil and Mr. Locke, which appear elsewhere in this report. Suffice it to say that the end of the year 1924 has found the Game Department in a better position for experimental and research work than at any time in the history of the Department. The needs of particular districts or sections of the state with reference to the species or variety of fish that should be planted, the nature and condition of the streams, etc., can now be determined. This work will be under the direct supervision of Mr. Keil, whose appointment as Fish Commissioner brings to Idaho a fish culturist of broad experience, high qualifications and national standing in his profession.

Valuable Information Secured

During the latter part of 1922, Mr. Jones, the former Game Warden, made a tour of inspection of the Selway and Lochsa River sections of the Clearwater District, the trip being made the latter part of November, at a time when he had an opportunity to observe big game on the late fall and winter ranges. Valuable



Many elk perished before salting campaign was inaugurated.



White-tail buck.

information was secured on this trip and plans outlined for affording better protection to game animals, the placing of salt at convenient places, adequate supervision and other matters relating to their welfare. A chain of six cabins had been constructed in the Selway and Lochsa Districts to maintain a winter patrol through that section, as well as to afford headquarters for trappers operating for the Department in the extermination of predatory animals. Owing to lack of time and by reason of this late inspection trip of the former Game Warden, it was impossible and thought not entirely necessary to personally visit this territory. I might add, however, that this particular district is in charge of one of the best and most capable men connected with the Game Department, whose efforts have been untiring in the betterment of conditions and who has been faithfully carrying out the ideas of the Department along conservation lines.

Feeding and Salting Game

A strong policy of protection of big game on the winter range has been adopted. Tons of salt have been purchased and transported into the Selway and Lochsa sections. Hay in large quantities has also been acquired for winter feeding, which feed has been supplemented, to a certain extent in this particular section, by the cutting down of dead or partially dead trees at points where it is impossible to procure hay. These trees, being covered with great quantities of moss hanging from the branches, make fine deer feed, which has, beyond a doubt, materially assisted in providing feed and preventing serious loss from starvation.

To investigate the possibility and practicability of establishing a game preserve on the Middle Fork of the Salmon River, in the heart of one of Idaho's big game districts, it was decided, after a conference with officials of the United States Forest Office at Ogden, to make a trip into that section early in March of 1924. This country is one of the most inaccessible in the state, if not in the west, and furnishes a winter range for countless game animals. A previous effort had been made to convert a portion of this area into a state game preserve by legislative action. The measure failed of passage.

Middle Fork Game Preserve

The idea is to afford protection to the game animals wintering there, to carry on a campaign for the destruction of predatory animals and for such regulation as



Middle Fork of the Salmon River—scenes en route April 1924.

will insure sufficient feed. Accordingly, S. B. Locke, of the U. S. Forest Service; Forest Supervisor S. C. Scribner, Forest Supervisor E. A. Renner, Forest Ranger Roscoe E. Green and Field Deputy D. C. Neifert, of this Department, left Salmon City on March 27, 1924, with the necessary equipment, including saddle and pack horses. The territory covered was Camas Creek, the Middle Fork to the mouth of Bernard Creek, up the Middle Fork as far as Marble Creek and up Loon Creek to the Falkenberry ranch, the entire trip covering a period of eight days, and taking in the greater portion of the winter range along the Middle Fork. The data and information secured by means of this trip is most valuable, and contains general plans for the development or preservation of game and other recreational resources. Mr. Locke's report, which contains a summary of conditions and recommendations, is published herein in detail.

Valuable for Game Production

To summarize, it is found that the section included within the winter game ranges along the Middle Fork of the Salmon River is a rough, rugged country, inaccessible except by trail, and includes almost as wild and undeveloped a section as can be found in the west; that there are few resources possible for development and not much can be expected along this line in the future; that the ranches are limited to strips along the river and it is difficult to operate them at a profit, that the grazing values are low and, although fairly well timbered, game forests are principally limited to lodge pole pine near the headwaters or yellow pine benches along the river which are limited in area; that it is valuable mainly for game production and for recreational features, hunting, fishing and the study of wild life. It is accessible to pack outfit travel from six different routes. It is recommended that, owing to the heavy loss from predatory animals, a predatory animal campaign be carried on in connection with the Forest Service and Bureau of Biological Survey.

Enforcing of Buck Law Difficult

An absolute prohibition of hunting is unnecessary but it is suggested that a buck law be applied to the entire Middle Fork drainage, by reason of the fact that does and fawns congregate in numbers along the river before the season closes, while the bucks are to be found back on the higher ridges. It is also recommended that, by reason of the fact that the propagation of game de-

mands the highest possible production of forage, this will necessitate restrictions in the use of the winter ranges by live stock. Some of these recommendations have already been carried out, particularly with reference to a campaign for the extermination of predatory animals in that district. States which have adopted the buck law are not entirely satisfied with the workings of a statute of this nature. There would be the difficulty, also, of enforcing a buck law within a certain strip of territory, unless such buck law applied to the entire State of Idaho, or to all of the adjoining counties. The various recommendations referred to will be acted upon as fast as possible and reduction in grazing permits or even the exchange of lands can probably be brought about.

Report of S. B. Locke

There has been a general recognition by Forest Officers, the State Game Department, and sportsmen that the section included within the main drainage of the Middle Fork of the Salmon River is of high value and importance as a big game area.

All land along the river, which might otherwise have been classified by the Forest Service as agricultural, has been withheld from listing on account of its high value as winter game ranges. The State Game Department two years ago proposed the designation of a strip along the river as a State Game Preserve, and various associations of sportsmen have expressed a desire that this section be designated in some way as a big game area.

In order to obtain more specific information regarding game conditions on the winter range, develop a program of cooperation with the State Game Department, and decide upon a definite policy for administering the area, an inspection was arranged by the following: Chief Field Deputy D. C. Neffert of the Idaho State Game Department, Forest Supervisor S. C. Scribner, Forest Supervisor E. A. Renner, Forest Ranger Roscoe E. Green, and myself. We met Forest Ranger Hallcraft at the Marble Creek Ranger Station. Leaving Salmon City on March 27 transportation by wagon or sled was had to Myers Cove, where saddle and pack horses were obtained. From this point rides were made covering Camas Creek, the Middle Fork to the mouth of Bernard Creek, up the Middle Fork as far as Marble Creek, and up Loon Creek to the Falkenberry Ranch, spending a total of eight days covering the greater proportion of the winter ranges along the Middle Fork.

Deer.

There were a few deer on Camas Creek as far up as Myers Cove, where one was seen which was probably being run by coyotes. A few deer or tracks were seen down Camas Creek and one small bunch at Dry Gulch, but less than 10 between Myers Cove and the Middle Fork. Below the mouth of Camas Creek on the main river deer were abundant and about 100 were seen from there to the Mormon Ranch. During the next day about 150 deer were seen between the Mormon Ranch and Bernard Creek. That evening Mr. Neffert saw 168 on the bench east of the Mormon Ranch.

The following day 130 deer were counted between the Mormon Ranch and White's Creek, all but 25 of these being above Camas Creek. During the next day's travel about 200 head were counted from White's Creek to Cameron's Ranch and 275 from there to Marble Creek, these being principally on the bench above Cameron's Ranch and above the lower Osborn place. Later in the evening Mr. Neffert counted 49 head above the Marble Creek Ranger Station. Upon the return journey not as careful counts were kept but several large bunches were seen in basins where none were observed on the trip up the river. Not to exceed 30 deer were counted on Loon Creek to the Falkenberry Ranch. It is believed that a conservative estimate of the deer on the winter ranges along the Middle Fork from Big Creek to Marble Creek would be 6,000 head, and very possibly this figure should be set at 7,000 head.

At the time of our visit the deer were low down along the river in order to obtain the green grass which was just well started at that time. They occurred principally along the open slope and benches in the more open country. Ordinarily the bunches contained from 10 to 15 deer, although on open benches these were considerably larger. It was reported that during most of the winter the deer were scattered over the rougher mahogany covered points and not as heavily concentrated along the lower benches. There were a few areas where a heavy concentration occurred, such as in the vicinity of the Mormon Ranch, around the Ramey Ranch at Loon Creek, on the bench above the Cameron Ranch and on the point opposite Thomas Creek.

Practically all the deer had shed their winter coats and were in good flesh. The poorest ones were well up on Loon Creek. None of the bucks bore horns and the few freshly shedded horns observed indicated that the horns had been dropped before the deer concentrated on the lower ranges.

In a number of cases where large bunches of deer were seen, careful observations were made of the proportion of last year's young to the older animals. There seldom was as high as 1 young animal to 2 mature ones, the ratio being between 1 young to 2 or 3 old ones. This proportion is considerably less than on the Grand Canyon National Game Preserve in Northern Arizona, where the young and old animals are about equal in numbers. It is probable that one or both of the factors of predatory animals or the ruggedness of the country influences this, the first influencing the survival of the young and the second the fawn crop.

Mountain Sheep.

A bunch of 10 mountain sheep were observed on Camas Creek. Four more were seen on the opposite side of the river from Apparajo Hill below Camas Creek, and a bunch of 8 below the mouth of Norton Creek. The proportion of young and mature animals was about the same as for the deer. No rams over a year old were seen and it is probable that these were on higher ranges. It was reported that there were considerable numbers of mountain sheep along the Middle Fork below the Mormon Ranch, one man stating that there were at least 300 head between there and Waterfall Creek.

The ranges occupied by the sheep were in all cases the more rugged portions among the cliffs, although below Norton Creek, deer and mountain sheep occupied the same ranges. Like the deer, the sheep had evidently come down low for the green feed. They

were in good flesh, but some of the old ewes had not fully shed and their coats were very taggy.

Mountain Goats.

None of these animals were seen and their range is principally along the canyon of the river lower down than we went. They range on both sides of the river from Soldier Creek down.

Elk.

There are at present no elk on the south and east sides of the Middle Fork. Some have been ranging on Marble Creek and upper Big Creek on the Idaho Forest. At several places on Big Creek on the Salmon Forest, on the way in, old horns were observed. This country in general should be well adapted to elk.

Forage Conditions.

The ranges on the middle Fork of Salmon River are for the most part rough and broken. The north slopes are generally timbered, or if not have a considerable proportion of the cover of browse. The southern exposures are open and the main forage plant is wheat bunch grass. Some of the lower benches also support a growth of sagebrush. The rougher points are very often covered by mountain mahogany.

Near the ranches the forage shows signs of past over-utilization, but over the greater part, is still in good productive condition. A clear indication of overgrazing is the presence of the "June grass" or cheat grass (*B. tectorum*). The areas showing this past overgrazing to the greatest extent are in the vicinity of the Ramey Ranch and on the north side of the river above White's Creek. Most of the browse is in good condition, but in places the bitter brush (*Kunzia*) has been closely grazed by deer. This occurs on the edge of benches where the deer congregate.

The soil is loose and sandy and for that reason heavy utilization is dangerous, particularly at seasons when there is considerable moisture in the soil.

While this investigation was in progress the deer were feeding principally upon the new grasses which were just beginning to make good growth. At other seasons they utilize more of the small browse, such as snowberry, bitterbrush and service berry, and when the snow is the heaviest feed principally in the thickets of mountain mahogany. They utilize the bunch grass extensively and it is safe to say that this furnishes the major porportion of their feed on these ranges.

The enclosed map indicates specifically the use of the ranges within the winter game area by domestic livestock. This is confined to cattle grazed under permit by ranch owners within the area. There are grazed on the strictly winter game ranges not to exceed 175 head of cattle and 50 horses. The present stocking cannot be considered to be sufficiently heavy to cause damage to the range as far as continued forage production is concerned, except if the stock is turned out too early in the spring when the feed is tender and the ground soft. This, of course, does not take into consideration the use of forage that might be needed by deer during hard winters. Providing there was no conflict with the deer in the use of this range, it would support all the stock which could be fed on the ranches until the proper season for turning them on the Forest. There is a tendency for these ranch owners to build up their herds to a greater number than can be properly fed by the hay

produced so that it is necessary to turn them out so early that damage results to the range or heavy losses occur during severe winters.

Predatory Animals.

This section has been long known as a favorite range for mountain lions. The capture of these animals for the bounty and local residents. Under such circumstances there must be heavy losses among the deer from this source. Thirteen lions were taken in this section during the past winter. These are generally taken with dogs, but a few are trapped. There could easily be 75 cougar, probably more, in the Middle Fork drainage and these would destroy several thousand deer annually. The mountain lions are fond of mountain sheep meat and have been known to persistently hunt a band of sheep until few of them were left. One fresh track of a mountain lion was seen on Loon Creek just above the Middle Fork and a fresh kill seen above the Leacock Ranch on Napias Creek.

The coyotes in this section are the large mountain type and depend on deer to a considerable extent for food, particularly in winter. It is understood that they often drive deer into the ice where they catch them or the deer fall through the ice, which often freezes when gorged so that a thin layer of ice is left several feet above the water. Several instances were described by settlers along the river where deer were killed during the past winter by coyotes. The fact that a large number of coyotes are on the winter deer ranges when other food is scarce and the fact that these coyotes are known to have no serious difficulty in killing deer would indicate a heavy loss from this source. It is also probable that a considerable number of fawns are killed by coyotes. Fresh coyote tracks were seen generally throughout the trip.

Although bobcats are neither as plentiful as coyotes nor as destructive as mountain lions, they are capable of killing deer and are not uncommon on these ranges.

The mountain sheep and mountain goats, while not as liable to be killed by coyotes as the deer, may be captured by mountain lions.

One method of loss is by deer attempting to cross the ice where it is thin and the water has drawn down from under it. If a deer breaks through it is very difficult for it to get out again. Three deer carcasses were observed in the water, these probably having either been killed by predatory animals or by falling through the ice.

It is possible that the great abundance of ticks would lower the vitality of an animal which became badly infested. These ticks must be bad for the young fawns also, just how much so is of course unknown.

Young deer, mountain sheep and mountain goats are to a certain extent subject to attacks from eagles, according to reliable information from people who have been on these game ranges.

Possible Game Production

The stock of game in this section in the past was no doubt controlled by the forage, which, in severe winters following short forage production, would cause starvation; by predatory animals, which when unchecked by man made a heavy drain on the game;

and by hunting, which was carried on yearlong by the Indians and early settlers.

These factors still influence the number of game animals produced, but the location of ranches and the resultant bringing in of livestock, the checking of predatory animals by hunting and trapping, and the hunting, while by a greater number of hunters, being at a limited season, have changed the relative effect of these. The heaviest losses in recent years occurred in 1919 when a short forage year was followed by a very severe winter, and the damage to the game was identified by the presence there of several herds of sheep. There was an insufficient amount of hay to feed these sheep and the greater proportion of them were lost before spring. There were also heavy losses among the cattle during that winter.

If the forage production of this area is protected and the forage is preserved for the deer it would be possible to maintain a considerably larger herd than there is at present. Unless for an exceptional winter there would be ample feed for 10,000 deer here, but it is very probable that in very severe winters losses would occur even with the present numbers. Because of this danger, if the full game production is to be maintained, it will be necessary to make all possible provisions for the preservation of the forage crop, which in average years would leave unutilized feed.

Besides the deer there are also mountain sheep and mountain goats in this section, which if given ample protection from predatory animals should furnish hunting. At the present time, however, neither of these animals are sufficiently abundant to justify an open season. Black bear are common and can also be counted a game animal here.

Other Recreation Values

Although the game values are outstanding in importance, the entire Middle Fork section is one of high value for recreation purposes. The scenery is rugged and of a variable character. The forests are attractive and the Middle Fork of Salmon River is a beautiful stream wholly within timbered areas on the National Forests. The fishing is excellent and even with a greatly increased use by recreationists there will always be miles of stream which nobody will fish.

