Montana. Fish and Game Commission
Biennial Report
1925 - 1926

Biennial Report of the MONTANA Fish and Game Commission

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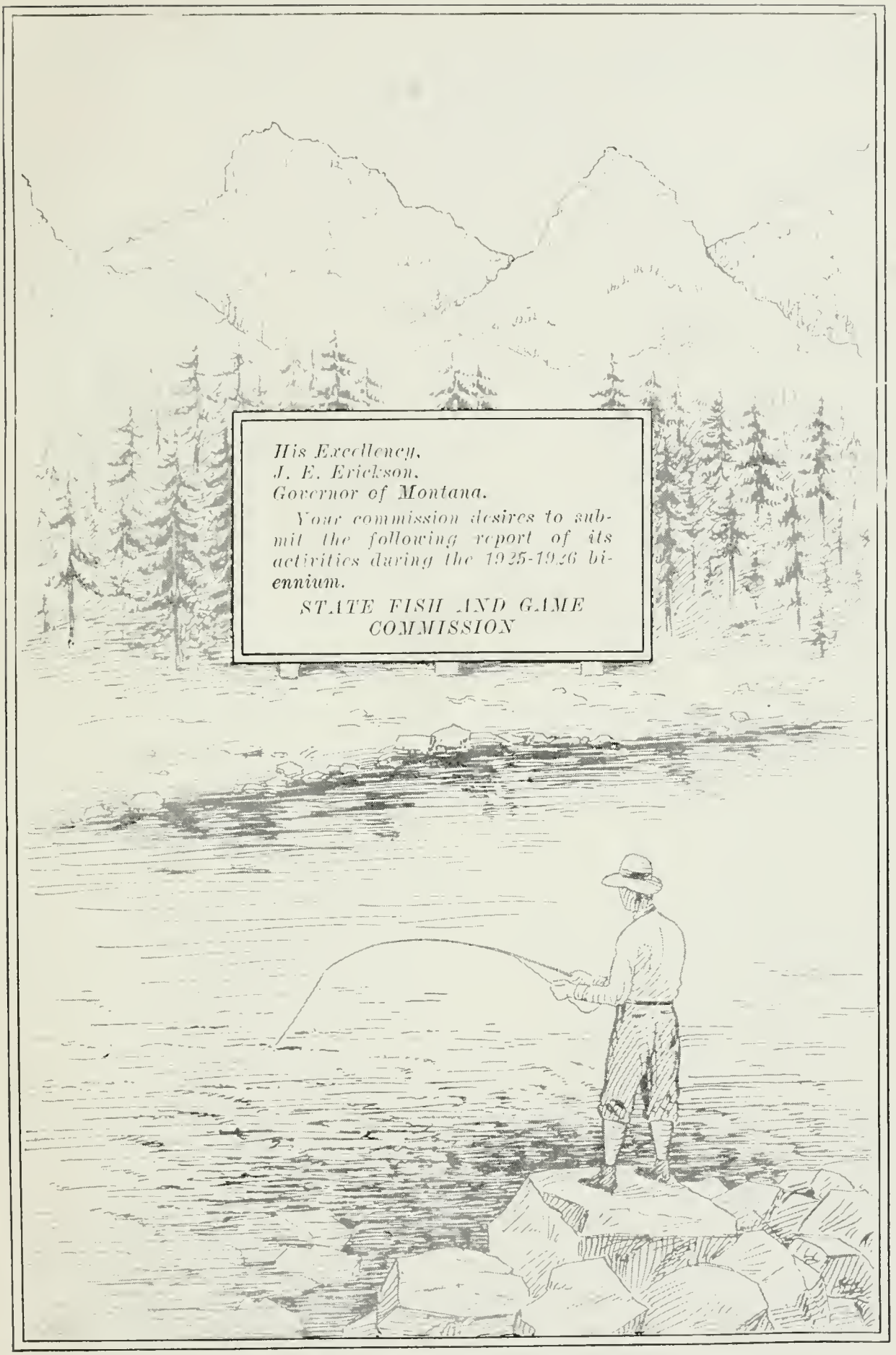
Only an idle little stream,
Whose amber waters softly gleam,
Where I may wade through woodland shade,
And cast the fly, and loaf, and dream.

Only a trout or two, to dart
From foaming pools, and try my art:
'Tis all I'm wishing—old-fashioned fishing,
And just a day in Nature's heart.

—Van Dyke.


THE GREAT SEAL OF THE STATE OF MONTANA
ORO Y PLATA



His Excellency,
J. E. Erickson,
Governor of Montana.

Your commission desires to submit the following report of its activities during the 1925-1926 biennium.

STATE FISH AND GAME COMMISSION

MONTANA STATE FISH AND GAME DEPARTMENT

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FRANK BELLER, Gardiner
J. F. GOLDSBY, Polson

GAME BIRD PROPAGATION

By Thomas N. Marlowe

Chairman Montana State Fish and Game Commission

Thos. N. Marlowe

SUCCESS of the effort of the Montana state fish and game commission to stock the state with foreign game birds and thereby add to our native birds, has been nothing short of remarkable. Practically every sportsman in the state is conversant with efforts made by the commission to stock the state with Ringneck pheasants and Hungarian partridges. The Ringnecks were purchased in Oregon. Some were hatched and raised from eggs purchased by the commission. This work was commenced eight years ago. The Hungarians were purchased in Europe. Since the commission undertook the stocking of the state with these birds every county has received some of them.

The story of the success of this undertaking is best told by the sportsmen themselves. When called upon to write an article on this subject for this biennial report, I wrote to a number of the communities receiving birds from the department inquiring as to their condition, and the quotations below are extracts from replies to my inquiry:

"The Ringnecks and Hungarians you have furnished us and liberated in our section have done just fine. We have received both varieties since they have been available and they have propagated to such an extent that they have covered the entire area of Valley county. The Hungarians do better than the Ringnecks notwithstanding the fact that the Ringnecks were liberated several years before the advent of the Hungarians. The Hungarians are the more popular with everybody."—Leo B. Coleman, Glasgow.

"The Ringnecks and Hungarians in this vicinity are getting along fine. They are well distributed all over the Deer Lodge valley and I do not think it necessary to liberate any more in this locality. Have heard complaints from other parts of the state that the Ringnecks are driving out the native birds but do not think this is so, at least, not in this vicinity."—Frank Conley, Deer Lodge.

"Fallon county sportsmen are more than pleased with the work being done by the commission in the matter of liberating Ringnecks and Hungarian partridges. Both types of birds are doing very well and increasing in numbers quite rapidly. One farmer's wife advises me that last winter she feed around 50 pheasants all winter and enjoyed the opportunity of doing so."—L. W. Busch, Baker.

"The Hungarians are doing fine. Multiplying in great numbers and seem to thrive under any and all weather conditions. The Ringnecks have not increased as they should, though they seem to be well scattered but are not multiplying like the Huns."—F. M. Lewellen, Plains.

"It is a pleasure for me to make you this report as our Hungarian crop was a wonderful success this year and these birds are doing mighty fine in our territory, and think they should be continued on the favorable list of the commission."—Fred B. Williams, Bozeman.

"The Ringneck pheasants which we liberated in this section several years ago have done fine and are increasing in number satisfactorily. The Hungarian partridges have done fine this summer and I believe will be a much appreciated bird in this section."—F. T. McCormick, Roundup.

"I am pleased to report that the situation is decidedly satisfactory. I have conversed with a number of farmers in this locality of the Flathead valley and they all state that large broods of both Ringnecks and partridges were raised this year, in fact, this is the best year we have ever had. I think that the Ringnecks are going to take care of themselves without any further shipments. They have scattered up and down the Flathead valley for miles."—P. N. Bernard, Kalispell.

"We are very much pleased with the results obtained from the Ringnecks and Hungarians liberated in this immediate vicinity. Both have increased very well and we are very anxious to get more of these birds from your department. The Hungarians appear to be the favorite among our farmers and in time will add much to our game bird supply."—Glenn T. Davis, Carlyle.

"The Hungarians raised in this vicinity have increased to such an extent that I am satisfied there are more than 500 of them in this locality now. I have exact knowledge of 19 covies raised last year which will average 16 to the covey. Farmers are very friendly to these birds and they are well protected. The Ringnecks have done well regardless of the fact that some farmers are not friendly to them. I think their number would justify an open season on male birds next year as they are well distributed throughout the county."—Bert Koons, Polson.

THE HUN
Feathered Fox of the Fields

"The Ringnecks and Hungarians seem to be in fine condition and doing fine and are increasing quite rapidly in this community. We are more in favor of the Hungarian than the Ringneck, but both are fine birds."—W. J. Tressler, Malta.

"The Ringneck pheasants are doing very well. A number of young birds were hatched out this last summer. I think it is a good idea to keep restocking the state with them."—Jack Stewart, White Sulphur Spgs.

"The advisory board of our association has kept in close touch with the result obtained from liberating both Ringnecks and Hungarians. It is thought that the elevation of this county is too great for the Ringnecks, as they have not done very well here. With the Hungarians, however, it is a different story. There are large numbers of these birds scattered all over the Flint creek valley and the sportsmen here are more than pleased with the results obtained."—Edwin T. Irvine, Philipsburg.

From these reports coming from practically every vicinity in the state it will be seen that both varieties of birds are thriving, doing exceedingly well and justifying the expenditure of the sportsmen's money in purchasing them for liberation.

In fact, these birds have increased to such an extent that in quite a few localities requests are coming in asking for an open season on one species or the other. A bill has been drawn which will be presented at the present session of the legislature giving the commission authority whenever in its opinion the conditions warrant it, to create an open season on these birds and give the commission authority to fix the bag limit.

In almost every community the Hungarian is the favorite. Complaints have been lodged against the Ringneck, ranging all the way from fighting the farmers' roosters to destroying their gardens, destroying the nests and driving out native sharp-tail grouse, commonly called prairie chicken. The proof, however, of specific instances of the latter offense are sadly lacking. No one has seen it. It is generally stated that Tom told Harry and that Bill said he saw an incident of this nature, but the relator of such happenings has never been an eye witness to the event.

For my part I do not feel disposed to condemn this wonderful game bird upon purely hearsay testimony.

In a conversation had a few days ago with D. R. Maclay, one of our prominent ranchers residing near Missoula and who owns considerable farm land, he told me that there were hundreds of the sharp-tail grouse on his place at this time, more in fact, than there had been in ten years, and that feeding with them and apparently on perfectly good terms, were several hundred Ringnecks.

He also told me of seeing a few days ago, 40 or 50 female Ringnecks in one flock. I am inclined to the belief that those who are condemning the Ringneck only see his bad points and entirely overlook the good ones. They forget the thousands of bugs, insects and worms he annually destroys.

It is pleasing to note, nevertheless, the favorable impression which the Hungarian has made upon sportsmen and farmers. I am certain that this impression is well warranted. In a recent issue of the American Field, W. L. Langbehn of the state of Washington, where these birds were first liberated a number of years ago and where they have had an open season for several years, states:

> "If you want the conceit taken out of you, try your hand at shooting the Hungarians. I have hunted the Hungarian partridge ever since we have had an open season on them and am ready to vote them the greatest game bird in this part of the world. This statement takes in a lot of territory but I don't think I will be called upon to change it. The brown and gray marvels can give the sportsman more thrills and more real sport than any bird I know of at

His Majesty
The Hungarian Partridge

the present time, and I am not excepting the ruffed grouse, prairie chicken, the ringneck pheasant or dusky grouse. From every point of view the Hungarian is the game bird that wins the admiration and approval of every sportsman who has made its acquaintance. That they seem well adapted to climates where the winter borders on the more severe and if given their freedom they will raise covies from 10 to 20 and have been known to nest a second time if the season is favorable. Their average weight is approximately 14 ounces and the meat is of an extreme excellent flavor."

It is therefore pleasing to know that this new and wonderful addition to our game birds is doing so well in this state, and the time when an open season can be declared is not far away.

The manner in which these imported birds have accustomed themselves to Montana's climatic conditions is ample demonstration of the wisdom of the state commission in fostering propagation. In Washington and in Idaho they are ranked among topnotch game birds by sportsmen who enjoy the thrill that goes with out-smarting the smartest of feathered game. Severe winters have seemingly made small inroads on the Hungarians. They are hard-working little birds. When they are able to get grit they fight their way through. They burrow through snowcrusts and scratch to food beneath. Grit wards off dysentery. They are likewise friends of the farmer and often feed with his domesticated flocks.

CLIFF LAKE IS MONTANA BEAUTY SPOT

A glimpse of scenic Cliff Lake and its many arms and fingers in the Madison country. Summer camps dot the shores. It has derived its name from the precipitous shore line. Trout spawn in Cliff Lake in February because of the warm creeks that flow into it. The state fish and game commission expects to establish a spawning station here. It was in Cliff Lake that the famed 25-pound Rainbow trout was recently caught.

ACHIEVEMENTS OF THE COMMISSION

By Robert H. Hill
State Fish and Game Warden

Robert H. Hill

CONCENTRATED endeavor on the part of members of the Montana state fish and game commission, enhanced by splendid cooperation demonstrated by individual sportsmen and their organizations, has enabled Montana to reach the financial peak of its history during the biennium 1925-1926 just closed. From a total balance in the fish and game fund at the close of December 1924 of $52,597.37 the figure has gradually increased until at the close of business in 1926 it had reached the total of $103,211.30, or nearly double the amount in just two years. These figures are especially significant when the fact is realized that the fish and game commission has, during this period, enlarged its scope of activity in the importation and planting of game birds, established new hatcheries and continued its program of constructive endeavor.

During the last biennium the state commission has entered on new enterprises that promise much for future generations of Montana sportsmen. Prominent among these activities may be mentioned the stocking of lakes and ponds with aquatic duck food, the purchase of shore lands intended to be set aside for public shooting grounds during later years when private clubs have acquired the desirable areas, the building and operation of motor boats for patrol duty on larger lakes, the increasing of the capacity of hatcheries, and investigations along other lines intended to preserve the fish and game as a heritage for future generations.