Value as a Wilderness Area

There are a number of factors which make this section one of particular importance for an application of the wilderness area idea. A recognition of the values for big game production and its administration require certain provisions which make the idea of a wilderness area more applicable. The principal reasons making this so adapted to such a type of development are: the possible heavy production of game; the other natural factors which make this section so desirable to the wilderness seeker; the large number of directions from which it is accessible; the difficulty of making it easily accessible; the lack of values to be developed by opening it up; and the abundance of timber and good water which makes it possible for a considerable use for recreation purposes without the loss of the attractive features or overcrowding. The only drawback to such a policy of administration would be in possible modifications in the protective plan in opening it up to roads or withholding grazing from certain sections. If any such

section is to be considered for designation and management for such a purpose, this area seems to be particularly suitable both from its positive value for recreation purposes and its lack of development values. Specific recommendations for such a reservation are not being made, but it is desirable to have the matter receive consideration. It is improbable that any development inconsistent with such a use will take place in the near future.

General Plan of Game Administration.

Because of the lack of high values for any conflicting purposes and the great possibilities of game management, the policy should be to bring the game production up to the highest point. There should be provision made for curtailing as far as is possible the grazing of domestic stock on the winter game areas. No sheep grazing should be allowed on areas occupied by the game during the main winter season and it is believed that this condition is already met. The cattle grazed should be limited to those of local ranch owners and only then for the number of stock for which they raise sufficient hay to carry them through the average winter when allowed to graze on the Forest at such times as can be done without excessive injury to the range. The full possibilities of production can only be attained by the acquiring of the ranches, the elimination of the stock, and the use of hay produced there for feeding game during severe winters. Since there is in all cases a concentration of deer in the vicinity of these ranches, the hay available would save several thousand deer from starving during the few winters when such losses would ordinarily occur. Since the curtailing of the grazing use would cause the ranch property to become valueless, some provision must be made to obtain these before reductions are made below the number of stock which can be wintered on hay raised at the ranches. Where private land is unimproved it may be possible to obtain title to it for the Government through exchange, but the improved ranches might be purchased by the State Game Department, although a lack of funds might make it necessary to spread the purchase over a period of years. In this connection it might be mentioned that the State land in Section 16, T. 16 N., R. 12 E., is of high value as game range and intensively used by deer. The Buck Culver Ranch, now owned by the State, is also of high value in the administration of the game ranges. Unless some provision for purchase is worked out it will be necessary to issue permits for the number of stock for which the local settlers can raise hay for wintering, since any other action would practically mean the confiscation of the ranch property.

Since heavy losses are occurring from predatory animals one of the most necessary measures to increase production will be their control. In this work there can be co-operation between the Forest Service, the State of Idaho, and the Biological Survey. Our men at Marble Creek or White Creek, Loon Creek, and Camas Creek can give a considerable amount of time to this work and Government or State trappers can be located at intermediate points.

For the immediate needs use could be made of the Buck Culver place, now owned by the State, and the abandoned Clark place at the mouth of Bernard Creek.

It is desirable to maintain and increase the number of breeding stock but with the number of game animals in this section, the difficulty of access, and the fact that unless a very large area is

closed transportation of game through it would be necessary, an absolute prohibition of hunting is unnecessary. It is my recommendation as the most practical method of protecting the breeding stock, that a buck law be applied to the entire Middle Fork drainage. This will prevent the killing of does and fawns along the river where they often congregate in numbers before the season closes, will allow sportsmanlike hunting, and, in as rough country which will not be very intensively hunted, will unquestionably allow a sufficient number of bucks to escape for breeding purposes. A provision of this sort is necessary in order to prevent the excessive killing of does which congregate in large numbers along the river before the season closes, particularly in seasons of early snowfall. The completion of trails and roads make this country much more accessible than formerly and more hunters may be expected than have been here in the past. There is a tendency among a number of the hunters to hunt close to the river where they find does and fawns rather than back on the ridges where most of the bucks range during the hunting season. Certainly in a country where deer are as plentiful as here it would not be unreasonable to require the taking of bucks only.

Elks were originally found in this section and may eventually become established again by drifting in from the Chamberlain Basin Section or from the Payette Game Preserve. This will be very slow, however, particularly for the east portions. It seems well worth while to make a planting of elk which could be brought in over the Morgan Creek summit and turned loose near excellent winter range. Another desirable planting section would be on the headwaters of Loon Creek. The elk drifting in from local herds are few in number and are inclined to move back again to former ranges, while those shipped in generally locate in the vicinity where they are released. Plantings of elk have been made near settled communities where only limited increase is possible without conflict with other uses. This is a section where a large elk herd could be maintained without any conflict of consequence with other activities or development.

Any plan for the development or preservation of game and other recreation resources should consider the maintaining of the fish supply. Planting with hatchery fish is difficult, but it seems desirable to undertake enough of it to establish the rainbow trout in headwaters accessible to automobile trucks. As automobile travel increases it will be desirable to place some restriction on the taking of spawning salmon in the headwater streams.

In order to avoid confusion, and since this is a meandered stream it should be designated in the game law as navigable to mouth of Pistol Creek and therefore open to fishing yearlong.

Summary of Conditions and Recommendations.

The section included within the winter game ranges along the Middle Fork of Salmon River extends from Marble Creek about sixty miles along the river and back from the river from a few miles to fifteen miles. This is a rough, rugged country, inaccessible except by trail and in connection with areas farther back from the river includes about as wild and undeveloped a section as can be found in the west. There are very few resources possible for development and not much can be expected along this line in the future. The few ranches are limited to strips along the river and it is difficult to operate them with a profit. It is so

far from settlements or shipping points and so rough that the grazing values are very low. Although fairly well timbered, the commercial forests are principally limited to lodgepole pine near the head-limited in area.

The most positive values are for game production, with also a high potential value as an area to be preserved in a relatively wild condition. The settlement and development of the west leaves few places where the demand for a wild, undeveloped area may be met, but owing to the natural features making this section suitable for such use and the lack of values for development purposes it is particularly well adapted for such a purpose. There are offered recreation features, hunting, fishing, the study of wild life, and camping in a section having many natural attractions and a past history which adds much to its interest. It is accessible to pack outfit travel over at least six different routes.

The production of game demands the highest possible production of forage on the winter ranges which will necessitate restrictions in the use of the winter ranges by livestock. Grazing should be permitted only by cattle fed during winter on local ranches. As rapidly as possible, by means of exchanges for Government land or purchase by the State, these ranches will be taken over and used to increase the feed available for deer. Hay can be produced which will be available during very severe winters.

There are heavy losses from predatory animals and an active campaign for their control is very essential and should be worked out by the co-operation of the State, Biological Survey and Forest Service.

The breeding stock is not as great as it can safely be and there is danger of its being reduced if does are allowed to be killed. Road and trail development in this and adjoining country make it more accessible and increase the number of hunters. The natural concentration of does and fawns along the river while the bucks are still on the higher ridges increases the liability of their being shot. There are various difficulties in designating and administering a game preserve along the river and the application of a buck law to this drainage should give ample protection.

Elk formerly ranged here and it is desirable to restock. Two plantings would form the nucleus for an excellent herd here and are recommended rather than to wait for elk to possibly drift in from adjacent ranges.

The proper maintenance of the fishing necessitates at least the planting of rainbow trout in the headwater streams.

S. B. LOCKE
Forest Examiner

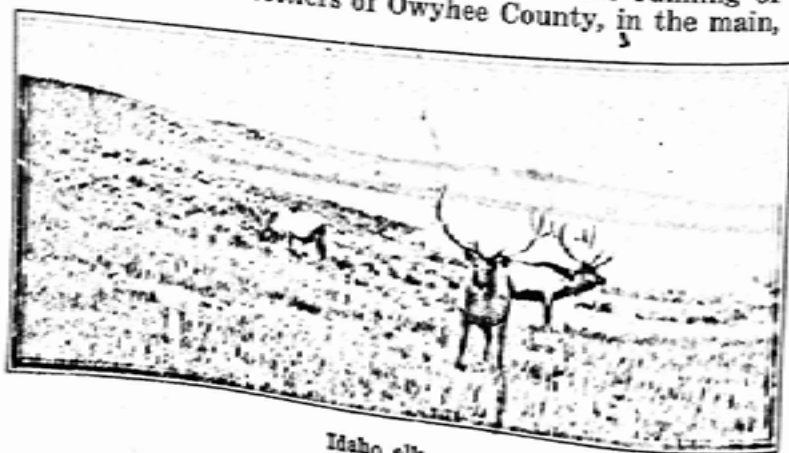
INTENSIVE SURVEY OF OWYHEE COUNTY

There being a dearth of information relative to certain portions of Owyhee County, an intensive survey was made of that portion occupied by one of the last remaining herds of antelope in the state, this herd numbering from 700 to 1,000 head. Adjoining, but in the State of Oregon, is also found a considerable number, these animals ranging back and forth across the state line. Their range embraces the high plateau drained by the

Owyhee River, reaching an altitude of from 4,500 to 6,000 feet. In the central portion of this range is located what is known as Juniper Mountain, a large body of high hills, approximately ten to twenty miles long, covered with juniper and mountain mahogany. It is well watered and well stocked with mule deer, which have increased considerably since the closed season was established in this county. Juniper Mountain is not used by the antelope, which occupy only the high open plateau. The main plateau, with the exception of the heavily wooded parts, is used by the antelope as spring, summer and fall range, remaining there from April until the depth of snow compels them to leave for their winter range.

Federal Preserve Proposed

This range is generally understood to consist of a low, desert-like plateau, lying south of the main Owyhee River. There are few settlers and only a few roads suitable for auto travel. A large number of cattle and horses use this territory, which is decidedly overgrazed. Realizing that, unless some steps are taken, the last remaining herds of antelope in these western states will entirely disappear, the federal government has been endeavoring to set aside certain areas of Owyhee County, Nevada and Oregon as refuges for these animals, but thus far without success. The lands in contemplation for this purpose are used primarily by cattle and sheep men, who fear that anything in the way of a state or federal game preserve will conflict with the running of their stock. The settlers of Owyhee County, in the main,



Idaho elk.

however, I believe, favor regulation, and if they thoroughly understand that the creation of a game preserve in a portion of Owyhee County will not mitigate against them but that regulation will, in all probability, conserve their interests, no doubt all objections will be removed.

Results in Other Preserve

We can then have their united support in our efforts to save the remnants of this herd of antelope, as well as to protect the sage hen.

A detailed report of the survey made and actual conditions in Owyhee County is on file in the Game Department.

Further research work was conducted on the South Fork of the Payette River, in what is known as the Payette Game Preserve. At the time this preserve was created, it contained about twenty-five or thirty head of deer and elk. An estimate of the game now in this preserve includes from twenty-five hundred to three thousand deer, six hundred elk and seven hundred goat. From time to time, considerable losses have been sustained game animals from different causes, primarily through the severity of winters, predatory animals, and where a scarcity of feed has existed, through starvation. During the past two years, we have made every effort to anticipate these needs and have maintained plenty of hay, some twelve tons now being stored at the Lick Creek Ranger Station for winter feeding, if necessary, besides planting tons of salt for the use of game.

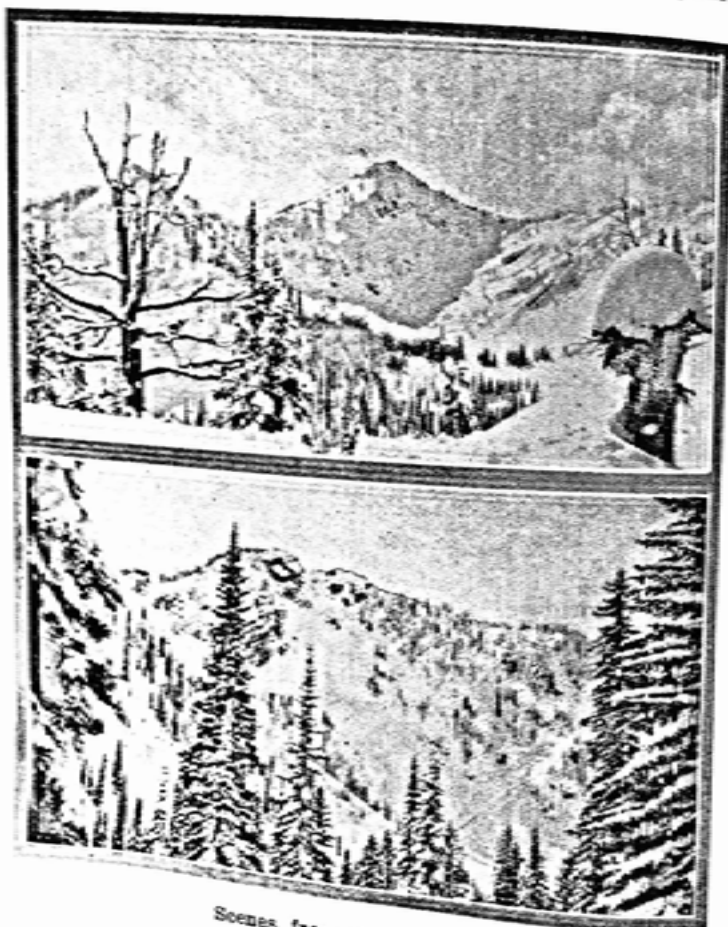
IDAHO'S GAME CONDITIONS

Idaho, with its forests, hills and vast open spaces, offers a wide field. If you can visualize a state of some 83,000 square miles in area, extending from the international boundary line on the north to Utah and Nevada on the south, with every county from Boundary, in the extreme north, to Bear Lake in the southeast, teeming with game, you will gain some idea of Idaho's wonderful possibilities. Sage brush and desert, barren country, interspersed with thousands of acres of highly cultivated lands, orchards and timbered regions, together with high rocky peaks, afford a constant change of scene and a panoramic vista of rare beauty. A climate varied but almost perfect and adequate cover furnish conditions second to none for the propagation and conservation of Idaho's wild life.

Undoubtedly, almost all species of game are increasing. This is due largely to active patrol and strict supervision on the part of the Department, supplemented by feeding during the winter months, the planting of salt in various sections, the destruction of predatory animals, which prey upon game on the winter range, and the more or less favorable climatic conditions.

Game Becoming More Plentiful

Reports received from our Deputy Game Wardens indicate that big game wintered in fine shape, with a very small percentage of loss, and, not in ten years,



Scenes from the Selway.

has big game been as plentiful as was shown in the hunting season of 1924. Deer, in particular, have increased to such an extent that it was no uncommon sight to see them in numbers within a few miles of the centers of population. Few indeed were the hunters who were unsuccessful in securing the legal limit. This condition was not confined to any one locality but is general throughout the state.

For the benefit of big game hunters who are not familiar with hunting conditions in Idaho, we are describing as briefly as possible certain sections which are veritable paradise for the hunter. Of these and entirely unsurpassed is the section known as the Idaho-Clearwater country, embracing the watersheds of the Middle Fork of the Clearwater and the Selway and Lochsa Rivers. White tail deer are plentiful on both sides of the Middle Fork of the Clearwater River, as well as its tributaries. Sutler Creek, Maggie Creek, Swan Creek and Smith and Wilson Creeks, on the north side of the river, and Clear Creek, on the south side, can now be reached by auto.

The Selway Unsurpassed

On the Selway several creeks, including Cedar, Goddard, Swiftwater and O'Hara Creeks, on the south side, and Redcliff and Nineteen-Mile Creeks, on the north side, may be reached by car, all of these furnishing fine hunting for white tail deer. Game birds, including ruffed grouse, are abundant. Numerous bear may be found here in the early fall. The Lochsa River above Bimmerick Creek, is inaccessible. Pete King, Canyon, Glade, Deadman and Bimmerick Creeks, on the north side of the Lochsa, and Coolwater Creek, on the south side, are accessible, and some elk are found on these creeks. Good hunting grounds may be found on the creeks heading on the divide between the North Fork and the Middle Fork of the Clearwater. White tail deer and elk are most plentiful and mule deer are found as well, while blue and ruffed grouse may be seen in abundance on the lower ridges. On the Selway River, deer are very numerous all along above the falls, mule deer predominating, especially on the higher ridges. Elk are found on all tributaries of the Selway, the best hunting grounds being on Meadow, Fog Mountain, Balingler, Three-Link and other creeks. Many mule deer, bear and grouse are found in this district.



Mountain goat—the reward of skill and endurance.