The strides made by the commission and the increased amount placed in the treasury, have not been accomplished through accident. Conscientious efforts put forth by members of the commission have been able to produce results through the whole-hearted cooperation put forth by Montana sportsmen and their organizations throughout the state.

During the last two years there has been a marked change in the attitude of anglers and hunters toward representatives of this department. In former years men who enjoyed hunting and fishing looked askance at deputy wardens. They harbored a sort of underlying feeling that the warden was a foe rather than a friend. This marked change of sentiment has resulted in the realization that game wardens have become recognized and welcomed throughout the woods and waters as friends and counsellors. The result has been mutually beneficial and the work of the department has been materially benefitted.

In addition to new lines of endeavor undertaken by the commission during the last biennium, the constructive program mapped out in former years

has been followed. New hatcheries have been located at desired points and the state is now operating 14 individual fish hatcheries. These plants are being conducted under efficient management.

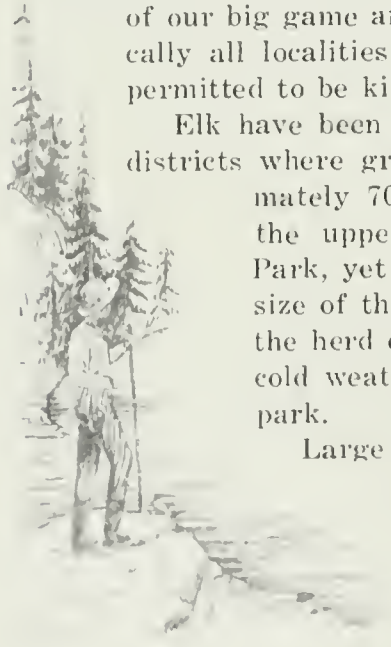
The importation of Hungarian partridges and Chinese or Ringneck pheasants has been consistently continued. With the cooperation of farmers and sportsmen generally who have watched the development of these protected birds with more than passing interest, the imported game birds have multiplied rapidly. Thy have increased to such an extent that it is possible an open season may be declared in some localities.

The Hungarian partridge, recognized by northwestern sportsmen as the little feathered fox of the fields among game birds, has demonstrated that he can thrive in Montana climes, while his multi-colored Ringneck friend has spread his kind in like manner where they have been protected.

With the surplus accumulated in the fish and game fund, the commission will be enabled to continue its wide-spread activities during the coming biennium. This fund has been built up by the sportsmen themselves. Not one dollar of tax money is paid by Montana residents for the support of this work and the department is entirely self sustaining. Money derived from the sale of licenses, from fines, the sale of confiscated game and guns, beaver permits, beaver tags and similar sources goes to pay for the work of the commission.

The growth of the fund means the growth of endeavor. It will enable the commission to take steps further to advance the protection and propagation of fish and game. It will make possible the construction of additional rearing ponds, the planting by trained fish hatchery employes of most of the fingerlings raised in our hatcheries, in the lakes and streams of the state. It will enable the commission to complete construction of a pond culture station at Miles City for the production of fish peculiarly suitable to the waters of the eastern portion of Montana. The flooding of dry lake beds will be made possible, in cases where they may be filled by artificial diversion of water from irrigation ditches or streams. This means attracting greater numbers of migratory water fowl and better sport during the open season for sportsmen who are making work of the department possible.

During the last biennium there has been a noticeable increase in the number of our big game animals. Deer have increased to great extent in practically all localities, especially in the counties where only buck deer are permitted to be killed.



Elk have been constantly increasing. This fact is especially true in districts where great herds of these splendid animals graze. Approximately 700 elk were killed during the open season of 1926 on the upper Yellowstone river adjoining Yellowstone National Park, yet this by no means equalled the annual increase in the size of the herd and steps may yet have to be taken to diminish the herd or provide enlarged feeding grounds. Deep snows and cold weather force the elk out of the protected area within the park.

Large numbers of the herd that summers in Yellowstone Park drift out on the West Gallatin for winter feed.

The herd, heretofore estimated at 1500 head, now numbers close to 4,000, according to the best estimates of game wardens, park officials and forestry experts. The Sun River herd and those on the south

fork of the Flathead are likewise increasing because of the fact that a very small kill was made during the last open season.

Moose, which are protected throughout the state, are thriving and becoming numerous in the districts suitable to their increase. The same fact holds true with respect to mountain sheep and goats, which were once considered the pride of the skilled hunter. Mountain goats are becoming numerous on the south fork of the Flathead and a short open season may be provided within a short time in that locality.

The increase in the number of our big game animals is, I believe, directly due to the creation and maintenance of numerous game preserves, the destruction of predatory animals by state and federal hunters and the strict observance of the law by conscientious Montana sportsmen.

One of the most important features of the work of the commission has been the educational campaign. Organization of rod and gun clubs throughout Montana has enhanced interest in the protection of our wild life. These organizations serve to bring together men who speak the language of sportsmen and who are drawn together by common likes and dislikes. Their meetings serve as clearing houses for constructive ideas and when the ideas that emerge from the majority are put into practice by the commission, results are obtained.

The fish and game exhibits at fairs and expositions of the state have been of vast importance. By this method we have been enabled to reach many thousands of people and arouse their interest, when they had no other means of knowing and learning of work of this department. Hundreds have gained knowledge of wild life, the systems inaugurated by the department in preservation and facts concerning conservation through these exhibits and lectures delivered by experts in charge. Visitors who have inspected these educational exhibits have learned, too, of the sources from which the revenue is derived by which the department is maintained. Their visits have broken down the old time feeling of antipathy that once existed toward game guardians.

Montana has become a magnet that is attracting increasing numbers of sportsmen from all parts of the nation. Many of them have spent lavishly in establishing summer homes and hunting lodges on our lakes and streams. With each passing season, it is gratifying to note the esteem in which the state is held by visiting sportsmen.

Through the activities of this self-sustaining department the fish and game of the state are being preserved and propagated and have become an asset of untold worth. Hence, achievements of the Montana state fish and game commission operating under the commission form of government, have not only attracted the attention of other states of the nation but have resulted in placing the Treasure State in such esteem that it is recognized as a sportsman's paradise.

Each passing year marks an increased number of visiting sportsmen coming to share joys offered by Montana's hills and streams. While fish and game in many states have been decreasing, efforts of the Montana commission to conserve these assets are bringing fruit. It has been a strenuous, uphill fight, yet results are gratifying.

A Glimpse up the Madison below Hebgen Dam

EVERYBODY'S HAPPY WHEN THE BIG BOYS BITE

Mackinaw trout caught in Two Medicine Lake, Glacier National Park.

These fighting denizens of Montana's mountain lakes are the scrappy chaps that bring the glow of satisfaction to discriminating anglers. One trout makes a mess.

THE SPORTSMAN and THE DEPARTMENT

By William K. Moore, Billings
Member Montana State Fish and Game Commission

W. K. Moore

COOPERATION is the secret of success in any business. The old saying that no organization can be successful, regardless of its size, without cooperation between all concerned, has proven true with wild life in Montana, the sportsmen of the state and the fish and game department. Several years ago a few Montana sportsmen realized that something must be done. They gathered their forces and made herculean efforts to lay the foundation for an organization. They realized the necessity for educating the people. It was necessary to interest them enough to secure actual cooperation in game protection and the saving of what wild game we had left. We did not relish the thought of seeing it, in a few years, disappear like the wild pigeon and buffalo.

In 1915 a letter was sent from the state game warden's office calling a meeting at Lewistown for the purpose of trying to organize a state association.

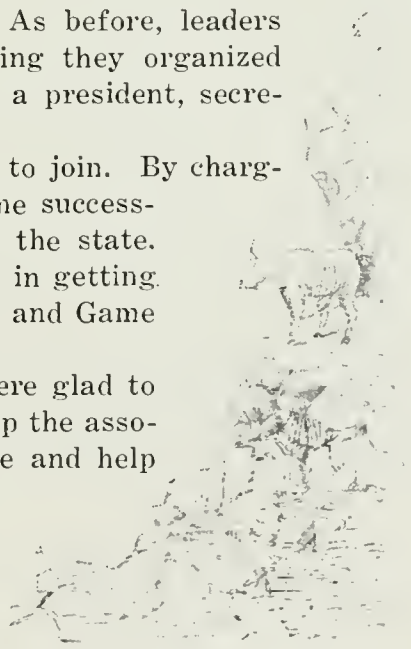
Leaders were successful in getting a large attendance. A lot of interest was created in fish and game. After two days' discussion the sportsmen framed by-laws, elected officers, and started what was believed would be a great organization.

The sportsmen returned to their localities full of enthusiasm. As the time drifted by they were unable to get cooperation. It was like the old phrase, "Let George do it." Consequently the organization, with all kinds of work ahead, fell by the wayside.

In 1920 another meeting was called in Helena. As before, leaders were able to get a large attendance. At this meeting they organized The Montana State Sportsmen's Association, electing a president, secretary, and five men as a governing board.

They sent notice to clubs in the state asking them to join. By charging a small fee for membership, they were at this time successful in getting the cooperation of sportsmen all over the state. With this support the leaders were successful in 1921 in getting a bill through the legislature creating a Montana Fish and Game Commission, consisting of five members.

As soon as the commission was organized they were glad to cooperate with the state association and with their help the association was able to go out in every part of the state and help organize clubs. In this way a spirit of cooperation was created that has meant much in protection of wild life.



I have traveled over Montana for a number of years. It is a sincere pleasure to see the interest

taken in every community toward wild life, compared to the situation a few years ago.

If we continue getting the cooperation from all sportsmen in the state in the future as we have in the last two years, I predict a great future for game in our state.

If we keep progressing in the future as we have in the last few years it will be difficult for other states in the union to show sportsmen more real pleasure than in Montana. The younger boys growing up should have a paradise if their dads continue their activity in the conservation and protection of fish and game in the Treasure State.

Montana's commission form of fish and game administration has brought efficient results, according to sportsmen who have compared the county-control system operative in other states with the centralized form operative in Montana. The gospel of conservation and protection is being preached and practiced by Dads and Sons and the spirit now prevailing bodes well for the future welfare of fish, fowl and big game throughout the state.

CARELESSNESS KILLS BULL MOOSE

MAGNIFICENT BULL MOOSE ILLEGALLY KILLED IN THE MADISON COUNTRY. Hunters afflicted with buck fever during the elk season are to blame for killing these protected monarchs. When the mistake is discovered they are left in the hills to fall prey to predatory animals. Deputy Game Warden Thomas O. Peasley is shown in foreground.

HOW MONTANA FEEDS WILD DUCKS

By E. C. Carruth

Member Montana State Fish and Game Commission

E. C. Carruth

MONTANA'S state fish and game commission has embarked on a new departure in the west during the last year and is successfully planting duck food throughout the lakes and swamps of the state. It is planned to attract year after year, not only the migratory water fowl that pass over the state in the spring and fall flights, but also to retain water fowl that breed and raise their young in lakes, sloughs and waters within the borders of the Treasure state. The experiment has proven successful. The growing of aquatic foods has been tried in western and northern states and found worth while. Scattergun sportsmen who cherish the fall call of the quack-quack are elated with success of the plan.

Duck foods for Montana will be varied. Montana has so many conditions and features that it will require a miscellaneous list of foods. The prairie counties east of the Rocky mountains nearly all have water that is brackish, salty or with alkali. These ponds and reservoirs will take salt water vegetation such as grows on the Pacific and Atlantic coasts. These foods are of numerous kind, the most familiar being sago pond, coontail, duck meat, musk grass, naias, smart weed, wapato or duck potato, water milfoil and widgeon grass. All of these brackish foods are found in some eastern parts of the state, in some cases growing profusely.

In the mountainous regions, where the water runs clear, the fresh water foods are found in variety. Some of these are water cress, wild celery, wild rice, and many of the plants that grow in the eastern ponds such as mill foil, widgeon grass, smart weed and sago pond.

The planting of duck foods must be done in seasons, early in the spring and early summer, and then some of them late in the fall.

The services of an expert, who supervised the first surveys and planting, were secured during the spring and summer just passed. An effort will be made to secure an expert to arrange for planting in the coming months of April and May.

Montana has been divided into five districts and the work of looking after the plants and seeds is to be left with the commissioner of that district.

Districts in the mountains will not have as large a territory as east of the mountains, as the immense prairie lands are covered with reservoirs, ponds, lakes and sloughs that prove homing and stopping places for the northern flight of ducks in the fall. If there be a good stand of food once started, many of the ducks will remain over and breed and raise their young, wherever

there is plenty of food. In addition to the planted foods, farmers are furnishing duck food in their grain fields. Sportsmen find that the ducks are feeding in the grain fields more and more each year.

The planting of foods will insure a return of the birds year after year. The sportsman who only cares to hunt in the fall appreciates the effort being made by the commission to provide for the future.

It is thought by the members of the commission that the state can take care of its own foods by transplanting after the next season, although there are foods in other western states that are not found in Montana as yet.

MONTANA LURES ANGLERS OF NATION

MONTANA'S fish and game, as well as her natural resources in mineral, timber, oil, and agricultural assets, are attracting hundreds of wealthy sportsmen from all parts of the nation. Many have erected handsome summer cabins and hunting lodges in scenic spots selected after traveling throughout the nation in search of the proper location for their days of relaxation. These commercial captains, interested in fish and game, have likewise become interested in Montana's industrial and commercial welfare. Whether it be along the shores of beautiful Hebgen lake on the upper Madison, Cliff Lake, on the backwaters of the Madison leading to Ye lowstone park, in the Blackfoot country, the Flathead, Lake Ronan, the Yellowstone, or other turbulent trout streams or teeming lakes, these handsome summer homes are show places. The string of native trout, averaging nearly three pounds, shown in the accompanying photograph were hooked and landed on flies in Hebgen lake by the two Louisiana sportsmen appearing in the picture. The big fellows were landed in less than two hours. It's just a sample of what Montana offers. It's a demonstration that Montana's policy of conservation and propagation is bringing results of commercal value as well as those which appeal to red blooded sportsmen. The grayling, which game fish is a specialty in Montana hatcheries and for which the state has gained merited fame, abounds in these lakes and creek-mouths selected by nationally known sportsmen as scenes of summer activity. They have an individuality. They thrive in Montana's mountain waters. And they have the knack of taking the conceit out of the cock-sure angler. Thousands of dollars have been expended where these fish abount by men whose names are known because of their nation-wide activities. They have a sincere interest in Montana's fish and game as well as her future.

Why Louisiana sportsmen, shown above, come to Montana.

FLY FISHING IN MONTANA

By E. W. Wilson

Member Montana State Fish and Game Commission

E. W. Wilson

MONTANA offers better trout fishing than any other state in the Union, particularly wet and dry fly fishing. With its miles of trout waters beginning with the Yellowstone and its tributaries just west of Billings and extending through to the western boundary, north to the Canadian line, including the Madison paradise, Montana's streams are world famous for their rainbow, natives, grayling and brook trout. Then there are the Big Hole and its tributaries, the Beaverhead and its tributaries, Flathead lake and river, as well as the Clark's Fork of the Columbia, to say nothing of the Big and Little Blackfoot and miles of smaller streams where sportsmen have their favored sheltered spots. And, in these smaller brooks, many sportsmen find greater pleasure than in larger streams, since lighter tackle may be used and their skill tested to the utmost.

Montana possesses many lakes which supply a variety of trout fishing, including silver salmon.

This state is exceptionally fortunate in that it has two of the four or five native grayling streams of the continent, the Madison and Smith rivers. To the true angler the catching of grayling affords delight since their strike is very light and great care is required to bring them safely to the landing net.

To the ardent angler fly fishing appeals much stronger than bait fishing or the use of other lures. To the still more ardent success with the smaller flies it affords the greatest kick.

Personally, I think catching trout up stream affords a greater thrill than down stream; this, of course, is not successful on the larger waters, although I have, on hard days, used this method with more or less success on the Yellowstone. It is laborious and I would hesitate to say generally successful. Since fish head up stream, on down stream fishing they have an opportunity to give your flies the once over several times, whereas up stream affords them one opportunity only. Consequently I feel on the off days this method may be resorted to with a measure of success even on the larger waters.

To meet the constantly increasing demand of the fly fisherman who insists on whipping brooks, streams and lakes for the wary trout and the grayling which have made Montana's waters famous, the state commission is accomplishing remarkable results in restocking.

The state is now operating 14 hatcheries and, in keeping with the foresighted policy of the department, the streams that are most popular are constantly being restocked with fingerlings to replace the catch of each season. From these hatcheries come the na-

tive trout, the rainbow, steelheads, eastern brook, Loch Leven—the gamiest fish in cold western waters. Millions of these fingerlings are being planted annually.

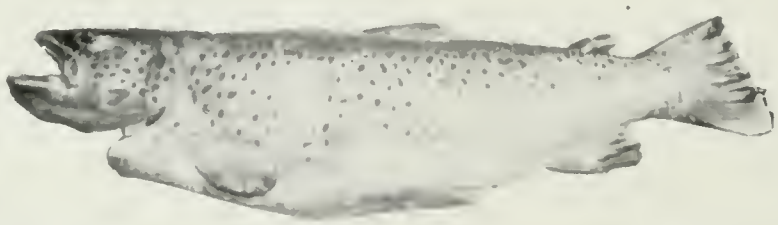
The task of taking small trout back into the mountains where trails have not been cut by forest rangers or settlers, and where it is necessary to plant them in the headwaters of creeks, has always been a difficult task until an improved method was recently adopted in Montana.

Rainbow trout weighing 26 pounds caught by George Elliott in Cliff Lake.

The ordinary ten-gallon milk can that has been used in the past was difficult to handle on a pack horse and frequently resulted in injury to the horses, because of the small area of contact or bearing, due to the shape of the can.

S. B. Locke, in the Federal forest service, has developed a device to be used with almost any square five-gallon can and which is described in the Big Horn, the official publication of the state commission.

A round hole six inches in diameter is cut in the top of the can and over this is fastened with small stove bolts a cylinder made of good weight galvanized iron, which is five inches high. The cover to this cylindrical opening is in the form of an inverted cone, which is clamped to the top of the cylinder with a metal



Eight-pound Loch Leven trout caught on fly in the famed Madison river below Hutchens camp.

bar that forms a convenient handle for carrying the can. The cone-shaped cover is perforated with a number of small holes which permit the water that splashes into the cover to drip back into the can, thus aiding in aerating the water. Two such five gallon cans can be placed in a box convenient for fastening to a pack horse, one box on each side of the animal, four cans to each pack horse, making a load that will not exceed 175 pounds and one that will "stay put" when the "hitch" is made by an experienced packer.

Knee deep in joy in the Little Blackfoot river, east of Garrison, where the big boys rise to the fly beneath the overhanging willows

A CATCH LIKE THIS MAKES THE WORLD LOOK BRIGHTER

This splendid string of beauties was hooked on flies by the good natured Montana sportswoman while casting in Lake Josephine in Glacier National Park.

FISH AND GAME LAW VIOLATIONS

By Jack W. Carney
Assistant State Game Warden

Jack W. Carney

WILFUL violation of Montana's fish and game laws are decreasing. Comparison of totals compiled for the 1925-1926 biennium reveals a situation that is extremely gratifying. The improved situation is directly traceable to two important influences. Sportsmen of the state, as well as those sojourning along our woods and waters have demonstrated their cooperation in the great campaign of education in what constitutes sportsmanship, and this fact has had much to do with reducing violations. In addition to this improved viewpoint, the incessant vigilance of representatives of the state fish and game department and the willingness of sportsmen to work hand in hand with deputy wardens for the conservation of our fish and game, has achieved results. Official figures compiled by the department show that in 1925 there were 482 arrests made for violation of the fish and game laws. This total was reduced to 364 in 1926, or 118 cases less than the preceding year. During 1925 the total fines imposed for these violations reached $12,945. In 1926 this figure slumped to $12,116.45, or a drop of $728.55. These figures are significant.

A review of comparative figures for the biennium shows that the largest number of arrests has been made for fishing without proper license. In 1925 the total reached 82, while in 1026 it was reduced to 63 despite the fact that vigilance of game wardens on patrol duty has been increased rather than diminished. This figure likewise demonstrates the effect of the campaign of education conducted by the department and sportsmen's organizations of the state along lines intended to teach anglers and hunters the value of strict observance of laws enacted for the benefit of sportsmen as well as for the protection of wild life.

During 1925 there were 20 arrests of aliens in possession of firearms without a license, while in 1926 there were 25.

In 1925 there were 18 arrests for hunting on game preserves, while in 1926 there were 10.

During 1925 deputy game wardens arrested 10 for killing doe deer, which are protected in most counties, while in 1926 there were but three.

Difficulties involving making false statement in securing hunting and fishing licenses have been

Mountain lions trapped by predatory animal hunters and their hides hung up to dry.

confined, under ordinary circumstances, to visiting hunters and anglers from outside the state, making application for licenses intended only for residents. In 1925 there were 39 arrests for this offense, while in 1926 there were 29.

Another demonstration of improved conditions may be noted in the arrests for shipping furs outside the state without a license. During 1925 there were 79 arrests, while in 1926 this figure was reduced to 29 offenses. Similar improvement is shown in the arrests for trapping fur-bearing animals out of season. In 1925 there were 36 arrests, while in 1926 there were but 15. In 1925 the deputy game wardens caused the arrest of 30 for trapping fur-bearing animals without a license, while in 1926 the figure was cut to but eight. One of the problems of the department has been the beaver situation. In 1925 there were 23 arrests for trapping beaver without a permit. In 1926 there were 21 arrests.

Between January 1, 1925, and January 1, 1926, the state department officially tagged 6,301 beaver hides which were legally taken. During the year between January 1, 1926, and January 1, 1927, the state department officials tagged 9,762 beaver hides, or a total for the biennium of 16,063. Beaver trapping permits are issued only to bona fide residents of the state who are actual owners or leasors of land which is actually being damaged through work of the beaver. The holder of the permit is allowed to trap or destroy them only on his own premises. When an application is made for a beaver trapping permit, a representative of the state department is delegated to make an official investigation, inspect the premises and report to state headquarters.

Because of the danger of wiping out the beaver of Montana, public spirited citizens have suggested a plan that they be trapped alive by state trappers and transported to state property for purposes of propagation.

A new trap designed chiefly to capture beavers alive for propagation and restocking purposes, invented by Vernon Bailey of the Biological Survey of the United States Department of Agriculture, has been patented and dedicated to the people of the United States.

The circular also gives detailed instructions as to the operation of the trap.

FAITHFUL DOGS AID MONTANA HUNTERS

Fearless hunters, skilled in wood lore and capable of meeting emergencies, make up the little band of Montana's salaried hunters. Robert P. McFarland and one of his favorite dogs are shown in this photograph with the hides of coyotes killed in one month.

FISH, GAME AND FORESTS

By Glen A. Smith

Chairman Montana Sportsmen's Association

Glen A. Smith

THE habitat of most of the big game animals in Montana is on forested or partially forested lands. Big game animals which by nature preferred the plains and have been unable to adapt themselves to life in the forests have long since given way to economic development. The extermination of the buffalo gives weight to this statement, as does also the plight of the antelope. It is within the forested areas that cool, sparkling streams are found in which the trout and other fish are wont to thrive and it is here, too, that the home of the fur bearing animals has always been found.

Destroy the forest cover and you destroy the home of the game, the fur-bearers, the home of the birds and the countless numbers of little folk of the woods.

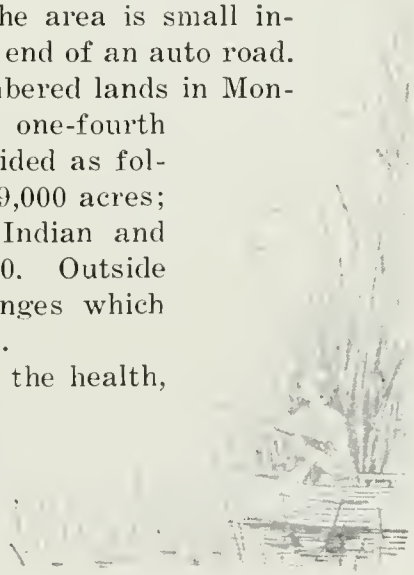
Destroy the forest cover and the stream flow is surely modified. Spring freshets may cause destruction to the stream beds, and to the food and the spawning grounds, in fact, to the home of the fish. The water, which otherwise would be held back, may rush off to cause floods in the lower regions with the result that in midsummer streams are either dry or so low and warm that trout cannot thrive in them.

So it is that the future of our fish, game, fur-bearers, and the little folk of the woods depends largely upon the cover of our forested lands.

There is still abroad in Montana and other states the lingering feeling which has existed since the landing of the first settlers, that there are vast areas still untrodden by man wherein game abounds. The inaccessible and wilderness areas of large magnitude of our forefathers have faded away with the onward march of civilization until today the area is small indeed that is not within a day or two's travel from the end of an auto road.

A recent inventory of timber lands and partly timbered lands in Montana places the total area at 24,842,000 acres, about one-fourth of the total area of the state. The ownership is divided as follows: Private, 5,386,000 acres; State of Montana, 559,000 acres; National Forest, 15,882,000 acres; unappropriated Indian and Military Reservations and National Parks, 3,015,000. Outside of the Indian Reservations these lands are the ranges which may be considered the future home of the big game.

The job of making these areas contribute most to the health, happiness and prosperity of all the people of the State rests upon every citizen of the State, also State and Federal agencies. Within these tracts there will be call for all kinds of land uses, and close cooperation among all interested parties will



Elk gathered on south slopes in protected areas.

be necessary. The kind of cooperation needed will consist of conducting ourselves so that others can work with us.

It is evident that no one group can have things all its own way. It will not answer for conflicting interests to rail at each other, or at the men they collectively have engaged to manage this particular affair of theirs. They must get together and agree by compromise or otherwise on a definite plan of procedure.

Being a sportsman worthy of the name, the kind we need now and always will need is a serious business, a business requiring knowledge and judgment and fair dealing with the other fellow.

From the best estimate obtainable the national forests represent about 80 per cent of the big game range within the state. It is there that about the same percentage of our big game finds food and shelter.

From all indications it is safe to prophesy that this is likely to remain the case. It is in the national forests, therefore, that the big job of game and fish management must be carried on, and the welfare of the wild life must ever be in the minds and plans of those who administer these great federal properties. Also it must be in the minds of more folks than just those who are paid to manage these national forest lands. This is true for the simple reason that those who are paid to do the job should be followers rather than makers of policies. In other words, the public should choose whether there shall be an abundance of game or otherwise.

Careful studies are being conducted to determine:

Montana elk on winter feeding grounds.

1. The number and kind of big game animals inhabiting the forests.
2. The area and kinds of land occupied and best adapted to their needs.
3. The available winter and summer range.
4. The feeding and breeding habits of big game animals.
5. A survey of the streams to determine: (a) The adaptability of each stream for fish, and the kind of fish best suited to it. (b) The usage. (This information to be used in mapping out an intelligent program of fish planting.)

Each forest officer is also commissioned a deputy state fish and game warden (without pay). The estimates made by them of the 122 ranger districts and compiled into a state report gives the following inventory for the National Forests of Montana: Deer 50,000, elk 9,800, moose 1,146, mountain sheep 1,750, mountain goats 3,700, besides a large number of fur-bearers.

Figures compiled on the area of winter and summer ranges within the national forests bring out the following facts: Practically all the 15 odd million acres are used more or less as summer range, while the winter range is restricted to 4 million acres of widely scattered tracts.