Lochsa and the Lolo Trail

All of this territory can be reached by trail up the Selway River and it is good hunting ground and safe so far as weather conditions are concerned, the Selway trail usually being open for a considerable length of time after the close of the hunting season. The hunting grounds on the Lochsa, above the wagon road, can best be reached by way of the Lolo trail, Kooskia being the best outfitting point for both trails. In the lower levels or foothills of the Clearwater, grouse, Hungarian partridges and quail are abundant. Goat, also, are numerous anywhere along the high summits. At the present time, however, there is no open season on mountain goat in Idaho and Clearwater Counties, nor on Hungarian partridges. Our Warden, who has supervision over the territory above described and who has been instrumental in salting the licks on the Selway Game Preserve, advises that elk are seen by the hundreds along these salt licks. On one trip to Old Man Lake, he saw thirteen elk and one moose in the lake, and, at another time, just at sundown, thirty head of elk were counted going up a steep ridge; outlined against the setting sun, he could count the points of the bulls' horns.

Moose Indicate an Increase

This Warden reports that moose have increased fifty per cent within the last four years and not less than fifteen per cent within the last year. They are becoming more plentiful and all one needs to do to see a moose is to find a pond. If Mr. Moose is not there, he will be within a short time. The scenery in this section is magnificent, notably the Crag Mountains, situated between the Lochsa and Selway Rivers, in which beautiful lakes are to be found nestling under the high peaks.

Another good game section is that known as the Middle Fork of the Salmon River. This particular section is more fully described in the report of Mr. S. B. Locke, which is published herein, covering an inspection trip of the district made early in March of 1924. Briefly the Middle Fork of the Salmon River is one of our best deer hunting grounds, and can be reached by pack train from Challis via Twin Peaks and down Warm Springs Creek; from Challis by way of Morgan Creek and down Camas Creek, or by way of Morgan Creek and Forney to Myer's Cove and down Camas Creek. The same territory can also be reached by way of Loon Creek.



Huffed grouse, Chinese pheasant and Hungarian partridges provide good shooting

Many Feasible Routes for Travel

There is an auto road from the Sunbeam Dam to Sunbeam Mine of about ten miles. Cars have gone in as far as Loon Creek Ranger Station but from the Sunbeam Mine to this station the road is not good. If desired, one can go by auto from Stanley to Seafoam about forty miles and from there into this section by way of Cape Horn. All of the above routes are from the Custer County side. Ingress may be had, also, to the Middle Fork country by way of Cascade and Knox, in Valley County. From these latter points, travel is entirely by trail. For deer and goat this section is also unsurpassed. The sections described, together with the Panhandle country as far north as Bonner County, the Warren District, the territory on the East Fork of the Salmon River and what is known as the Island Park region, in Eastern Idaho, all abound in game. A conservative estimate of the deer on the winter ranges along the Middle Fork of the Salmon River is placed at about 7,000 head. These are the principal and best known big game hunting districts in the state.

Liberal Supply of Native Game Birds

In addition to big game, Idaho is very fortunate in having a liberal supply of native game birds, which are found to a greater or less extent in all of the state's forty-four counties. Climatic conditions for the past three or four years, however, have not been favorable to their increase. Approximately thirty days of rain and cold weather during the months of April and May of 1923 occasioned a greater loss of birds than possibly would have occurred under normal conditions or through excessive shooting. The year 1924 was exactly the reverse. In Owyhee County, during the year 1922, sage hens were almost gone. This year, on account of the extreme dryness of the season, they have come back. I might say there are more birds today in Owyhee County, even though they appeared extinct last year, than there have been in years. This is so in many other sections. Bountiful crops of these birds were reported in all of Southern Idaho. At the same time, on top of a wonderful hatching spring, which, by its very dryness or lack of rain, practically repopulated numerous counties, where sage hens and other game birds were becoming extinct, came the continued drouth—a serious water shortage threatened, which would spell disaster or extermination if an open season were permitted during 1924.

Drouth Both a Help and a Hindrance

With no rain and our streams drying up, these birds would naturally seek every little rivulet and water hole, where the hunter could secure his limit, with no trouble at all, and with no other weapons than those provided by nature. A careful survey was made by the Department as to actual conditions and, as a result of such survey, while fully cognizant of the fact that our action would not prove popular with some of our constituents, an order was issued, closing twenty counties of Southern Idaho to the hunting of sage hens and grouse. We were actuated solely and entirely by a desire to conserve wild life and to perpetuate upland shooting. The wisdom of this action will be more fully appreciated by the sportsmen during the season of 1925 and in subsequent years. A survey the latter part of this year throughout various counties indicates an exceptionally large increase in native game birds.

The Chinese or ring-necked pheasants, which were first successfully planted in Idaho more than fifteen years ago, have increased so rapidly that in many of the counties they constitute our principal upland bird.

First Liberation in 1909

A portion of the birds shipped to Idaho in 1909 were liberated during the fall of that year in counties of low altitude, the balance being distributed through the state as far north as Bonner County during the year 1910. Unfortunately, the birds sent to the extreme northern counties, or where climatic conditions were unusually severe, did not survive. As a matter of fact, several years elapsed and there was practically little or no indication, even in favorable sections, that these birds were increasing, when suddenly, and after about five or six years, they seemed to appear everywhere and from now-where in particular. From that time on and by reason of a closed season, they multiplied rapidly, so much so, in fact, that the legislature provided at first a short open season, with a bag limit of two, which has now been extended to thirty days, with a four-bird bag limit per day or in possession.

Naturally Hardy and Prolific

The ring-necked pheasant is a native of China and was first introduced into the United States from that country, Oregon, Washington, California and British Columbia being the first to secure stockings of these birds. They are naturally hardy and prolific and, once

established in regions favorable to their propagation, only reasonable protection is necessary to insure their perpetuation for all time. These birds may now be found in almost all the counties of Southern Idaho, an open season being justified in fifteen counties of Northern and Southern Idaho. From time to time, through the efforts of this Department, and through the medium of eggs salvaged from nests destroyed in haying or irrigating and subsequently hatched under domestic fowl, additional counties have been planted, such plantings being made as far north as Bonner County, and, in almost every instance, the birds so planted are showing an increase, so that it is merely a question of time before ring-necked pheasants will be common in practically all of our counties.

"Bob White" Real Game Bird

We also have in Idaho four varieties of quail, including the Bob White, mountain, valley and Mexican blue quail, the latter having been imported from Mexico, and planted in certain sections of Idaho in 1920. Already the blue quail have adapted themselves to climatic conditions and numerous coveys are being seen throughout the sections stocked.

The mountain quail is, by reason of its plumage and markings, the most beautiful of the quail family. Red in coloring, with long, nodding black plumes and alert carriage, it has a particular air of distinction. It cares nothing for the lower levels but seems to prefer a home where the air is purer, and is to be found in mountain valleys and rocky gulches. This species of quail is not very plentiful, but of late years is on the increase in certain sections of the state. They are twice as large as the Bob White, real game birds and eminently able to protect themselves if given half a chance.

The valley quail, similar in habits, are equally handsome, although with different markings. They are smaller and prefer the valleys to the mountains, although they are sometimes found in places of higher elevation. They are confined mainly to Southern Idaho, are very prolific and increasing to a large extent.

Importation of Hungarian Partridges

Last, but not least of our upland birds, comes the Hungarian partridge, which it is believed will prove the game bird par excellence. It is found in flocks very much like the quail and is nearly three times as large. The head and throat are a reddish brown, with faint red-

dish stripes on the crown. The neck and other parts of the body are bluish gray, with a large brown spot on the breast. The wings are brown, mottled with gray and yellow. From all the information we can obtain, the first Hungarian partridges liberated in this country were secured by the State of Washington, about fifteen or twenty years ago. From this shipment, number unknown, and subsequent plantings, the birds evidently spread all over the State of Washington and have extended, also, through numerous northern counties of the State of Idaho and as far south as Kamiah, in Lewis County. The Idaho Department, being unsuccessful in securing plantings of these birds from the State of Washington, or by trapping in Northern Idaho, has, within the last three years, imported several shipments from England, which birds have been planted in various counties in Southern Idaho. It is too early as yet to forecast the result of such planting. Information, however, is to the effect that in many sections several coveys have been seen, indicating that the birds are doing well and increasing rapidly.

Winter Well in Cold Regions

They seem to winter well in the north, where the winters are severe, and since they survive the extreme cold weather of Canada, it is reasonable to assume that, within a short space of years, Hungarian partridges will have spread over the entire State of Idaho, and will constitute one of our principal game birds. In the matter of food, they depend, like the quail, on insect life, weed seeds and grain for subsistence. The Hungarian partridge is conceded to be as game a bird as any sportsman could desire.

Ducks, it would appear, are increasing as the shooting in 1923 and 1924 has been better than in former years. It is claimed by the U. S. Department of Agriculture that migratory water fowl are largely on the increase. Locally, however, I am in doubt as this apparent increase might be occasioned by a centralization of the birds on account of the drainage operations where their natural feeding grounds or refuges have been, to a certain extent, destroyed. On the whole, water fowl hunting has been better in Idaho. Through the establishment of refuges, such as that of the Deer Flat, which afford these birds protection, they are caused to congregate at some particular point.

Extension of Season Suggested

The open season for migratory water fowl in Idaho, in our opinion, starts too early, and such season should be extended to close the 15th day of January. The open seasons on migratory water fowl, however, are fixed by zone; in other words, a separate open season cannot be provided for each state where there is a similarity of conditions. Idaho is in the same zone as that of Eastern Oregon and Eastern Washington and an effort was made in 1922 to amend the federal statutes, providing for the extension referred to. It was, of course, necessary to secure the concurrence and support of these other two western states to the proposed change. It is our understanding that the Advisory Committee of the Migratory Bird Treaty Act, in session in Washington on December 14, 1922, approved the proposition of changing the season in Eastern Oregon, Eastern Washington and Idaho, but subsequently, or under date of April 2, 1923, we were formally advised by telegram from W. C. Henderson, Acting Chief of the Bureau of Biological Survey, that Washington and Oregon having failed to take favorable action, the change of season should not be adopted.

Oregon and Washington Must Join

We are now making effort to have the matter opened or reconsidered, and, under date of November 22, 1924, wrote the Chief U. S. Game Warden, Mr. George A. Lawyer, that it is the consensus of opinion of the sportsmen of the state, coincided in by this Department, that the open season for ducks and other migratory water fowl should be from October 1st to January 15th, inclusive, instead of the present season. Have referred again to the action taken in 1923 and requested that we be advised whether or not there is or can be any possibility of our securing such change, whether same has their approval and just how such amendment can be brought about.

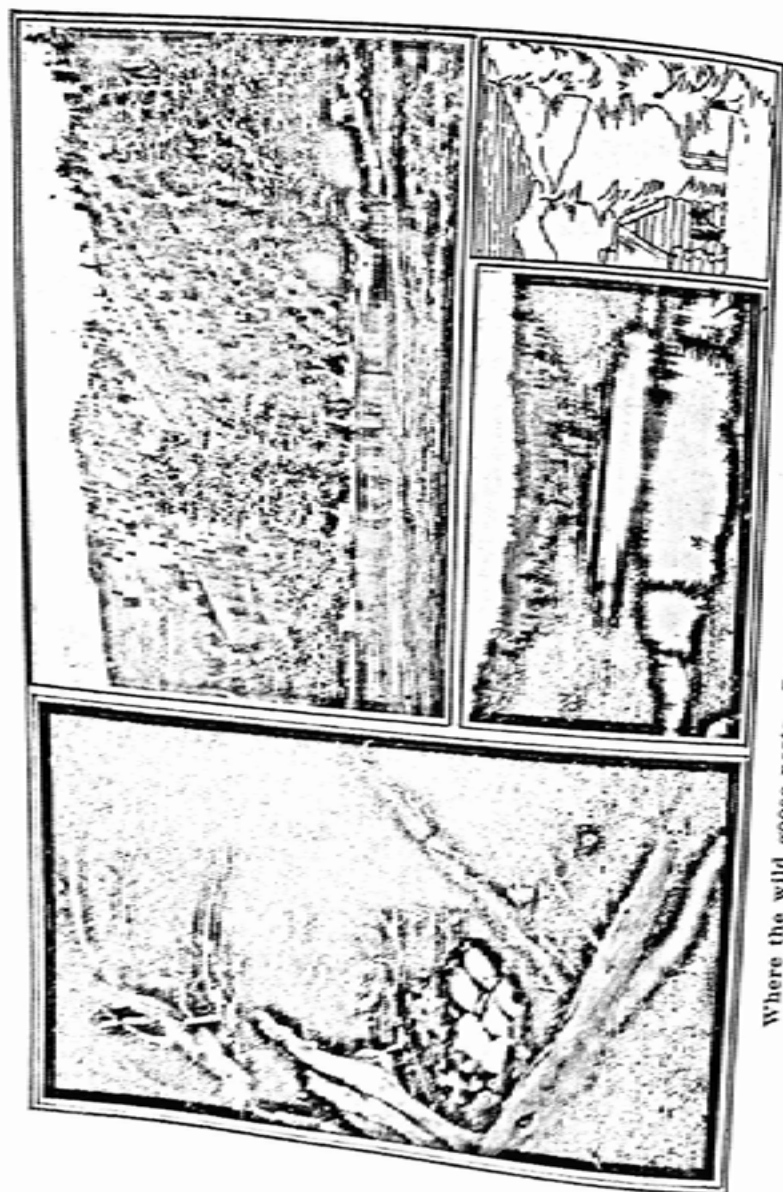
During September of 1924, ducks were reported dying in large numbers at Mud lake, in Clark County, and that, not only were wild ducks affected, but native or tame ducks exhibited the same symptoms, as well as hawks and other birds feeding on the flesh. This report was promptly investigated by an assistant chief deputy game warden, who had been instructed to make immediate investigation.

Peculiar Malady of Water Fowl

This warden reported that a thousand or more dead ducks had been seen by him and that, in his opinion, the loss was occasioned by the foul condition of the water, which, at the time of the investigation, was at the lowest point in many years; that all water in that section was very strong in alkali and, owing to its low condition, was full of decaying weeds and other vegetation; in fact, about as foul as it is possible for any water to become. The majority of the ducks which died had crawled to shore and all sick ducks were unable to raise from the water, seeming to be affected in the back or legs. He further reported that no sick or dead ducks were in evidence in Camas Creek nor the mouth of Mud Lake nor in any of the small lakes having streams of spring water running in. Apparently, he stated, the condition was caused by the state of the water, and the ducks which had died or were sick were of a small variety, a majority of which were bred at the lake.

Alkali Poisoning the Cause

Having in mind that the State of Utah had been obliged for years to fight what was thought to be a similar condition or malady in the marshes of Great Salt Lake, and believing that the condition could be attributed to alkali poisoning, we wrote D. H. Madsen, Fish and Game Commissioner of Utah, for information as to just what in his opinion, occasioned this disease, and what remedy, if any, had been employed. The letter received from the Utah Commissioner stated he regretted our ducks were affected with a disease similar to that found in the State of Utah; that it was, in fact, the most destructive agency to wild life which has ever come into the country; that the State of Utah is still experiencing a loss in ducks or water fowl on this account, and that the only worth while remedy which they had discovered is to go into the areas where the ducks are affected and shoot out all the well birds, in an attempt to keep them out of such areas; also to gather the dead birds and bury them. It is evident that the malady which affected the Idaho ducks is the same as that which exists at the marsh lands of Great Salt Lake, for which Dr. Alexander Wetmore, of the Bureau of Biological Survey gave his theory of the cause but for which no remedy has yet been provided; in all probability, alkali poisoning is the cause. It is hoped, since Idaho has never before experienced anything of a similar nature, that this condition



Where the wild goose nests—Coeur d'Alene River and interior lakes.

was superinduced by the drouth or shortage of water during 1924, which might have occasioned a higher percentage of alkali. A careful watch will be kept and a scientific research made, should there be a repetition of this disease in 1925.

CENSUS.