There have been set aside 12 large and several small areas as state game preserves, aggregating in round numbers 1,500,000 acres.

Better than 1,000,000 acres have been set aside as game range exclusively, while the gross area used by game exclusively is slightly more than 8,000.000. This latter includes areas inaccessible to domestic stock and areas closed for use of game only.

Considerable data have been accumulated on the feeding and breeding habits of game animals.

The fish-planting program has resulted in planting from 15,000,000 to 25,000,000 baby fish annually in the streams within or having their immediate sources in the national forests and the stocking of numerous lakes heretofore void of fish life. Sportsmen, state game officials and others have assisted in this program.

Cooperation has been of a high order between state game officials and forest officers, which has resulted in many prosecutions of game law violators.

One among many of the fine examples of the results that may be expected on suitable areas and under proper protection is well illustrated by what has happened on the Sun River game preserve. This preserve was created by the legislature in 1912. It embraces approximately 200,000 acres of rough, mountainous, more or less timbered lands. It includes all of the territory bounded on the east by the North and South Forks of the Sun river and on the west by the Continental Divide. At the time of its creation it contained approximately 200 head of elk, some deer, mountain sheep and goats, also a few moose. Under 14 years of protection the elk have increased to between 3,900 and 4,000 head, and at the same time the annual utilization on this herd has ranged from a few head to 650, with a probable annual average of 200 head. Other game has in-

Montana elk crossing from timber to the south slopes in January. Note the trail in the snow.

creased to some extent but not in the same proportion, which would seem to indicate that the area is best adapted to elk.

Cooperating with the fish and game commission several experiments have been conducted in salting game ranges, and while it is too early to state definitely, the results to date seem to indicate success.

The salting experiments indicate:

1. Better health and physical conditions.

2 Better distribution of game on their ranges and the elimination of congestion on certain areas resulting in over-use of their food supply.

3. There seems a real possibility of controlling to considerable extent the movements of game, elk especially.

Based upon the information accumulated over several years of careful study a simple plan of game management adapted to local conditions is worked out for each national forest. Briefly the plan consists of:

1. Area of forest adapted to game production, graphically shown on maps through appropriate symbols.

2. Best estimate by species of game now on forest. Also information showing whether increasing or decreasing.

3. Possibilities of increasing game. Measures that may be employed to increase game, such as the establishment of game preserves, regulation of annual kill, the buck law, etc.

4. Definite objectives. General aims of management and the extent to which the forest can be used for game production.

5. Possible methods to obtain objectives. Here a program of action is outlined.

6. Regulating the kill. Records of annual kill and studies to determine the proper kill to meet the objects of the plan.

7. Control of vermin. Best method of control or complete extermination.

8. Results accomplished. Here is recorded annually any definite results accomplished.

The following indicates briefly the kind of information being gathered as a basis for a balanced management plan for fish production:

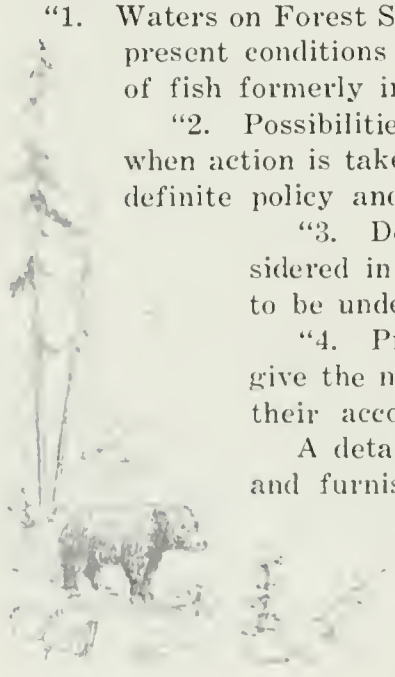
"1. Waters on Forest Suitable for Fish Life. Describe in natural units giving present conditions in affecting fish life. Give the kind and abundance of fish formerly in existence and the present supply.

"2. Possibilities of Fish Production. Discuss possibilities of this when action is taken to improve conditions and maintain stocking. State definite policy and the objectives which we should attempt to obtain.

"3. Development of Objectives. Study the points to be considered in fish management, outline and describe the measures to be undertaken in order to obtain the objectives.

"4. Program for Definite Period. For a five-year period give the measures to be undertaken and the means available for their accomplishment".

A detailed outline on fish management has been worked out and furnished each forest officer.



These forestry officers are working hand-in-hand with the state fish and game commission, as well as the sportsmen, to preserve the wild life as a heritage to future generations. One of the splendid results achieved is the kindly spirit of cooperation prevailing.

MONTANA'S MIGRATORY BIRDS

By George E. Musibach
United States Game Warden

G. E. Musibach

ASIDE from fishing there is probably no other outdoor activity that tugs at the desires of Montana sportsmen with the same yank as the shooting of migratory waterfowl. It offers a greater variety of sport than any other pastime with a gun because of the varied species of birds that go to make up the sportsman's bag. There is that ever-present anticipation what the next bird will be. One moment a brace of teal whizz by at a 50-mile clip to tax the skill of the most seasoned handler of a shotgun, followed the next few minutes by a flock of canvasbacks, the most sought of the duck family. Perhaps the next visitor will be the lordly mallard, the gleaming gadwal, the whirring widgeon, the whistling goldeneye or, by rare chance, that stately bird of the Canadian wilds—the "honker."

Migratory wild fowl shooting is attractive not only because of the sport involved but for the further cause of the protracted period during which it may be enjoyed. The abundance of water fowl makes it possible to prolong the open season over a period that would not be suitable for upland birds, as well as permitting a much greater number to be killed during the season.

There are many serious problems to be faced in connection with the conservation of migratory birds. In view of the nature of this class of game not only local conditions must be considered but likewise what is happening throughout the country as a whole has a vital bearing on the abundance, or lack of abundance.

There are two matters in particular that present a rather terrifying aspect as affecting the supply of migratory wild fowl.

First is the vanishing of suitable water areas which attract birds and afford resting, feeding grounds, and nesting and breeding havens. This condition arises, in some cases, from drainage operations, in others from evaporation as a result of weather conditions.

Another problem, and one no less baffling, is disease which has appeared among water fowl in recent years in various sections of the country. While waterfowl sickness has not been observed among Montana birds to an alarming extent, it has made an appearance and in a few instances has been of a serious nature, though not reaching the proportions as in other western states—notably Utah, Oregon and California.

Investigation in many instances has disclosed the cause of the malady. For instance, in Utah, it has been established definitely that the duck sickness was caused by the toxic action of certain soluble salts found in alkali. At Lake Bowdoin, Montana, a few years ago, a similar condition existed and there was

a large mortality among wild fowl attributed to a like cause. There have been other outbreaks of waterfowl sickness in Montana and other places throughout the country where sufficient investigation has not been possible so as to definitely fix the responsible agency. The surveys made, however, would indicate that the disease appearing in Oregon was not identical with that in Utah and at Lake Bowdoin. Again, the attack at Priest Lake, Teton county, Montana, was not identical with that observed at Malheur Lake, Oregon.

Whatever the cause, the so-called duck sickness is a serious matter and one worthy of careful investigation to the end that some solution may be arrived at successfully to combat a condition that is annually robbing us of thousands of migratory birds.

Some conception of the magnitude of this loss may be gained by a few noteworthy examples.

The writer has the statement from an authoritative source that in one of our western waterfowl sections an accurate count was made of dead fowl in a given area and these astounding figures arrived at: For a distance of 50 miles of shore line there were 57 dead birds to each rod. If these figures are correct, and there is no reason to believe otherwise, it would mean that each mile would contain 18,240 dead birds, and that in the 50 miles covered the total would reach close to 1,000,000 dead fowl.

Section of shore line at Priest Lake, Teton county, strewn with bodies of the greater white goose. These birds died by the hundreds in April, 1926. Warden Mushbach is shown at the left.

A rather serious situation was encountered at Priest Lake, Montana, the latter part of March and the fore part of April, 1926, when a large number of greater snow geese died from some, not definitely determined, cause. The period over which the birds were affected was, fortunately, quite short—apparently not more than ten days. An investigation of conditions was made at Priest Lake April 17 and 18 and at that time hundreds of dead geese lined the shores of this little body of water. There was scarcely a yard of shore that did not contain one or more of these beautiful birds, and in places one could hardly step without tramping on the bodies, so thickly were they strewn. On one little sandbar, about 30 feet long by eight feet in width, more than 70 dead geese were discovered. Priest Lake covers about a section of land so that it was possible to make quite accurate count of the dead fowl.

The tally was as follows:

Greater snow geese 1546, lesser snow goose 1, Canada goose 1, golden-eye duck 1, mallard duck 1, baldpate widgeon 11, pintail duck 9, a total of 1570 dead waterfowl. Undoubtedly some birds were carried away and others escaped observation in various ways so it is evident the total mortality was in excess of these figures.

At the time the investigation was made the water was cold and clear, but so thoroughly impregnated with salines as to be bitter as quinine to the taste. There can be but little doubt that the water of the lake was directly responsible for the death of the birds, coupled, no doubt, with a combination of other circumstances, for it was only at this lake there was a loss.

Many geese stopped for a time during this same period at other lakes and ponds in the immediate vicinity but at these other places no bad effects were noted. Some of the sick birds were captured and placed where fresh water was obtainable. Most of these birds recovered rapidly. The exception being a few birds that were far gone to start with.

Whether the malady among waterfowl is caused by alkali poison, or some other agency, experiments have proven that a cure is possible by placing the birds on fresh water or supplying fresh water to areas affected. In some cases it might be possible to frighten the birds away from contaminated waters. This might be worked successfully on small lakes and ponds but would be more difficult on larger ones.

While vast water and marsh areas present a more costly and difficult problem to contend with the sportsmen and conservationists of Montana and elsewhere are equally interested in a solution of the difficulty, whether it be in Utah or some other section, for if there is a loss in other places it is plain the number coming to Montana is going to be reduced proportionately.

So far as Montana is concerned the migratory wild fowl situation is varied. Conditions in the west part of the state have been such that the supp'y of birds appears to be normal. Water in that section is more abundant and reports indicate that waterfowl have been quite plentiful. There were more birds during the season of 1926 than there had been for some years.

The reverse was true of the east section of the state for there has been a decided decrease during the last two or three years. Undoubtedly this is due to many of the lakes and ponds in parts of eastern Montana drying up entirely, leaving but few places for the birds to frequent.

All along the former main path of migration from north to south the birds encounter one dry lake bed after another. These in previous years have furnished breeding, feeding, and nesting grounds for thousands of migrating waterfowl.

Worthy of mention in this connection is Lake Mason in Musselshell county, other less important places throughout the Musselshell valley, Big Lake and practically all of the other lakes and ponds in the Lake basin of Stillwater county, marsh and lake areas in the north part of Yellowstone coun-

Another view of the shore line of Priest Lake, showing some of the dead snow geese that died there from a mysterious disease.

ty, and many others all over the eastern section of the state. Formerly these were important waterfowl districts.

If eastern Montana is to enjoy waterfowl shooting these lakes and marsh areas must be replenished and in many cases this can be only be accomplished by artificial means. Each affected area presents its own problem and only a careful survey of local conditions will make it at all possible to suggest a remedy.

The food problem for waterfowl has been serious in the past but the Montana Fish and Game Commission is now expending several thousand dollars yearly in planting duck food. When this work has been carried on for a time there will undoubtedly be a marked increase in the birds which will be attracted by the rich food beds which will spring from these plantings.

The management of a state's game resources has passed the stage where adequate protective laws are its chief requisite. There was a time when the game animals, game birds, fish, and all forms of wild life could take care of itself, thrive and multiply. That condition no longer exists and details affecting their welfare must be supervised, aided and abetted by human agencies if the species is to survive. Mankind has stepped in and upset nature's balance, consequently it must restore that balance by assisting the propagation, supplying food, refuges shelter, combat disease, and protect from common enemies as well as enforcing laws for protection.

DEPREDATIONS OF THE ELK TOOTH HUNTER

Because of the increasing value of elk teeth, the malicious killing of big bulls at one time was the means of income for tooth hunters. Their activities have been largely checked, however, through effective game control. These big bulls were killed for their teeth alone and the meat left in the hills. The photograph was taken near Gardiner, near the boundary of Yellowstone National Park.

FLATHEAD LAKE AND THE WHITEFISH

By Judge Walter M. Bickford

Former Member Montana State Fish and Game Commission

W. M. Bickford

THROUGH the activities of the Montana state fish and game commission the common lake whitefish (coregonus clupeiformus) which have gained fame as a Lake Superior product, have been successfully planted in Flathead Lake. One variety of the species is found generally in the United States. The adult fish develops a fleshy hump at the shoulders which makes the head look small when compared to other fish. It belongs to the same species (coregonis) as our "pea nose" and is found most frequently in the chain of Great Lakes, more especially in Lake Superior, from which fact arises the common name. There are few table fishes its equal. Many of the early French explorers, Marquette, Charlevoix, and Champlain, who for months at a time depended upon this fish for their sole food, bear testimony to its excellence.

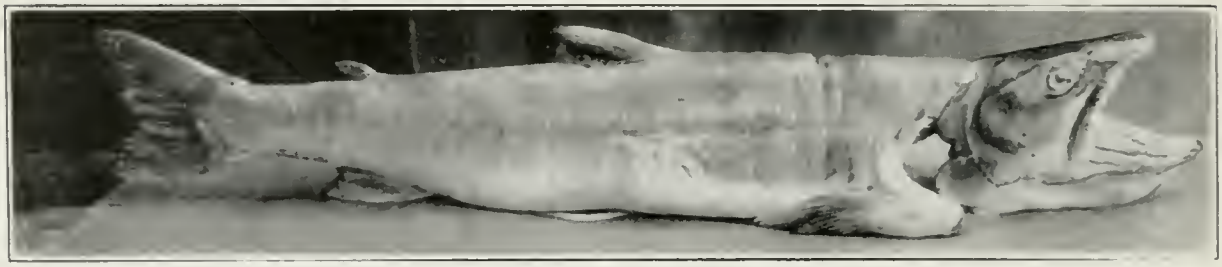
The whitefish feeds upon crustacians and the larvae of water insects. It spawns in November and December on rocky shoals.