Without an annual inventory or account of stock on hand, no company, corporation or business could operate in a profitable manner. It could not be determined whether a gain or loss had been sustained. The same rule applies to fish and game, which also should be placed on a sound business basis, in order to ascertain whether various species are increasing or decreasing. In the absence of this information, difficulty is encountered in securing legislation necessary to protect remaining breeding stock. The necessity of acquiring fairly accurate figures as to wild life is being brought home to the various state departments, many of which have made progress in securing the amount of game killed but accomplished little along the line of an accurate census. By reason of the vastness of the State of Idaho and the large territory assigned Deputy Game Wardens, we have found it impracticable to obtain this data unassisted. On the other hand, we have the co-operation of the Forest Service and have been aided materially in securing information as to the game animals on forest reserves, which, with the reports of our Wardens located without the reserves, gives a fair estimate of remaining game.

Increase in Game Animals

The latest summary of big game animals in the national forests of Idaho for the years 1921-23 shows an increase in all game animals, with the exception of mountain goat. Deer, which are shown as some 45,000 head, indicate an increase of almost 10,000. Elk show an increase over 1921 figures of about 2,200, or a total of 5,200 head; moose almost a fifty per cent increase, while mountain sheep are little better than holding their own. Antelope are reported as 765 head, a gain of 200 over the census of 1921. It should be understood that these figures do not represent all of the game animals found in the state but only those within the national forest reserves. One of the largest remaining herds of antelope, numbering approximately 1,000 head, and which range

in the southwestern part of Owyhee County, is not included in the above figures. Given adequate protection, through the creation of a reserve, the Owyhee antelope would, no doubt, increase to a large extent. In the Pahsimeroi Valley, there remains one of the few herds of antelope that have been maintaining their numbers, perhaps due to the attitude of the local people toward their protection.

Antelope Maintaining Their Numbers

It is extremely unlikely, however, that this herd, which numbers four or five hundred head, will show any decided increase. Other and smaller herds range in the vicinity of the Lemhi Forest and these, with approximately three hundred head in the territory adjacent to the Twin Falls-Nevada line, represent the remaining number in Idaho. Since the U. S. Department of Agriculture, beginning with the year 1924, expects to use a new form of summary or game census, which will be cumulated for a ten-year period, our field men will be instructed to co-operate with the Forest Service, to the end that as accurate figures as possible may be secured. At the present time, Wardens check out the game killed in their respective districts, taking the name of the hunter, his address, license number and species of game killed. This information furnishes the Department with the approximate, although not the actual number of game animals killed during the season. The foregoing plan of census might well be applied to our streams as well, thus indicating the increase or decrease of fish in various streams, based on an intelligent program of restocking, etc.

COMMERCIALISM OF GAME

Certain foreign countries still permit game birds and even the eggs to be sold for food but in the United States their direct sale is prohibited and is an indication of the gradual changed attitude toward wild life. Our statutes prohibit traffic in game, yet from time to time attempts are made to market certain animals, the sale of which is prohibited. The question has been raised whether or not game animals, lawfully acquired before the laws governing possession were placed on our statutes, may be sold—whether the right of legal possession does not carry with it the right to dispose of such game as the owner may deem fit. We have held other-

wise and have declined to permit game animals to be shipped or consigned to markets in Idaho for sale purposes. Regardless of whether our authority extends this far, we have, in turn, refused permission to representatives of the Federal Bureau to ship to this state big



View from the St. Louis State Game Warden's office.

game licensed to be sold on the open market. Naturally, the Department is unalterably opposed to any traffic of this nature. We would like to see the statutes strengthened in this respect, prohibiting beyond peradventure the disposal or sale of game, except possibly bear, for other than stocking or propagation purposes, regardless of how or when secured.

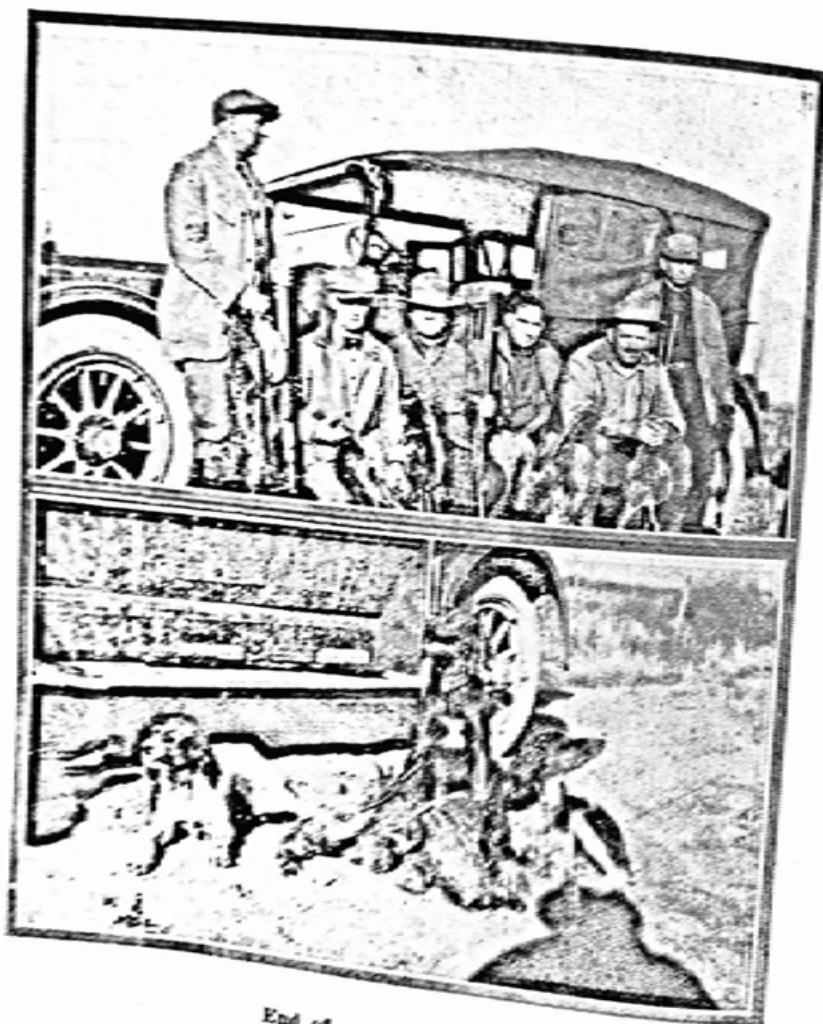
Tends to Violation of Statutes

Concessions to the federal authorities of the right to dispose of government owned game animals, in a state where such sale is prohibited, or to concede this same right to others, would be bound to result in numerous violations or unauthorized sales. Along these same lines and reverting to the serving of game birds at banquets or more or less public gatherings, several large affairs of this nature have been held by different organizations, the propriety of which has been given considerable thought. It would appear that, while there is no particular statute involved or one that would prohibit a person killing the legal limit of game, or any part thereof, and donating same to his club or association, to be used at a banquet, yet it is, in a sense, more or less commercializing game. It may be argued, of course, that the birds are lawfully taken and have been donated for this purpose. At the same time, it invariably happens that a charge is made of from a dollar up per plate or for each guest, which is applied towards the expense of cooking and serving the banquet, and while a direct charge may not be made for the birds themselves, still they are, in a way, being sold.

Service at Banquets Indirect Sale

The thought also arises that, where plans are made by local gun clubs or kindred organizations to secure, say from forty to a hundred birds, or possibly more, for banquet purposes, are we not putting a premium on the taking or killing of more game than ordinarily would occur? There is, in such instances, an inducement to kill or take large quantities of game for this purpose, and, in so doing, we are, in reality, getting away from the very purpose for which we are striving; in other words, conservation. One organization will put on, we will say, a big duck feed, necessitating the killing of from 100 to 250 ducks; another will follow suit with a pheasant banquet; someone else will conceive the idea of a big trout feed or a deer barbecue, all of which certainly tends to encourage more destruction of game than is

really necessary or required. Our purpose is to conserve the natural resources, meaning game in these instances, instead of encouraging a useless slaughter, and, frankly, it is believed, if we will try to figure this out for ourselves, it will be admitted that, where so many hunters are sent out for the express purpose of securing game for a large banquet, certainly the destruction will be greater than under ordinary circumstances.



End of a perfect day.

Bag Limit Often Exceeded

Then, too, there is another phase of the matter. The bag limit and the number of birds that one man may retain in his possession is limited by law. Such practices referred to above often tend to violations of the statutes. Those who are to provide the birds for a banquet will, in some instances, exceed the number they are permitted by law to kill. The same applies to the number of birds that one may have in his possession, either in cold storage or otherwise. It is abuses of this nature that occasioned the requirement that all women have licenses to hunt or fish. Prior to the enactment of this statute and prior to the time that women were required to have licenses, hunters would go out, accompanied, in some instances, not only by their wives, but such other feminine members of their family or friends as a car would accommodate, the male members of the party doing the shooting, and, when checked up with five or six times the limit of game birds, would calmly refer to the fact that they had five or six women in the party.

Technically but not Morally Lawful

It is common practice for hunting parties to go out today and one or two members of the party will secure the limit for all. Technically, they may be within the law but morally they are not. No hunter is presumed to kill or take more than the legal limit of game birds or game animals, nor to have more than the legal limit in his possession. Coming, again, to the practice of serving game at public gatherings, in the absence of any statute, the Department has not cared to arbitrarily rule on these matters, nor is it apparent that any legal remedy for the condition could be enacted. One's own conscience should be his guide. When all is said and done, legislation cannot possibly cure all evils. The enforcement of our laws, the success or failure of any program of conservation is very largely in our hands. This heritage of wild life is ours. It was left us by our fathers and those who came before. Sadly wasted and abused, perhaps, but, none the less, ours to do with as we will. We can continue to waste our substance without thought of the morrow but we can, also, by our efforts and individual example, conserve our resources so that those who come after may extend to us their gratitude for a work well performed.

GAME FARM—PROPAGATION

The passing of various species of the grouse family or upland birds which has been occasioned by the advance of civilization and, for the reason, also, that they are not adapted to the conditions of the new west, has necessitated some concrete plan for providing Idaho with game birds. The Chinese pheasant and Hungarian partridge will take their place.

Early in 1923, we conceived the plan of establishing a game farm, securing the necessary ground or site therefor, and, pending a consummation of negotiations for the required real estate, we made a small start on the personal lands of one of our field men in Canyon County. Some three hundred pheasant eggs were purchased from the State of Washington and were delivered at this farm the fore part of May, for the purpose of hatching under domestic fowl. Nests were hollowed out in the damp ground as nearly like the natural nests of the wild birds as they could be made, in order to supply the needed moisture to the eggs. The domestic hens, however, not being accustomed to hatching on damp ground, quite a few eggs were lost on account of the hens leaving their nests and the consequent chilling of the eggs.

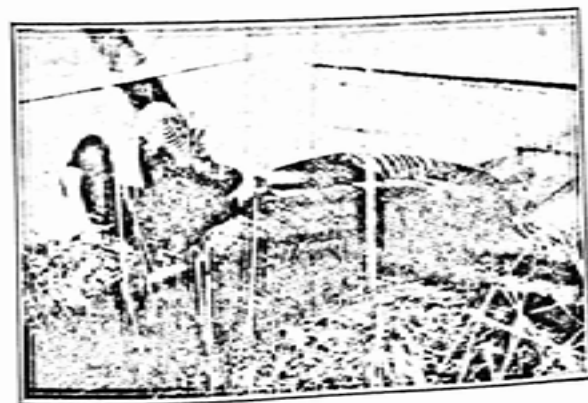
Hatching Difficulties Encountered

New nests of straw were provided and moisture supplied by dipping the eggs in warm water, good hatches then resulting. From the balance of the eggs a total of 160 young pheasants was obtained. Here the real difficulty or hard work commenced. Young pheasants, very much like turkeys, require exceptional care and, owing to lack of experience in this regard, many of them died from various causes. Some were crushed under the weight of the hens and a few others lost through the depredations of common house cats. The net result of our experiment was approximately 125 pheasants. It has been demonstrated that the proper feeding and care of the birds in their young state is the greatest problem to be met, but, since this all had to be learned at some time, the information secured will prove of much value in our future work or when a permanent farm has been established. We have had a proposition in mind. The U. S. Commissioner of Reclamation, through the efforts of the citizens of one of our adjoining counties, has consented to permit the use of cer-

tain acreage of government land within the borders of the Deer Flat Reservoir.

Permanent Location to be Acquired

This permit, as the matter now stands, however, can be secured only with the proviso that, should the government decide to sell all or any part of this acreage, the lands must be vacated. Since this is not a satisfactory arrangement by reason of the fact that any improvements we may make along this line should be of a permanent nature, it is extremely unlikely that we will avail ourselves of this offer. On the other hand, it has been fully determined to obtain this year, either by gift or by purchase, the necessary land, and establish a permanent state game farm, erect the needed buildings, pens and other improvements and engage in the raising of Chinese pheasants, Hungarian partridges and other game birds where possible or feasible. To supplement the birds raised on our temporary game farm, we acquired several hundred Chinese pheasants from various farmers and others who had salvaged the eggs from nests destroyed in haying or irrigating, the eggs so taken hatched under domestic fowl and the pheasant chicks purchased at the actual cost of rearing the birds. In addition, 419 Hungarian partridges were imported from England, at a cost of approximately \$3,500, all of which birds were distributed in localities best adapted to this species of game bird.



Golden pheasants—Idaho's Game Farm.

Many Chinese Pheasants Distributed

Various counties throughout the state made application for plantings of Chinese pheasants, their needs being taken care of so far as possible, in all some three hundred of these birds being distributed. Reports received from counties to which Chinese pheasants were apportioned indicate that the birds are doing well and are increasing rapidly. With reference to the Hungarian partridges planted, reports from some counties are to the effect that several coveys have been seen and the birds are increasing. In other sections, no reliable data has yet been secured. Possibly, however, like the Chinese pheasant, when it was first liberated and planted, for several years these birds were not in evidence, but after a time they could be seen all over the sections first stocked. While on this subject, the planting of game birds means their proper liberation in suitable covers, where they may remain and increase. Few realize the necessity of liberating such birds properly. They should not be merely taken out into a field, the coops opened and the birds permitted to fly away, but when shipment is received, the crates should be placed on the edge of some suitable cover for the birds. It is well to distribute feed or grain in close proximity to the crate, then darken it by putting over it burlap or canvas, leaving one corner only open or a space sufficient for the birds to walk out. If the vicinity is immediately left and the birds permitted to come out of their own volition, there is little danger or small chance of frightening them away. In this manner, the coveys or pairs remain banded together and are less liable to be affected by climatic conditions or to fall prey to vermin.

FIELD ACTIVITIES

As indicated by the nature of the work, the activities of the Department consist of many different lines. We are called upon to provide efficient supervision, collect data as to the progress made by different species of game birds and animals, the condition of the various lakes and streams, the taking of spawn, the restocking of such streams, the planting of game birds, care and hatching of the eggs so secured, the administration of our hatcheries, the planting of game birds, report the amount of all game killed in various districts and, last but not least cooperate with the Forest Service

in the matter of fighting forest fires and also in the destruction of predatory animals on the winter ranges of big game. These activities have been carried on during the biennium of 1923-4 the same as in the past, except possibly to a greater extent. The policy of the Department, so far as concerns the strict enforcement of the fish and game laws and the active patrol of the state, has not been altered one iota.

Large Record of Fines Not Desired

Realizing, however, that a large portion of the Department revenue has been expended during the past in supervision and knowing the needs in the matter of permanent improvements, we have tried to be as economical as possible in the appointment of Deputy Game Wardens and to arrange their territories so as to deliver the maximum service at minimum cost. It has not been our ambition to establish a record in the number of arrests and the amount of fines collected and it is entirely reasonable to assume that, as the co-operation of the various gun clubs and sportsmen's associations throughout the state is secured, the number of violations of the statutes, with the resultant fines, will decrease to a certain extent. As has been stated in previous reports, the Department would very much prefer to obtain strict adherence to the laws than to be compelled to prosecute violators for their infraction. On the other hand, there is always a small percentage of the population of any community which is not amenable to the game laws and for these, with the violations attendant thereto, we have insisted upon prompt punishment.

Protection of Game on Winter Range

Considerable attention in 1923-4 was devoted to protecting big game on the winter range. Hay, in large quantities, was contracted for early in the season and distributed at strategic points in various forests and game preserves. The salting of deer and other game animals was also provided for; in some cases, this had to be transported by pack trains, under grievous difficulties; particularly was this so in Idaho and Clearwater Counties and in the Selway Game Preserve, where quantities of this salt were placed at appropriate licks by our Deputy Game Wardens. A suitable quantity of salt was also shipped to Cascade, in Valley County, and, with the co-operation of the Forest Service, was transported by forest rangers into the interior. The Boise Forest and the South Fork of the Payette Game Pre-



Coyotes and cougars take annual toll of game.

serve were also supplied. Through a co-operative agreement with the Boise Forest Service, Ranger Warren Taylor has charge of the Payette Game Preserve during the winter months. A considerable amount of hay was purchased and delivered to Mr. Taylor at Lowman, to be used in feeding deer, should it become necessary during the present winter.

Fighting Destructive Forest Fires

From time to time, it is necessary, also, to employ various members of our field force in construction work, to assist in the building of hatcheries, temporary field stations and the building of cabins for temporary headquarters in predatory animal work, a large amount of this work being taken care of during the past biennium.

Although assisting in reporting on and putting out forest fires, one fire in particular was handled by the Game Department alone. This fire started near what is known as Stack Rock, in Boise County, and rapidly spread toward the beautiful Bogus Basin country. Before being placed under control, this fire consumed about 750 acres. It reached within one-half mile of Bogus Basin, crossed the South Fork of Shaffer Creek at two places but was checked just on the edge of the thick timber, in which, if it had gained headway, nothing could have stopped it from sweeping the entire mountain side and occasioning a loss of thousands of dollars in valuable timber.

PREDATORY ANIMAL WORK

A heavy loss is occasioned game through the deprivations of predatory animals, greater, in numerous instances, than that caused by all the hunters during the open season. The destruction of vermin, therefore, is imperative and various states must provide some systematic method for this work. In the main, two systems have been tried; one, the employment or hiring of hunters and trappers who devote their entire time to this work, on a salary basis, and the other, the bounty system, which has not proved entirely satisfactory. While the bounty system is still in force in the State of Idaho, the U. S. Bureau of Biological Survey is carrying on a campaign for the extermination of predatory animals, in cooperation with the stockmen, or those ranging their stock on various national forests. Government hunters are employed and extermination is made principally

through the poison route, much good being accomplished. This Department, while co-operating with the Bureau of Biological Survey in this work and the assignment of men to certain territory in order to avoid conflict, is conducting its own campaign. Nine of our regular force are engaged in the work, in addition to other men temporarily assisting them, all on salary, no bounties being paid.

Famous White Cap Cougar Landed

At the present time, there are twenty-eight men so employed. In the Idaho-Clearwater section, one of the centers of big game, we have four of the best and most reliable trappers, these operating under the direct supervision of our regular Deputy, C. K. Hjort. Two of these men are stationed on the Lochsa River, in an extremely rough country, far removed from civilization, so rough, in fact, that even trappers have given it a wide berth. Here the cougar work unmolested, ample evidence of their depredations being found. Another man is stationed on the Selway and has just been successful in landing the famous White Cap cougar and, following his trail, found three kills made by this animal, that of two mule deer and one yearling cow elk, all within one week. On the Middle Fork of the Salmon River, we have three trappers, all located on the winter range. In Valley County, a campaign is being conducted under the supervision of one of our regular men, in co-operation with Forest Supervisor Guy B. Mains, of the Payette National Forest. Trappers and predatory animal men are also at work in the Lemhi and Salmon forests.

Saving Game Dangerous Work

To the Middle Fork of the Boise River, the home of numerous deer and some elk, one of our most experienced men has been dispatched, with headquarters at Troutdale Ranger Station, and is covering that entire section, necessarily, with snowshoes. Numerous coyotes were accounted for by this man last year. The Payette Game Preserve is in charge of Forest Ranger Warren Taylor who is also superintending the feeding of deer and the patrolling of that district. Besides these, we have men so employed in the Counties of Lewis, Boise, Custer, Kootenai, Gooding, Clark and Jefferson. This work is, at times, hazardous in the extreme. One of our men was a patient for weeks at a local hospital last year as a result of freezing his feet while in charge of predatory animal work in the Middle Fork of the Salmon River



Open season on bob cats.

country. This accident was sustained in attempting to cross Marble Creek, a sudden snow slide precipitating the Deputy into this creek, the thermometer at that time registering a temperature of forty-six degrees below zero.

Many Coyotes Accounted for

In our campaign for the extermination of predatory animals, poison is used to a considerable extent, and numbers of coyotes are victims of this campaign, the carcasses of which, necessarily, are not recovered. According to reports on file with the Department from our men engaged in this work, a total of 540 coyotes, 55 cougar or mountain lion, 19 bob or wild cats, 5 skunks and 68 weasels were taken. These figures do not include, by any means, all of the predatory animals accounted for but, since it has been estimated that one cougar will kill at least from two to three game animals a week and, in some instances, more, and coyotes will average several deer in a season, the approximate saving in game animals on the winter range can be appreciated. The operations of the federal government along this same line of work will increase the total to a very large extent, the result



Destruction of vermin insures better hunting—magpies killed by poison.

representing an enormous saving annually in game. Various sportsmen's organizations carried on a campaign for the extermination of vermin, viz., magpies and crows and the destruction of their eggs, these organizations paying a bounty of a cent to a cent and a half or two cents on heads and eggs.

Vermin Destruction to Small Game

In districts where magpies and crows have become so numerous as to be decidedly destructive to small game, this action will undoubtedly prove of considerable benefit. From the standpoint of conservation, so far as the Department was able, we endeavored to assist in this work; in several instances, reimbursement was made to organizations offering this bounty. Primarily, warrants covering claims of this nature were drawn against the predatory animal fund, but it was ascertained later, however, that magpies and crows were not considered as predatory animals within the meaning of the statute. Adjustments were made by crediting the predatory animal fund and charging the game fund with the amounts involved. It would appear, since, in many instances, predatory animals, including coyotes, weasels, and skunks, together with certain birds, viz., magpies, crows, certain species of hawks, etc., are all classed as vermin, that the statute providing for a payment of bounties by the Game Department should be broadened to cover payment of bounties on magpie and crow heads and their eggs.

FUR BEARING ANIMALS

In considering the conservation of wild life, our fur resources have often failed of recognition. As a result, many of the more valuable fur bearing animals have practically disappeared from the forests and streams. The muskrat, mink and a few other species are still found in considerable numbers, but the remnant of what was once one of our richest assets is steadily dwindling on account of existing conditions. This shortage of furs is not entirely the trappers' fault or due to the methods of trapping. In the main, it may be laid, indirectly, to unfamiliarity with conditions, inadequacy of our laws and the lack of needed information on the part of farmers, trappers and those connected with the fur trade. Even state game departments and conservation commissions have not thoroughly familiarized themselves with all matters pertaining to the fur industry. As a matter

of fact, a census of the fur-bearing animals existent in each separate state should be made, as well as a study of the lives and habits of each separate species. Legislation should be enacted, prohibiting the taking or trapping of fur bearers except during certain specific open seasons.

Open Seasons Should Be Regulated

Owing to different climatic conditions in a state, sometimes pronounced in adjoining districts or counties, it is more or less difficult to provide a satisfactory open season for the same species of fur bearers. Wherever possible these open seasons should be regulated by climatic conditions in the same zone. There is only one brief season when the furs or pelts are prime, and since fur-bearing animals are hunted and trapped principally for their fur, they should not be taken at any other time. That the trapping seasons in a good many cases are not wisely determined is emphasized by the fact that many pelts shipped to raw fur markets bring little or no return. If the fur buyers and their agents would assist and co-operate in refusing to buy inferior pelts, there would be no temptation for the trapper to make a clean-up of his trap lines, regardless of the condition of the pelts. The season on fur-bearing animals should not open too early nor should it be extended too late in the spring. Based on climatic conditions of various states, a short open season of not more than from two and a half to three months should be provided only during the time when pelts are at their best.

Report of Catch Basis for New License

It is thought that, with sensible trapping seasons, together with the requirement that every licensed trapper report his entire catch to the game departments annually, including the number of each species taken and the price secured therefor, and making the filing of such report the basis for the issuance of a subsequent license, a greatly increased quantity of pelts of superior quality would result. The financial rewards to trappers would thus be augmented without seriously affecting the remaining supply.

There are within the boundaries of this state a considerable number of fur-bearing animals, among them mink, raccoon, otter, marten, fox and some fisher. With seasons properly regulated, there should be slight danger of their elimination. Inadvertently or otherwise, the last legislature, in introducing and passing two fish and game bills, closed the season on marten, fox and fisher,

and confined the taking of mink, raccoon and otter to the extreme northern counties of the state only.

Marten, Fox—Open Seasons

It is believed this was an error but it has worked a hardship on people depending on trapping as a means of livelihood. As a result of closing the season in the entire state on marten, fox and fisher, numerous complaints have been received and reference also made to the campaign carried on by the U. S. Bureau of Biological Survey for the extermination of predatory animals by poison, it being stated in some of these complaints that this campaign resulted at times in the destruction of certain fur bearers, which they were prohibited by law from taking. Investigation of these complaints has not indicated that any large loss to fur bearers has been sustained through the operations of the Bureau in the trapping of predatory animals. At the same time, it is thought that the law should be changed to provide for an open season on fur-bearing animals. A specific open season should be mentioned for each species in order to avoid misapprehension. It is suggested, too, that the statute should be so worded as to include a general provision restricting the taking of any species of fur-bearing animal, except those enumerated in that section particularly applicable thereto.

Pelts Unfit for Commercial Use

The importance of safeguarding fur-bearing animals should be evident, when it is estimated that from fifty to sixty millions of dollars are distributed annually among the people of the United States at a time when farm and other income is at its lowest ebb. These figures can be increased proportionately by proper conservation of fur bearers and by preventing their trapping or killing when the pelts are unfit for commercial use. There are occasions when certain fur-bearing animals, principally muskrats, and possibly beaver, become a menace to private property. Beaver being great conservers of water, we are not in favor of any open season on them. Owing to the market value of muskrat pelts, effort should be made to conserve these animals also and to more or less restrict their taking. Our statutes now provide, however, that, in case of damage to property, including canals, dams, etc., these animals may be taken under permit issued by the State Fish and Game Warden.

Thus all interests are protected. In certain instances, where beaver are destructive to property, they, also, may be taken under the statute, by special permit only.

RECOMMENDATIONS

To attempt to enact an entirely new game law at each biennium through the introduction of a fish and game bill has not been very productive of beneficial results. In the year 1919, a new fish and game law was passed, which practically repealed every section of the former law; in turn, a bill was introduced at the Sixteenth Session of the Legislature, or in the year 1921, which amended a majority of the sections of the previous bill, and was, in fact, practically a new game law. The 1921 law was, on the whole, very satisfactory, and it is not thought that it was improved to any extent by the two game bills introduced at the Seventeenth Session of the Legislature in 1923; in fact, quite the reverse. Many ambiguities and errors crept in, making enforcement of the laws very difficult. On account of these errors and ambiguities, it is necessary to make certain changes but it is thought that such amendments should be taken care of by the introduction of various corrective measures, without any attempt to enact a new bill.

It is recommended that the laws pertaining to the traffic in game or the sale of game, directly or indirectly, be strengthened.

Section 2703 of the Compiled Statutes should be amended to provide for the sale of sturgeon.

It is presumed, also that the average fisherman or sportsman will be content with a daily bag limit of game fish. It is suggested, therefore, that the possession of salted or smoked trout be prohibited.

Since the bag limit provided by federal statutes permits the taking of twenty-five ducks in one day and deeming such bag limit excessive, we recommend that the bag limit on wild ducks be reduced to twelve in one day or in possession.

Although the federal statutes provide for the sale of migratory water fowl under certain conditions or upon the issuance of a federal permit and as our game laws prohibit the sale of game birds (which include migratory birds), section 2761, which implies that all provisions of law pertaining to migratory birds shall conform to the federal statutes, should be amended to conform to the general provision prohibiting the sale of game.

It is recommended, also, that uniform seasons by zone be provided on game birds and game animals; in other words, that the counties be zoned or formed into districts so far as possible in order to prevent conflict in open seasons. Our idea is to more evenly distribute the shooting of game birds over several counties rather than to confine all the shooting to one county or two, should these counties have an open season earlier than the majority of those adjoining.

Since Hungarian partridges are the principal game in certain Northern Idaho counties, the season being closed, unintentionally, it is claimed, in the passage of the laws of 1923, it is recommended that an open season on Hungarian partridges be provided in those counties which have a plentiful supply of these birds, the open season to be dependent upon local conditions.

The section permitting the hunting of predatory animals with dogs and making it discretionary on the part of the State Game Warden to issue a permit for this purpose should be amended. Numerous abuses have occurred where such permits have been issued, even to parties purported to be entirely reliable. The responsibility for running dogs in the fields or forests and particularly in big game sections should rest where it belongs on the person or owner who takes such dogs into these sections. As provided in Section 2778 of the Compiled Statutes, the owner of any dogs found running at large and which are tracking or pursuing deer or other game animals shall be guilty of a misdemeanor. We are in favor of the provision, also, that it shall be no defense that such dogs were pursuing deer or other game animals without the aid or direction of their master and, also, that such dogs, when found so doing, shall be declared a nuisance and may be killed. The use of dogs, therefore, for the purpose of hunting predatory animals should be entirely on the responsibility of the owner of such dogs.

During each year there are instances where hunters or fishermen lose their fish and game licenses. A provision should be made to permit the issuance of a duplicate license or a certificate, which may be used in lieu of such license and recognized by Deputy Game Wardens as authority to hunt or fish, such certificate to be issued upon a proper showing, in affidavit form, indicating the number of the license, the date and where purchased; the payment of a nominal fee for this certificate should also be required.

The open seasons on fur-bearing animals should be changed. Provision should be made for the taking of marten, fox, and fisher and the taking of mink, raccoon, and otter should not be confined merely to northern counties.

Section 2771 of the Game Laws should be amended to provide that, where it is necessary to trap beaver for the protection of property and the work is performed by a trapper operating under permit issued by the State Game Warden, one-half of the sale price of any pelts taken under such permit shall revert to the trapper doing the work instead of the landowner.

Inasmuch as we are vitally concerned with the taking of an accurate census of remaining game within the State of Idaho, it is recommended that a law be passed, providing that the holder of every license shall report his total kill each year at the end of the season, enumerating the various species of game killed, and that failure so to do will result in the refusal of a subsequent license.

The seining of fish should be discouraged and discontinued, except for such seining as may be necessary under the direction of the State Fish and Game Warden and which is provided for under Section 2734 of the Compiled Statutes and vests in the Warden discretionary power. The seining of whitefish and redfish should also be prohibited. We recommend that a bill be enacted, specifically prohibiting the taking of fish in this manner.

There are probably other changes or corrections in the present statutes which will be recommended. The foregoing, however, as well as any other amendments, will be presented to the Fish and Game Committees of the Legislature.

CO-OPERATION

Through a co-operative agreement between the Forest Service of the U. S. Department of Agriculture and this Department, a definite policy has been outlined and considerable progress made in the conservation of natural resources. By the activities of these agencies, valuable data and information was acquired and, with the assistance of forest supervisors and their rangers, research, propagation and protection has been effectively carried on. We are particularly indebted to Mr. S. B. Locke, of the Ogden Forest, for his services in this respect. Intensive research and planting operations were undertaken in inaccessible regions, which, in future years, will

result in greatly improved conditions. To the Federal Bureaus, we also feel grateful for their co-operation in matters of mutual interest. The active assistance of U. S. Game Wardens W. H. Ransom, of Spokane, Washington, and George Tonkin, of Baker, Oregon, rendered this Department in the prosecution of violations of the state laws has proved invaluable. We desire to express our appreciation of these services. From time to time, owing to the expense incidental thereto, we have had to rely on the railroads and other common carriers; particularly has this been so in the moving of fish and the transporting of our fish messengers, etc. This service was of much help to the Department and is correspondingly appreciated. We gladly acknowledge, also, the co-operation of the various gun clubs and sportsmen's associations throughout the state. They have lent their time and aid, not only in the planting of various streams in their communities, but have encouraged our efforts in every possible manner. During the biennium just brought to a close, we have exerted every effort to deliver the best possible service to all the people, be they farmers, stockmen, sportsmen and others. We are thoroughly in accord and sympathy with their wants and needs and nothing, intentionally, has been left undone to further this end. To all these, as well as those specifically named, we extend our heartfelt thanks for their co-operation, content in the thought that we at least have done our best and can say with the poet:

"Someone's always sure to knock us;
Yet—and this gives life its zest—
There's a clear and peaceful conscience
For the man who does his best."