Much interest has been manifested in the result of the work of the state commission in planting the Lake Superior whitefish in Flathead Lake. From the shipments that have so far been made, the result is highly satisfactory. While it appears that no great quantity of the fish are taken in any one haul, results are great enough to satisfy the persons engaged in the work. So far as the consuming public is concerned the verdict is unanimous that the propagated fish are as fine as any sold.

It is conceded that fish that have not been frozen but only kept at a low temperature to prevent deterioration are better than the ones which have been kept fit for the table by freezing. The whitefish from Flathead lake can be delivered to any part of Montana in perfectly good condition with no other precaution than keeping in a cool place.

The question of opening the lake to commercial fishing has been much discussed. In the mind of the writer the action taken by the state fish and game commission is right. The lake has been successfully stocked for five years. The effort to produce the variety is no longer in doubt. Undoubtedly the fish first planted have reached the natural limit of growth. Those first planted have more than reached the spawning age, and if a spawning ground has been found by the fish there can be no doubt about the production of eggs and at least a partial restocking of the lake in a natural way.

The effort in the future, then, will be so to aid natural reproduction that the quantity of fish taken may be gradually increased from year to year.



Bull trout caught in seine in Flathead lake

There can be no doubt in the mind of any well informed fisherman that the catching and marketing of the bull trout caught with the whitefish will be of great aid in future efforts at raising the whitefish. The fact that the bull trout are caught in the same net, in the same vicinity and at the same time would indicate that the bull trout has a habit of lingering around close to its food supply.

The habit of the bull trout of feeding upon whitefish is fully established by the observations of Dr. Elrod of the University of Montana and has been reported upon in his annual reports.

Catch the bull trout, then, and add to the efficiency of work later to be done, at the same time derive a revenue and supply food of a most desirable kind to the people.

It is not known how wide a market can be supplied, nor has it been determined with any degree of certainty how widely distributed the fish are in the lake. It will require much time and effort upon the part of the fishermen to determine in what part of the lake the fish are most numerous.

It may not be out of place to state that in a single year the Great Lakes have yielded to fishermen of many varieties 113,000,000 pounds and that the supply does not seem to lessen. It is stated on good authority that 12,000,000 pounds of whitefish are taken in a year and are widely distributed as food.

It is rumored that some objections have been raised to the action of the state fish and game commission in allowing these fish to be taken from the lake by nets. The objection raised is that game fish will be destroyed. This will depend upon the kind of net used. A gill net would kill all fish coming to it or that may be caught in it. A pound net, on the contrary, would work no such result.

If the Dolly Varden, or bull trout (Salvelinus Malma), should be classed as a non-game fish, its destruction would be a good thing. It is well established that the bull trout is destructive of all other kinds of fish, that its food is largely, if not entirely, of smaller fishes, and that the whitefish is the greatest sufferer in this respect.

Another view of the cannibal bull trout, caught in the whitefish seine in Flathead lake. Its stomach was filled with small trout. Note the huge head and jaws.

It is stated in one bulletin of the United States fish commission that a ten-pound bull trout will in one year consume 300 pounds of other fishes.

One instance of the destructive work of this fish upon other varieties is shown by a well authenticated case in Missoula when, upon examination of a bull trout, there was found in its stomach 120 small fishes that could be counted, and others partially digested.

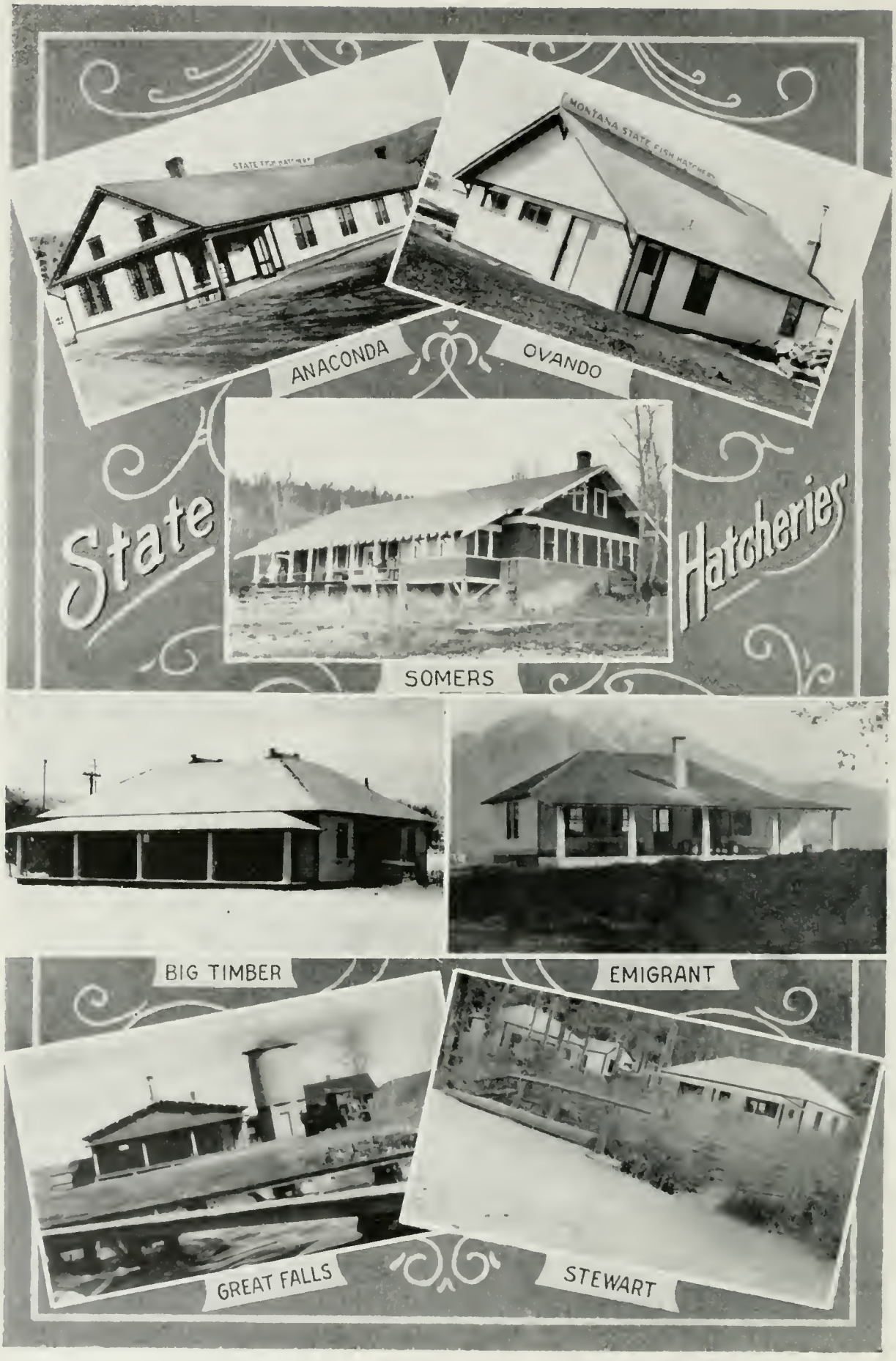
If properly carried on, the taking of the bull trout with the whitefish will ultimately result in many more game fish of the native trout variety by the destruction of its worst enemy when caught in nets.

Every encouragement should be given to the state commission in its efforts to make available every lake and stream for the production not only of food fish, but of the game varieties. The commission is doing good work.

THE CANNIBAL OF MONTANA'S STREAMS

MONTANA sportsmen have declared war on the Dolly Varden or bull trout, the cannibal of the trout family, in the realization that the big fellows are devouring their daily toll of fingerlings and larger trout planted and preserved through activities of the state fish and game commission. The photograph above is a sample of the manner in which these cannibals of the creeks and lakes devour these little fish. These bull trout abound in Flathead lake where commercial seining is permitted for Rocky Mountain whitefish. When they are brought up in the seine the smaller fish are given a better chance to survive.

Bull trout caught at the mouth of Rattlesnake creek, near Missoula, with 103 small trout and other fish in its stomach.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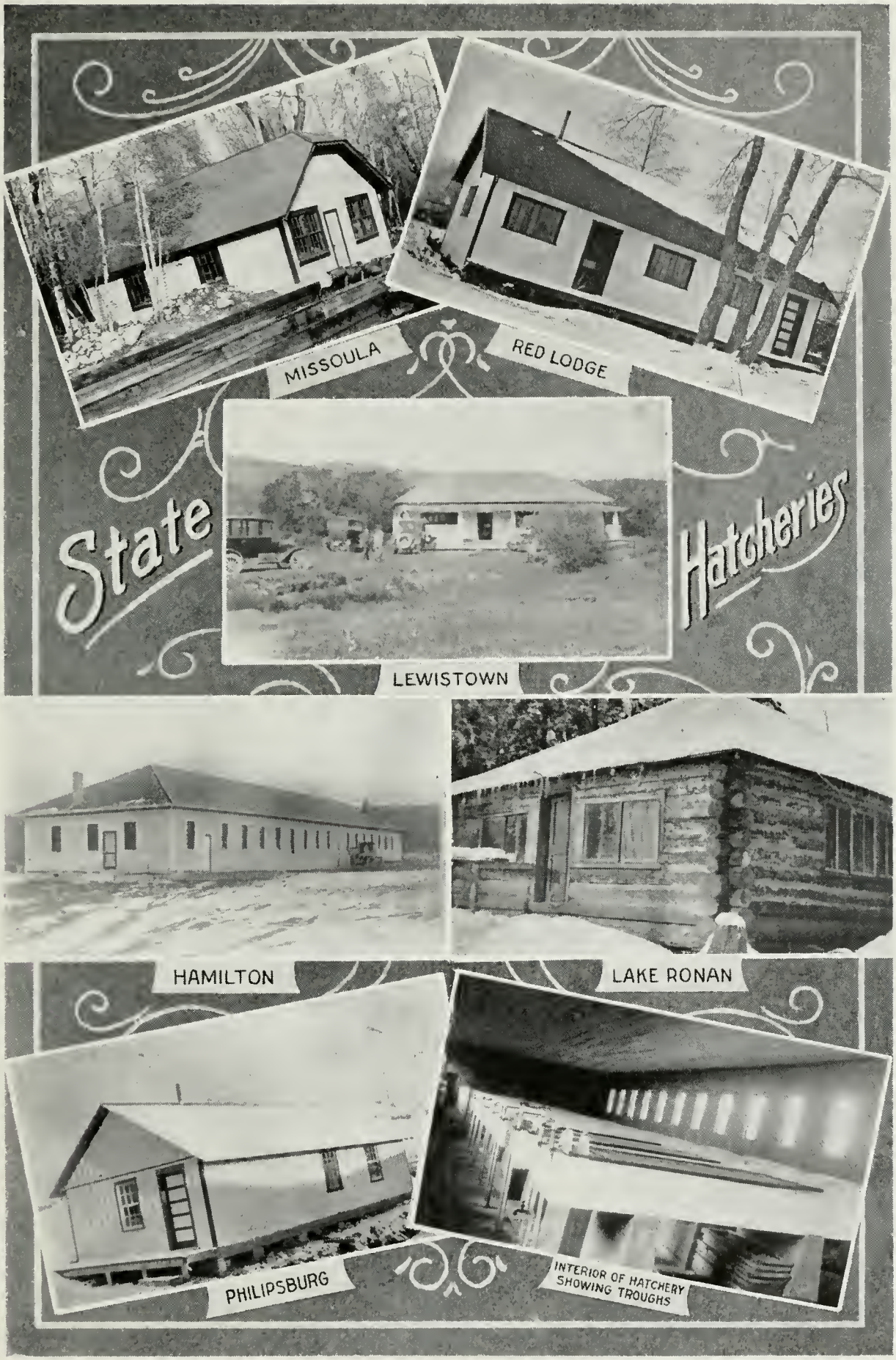

State
Hatcheries
MISSOULA
RED LODGE
LEWISTOWN
HAMILTON
LAKE RONAN
PHILIPSBURG
INTERIOR OF HATCHERY
SHOWING TROUGHS

Where the big boys rise to a fly in Lake St. Mary, Glacier National Park.

MONTANA'S FISH HATCHERIES

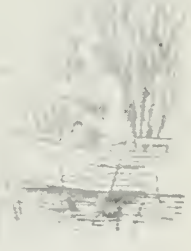
J. L. KELLY
Member State Fish and Game Commission

MONTANA'S growth in the esteem of sportsmen of the nation as an anglers' paradise has necessitated foresighted activity on the part of the state fish and game commission in establishing and maintaining fish hatcheries of sufficient capacity to keep streams and lakes stocked in satisfactory manner. It has been but a few years ago since Montana depended upon only three hatcheries for the fish supply to keep step with progress and avoid depletion of favorite waters. From this nucleus of three hatcheries the equipment has been increased until the state commission is now operating 14 separate hatcheries, divided in the eastern and western districts. Hatcheries in the eastern district are under the supervision of John W. Schofield, while those in the western district are operating under the care of Dr. I. H. Treece.

Montana's hatchery problem is largely one of distribution. The Treasure state has perhaps more miles of trout streams than any other state in the Union. Fingerlings must be distributed over the vast area in such manner as will assure results. Hence, the hatcheries have been constructed with a view to serving the largest possible field in the shortest possible haul—all other elements equal.

State hatcheries are located at Somers, Emigrant, Anaconda, Great Falls, Big Timber, Missoula, east shore of Flathead lake, Lake Ronan, Libby, Lewistown, Red Lodge, Philipsburg and Ovando.

Fish experts estimate that the capacity of each hatchery trough is 50,000. The Anaconda hatchery has 60 troughs with a capacity of 3,000,000; Georgetown hatchery has 20 troughs and 1,000,000 capacity; the Philipsburg hatchery on Rock creek has 10 troughs and a 500,000 capacity; Hamilton (Daly's) has 80 troughs and a capacity of 4,000,000; Ovando has 16 troughs, or 800,000 capacity; Missoula has 16 troughs, with 800,000 capacity; Lake Ronan has 16 troughs, with 800,000 capacity; Somers has 40 troughs, with 2,000,000 capacity; Libby has 12 troughs, with 600,000 capacity; Ashley lake has six troughs, or 300,000 capacity, and Flathead lake has 12 troughs, or 600,000 capacity. These stations are all in the district over which Dr. Treece has supervision, under direction of the fish and game commission. The spawning station at Georgetown lake last year recorded a take of 37,275,000 native trout, 16,742,000 grayling, 495,000 rainbow trout and 826,000 eastern brook trout. Conley's lake produced a take of 217,000 brook trout. Lake Ronan produced about 4,500,000 rainbow, Bitter Root lake produced a take of 1,000,000 natives, while Ashley lake produced



another million natives. In the district over which John W. Schofield has supervision, the tentative spawning fields are at Lake Francis near Valier, the lakes near Cooke City and Cliff lake on the upper Madison river.

The hatchery at Great Falls is located six miles from the city at the Giant springs. It has 18 standard troughs and two wood-sided ponds, six feet wide by 100 feet long. The pond capacity is from 200,000 to 250,000 each, and the trough capacity 1,250,000. With enough eggs from spring and fall spawning specie this hatchery can average 4,000,000 trout output per season.

The Lewistown hatchery is six miles from town on Spring creek. It has 12 standard troughs and three wood-sided ponds six feet wide by 60 feet long. The pond capacity is about 250,000 to 300,000 and there is an abundance of water. The trough capacity is 600,000. With sufficient fall and spring spawning, the hatchery output should be 2,000,000 to 2,500,000.

The Red Lodge hatchery is located at the tourist park at the end of Main street. It has 12 standard troughs and one wood-sided pond six feet wide by 60 feet long. The pond capacity is 250,000 and the trough capacity 900,000. The output is 2,000,000 to 2,500,000.

The Big Timber hatchery is three blocks north of the Northern Pacific tracks and within the city limits. It has 36 standard troughs and six wood-sided ponds, each with a capacity of 250,000. The trough capacity is 2,250 000. This plant, when running full blast, could average 5,000,000 to 6,000,000 trout per season.

The state hatchery at Emigrant is one mile south of the city between the Northern Pacific tracks and the Yellowstone trail. It has 14 standard troughs and six wood-sided ponds, six feet wide and 60 feet long. The capacity of each pond is 200,000 to 250,000 and the trough capacity is 1,000,000. This plant should average about 2,500,000 per season.

Millions of fingerings produced at these 14 state hatcheries are being planted in lakes and streams throughout Montana to preserve the fame of the state as an angler's paradise. In this work farmer and sportsman alike are interested. The angler who is inconsiderate of the farmer's property rights has little regard for the principles of good sportsmanship. The careless angler who trespasses, leaves gates open, and wilfully destroys crops and lands is a wanton offender responsible for "No Fishing" signs that greet him when he goes forth with rod and reel.

A string of Montana beauties hooked on flies in Lake McDermott, Glacier National Park.

DEPARTMENT OF EDUCATION

By M. S. Carpenter

Educational Secretary, Montana State Fish and Game Commission

M. S. Carpenter

DURING the last several years the Montana state fish and game commission has maintained an educational department, an interesting and beneficial feature of which has been the collective exhibit of specimens of the fauna of the state at agricultural fairs and expositions throughout Montana. The collection of these specimens each year has been a task. But with the cooperation of the deputy game wardens, the United States Bureau of Biological Survey as represented by R. E. Bateman, leader of predatory animal control in the state, and Frank H. Rose, warden of the Montana National bison range, the department has been able to gather an annual exhibit that has proved one of the greatest attractions at fairs in Helena, Billings, Bozeman, Missoula, Hamilton and Polson, and at the livestock show in Great Falls.

Among the specimens gathered in these exhibits have been buffalo, elk, deer, antelope, bear, wolves, coyotes, badgers, skunks, porcupines, marmots, raccoons, bobcats, lynxes, martens, mink, beaver, muskrats, ducks, geese, ringneck pheasants, Hungarian partridges and trumpeter swan.

With the buffalo, elk and deer a calf or fawn has been exhibited one year and the same animals held in captivity and shown at the fairs the following year as a matter of education in the growth and development of the species. This practice has proved of keen interest.

Attendants in charge of these exhibits have noted with interest the great numbers of people who make remarks like "That is the first antelope I have ever seen," or "I never saw a marten before," "I didn't realize that an elk's antlers made such growth in a single year," and so on. Many of these people have passed the mile-stones of middle life. And so it is very evident that the fish and game department is affording many people of Montana their only opportunities to view some species of the state's fauna.

It is doubtful if any of the attractions at fairs are visited more times by the same people than is the wild life exhibit of the fish and game department.

The writer recalls hearing a woman at the Missoula fair in 1925 say, "This is the sixth time I have visited this exhibit in three days. I think it is the most interesting on the grounds."

At Helena and Billings aquariums are provided for the exhibition of species of game fish indigenous to the waters of Montana. Each year the exhibits of game fish have been

E. B. Warren giving Mike a cider throat-wash at Ravalli county fair at Hamilton, 1926

of such a high character that frequently applications have been made for the specimens to be sent out of the state.

On several occasions the federal government has sent a man here to take portions of the exhibits to parks and aquariums in the east, particularly the specimens of Loch Leven trout and grayling.

These exhibits, proving such a great attraction to the people of the state, affords a splendid opportunity for the attendants to put over to people with whom the department comes in contact the message that the department is absolutely self-supporting, that it spends not a dollar of the money paid to state, county, city and town treasuries as taxes, and that the department is making every effort to perpetuate the wild life of Montana that future generations of its citizens may have it in generous numbers to enjoy.

Leaflets bearing these messages have been distributed at these exhibits, as many as 10,000 having been passed out to the visitors to the exhibits in a single fair season.

Other educational work is done in connection with these exhibits as opportunity affords. The value of different species of game and other birds as destroyers of insects is brought to the attention of the people, as is also the predatory animal and bird control work carried on in cooperation with the organized sportsmen of the state, which work, carried on year after year, is ridding Montana of thousands upon thousands of harmful animals and birds.

The wild life exhibit of the department has become so popular with the patrons of fairs that managers have expressed the earnest hope that the department will continue the practice.

Contests conducted among boys' and girls' clubs of the state as well as organizations of sportsmen, in ridding the state of predatory birds and animals have brought remarkable results in saving game birds. Hawks, magpies, crows, gophers, woodchucks, coyotes, mountain lions, the eggs and feet of predatory birds and other features are counted as points and valuable cash prizes are annually awarded by the department to the winning clubs within the state. The younger generation is thereby being interested in the conservation of our wild life.

KILLER CATS FALL IN MONTANA DRIVE

Here's another batch of predatory animal hides of various kinds that's ample proof of what paid hunters are doing to preserve wild life. These hides were piled and strung up alongside the mountain cabin of the hunter as mute evidence of efficiency.

MONTANA'S FISH HATCHERIES

By John W. Schofield

Field Assistant in Charge of Fish Hatcheries, Eastern District

J. W. Schofield

FISH cultural work in Montana, as in other states, is in its infancy, yet, taking into consideration the enormous size of the Treasure State and its comparatively sparse population, Montana heads the list in the number of fish hatcheries operated and the egg output taken. Sportsmen of the state and the northwest should be proud of the rapid and substantial growth of the fisheries department, especally when it is realized that the hatcheries now located at Emigrant, Big Timber, Red Lodge, Lewistown and Great Falls, which are included in the eastern district, were not built previous to 1919. In that year the Emigrant hatchery was constructed and operated. In 1922 the other four were put in operation and since then have been successfully operated.

During my ten years of fisheries work in Montana I have seen a great many developments and changes, the most notable of these being the attitude and cooperation of sportsmen and rod and gun clubs. Ten years ago when an applicant was advised of the arrival of a shipment of fish, it was a toss-up whether we were met or not. Today, upon arrival of a shipment, the "gang" meets us with cars enough to take out ten times the fish we have.

I hope that every sportsman reading this article will take this advice to heart and guide himself accordingly. The fish delivered to applicants cost money, which is your money. You fellows desire results and so do we, so, when you go out to plant a shipment of fish, may I suggest that you leave your fishing tackle and rod at home. You cannot combine business with pleasure and get good results. Be sure to take from half an hour to an hour to temper the water in the cans before planting the fish. This is necessary, and if you leave your fishing outfits at home, you will give more time to proper planting. If possible, get the fish up to, or near, the headwaters of the stream. Then, if possible, locate a small spring creek or quiet stream that flows into the main creek and plant your fish there. If more time is taken in planting and looking up good places to plant, the results will be well worth your time and effort.

No doubt you all realize the commercial value of the power dams constructed on the Madison and Missouri rivers by the Montana Power company. Very few realize to what an extent these dams improve fishing. On the Madison these dams flooded much land and by so doing made possible an abundance of aquatic life and aquatic growth for fish food. On the Missouri the dams serve as settling tanks which clear the water, thereby making it more habitable for trout. This settling also gives aquatic life and growth a better chance to increase. In five years from now, trout fishing on the Missouri will be as good as on

the Madison. Sportsmen are equally interested in steps taken at the hatcheries in the propagation of trout.

Upon receiving eggs at a hatchery, the first step taken after unpacking is to ascertain the temperature. Then follows the slow raising of the temperature. Like the tempering of fish for planting, it is necessary that plenty of time be taken.

After the eggs are tempered they are put in baskets or stacks of trays to eye or hatch.

There are two stages of eggs, that is, green and eyed. Green eggs are those which have been fertilized, but in which the incubation period has not started. Eyed eggs are those which have been incubated to a point where the embryo is well defined and the eye spots are plainly visible. If the eggs are green and in water of an average temperature of 50 degrees, it will take from 14 to 18 days for them to become eyed.

They are then syphoned out of baskets into a tub or bucket for the purpose of giving them a shock. This shock is necessary to kill the blank or unfertile eggs. The blank or unfertile eggs are then picked out and the eyed eggs are put back in the baskets to hatch, which will take about 10 or 14 days. When the eggs hatch they are called fry; after they begin to take food they become advanced fry. They remain advance fry until they become an inch long, when they reach the fingerling age, which is fingerling Number One, meaning they are an inch long. They remain in the fingerling class until a year old, when they are called yearlings.

When people are advised the number of eggs in a basket or of fish in a can, they often seem astounded when told that a basket contains 25,000 or more and a can from 1,000 to 2,000. Our method of counting eggs is to put exactly four ounces in a certified graduate. We then count the four ounces and divide the total by four which gives the number per ounce. To count fish, we put exactly four ounces of water in the graduate and then put in fish until the water comes to eight ounces, which gives us a fish displacement of four ounces. We next count the four ounces of fish, divide the total by four and get a fairly accurate count per ounce.

The inside dimensions of the average standard trough in which the baskets or trays are placed are 15 feet and five inches long, 14 and one-eights inches wide and six and one-fourth inches deep. The trough should have a flow of eight gallons of water per minute.

A trough will hold six baskets capable of holding an average of 25,000 each, or 150,000 eggs. It will hold ten stacks of trays with six trays to a stack, or 360,000 eggs or fry. The average amount of fish carried in a trough is about 50,000, this amount depending upon age and size.

Sportsmen owe it to themselves to support and cooperate with the deputy game warden. If you were to see someone stealing equipment from a fish hatchery, you would report it to the man in charge. When you see someone poaching or otherwise violating the laws, show your cooperation and sportsmanship by reporting him. If necessary go on the witness stand. Do your duty as a good citizen and sportsman should. With the sincere cooperation of sportsmen throughout the state law enforcement is simplified and the conservation of our fish and game resources for future generations is made possible.

THE SUN RIVER ELK HERD

By E. H. Myrick

Supervisor Lewis and Clark National Forest

E. H. Myrick

FEW sportsmen realize that the largest herd of elk wholly within the boundaries of Montana, now estimated at 3,900 head, ranges within the Lewis and Clark national forest. Their range includes the watersheds of the North and South Forks of Sun river and is all national forest land. It is therefore adaptable to the practice of good game management without the friction that sometimes follows when game trespasses for part of the year on private holdings.

People of Montana were not slow to recognize the wonderful possibilities of the area for game propagation and in 1913 the legislature set aside approximately 200,000 acres and created the Sun River game preserve.

This area is admirably situated for summer range but only a very small percentage of it is of value as winter range. A majority of the elk are, therefore, dependent upon the open windswept hills adjoining the preserve on the east for their winter forage.

The earliest authentic records indicate that the total number of elk in the entire Sun River drainage numbered between 200 and 300 head in 1910. The census conducted during the winter of 1913 showed that the herd comprised approximately 1000 head, and the census of 1917 and of 1922 and of 1924 indicated a continuous increase, which is really wonderful when it is remembered that a hunting season has always been in effect on all of the forest land surrounding the preserve.

The forest service did not confine its studies to these censuses but early in the history of the preserve began a study of winter conditions and ranges used by the elk within and without its boundaries.

This study has been carried on continuously except during the World War, when competent personnel to do the work was not available. As a result, reliable data showing all of the ranges used by game during the winter season, the number that it supports and their condition at different times of the year, are now available.

Briefly stated, these studies showed that while the game preserve and adjoining forest lands would furnish an abundance of feed for a great number of elk, the forage available for winter use was limited and would be the governing factor in determining the maximum size of the herd. The studies also showed that the critical period in the average year is February and March. It is then that the winter snows are settled and generally crusted, thereby confining the range to the open wind-swept hills which are blown bare, and it is also then that elk are in a weakened condition due to their long fight with the cold.