REPORT OF FISHERIES DEPARTMENT
For the Calendar Year 1923

Honorable R. E. Thomas,
 State Game Warden.

Sir:

The work of this Department in spawn-taking, raising and distributing fish during the past year has measured up well in comparison with former years.

While the number of fish distributed does not equal the number for last year, the weight or number of pounds of fish has probably been more as most of the fish were held longer at the hatcheries and allowed to attain a larger size before planting. In thus holding the fish there was, of course, some loss but it is felt that this loss was more than compensated for by the larger percentage of fish surviving later planting. It is believed that in following this plan together with the plan of making a survey of all streams in the state much better success will be had in our work of restocking the streams. This survey should be carried out with the object in view of locating proper planting sites and determining the species of fish best adapted for that particular water. The question of a natural food supply must also be taken into consideration as in too many instances fish are dumped into water without a thought as to whether or not there is sufficient or proper food to sustain the number planted and to keep them growing to the proper size.

Our Hatchery Superintendents have proven that they can turn out fish from the hatcheries equal to those raised anywhere and our messengers in charge of fish distribution have demonstrated that they can deliver fish to any railroad point in the state with but very little, if any, loss, but as a rule our supervision of the handling of the fish ends when they are turned over to the applicant and we have no actual knowledge of where or how these fish are planted. I fail to grasp the logic of working months with these fish and spending thousands of dollars to raise them to a size for planting and then not know that they will be properly planted or whether the stream in which they are to be planted is a suitable one.

While we believe that in the majority of cases the applicant exercises proper care in selecting suitable

planting grounds and placing the fish therein, there are numerous cases where the fish are dumped into the water regardless of whether or not the stream, or location on the stream is a favorable one. Perhaps one of the mistakes of most common occurrence is that of pouring out a whole can of fish or a whole shipment of fish within a few yards of the length of the stream. This method of planting only serves to attract the larger or cannibal fish to that spot and the only result of the planting is that we have served a high-priced meal to a number of large fish. On the other hand, if the fish were distributed a few in a place for quite a distance up and down the stream, or if places selected where the shallowness of the water prevented the larger fish from getting at them, the planting would be successful, providing other conditions were right. It is better to plant one hundred fish and raise twenty-five than to plant one thousand and raise only twenty-five.

The practice of planting several varieties of game fish as well as the spiny-finned fishes in the same water should be discouraged and to this end the policy of a most careful scrutiny of applications and supervision of distribution should be adhered to.

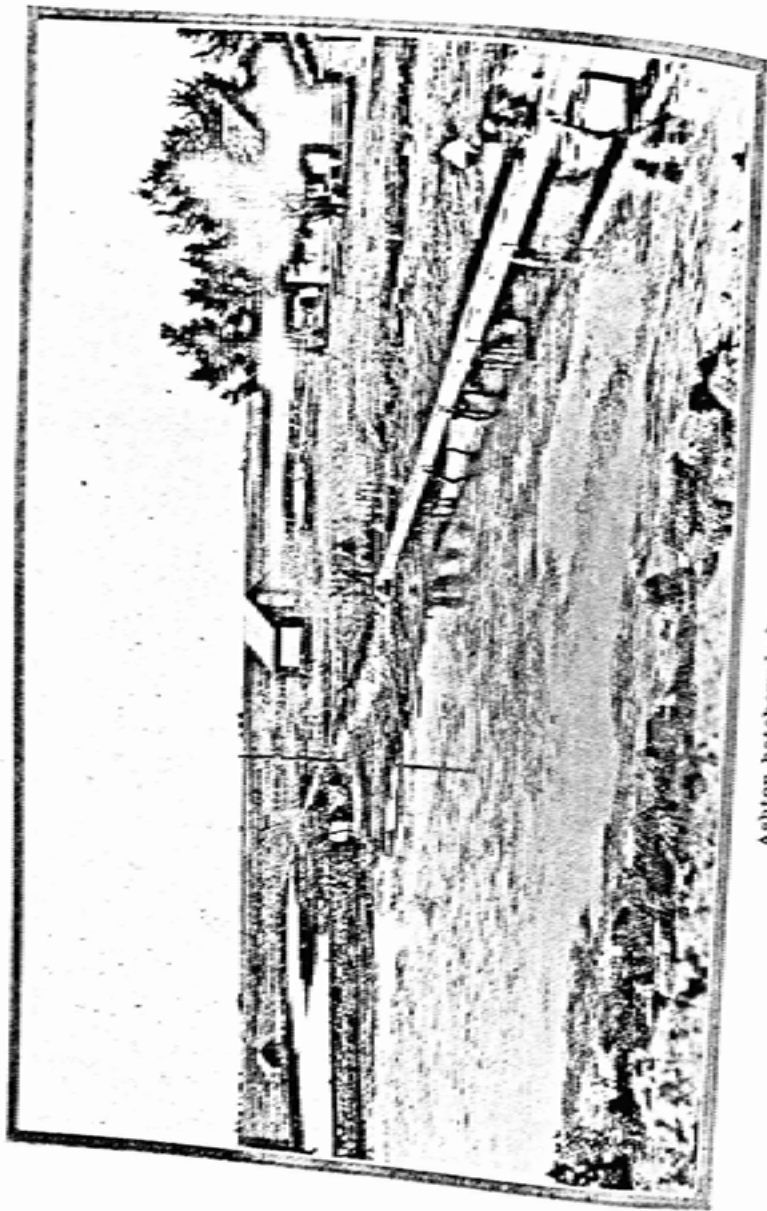
As soon as proper facilities are provided for holding the early hatch of fish and to take care of the overflow after thinning out the troughs, the practice of planting before high water should be discontinued. Heretofore, it has been necessary to plant great numbers of fish early in the season, especially Eastern Brook, to give space in the hatchery for the late eggs and to relieve the congestion in the troughs resultant from the growth of the fish. It is doubtful if any great number survive the high water stage.

HATCHERIES

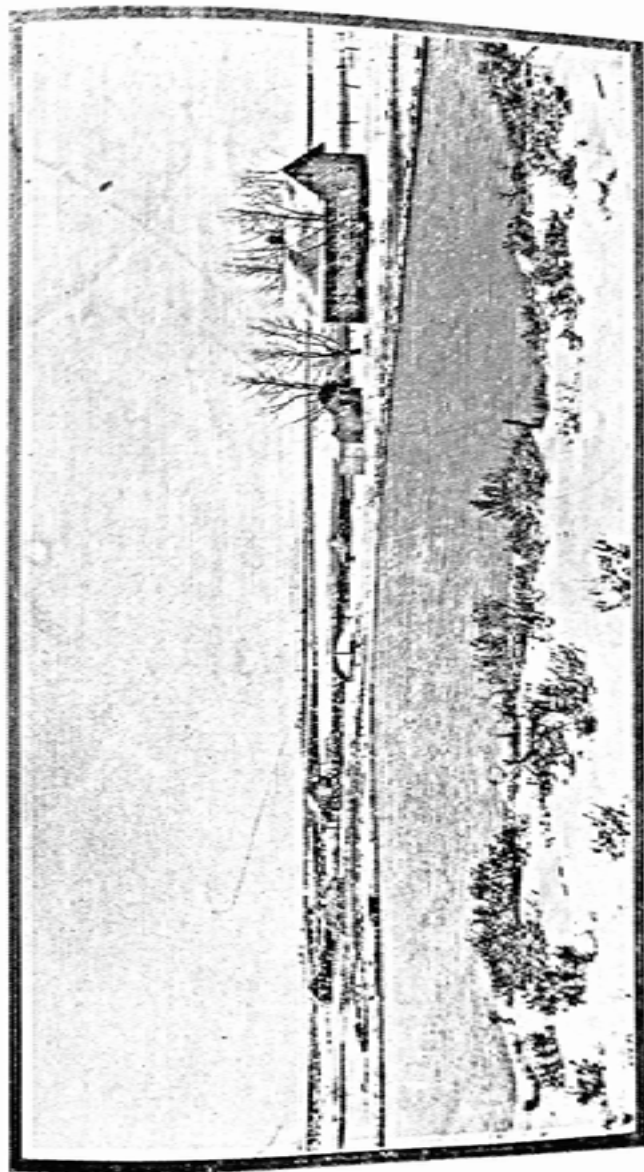
SAND POINT HATCHERY

The Sandpoint Hatchery located in Bonner County on the shore of Lake Pend Oreille was the premier hatchery for 1923. No new work was undertaken and only the necessary maintenance work carried on, chief of which was the repair of the tramway supporting the pipe line.

A fine stock of young fish was distributed in waters of the following counties:



Ashton hatchery before reconstruction.



Ashton hatchery and ponds after completion.

Counties	Native	Eastern Brook	Rainbow	Total
Bonner	79,000	377,000	346,000	802,000
Boundary		262,000	128,000	390,000
Clearwater		240,000	170,000	410,000
Idaho		80,000	255,000	335,000
Latah		190,000	40,000	230,000
Lewis		80,000	145,000	225,000
Nez Perce		75,000	65,000	140,000
Total	79,000	1,304,000	1,149,000	2,532,000

COEUR D'ALENE HATCHERY

This hatchery is located on the shore of Lake Coeur d'Alene in Kootenai County and maintained its record of turning out first class fish. No new work was done during the year.

The following counties were benefited from this hatchery:

Counties	Native	Eastern Brook	Rainbow	Total
Benewah	163,000			163,000
Clearwater		76,500		76,500
Kootenai	378,000	1,209,000	109,000	1,696,000
Latah		20,000		20,000
Shoshone	164,000	60,000	75,000	299,000
Total	705,000	1,365,500	184,000	2,254,500

HAY SPUR HATCHERY

This hatchery is located at Hay Spur in Blaine County. The output is distributed over a wider range of territory than that from any other hatchery in the state. The buildings and ponds were constructed last year and are in fine shape.

The number of fish and the counties in which they were distributed follow:

Counties	Native	Eastern Brook	Rainbow	Salmon	Total
Adams		22,500	201,000		223,500
Bannock	282,000	125,000	6,600		414,000
Ada		20,000	4,500		24,500
Bear Lake	100,000	40,000			140,000
Blaine			85,000		85,000
Boise			135,500		135,500
Camas	20,000		22,500		42,500
Canyon			7,500		7,500
Cassia		44,500	160,000		204,500
Custer		5,000	13,000		18,000
Elmore	5,000	40,000	90,000	32,000	177,000
Franklin			70,000		70,000

Gem		30,000		30,000
Lemhi	15,000			15,000
Minidoka		30,000		30,000
Oneida	31,000			31,000
Power	40,000			40,000
Twin Falls	20,000	60,000	150,000	230,000
Valley		74,400	120,000	194,400
Washington		37,500	87,500	125,000
Total	427,000	555,900	1,210,000	2,239,900

ASHTON HATCHERY

This plant is located three miles west of Ashton in Fremont County. The old hatchery was entirely done away with during the past season and new buildings, ponds and reservoir constructed. When the work on this plant is finished according to the plans and specifications furnished by the Department of Public Works it will be one of the best hatcheries in the state.

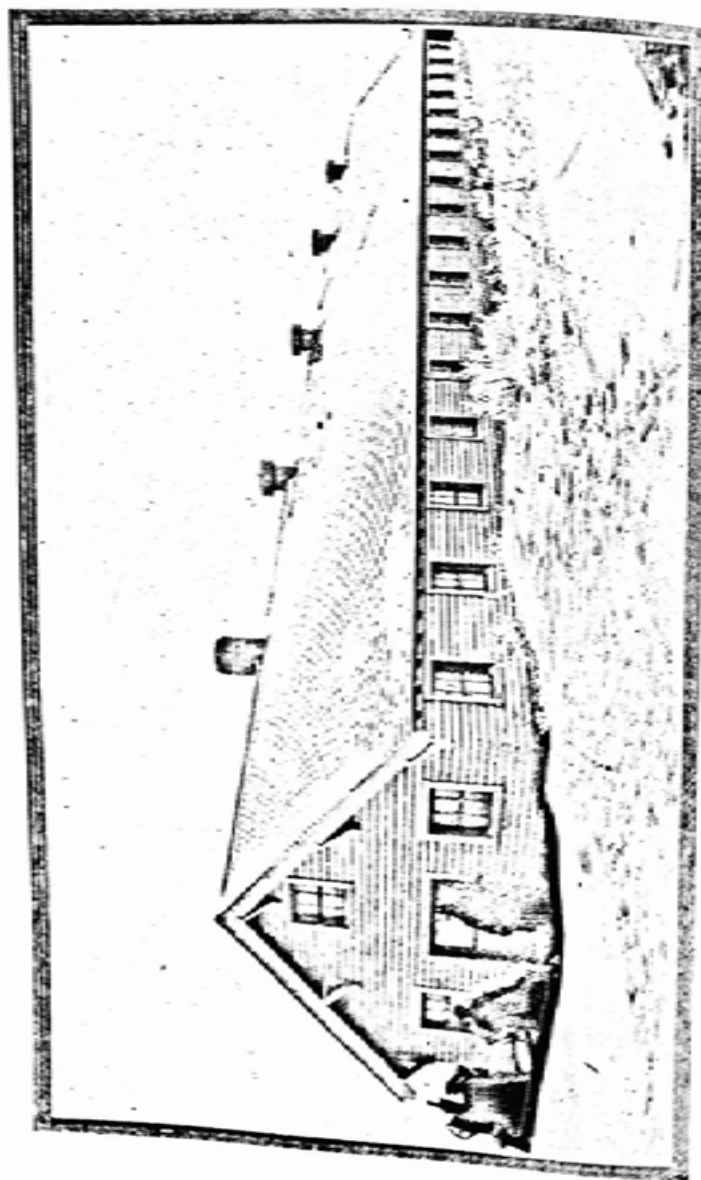
The number of fish and where distributed follow:

Counties	Eastern Brook	Rainbow	Eggs	Total
Bannock		42,000		42,000
Bear Lake		30,000		30,000
Bingham	9,000	150,000		159,000
Bonneville	40,000	60,000		100,000
Butte		120,000		120,000
Clark	50,000	80,000		130,000
Custer		155,000		155,000
Fremont	40,000	262,000		302,000
Franklin		15,000		15,000
Jefferson	60,000	80,000		140,000
Lemhi	100,000		100,000	200,000
Teton		70,000		70,000
Total	299,000	1,064,000	100,000	1,463,000

Field Work

Native eggs were secured at Rock Creek, Power County; Silver Creek, Blaine County; Cedar Creek, Twin Falls County and Wolf Lodge Creek, Kootenai County. Eastern Brook eggs were taken at Lost River, Custer County and Elk River, Clearwater County. Rainbow eggs were taken from the brood stock at Ashton and Hay Spur Hatcheries.

In looking over the signed applications for fish we are impressed with the fact that in practically every instance those receiving the fish state that there was no loss, or if any, a very small percent. This shows that the messengers accompanying the fish shipments were



Ashton station's new hatching building.

on the job, for in moving fish, especially during the summer months, constant work and attention is required if a heavy loss is to be avoided.

RESCUE AND DISTRIBUTION OF PERCH

This work was carried on in a very commendable manner and while the number replaced in the Deer Flat Reservoir probably did not equal those replaced last season, a great many more fish were distributed in various sections of the state. In fact, they were moved in carload lots this year—something never before attempted from this point. The number distributed follow:

Ada County	322,900
Bannock County	42,000
Bear Lake County	20,000
Canyon County	309,250
Franklin County	20,100
Gem County	4,500
Gooding County	40,000
Minidoka County	80,000
Twin Falls County	100,000
Valley County	200,000
Washington County	150,000

Total	1,288,750
Salvaged	330,200

1,618,950

WORK PLANNED FOR ENSUING YEAR

At the Sandpoint Hatchery a new pipe line should be laid to bring in water to supply a sufficient number of rearing ponds to meet the needs of not only this hatchery but also the overflow from the Coeur d'Alene Hatchery, providing it is not thought feasible to construct troughs and shed them over at the Coeur d'Alene Hatchery. The water at Coeur d'Alene has to be purchased and it is a question whether the overflow of water from the hatchery troughs will be sufficient or suitable for rearing troughs.