As the herd increased the forest service set aside correspondingly larger areas vitally needed for winter range and which the studies previously made indicated as adaptable for winter use.

All commercial grazing of stock was prohibited upon those tracts and at this time more than 240,000 acres of the forest is now reserved for the exclusive use of game. In that area is some of the choicest range to be found in that locality.

More than 90 per cent of all the winter range within the forest is now reserved for use by the elk and the remaining areas are so scattered and isolated that it is impracticable to protect them without either letting large areas not usable lie idle or construct range fences of which the cost and upkeep would be prohibitive and out of proportion to the small benefit that the elk would derive from them.

It was also found that a part of the elk migrated west across the Continental Divide into the South Fork of Flathead drainage located on the Flathead national forest. This drainage supports a considerable area of range adaptable to winter use but the hunting in that territory caused a large number of the elk to return to the Sun River game preserve, from which they drifted down stream to the winter range in Sun river. The legislature, therefore, created the Spotted Bear game preserve on the South Fork, comprising 218,000 acres in 1919, believing that the protection thus afforded would encourage a greater number to winter there rather than return to the Sun river and increase the congestion there.

The results have been gratifying and will probably be more so as the game gets more used to changed conditions in that region.

The Sun River herd should be held to not to exceed 3,000 head, which is the number for which there is sufficient winter feed. This policy would provide an annual crop of around 600 head that should be killed during the hunting season. The herd is approximately 900 head over the desired number now. There is undoubtedly danger of heavy losses if an unusually severe winter occurs. The annual kill has never reached the 200 mark except during the last two hunting seasons, when 637 and 209 head respectively were taken out by hunters.

This is the problem now facing sportsmen and legislators of Montana. Its wise solution will assure perpetual hunting of the state's most noble game animal and provide for the harvesting of an annual crop at the maximum number that the area will supply without danger of the herd being exterminated through starvation.

Montana antelope that once roamed the prairies in countless numbers are now protected by the state fish and game commission

Montana elk feeding on wind-swept ridges of Tepee creek

The forest service is working in close cooperation with the state game department and local sportsmen's association in making adjustments in range as needed and is working out changes that are necessary in the present laws, if the desired and necessary results are to be attained.

If their recommendations are looked at from the practical viewpoint of harvesting an annual crop of game rather than allowing it to increase until a menace to itself as would be the case if the desires of impractical idealists are followed, the state can be sure of a plentiful supply of elk hunting in that region for coming generations.

ANIMALS APPRECIATE SALT

WILD, as well as domestic animals consume salt, which may be placed in convenient situations for them, with great avidity. An unfair and unsportsmanlike practice which formerly prevailed in deer country was to establish artificial salt licks and to shoot the deer at night or from blinds as they came to the licks.

The game wardens of Montana are using large quantities of block salt in the care of wild game animals on game refuges. Much of this was distributed in the Sun River country, Spotted Bear preserve, Gallatin, Thompson Falls and other areas. The salt serves to keep the animals in good physical condition and especially to free them from ticks and other insect parasites.

A marked increase in numbers of elk and deer has been noted since inaugurating the policy of eradication of mountain lions and coyotes and the distribution of salt.

One of Montana's turbulent rollicking brooks where the fly fisherman is in his glory and the whole family joins in the sport.

TWENTY YEARS IN THE SERVICE

By Peter W. Nelson

Deputy Game Warden at Livingston

NOTE.—Mr. Nelson is the oldest employe of the state fish and game commission in point of service. He became associated with the department in 1907 and has served continuously. His interesting review of his years of effort in the conservation of Montana's wild life is a cross-section from the life of a faithful, conscientious employe.

P. W. Nelson

WHEN I was appointed deputy game warden by W. F. Scott on June 20, 1907, my district included the four counties of Park, Sweetgrass, Stillwater and Carbon, an area covering 10,161 square miles. In those early years the average hunter had the mistaken idea that he was entitled by the God-given right to kill game or take fish when, where and in such quantities as suited him best. Some even had the idea that they were entitled to commercialize their efforts, with never a thought of others or the future. So it was a campaign of education in the early years, and fines and confiscations were administered in such a manner that there would be no misunderstanding as to the why.

Farmers and the sportsmen were the first to realize the importance of the protection of fish and game, one of the greatest assets of Montana. The feeling of appreciation of efforts of the fish and game commission have since changed from one of anger toward wardens of early days to one of helpfulness. I have knowledge that the fact that we have good trout streams and game grounds has had its influence in locating good farmers on agricultural land adjoining. Just let me state that all those who are interested in rod and gun clubs are not the inhabitants of the cities. Farmer boys are becoming members of these clubs also.

With conditions changing as we progressed, we game wardens began to feel that we were not such bad fellows as we were given credit with early in the game. Square dealing, honesty of purpose and the tact to make a point reach home wins. I can safely say that it has been a satisfaction to be able to do my share in this locality in the good work which the state commission has outlined and carried forward to its present healthy condition.

In the early days I spent a great deal of my time in the winter months patrolling from the northern boundary line of Yellowstone National Park down the east side of the Yellowstone river as far as Dailey's basin, trying to keep "teeth" hunters from killing elk just for their teeth. This comprises a distance of about 20 miles. The going is rough enough in the summer time but with snow and cold weather it was a task.

In December, 1926, in the Crevasse country, one morning the sun came up on a thermometer 30 below zero, and the snow was waist deep.

The first time the great northern herd of elk was

driven out of Yellowstone Park by weather conditions and deep snow was in 1911. Hunters came from all over the state. A careful check estimated 600 elk killed in a few days. This thinned the herd down to about the number that could winter on their native habitat. Because of the size of the herd, it increased rapidly. It had so increased by 1919 that when that hard winter came thousands of elk came out of the hills. Hunters, on learning of this, came quickly. At the close of the season a careful check by the state game department, the forest department and scouts from Yellowstone National Park, cooperating, estimated the number of elk killed during the hunting season along the east side of the Yellowstone river, from Buffalo flat to Dailey basin, aggregated 3,600.

That year the game department issued a special license, costing $25, which permitted the hunter to kill an extra elk.

About as many elk died that winter from starvation as were killed by the hunters. There was no feed in the hills.

In 1919 the northern herd suffered a great loss, but since that fatal year there have been but few elk killed each season. I honestly believe that the northern herd has increased to the extent that they now number nearly what they did when that hard winter of 1919 depleted their numbers so severely.

This year, 1926, gave the hunters plenty of sport, about 700 being killed. All departments agree that this is a good thing. It will keep down the enormous increase and give the herd a better chance to winter.

I want to say that since the Brooks bill passed in 1920, creating a commission, and five good sportsmen from different parts of the state were named on this commission by the governor, the department has taken on new life. It is being conducted in a business-like manner. Fish and game of all kinds are on the increase in the state. Chinese and Hungarian pheasants, birds that were never thought of in early history of the state, have been planted and are increasing nicely. The game department, cooperating with the forest department and the national park forces, are all working hand in hand to the betterment of our wild life. We also get wonderful cooperation from the federal game department.

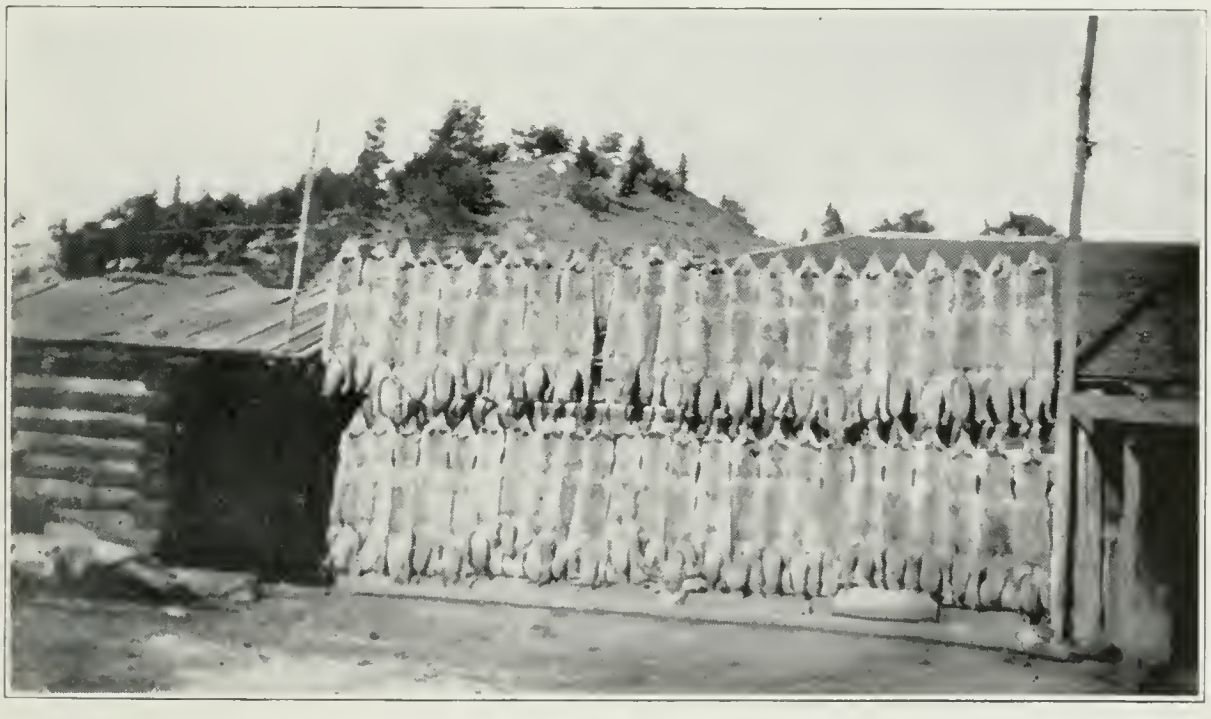
Deputy Game Warden P. W. Nelson, who has been in the service of the state commission for 20 years, planting duck food on Spring creek, six miles from Livingston.

So I say, as the oldest game warden in service in Montana, that in the last six years there has been more good work done under the commission form than in the 14 years previous to their appointment. I can truthfully say in my 20 years' service, though at times it has been hard, on the whole it has been pleasant.

I have always been in love with my work and always worked for the best interests of the department. I have made many arrests in these 20 years of service. Fines, sales of confiscations and license fees collected have amounted to no small figure. I have closely followed the Golden Rule in making arrests and instead of making enemies for the game department, I have tried to make friends.

In 1910 I believed that increase of the northern herd was becoming too large for the feeding area. I wrote Henry Avare, state game warden at that time, that if he could interest the rod and gun clubs of the state in placing elk where conditions were adapted for them, I could catch them for about $5 per head F. O. B. stock yards at the VanDyke ranch near the town of Gardiner.

After receiving favorable replies from the Hamilton and Stevensville clubs I caught 100 head on the Hoppe ranch adjacent to the national park and shipped them to Hamilton and Stevensville on the Bitter Root branch of the Northern Pacific railroad. This brought requests from all over the United States and in the following five years we shipped out of Park county more than 5,000 head of elk.



This catch of coyotes, taken in the one month of November by E. B. Warren has been responsible for the destruction of many game birds and animals. This is but another demonstration of the effective work being done by predatory animal hunters.

Paradise creek in Glacier National Park is one of Montana's typical trout streams

ON THE TRAIL OF THE KILLER CATS

By R. E. Bateman

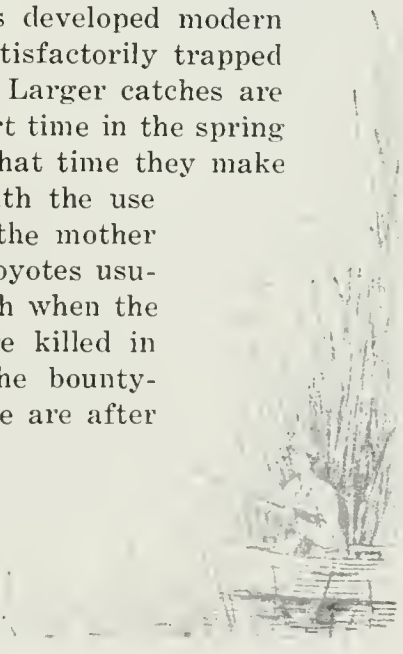
U. S. Leader of Predatory Animal Control

R. E. Bateman
with his favorite foxhound, Jack

SPORTSMEN and stockmen throughout Montana may well be proud of the achievements of trained hunters and trappers employed by the state fish and game commission and the Bureau of Biological Survey. They are saving thousands of dollars annually in game and stock through the destruction of predatory animals which for years have taken their expensive toll. And their lives are one long series of exposure and adventure. Only skilled woodsmen capable of outwitting the cunning of the killer-cats, the trap-shy wolves and the crafty coyotes are capable of keeping pace with the demands of the department. They are hardy skilled fellows whose experience in tight places has made them capable of following their cougar dogs, existing in the mountains in severe weather and then out-witting the predatory animals that spread destruction.

Ordinary hunters and trappers may be had by the score, yet men selected for this trying work must be super-men. Mountain hunters and trappers often spend weeks trailing an old lion over rugged territory. Coyote hunters on the bleak prairies follow their poison and trap lines daily despite the weather. Frost bitten hands, feet and faces are but ordinary experiences. Yet they enjoy the thrill of the hunt and the joy of the capture.

Predatory animal hunters devote their time to the traps during warmer weather in the dry portions of the year. Experience has developed modern methods whereby predatory animals can be more satisfactorily trapped during the dry summer months than in the winter. Larger catches are made with traps during the warm months. For a short time in the spring the hunters search for dens of coyote pups and at that time they make especial efforts to wipe out the parent wolves. With the use of good trail hounds hunters are enabled to locate the mother coyotes at the den where the pups are found. Old coyotes usually follow the hounds back to the den, to meet death when the hunter, cached near the spot, opens fire. Many are killed in this manner by predatory animal hunters while the bounty-hunter takes only the pups and goes on his way. We are after the old ones and are getting them.