Considerable work will be necessary at the Ashton Hatchery, as early in the spring as the ground can be worked, in leveling around the buildings, building a driveway to the hatchery buildings and removing some old unsightly buildings.

A new hatchery should be built next season either in Idaho County in the North Central part of the state or in the southwestern part. A hatchery at both these points is urgently needed but it is realized that our funds will permit of only one hatchery being built next year.

My recommendation is that this hatchery be built in the North Central section for the following reasons: A Federal road is at this time being built to connect Lewiston, Idaho with Missoula, Montana, thus creating another highway across the state. This highway will pass through a hitherto untouched section of the state which has been visited by only a few of the more venturesome or enthusiastic sportsmen. In close proximity to this road are hundreds of miles of the finest kind of trout water. By taking side trips from this highway, other hundreds of miles of trout water can be reached by auto. The much abused North and South Highway is going to bring an increasing amount of travel every year into the Salmon River section. Even the past season, the streams along the Salmon River were lined with fishermen. We must anticipate this increased travel and bring the streams up to their carrying capacity as soon as possible as it takes from two to three years to mature a trout. After a stream has been depleted of fish, years are required to bring it back. For these reasons thousands of fish should be planted in the Salmon and Clearwater Rivers and their tributaries every year.

The territory which could be served from a hatchery located in Idaho County would comprise about one-seventh the total area of the state and probably one-fifth the total miles of actual trout water in the state. At this time this territory is being very poorly served from the Sandpoint Hatchery owing to the many changes necessary along the railroad and the time and work necessary to bring fish from Sandpoint.

A spring near Grangeville would be well worth looking at with a view of acquiring it for hatchery purposes.

So far this department knows of no suitable water for a hatchery in the Southwestern section, although up to the present time no extensive inquiries have been made for this purpose.

As stated before in this report, a stream survey should be carried on during the present year. Some of this work could be done by local deputies in connection with their patrol work and the data furnished to this de-

partment. Also considerable help could be had from the man in charge of screen and fishway work as his duties necessarily make him conversant with the stream conditions in all sections of the state. The object of this survey would be to determine suitable planting grounds, food supply and the species of fish to be planted.

The first object—that of planting grounds, can generally be found in the head waters of our streams, but where not found naturally, then artificial ones should be made and recommendations with places and estimates of the cost should be submitted to this department. The food supply is generally sufficient in most of our streams but in some of the Alpine lakes and in streams heading in the low hills and subject to heavy runoff or water spouts, there may be a shortage of suitable food.

The question of the kind or species of fish to plant requires more intensive knowledge of Fish Culture, but it is believed that the most or at least a considerable number of the Deputies could determine this question from their practical experience with fish—enough in all probability to satisfactorily answer in most cases.

Respectively submitted,

John A. Pearson.

REPORT OF FISH COMMISSIONER For the Calendar Year 1924

Honorable R. E. Thomas,
State Game Warden.
Sir:

The undersigned, appointed by you to take over the duties of State Fish Commissioner on February 1st., 1924, herewith presents for your consideration the results of the work accomplished by the Fishery Branch of the Department during the eleven months remaining in the biennium.

In order that your Commissioner familiarize himself as quickly as possible with the extensive territory over which the Department operates, and with the conditions and personnel at the various hatcheries, it became necessary that he go into the field almost immediately upon his arrival in the state. With the exception of a few scattered days between trips, which were utilized in caring for the accumulated correspondence pertaining to fishery matters at the office in Boise, this entire time

has been spent in investigational and construction work in the field. Taking charge of this work almost at the beginning of the egg collecting season, with no records on file for guidance or firsthand knowledge as to equipment or location of spawntaking stations, made it exceedingly difficult for a stranger to use to the best advantage the limited equipment and few experienced men with which we had to operate. It appears to have been the custom to depend to a large extent upon the purchase of eggs from outside sources, rather than develop brood stocks and establish collecting stations sufficient to care for these needs, and for these reasons the Department's stock of domesticated brood fish, their equipment and location of field stations, and lack of trained spawntakers were totally inadequate to fill to capacity the four hatcheries operated at the beginning of the present season. None of the hatcheries (with the exception of Ashton) were located or constructed with a view of developing a stock of breeding fish, and it will take several years to build up this part of the intended program to a point where sufficient eggs of all varieties may be secured from domesticated and wild stock to fill the ten hatcheries that it is hoped will be in operation by the end of 1925. In connection with the detail field work, your Commissioner visited as many of the towns and cities of the state as was possible, in order that he might become personally acquainted with the individual sportsmen and members of the various rod and gun clubs interested in conservation work, and without whose cooperation the successful functioning of the Department cannot be prosecuted.

AN OUTLINE OF PERSONAL FIELD WORK

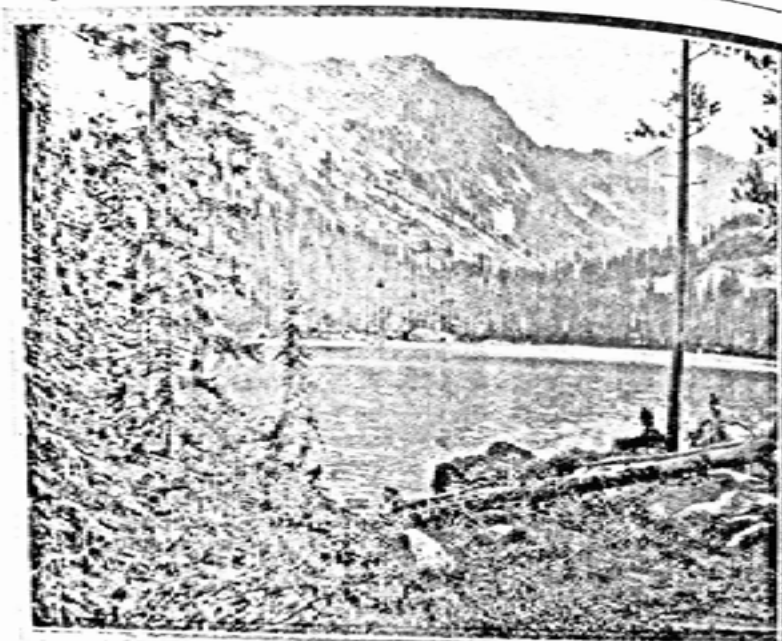
Early in February visits of inspection were made to the Coeur d'Alene, Sand Point, Hayspur and Ashton hatcheries. While en route to Ashton, word was received that the newly constructed reservoir dam had given away shutting off all water from the hatching house and rearing ponds. A report in detail covering the work of repairing this break, transferring the fish and eggs to other stations, is given under the heading of Ashton Hatchery. At the request of the Antler's Club of Macky, investigation was made of the conditions existing at the backwaters of the reservoir on Lost River, where thousands of spawning rainbow trout are taken by anglers during the late winter. It was recommended that this water be closed to all fishing from the 1st of

January until the opening of the legal season, June 1st. During March, trips were taken to Camas reservoir above Mountain Home, and to Silver Creek and Wood River near Hailey. Investigation was also made of the Salmon reservoir and Cedar Creek reservoir near Rogerson as a possible source of rainbow eggs.

Brush, Wolverine and Miner Creeks, tributary to the Blackfoot River were inspected and a cooperative agreement entered into with sportsmen from Blackfoot for trapping the large Snake River native trout running up to spawn, and for transferring the eggs collected by our spawntakers to the railroad station at Firth. Having decided to operate for the collection of black-spotted trout eggs at Henry's Lake near the Yellowstone Park boundary, three weeks were spent in April carrying out the preliminary work of establishing a field station, trapping and seining fish, and taking sufficient eggs to fill the hatching troughs that were put into commission. This region at that time of the year is one of the most inaccessible in the entire state, and this work was accomplished only under the most trying conditions. Details of this work will be found under Henry's Lake Fish Hatchery.

During the latter part of April and first of May, several days were occupied in transferring native trout from the Camas reservoir to the South Fork of the Boise River, and in examining numerous sloughs along the Snake River near Caldwell as to their suitability for the introduction of channel catfish. The Department, realizing the necessity of establishing hatcheries in both the Payette and Weiser River valleys, more than a week was spent in examining proposed sites at Smith's Ferry, Cascade, McCall, New Meadows, Tamarack, Starkey Hot Springs and Council. A suitable location was found four miles above Cascade, and in less than three weeks from the time of locating, a small 10 trough hatchery was constructed, equipped, and had hatching in its troughs 230,000 cut-throat trout eggs. A location whose conditions were thought favorable for the establishment of a summer hatchery and rearing ponds to supply the north Weiser River country, was found at Evergreen, and the water conditions have been kept under close observation throughout the summer and fall months.

Arrangements have been made for securing this property and turning it over to the Department for hatchery purposes by the Adams County Rod and Gun Club, and it is hoped that actual construction may be



Imogene Lake (upper) Twin Lakes (lower) typical high lakes of the Sawtooth country. Stocked with salmon and trout in 1923-24.

started on this station as soon as the frost is out of the ground next spring. The first of June, springs and spring creeks in the vicinity of Grangeville were visited and examined and arrangements made with the Grangeville Commercial Club for securing the water rights and necessary grounds for the erection of a hatchery and rearing ponds on John's Creek. From Grangeville, an investigational trip of two weeks was made to the lake region of the north. Coeur d'Alene, Pend d'Oreille, Hayden, Spirit and Priest lakes were visited and much valuable data secured relative to the building up and maintaining of better fishing in these splendid waters. Returning by way of eastern Oregon and Washington, short stops were made at the State fish hatcheries at Walla Walla and Union. Returning to Boise, immediate preparations began on the necessary outfit to carry out the extensive fish planting program planned for the Sawtooth Mountains. This included the packing of delicate scientific apparatus (microscopes, specimen bottles, plankton nets, etc.) in such a manner that they might be carried on the backs of pack horses over the roughest trails in safety.

En route to the Sawtooth section by way of Hailey, a stop was made at the Magic reservoir to determine if by any methods of salvaging, the great numbers of rainbow trout inhabiting this water could be transferred before the reservoir would be drawn entirely dry. A detailed description of the Sawtooth trip covering a period of three weeks in June and July, is given under the heading of Cooperative Work with the Forestry Service. During the remainder of July and beginning of August, streams in the southern part of the state were examined, and several proposed fish hatchery locations in the southeastern section visited. The Mud Lakes west of Idaho Falls were investigated for determination of the causes of reported dying of fish, and samples of water collected for analysis. An additional trip was made into the Henry's Lake section, and work planned for the enlargement of the hatchery and eyeing station there, and for the construction of racks, traps, live boxes, etc., to be used for the collection of eggs on a larger scale than had been carried out the past spring. The Black Canyon reservoir on the Payette River above Emmett was visited; a meeting held with the members of the Emmett Rod and Gun Club, and arrangements made with them for the building of retaining tanks where 30,000 rainbow fingerlings consigned from the Hayspur

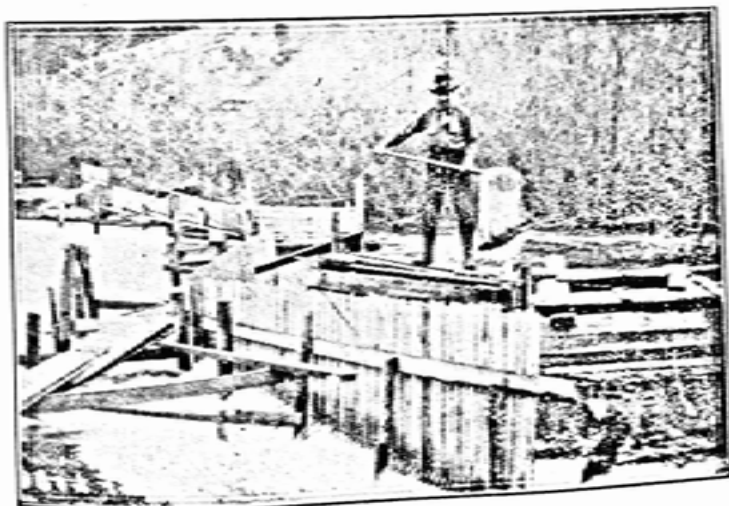


Upper Inlet to Redfish Lake—planting silverside shiners in Alice Lake
—String of sockeye salmon from Sunbeam Dam.

hatchery could be held and fed until from six to eight inches in length before being planted in the waters of this artificial lake. The work of clearing, grading and generally preparing the grounds for the construction of the new hatchery on John's Creek near Grangeville began the first of September, and with the exception of several side trips throughout Clearwater, Idaho and Nez Perce Counties for the purpose of examining streams and lakes with a view of establishing spawning stations, the entire months of September and October were occupied with the construction of this model fishery.

The first of November, an old abandoned fish hatchery on Willow Creek near Idaho Falls was inspected and an arrangement made with the Bonneville Sportsmen's Association to thoroughly overhaul the hatching house, supply pipe and rearing ponds, with the understanding that the Department operate there the coming summer.

A visit was made to the Leach commercial hatchery near the Springfield Lakes. A spring on Warm Springs Creek near the Mackay reservoir was selected as a site for the establishing of an eyeing station, and a 20 trough hatchery with a capacity of 2,000,000 eyed eggs is being constructed at the present time.



Trapping fish for egg collection at Wolf Lodge Creek—Coeur d'Alene Lake section.

A return was made to Grangeville the first of December and the additional work of installing the troughs and other equipment; painting the interior of the building and furnishing the living quarters was carried out so that this station might be in readiness for the opening of the spring season.

SPAWNTAKING OPERATIONS AND GENERAL FIELD WORK

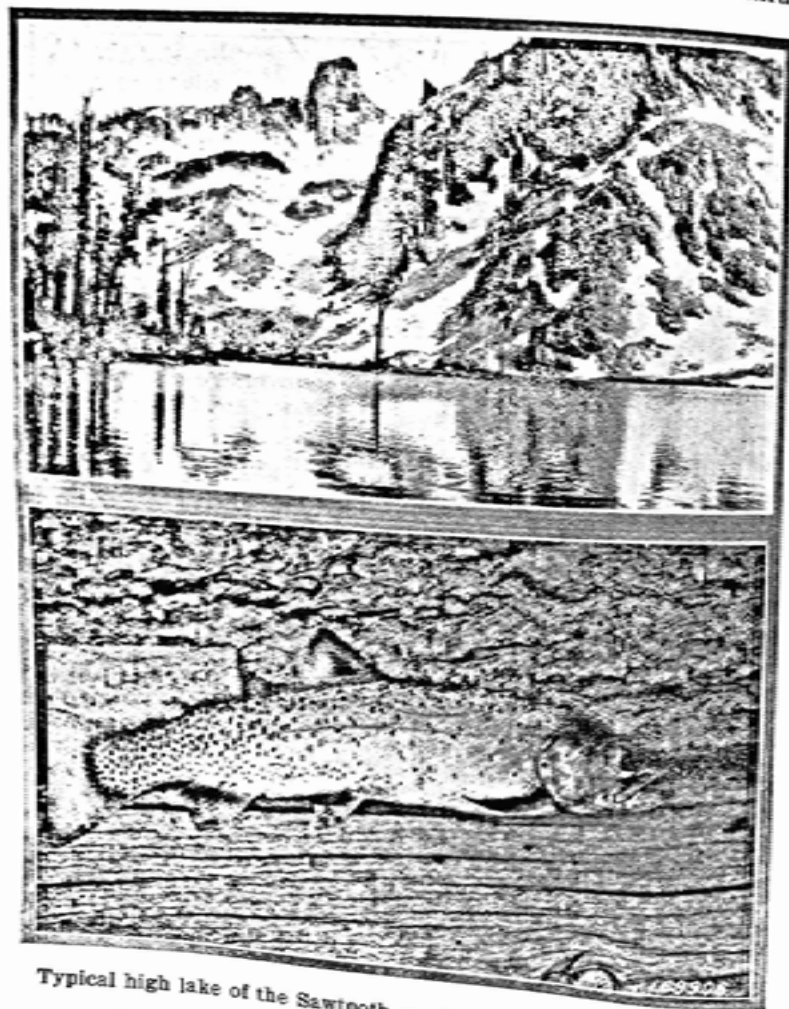
The season of 1924 was one of the most abnormal as regards weather conditions ever experienced in this state, and the effect on spawntaking operations is reflected in the shortage of wild egg collections at the majority of the stations and in total failure at others. At Cedar Creek reservoir, the run of rainbow trout was at least a month earlier than normal years, and the operations there gave absolutely negative results. Rock Creek near American Falls and Silver Creek on Wood River yielded only about 200,000 native eggs between the two places. Brush Creek, 40 miles east of Blackfoot, made a better showing with 500,000 cut-throat eggs collected, but owing to the low water conditions the fish were over-ripe when they reached the spawning grounds, which resulted in less than a 50 per cent fertilization.

Approximately half a million black-spotted eggs were collected at the new Henry's Lake field station, and upwards of 2,000,000 in the northern fields at Wolf Lodge and Benewah Creeks. The brood stock of domesticated rainbows at Ashton supplied 1,700,000 eggs of excellent quality, while those at Hayspur gave 500,000. In the collection of eastern brook trout eggs the past fall, Elk River operations resulted in a total take of 1,500,000, and the new field at Perkin's Lake in Boundary County furnished 500,000 splendid eggs for the hatchery at Sand Point. Owing to the extreme low water conditions in the Mackay reservoir, and the fact that many of the trout of spawning age had scattered into the streams above during the summer months, it was almost impossible to collect on the spawning grounds sufficient trout to repay the cost of operating. The total take of eggs at this point was 150,000. During the entire summer, one of the field men was engaged in building new traps, racks, retaining boxes, egg cases, etc., and this equipment at the various collecting grounds is in excellent shape for the coming season.

COOPERATION WITH FOREST SERVICE

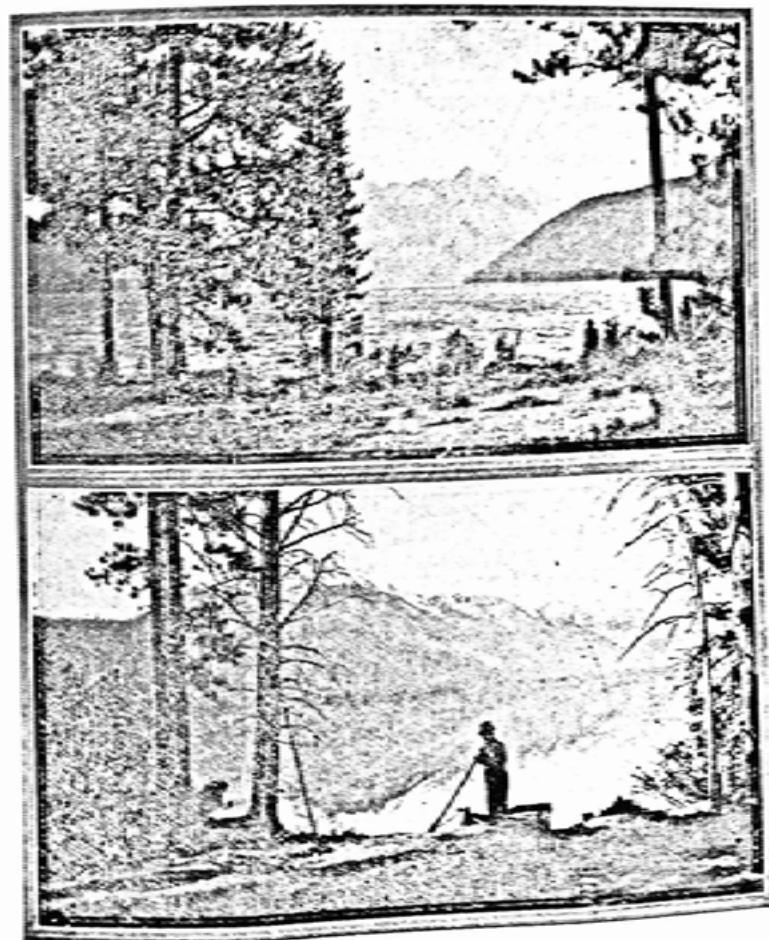
The splendid policy of cooperative fish planting and investigational work with the Forest Service has been continued throughout the biennium, and in addition to the extensive Sawtooth operations, new waters in the Payette, Boise, Challis, Selway, Clearwater and Nez Perce National Forests were stocked for the first time with desirable species of fishes. The establishing of fish life and accompanying food supplies into the high lakes of these regions will add greatly to their attractiveness from a recreational standpoint. Investigation during the past two summers of the results following the planting programs of 1921, 1922 and 1923, gives ample evidence of the wisdom of such a policy. There is still much to be done of a research character, especially as regards the introduced varieties of fishes and their available food supplies, and plans are being formulated for carrying this out in a manner not possible when conducted in connection with the fish planting. Probably greater attention has been given to that section embracing the Sawtooth National Forest than to any other within the state, but in a measure this was justified. The lake region of the Sawtooth Mountains is one of almost indescribable beauty, with the snow-clad jagged peaks piercing the sky, and living glaciers upon their sides pouring innumerable, icy torrents into the lakes at their feet. The waters from these high lakes in turn cascade down through tortuous canyons supplying the lower and larger lakes where nature has created an outdoor land second to none in the world. The thousands of tourists and campers who now visit this region annually, are only fore-runners of the immense numbers that will take advantage of the splendid roads and good trails that are being constructed at the present time; and it is hoped that by having a thorough understanding of the requirements of fish life in this section, the supply that is now being introduced may be maintained and increased to meet the additional drain that will be put upon it. The Forest Service and the Fish and Game Department are indeed fortunate in having available the services of Mr. S. B. Locke of the Ogden Forest office, in the prosecution of this work. It was upon his recommendation that the work was first instituted, and upon his investigation and knowledge of physical and biological conditions are based the present programs of fishery activity. Under Mr. Locke's supervision, during the summer of 1923,

over 22,000 rainbow and eastern brook, landlocked salmon and silverside shiners were planted in the lakes of the Sawtooth. On this trip he also investigated vacant waters and mapped out a schedule of proposed planting for the season of 1924. During three weeks in June and July of this year, Mr. Locke accompanied by Mr. James McDonald and your Commissioner carried out the most extensive fish planting program yet attempted in this region. These operations necessitated the transportation of large fingerling rainbow, eastern brook, and land-



Typical high lake of the Sawtooth section with specimens of native cut-throat trout.

locked salmon from the hatcheries by truck to base camps established on the lower lakes—Alturas, Pettit, Redfish and Stanley. From the trucks, the cans of fish were transferred to pack horses, taken as far up the inlets as was possible by these means, and then by man pack in canvas buckets to vacant waters above impassable falls. No one, unless they have been on a trip of similar nature, can appreciate the difficulties encountered in an operation of this kind. Along the walls of precipitous canyons; over immense fields of slide rock with crevasses sufficiently deep to engulf the whole pack train; through and over miles of fallen timber and



(upper) Big Redfish Lake (lower) Alturas Lake.

tangled brush, the outfit must be kept moving in order that the fish in the cans reach their destination without loss. The difficulty of travel combined with the burning sun, high altitude and constant worry over the fish, detracts much from what would otherwise be an ideal trip. The schedule as arranged for the movement of fish last summer, gave little opportunity for investigation along new lines other than a study of the conditions and growth of the fish that had become established. In connection with this Sawtooth distribution work the Department wishes to acknowledge the many courtesies extended by Mr. and Mrs. James McDonald, at whose lodge on Pettit Lake the pack trains were outfitted free of cost, and for their ready assistance in the actual planting itself. The Department is also indebted to Mr. Horstman at Big Redfish Lake for accommodations, boats, and for his personal help in distributing. Details of the numbers and disposition of fish planted, together with much valuable information regarding condition and suggestions for future work is given in Mr. Locke's report which follows.

State Game Warden and Memorandum for District Forester:

As a continuation of the fish stocking work undertaken since 1921 in cooperation with the Idaho State Game Department and local sportsmen, on June 21, I met State Fish Commissioner, W. M. Keil, at Hailey, Idaho. On June 22, in company with Mr. James McDonald, we went to Pettit Lake. Superintendent Holden from the Hayspur State Fish Hatchery brought over two truck loads of fish fry and the planting began immediately. In the planting work, except in the large waters vacant of fish life, the fish were carried along the stream in canvas buckets and scattered on the shallows a few in a place.

The stock used were all fingerlings, the eastern brook being from 2 to 4 inches long and the rainbow trout and landlocked salmon from 1 to 3 inches long. The shiners were mature specimens from 2 to 4 inches long and in all cases were planted in order to furnish food for the trout of a larger form than that occurring naturally in the lakes.

At Pettit Lake the eastern brook trout were placed in the lower section of the two inlets. Some of the rainbow trout were planted a short distance above the eastern brooks in the main inlet and the balance taken above the cascade in vacant water. Two cans of rainbow trout were taken up to Alice Lake. The landlocked salmon were taken to the willow meadows below the forks of the creek about 2 miles above the lake where some had been planted the previous year. This was in otherwise vacant water. Silverside shiners were planted in Alice Lake and also in the upper Twin Lake above Alice Lake. The next planting undertaken was at Alturas Lake. Eastern brook trout were planted in the lower section of the inlet about a mile above the lake. Above

this were planted rainbow trout and higher yet, above the forks of the creek, were placed the landlocked salmon.

Eastern brooks were planted in the lower section of both Fishhook Creek and the upper inlet to Redfish Lake. The rainbow trout were planted in upper Fishhook Creek. The landlocked salmon were scattered along the upper inlet above the cascade up to a point about 2½ miles above the lake in vacant waters while two cans were placed in the headwaters of Fishhook Creek above the beaver dams.

At Stanley Lake a planting of eastern brook trout was made in the lower section of the inlet. The rainbow trout were taken above the falls in vacant water except for a planting of rainbow trout made last year.

In order to establish rainbow trout in the Middle Fork of Salmon River, eight cans of rainbow trout were planted in the headwaters of March Creek. This is excellent water but contains a fair stocking of native trout so this planting is probably not extensive enough to insure this fish becoming well established there in the near future.

In the Yellowbelly drainage a few eastern brook trout were planted above Farley Lake and one can placed in Edith Lake. Several cans of rainbow trout were planted both above and below Farley Lake. About 250 silverside shiners were placed in Farley Lake.

About 800 landlocked salmon and 200 silverside shiners were taken to Imogene Lake near the head of the Roaring Creek drainage. This was vacant water except for a planting of about 500 landlocked salmon, 50 mature native steelhead trout and 100 silverside shiners in 1923.

Following are the approximate plantings for the different watersheds:

Contributing to the Larger Lakes:

Alturas Lake	
Eastern brook	5,000
Landlocked salmon	4,500
Rainbow trout	7,000
Pettit Lake	
Eastern brook	2,500
Landlocked Salmon	2,500
Rainbow trout	3,500
Yellowbelly Lake	
Eastern brook (above Farley Lake)	100
Rainbow trout	5,000
Redfish Lake	
Eastern brook	5,000
Landlocked salmon	4,000
Rainbow trout	7,000
Stanley Lake	
Eastern brook	2,500
Rainbow trout	5,000
High Mountain Lakes	
Alice Lake	1,500
Rainbow trout	

Silverside shiners (adults)	250
Farley Lake	
Silverside shiners (adults)	300
Edith Lake	
Eastern brook	200
Imogene Lake	
Landlocked salmon	800
Silverside shiners (adults)	250
Lower Champion Lake	
Silverside shiners	200
Upper Champion Lake	
Rainbow trout	1,500
Other Plantings.	
Feeder streams to Salmon River	
Rainbow trout	3,000
Eastern brook (Pole Creek)	500
Warm Springs Creek	
Rainbow trout	2,000
Middle Fork Salmon River	
Drainage—Marsh Creek	
Rainbow trout	5,000

As was done last year, an attempt was made to determine the results from the past work and in general, satisfactory information was obtained.

At the Alturas Lake inlet small rainbow trout were observed, indicating that the planting had spawned there. A landlocked salmon of about 1½ pounds weight was hooked at the lake but shook loose from the hook. There is a very small amount of fishing done in the lake and this and the abundant feed would make possible the presence of a considerable number of fish there without many being caught. A fish taken there and described by a man who saw it was probably a landlocked salmon, although it might possibly have been a little redbfish. It is quite possible that some of the fish planted here in 1921 may spawn this season, and a patrol of the streams in late October and November would give valuable information as well as providing desirable protection. If any number of the landlocked salmon entered the spawning streams it might be possible to arrange for spawn taking operations.

During the work in the Pettit Lake drainage no positive results of the planting were observed. A circuit was made of the Upper Twin Lake above Alice Lake where landlocked salmon were planted in 1921 but no signs of fish were observed. They were seen rising last year but since there was a cold wind the day of the visit to this water this year, it is not surprising that no fish were seen, only 500 being planted in the first place. Mr. McDonald installed a gill net in the outlet of Pettit Lake this season while the suckers were spawning and captured several hundred of these and squawfish. The only other fish taken were a few bull trout. A screen is being installed in the outlet to prevent the drifting of planted fish from the lake. The maintenance of this screen and continued gill netting of the suckers and squawfish should improve game fish conditions in the lake. If game

fish were taken in the gill nets some form of trap net which would not injure the fish could be substituted for the gill net. Owing to the great abundance of silverside shiners in the lake, the removal of the suckers and squawfish would not seriously effect the food available for game fish, particularly since the squawfish consume large numbers of the shiners.

Since a considerable number of fish were seen last year at Farley Lake and large numbers of small rainbow trout observed in the outlet between Farley Lake and McDonald Lake, it was a surprise this season to see only a very few in either place. It is apparent that these fish have drifted out to a considerable extent. No examination of Yellowbelly Lake was made to determine whether these fish had become located there. It is understood that the outlet to Yellowbelly Lake is practically impassable to fish except at high water since it passes through a bed of large boulders. The number of excellent lakes and streams above Yellowbelly Lake which may serve as feeders for it make it desirable to undertake studies of conditions there with particular consideration to the establishment of game fish through the past planting work, the possibilities of screening the outlet and the reduction in the number of squawfish and suckers. In 1921 a stocking of the cut-throat trout from the Yellowstone Park was made in these waters and the skin of one typical specimen which had been taken from Yellowbelly Creek above McDonald Lake was seen.

At Toxaway Lake an examination of the inlets showed that a considerable amount of spawning had been done just recently. One rainbow trout was seen on the spawning beds. Since only a very few cut-throat trout have ever been planted in Toxaway Lake, this spawning is undoubtedly by rainbow trout. Four landlocked salmon were taken fly fishing at Toxaway Lake and others could easily have been obtained. These were between two and three pounds in weight and were probably of the 1921 planting, although some were planted here in 1922 also. One of these fish was a male and three were females. Two of the females and the males evidently would have spawned this year. The fact that this lake is at 8,500 feet elevation and it requires four hours travel over a rough trail to an automobile road makes the taking of spawn a questionable undertaking. The presence of hunters in this country in the fall may complicate the problem of providing proper protection to spawning fish. It would be very desirable, both from the standpoint of big game and fish protection to have a warden patrol provided during the hunting season.

No indications were seen at Imogene Lake of the fish planted last season but this is not at all surprising in view of the size of the lake and the small number of fish planted. This lake impressed me as being perhaps the best adapted to fish production of any in the series of high lakes on this side of the valley due to the large amount of shoreage with abundant shallow, grassy bays, a considerable amount of deep water and the very excellent spawning inlet. A salamander about 3 inches long, dark in color, and having exterior gills was abundant here. None of the other Roaring Creek waters were visited.

The planting of redbfish in 1921 in Big Redfish Lake apparently was successful since one was taken by Mr. Keil and numerous strikes were had by other members of the party by fish evidently of this species. An eastern brook trout of slightly over a pound