The winter months are devoted almost entirely to the poison campaign. Hunters who have well trained packs of stag and fox hounds, however, go after the bigger killer cats. The stag or gray hounds have made splendid records for their masters during

the last few years. The foxhounds are used largely on the trail of mountain lions and bobcats, although many coyotes are shot ahead of the hounds.

Approximately 2000 miles of poison lines have been strung in Montana by regularly salaried hunters. No carcasses are poisoned. Small baits are used around the carcasses, which are used simply as bait stations. Stockmen and farmers interested in the eradication of predatory animals annually donate for our use many worthless horses for this work. Hunters pick up all poisoned bait when their work is completed and they are ready to start spring trapping, to avoid all possibility of poisoning dogs. Very few complaints have been received of dogs meeting death through eating the poisoned meat as compared to the thousands of coyotes taken in this manner. Care of the hunters is responsible.

Stockmen of Montana have been profuse in their appreciation of work accomplished by hunters. They freely admit that the present system of employing salaried hunters has given their herds greater protection than ever before and the death toll taken by predatory animals is dwindling. In many cases a few old killers prowl around the ranches. Stockmen are unable to employ skilled men willing to brave the dangers of outwitting the cats. By making application for the services of state or government hunters they are supplied with the talent of skilled men capable of stopping the stock killing. Many letters of favorable comment are regularly received commenting on the work of these trained hunters.

In Montana localities where the wolves ran in packs of from 15 to 20 only a few years ago, these hunters have cleaned up the animals and the farmers have not been hesitant in expressing their appreciation. Experience has taught sportsmen and stockmen that a pair of adult coyotes killed in fall or winter is equivalent to taking seven or eight pups in the spring. The average litter of coyote pups number about seven and in some cases as many as 12 have been taken from a single den.

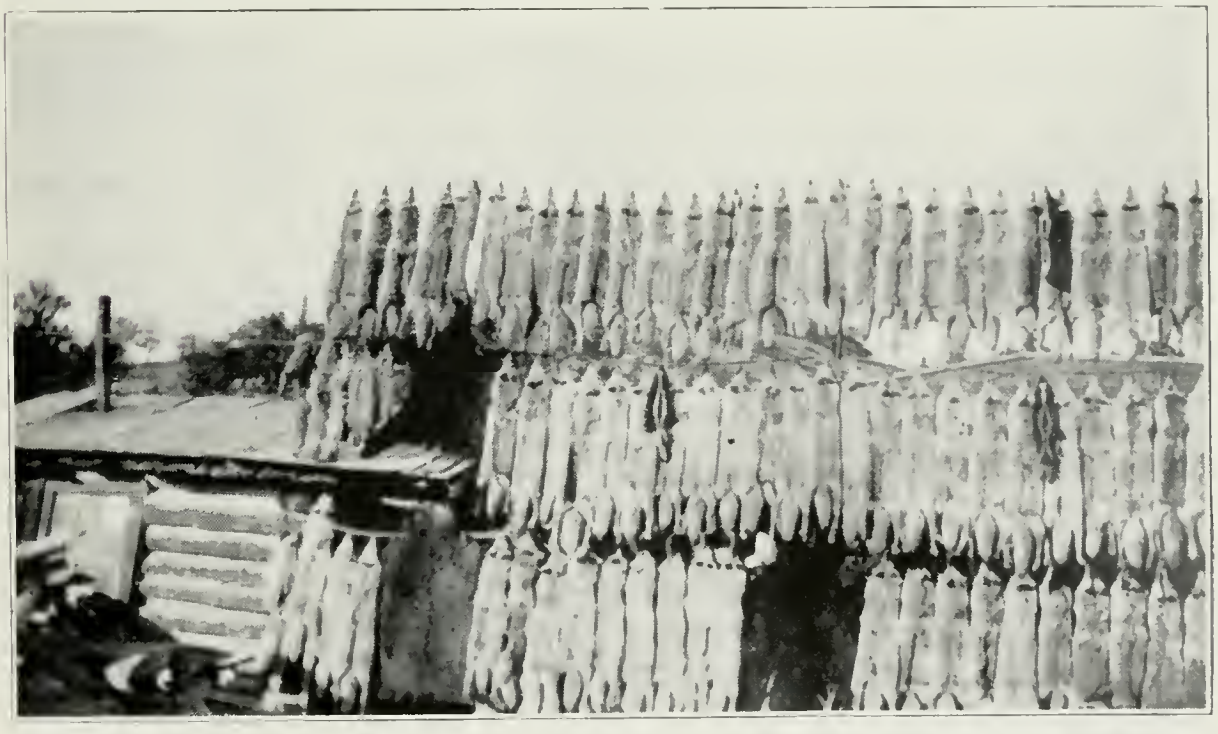
Bitter weather and forbidding drifts hold no fear for hunters of predatory animals. The picture shows one of the C. E. Beebe hunting camps on the South Fork of the Flathead river in April, when spring sunshine was spreading its warmth elsewhere.

For these reasons state and government hunters have been instructed to kill the adults. Game and stock protection should begin by ridding the country of the animals destroying these resources—and that means the adults. The pups can be exterminated each spring, yet if the old ones are not killed it simply means that the slaughter goes on unabated. It requires a nice fat lamb to feed one litter of pups.

In 1917 a hunter employed by the Biological Survey, assisted by the inspector, located a den of coyote pups near the Bearley and Williams ranch on the Ruby river. They were informed by Mr. Bearley that a coyote had taken a lamb from the flock every morning for two weeks. The first morning the hunters were at the ranch they located the den. They destroyed five fat pups and the female. Many more lambs would have been required to feed this family and after they were wiped out the killing stopped. This is but one of hundreds of similar instances revealing the reason for the enthusiasm of stockmen over the cooperation employed by state and government hunters.

Wolves, like mountain lions or cougars, are becoming scarce as the years go by. Very few wolves are left on the range. But each year some one of the hunters picks up an old straggler that has lost his or her mate the preceding year. It will be but a few years until the Montana wolf will be seen only in the museums or parks where they are being raised for experimental purposes. This work has actually begun in several eastern states. The offspring from the Montana and Wyoming gray wolves are shipped to Europe by breeders who secure their stocks from Montana hunters.

The mountain lion is likewise fast disappearing. Specially trained lion hunters have been working on them since 1921. During the first six months C. E. Beebe was employed in this work he took 23 of these vicious animals. During the last two winters he has covered miles of mountain territory yet has been able to take



This catch of coyotes, taken in the one month of November by E. B. Warren, has been responsible for the destruction of many game birds and animals. This is but another demonstration of the effective work being done by predatory animal hunters.

only a few. Many reports of lion tracks, when investigated, have proven to be the tracks of lynx or bobcats.

Deer have increased in great numbers in localities where the mountain lion has been killed off. Where the coyotes have been poisoned by state and government hunters in the Thompson country, reports have been received that deer are rapidly increasing. Coyotes are reported to have killed between 1000 and 1500 deer there in one winter before steps were taken to get rid of them. No reports of deer killed by coyotes have been received from that district for several years.

Many times people who are uninformed ask the question: "Why doesn't the bounty system work better than the plan of employing paid hunters?" We agree with them that the cost per animal is higher. The cost to capture Jesse James was greater than the cost of apprehending an ordinary criminal. The reward was about $50,000 while that on an ordinary stickup man might be $25, yet they were both men. The bounty system has been tried in every conceivable manner during the last 40 years, or since 1883, and between that year and 1923 something like $2,856,981 has been paid out by the state in bounties.

No later than 1917 I recall that a bounty of $200 was offered on adult wolves in and adjacent to the Jefferson forest. A short time ago it was called off. After unsuccessful efforts to kill the wolves made by bounty officers, leaders were then forced to call on state and government hunters to do the work. In a few months the work was completed by paying a skilled hunter $120 per month. Where is there a place in Montana today where a bounty of $100 is offered on a wolf? The bounty hunters worked for 40 years to clean up the wolves, yet it has remained for state and federal hunters to clean up the job. The work of these trappers and hunters has brought about almost total extermination of the grey wolves. These same hunters employed by the state fish and game commission and the biological survey will soon have the mountain lion situation under such control as will allow the deer and elk to roam the forests unmolested.

FRAUD IN WOLF BOUNTIES

GAME wardens in northern Minnesota recently unearthed a well organized system of wolf bounty frauds. The state and county each pay $15 bounty on wolf pelts. It was found that coyote pelts were being imported from Wibaux, Montana, and the Minnesota bounty of $30 was being collected on them. After collecting the bounties the importers marketed the skins in Minneapolis. Sixteen of the fraudulent pelts were obtained in Minneapolis by the wardens, who first detected the deception by noticing that the pelts appeared to differ from Minnesota skins in color and quality.

BOY SCOUTS CONSERVE GAME

The Great Falls Sportsmen's Association has put on a membership drive bringing its membership up to 1000. Plans have been made to instruct Boy Scouts in conservation of wild game, fish and forests.

PROPAGATION OF GAME FISH

By Dr. I. H. Treece

Field Assistant in Charge of Fish Hatcheries, Western Division

Dr. I. H. Treece

IN the future let Montana sportsmen resolve to plant fish and not dump them. During the last biennium covered by this report, the state fish and game commission has made unusually satisfactory progress along the line of propagation and distribution of game fish. There has been a material increase in the number of eggs collected and in the number of fish planted. Yet, of greater importance, is the education of sportsmen in the intelligent planting of fish in their localities. Time was when but little attention was paid to the distribution of fish after they had been cared for at the hatcheries for months. Expense to the commission and other agencies was for a time forgotten and as a result much of the work of propagation was lost. Results are now being obtained with intelligent propagation in conjunction with intelligent distribution.

If the average individual knew something of the time, labor and money required to bring fish to the planting stage it would give "food for thought" when he received a consignment of fish for planting.

The first step in the propagation is, of course, the collection of the eggs. In our spring work this season usually starts about the middle of April and runs for two months. There is quite an expense connected with this in addition to much labor and under weather conditions usually anything but ideal.

After the eggs are collected they must be packed for shipment and this requires much time and careful handling. The cases in which they are shipped must be specially constructed in order that they may be kept cool and transported under the most favorable conditions.

In recent years we have been having success in shipping green eggs. Formerly it was not thought practicable to do this and the eggs were placed in a hatchery erected at the spawning station and kept until they reached the eyed stage before shipping to hatcheries.

To be able to ship the green eggs is a saving in expense and much more efficient. Now a crew of five or six men handle the work at our largest spawning field and each day pack and ship the eggs collected to hatcheries where they have the attendants and equipment properly to care for them.

Last season the loss upon arrival ran from three to ten per cent, depending upon the distance and the amount of handling enroute. This in itself is a record when one considers that under the most favorable conditions with the hatchery at the spawning field the first loss or pick-off usually amounts to about the same percentage.

From the time that the eggs are first received

in the hatchery until they hatch—which time usually requires from a month to six weeks, depending on the temperature of the hatchery water—they must be given constant attention. The unfertile and dead eggs must be removed to prevent a fungus from attacking the good eggs. A watch must be kept that the circulation and volume of water is correct.

After the egg hatches and in the matter of a few days when the fish begin swimming and looking for food, to obtain any results at all they must have the greatest care to see that the food is of the very freshest, that it is ground fine enough and not too fine, that they are getting enough to eat and that the troughs be kept absolutely clean and the water well aerated and of sufficient volume.

Most of our hatcheries now have rearing ponds where the fish are transferred after reaching the stage where they take food readily. Here they grow and thrive much better than in the hatchery troughs. Conditions are favorable and more like natural waters.

The bottoms of these ponds are covered with gravel which is of great value from a protection standpoint, as the fish will take on the color of the fish in natural streams and when distributed out of these ponds are not the ready mark for older fish and other enemies as are fish planted out of the hatchery troughs, which are of a much darker color.

From the time the eggs are taken into the hatcheries until the fish are distributed—usually from five to seven months—it will readily be seen that much time, labor and a large percentage of the license money turned into the department has been used in caring for them. If the average individual who receives a consignment of fish would but give this a thought his conscience would not permit him carelessly to dump them in the first water he came to. He would plant them to the best of his ability.

When fish are dumped instead of being planted, with no thought as to their food, protection or assurance of ample water supply, they might better have been left with the parent fish from the start. The female would have spawned in a place where the fish would at least have been assured of enough food and protection until they were old enough to start for themselves.

When a consignment of fish is received at the railway station they should be taken out immediately by a truck or several cars with three or four cans apiece and planted in places selected as to the food, protection and water supply.

Some of the anglers clubs are now adopting the method of surveying the streams and making a note of desirable spots. From reports the results are most gratifying.

At the lakes which are not easily accessible we have been doing the planting with eyed eggs. These eggs are held in the hatchery until about ready to hatch and are then packed to the lakes in two-quart jars—about 20,000 eggs to the jar. These are planted in a section of the lake where there is some circulation of water, as at the inlet or outlet— not necessarily in the direct current but some place where there will be a seepage to the eggs.

A method used by the Bureau of Fisheries, and which has proved satisfactory, is to place the eggs in alternate layers with gravel or sand in a box or can, then dig a hole of sufficient depth in the desired location and invert the box or can, permitting the contents to settle into the excavation. The eggs will hatch and the fish remain in this "nest" until they are ready to swim and start out for themselves.

We are most fortunate in having such spawning fields from which we secure enough eggs to supply all of our hatcheries. Georgetown Lake has no equal

and the fields in the Flathead country compare favorably with any in the country. These fields last year produced in round numbers 38,000 000 native or black-spotted trout, 5,000,000 rainbow and 17,000,000 grayling.

With our well equipped hatcheries and facilities for handling these eggs and fish, with fishing waters we have in this state and with the increasing interest being shown by anglers' clubs in the intelligent planting of fish, we soon will have fishing that will be unequalled.

PUBLIC SHOOTING GROUNDS

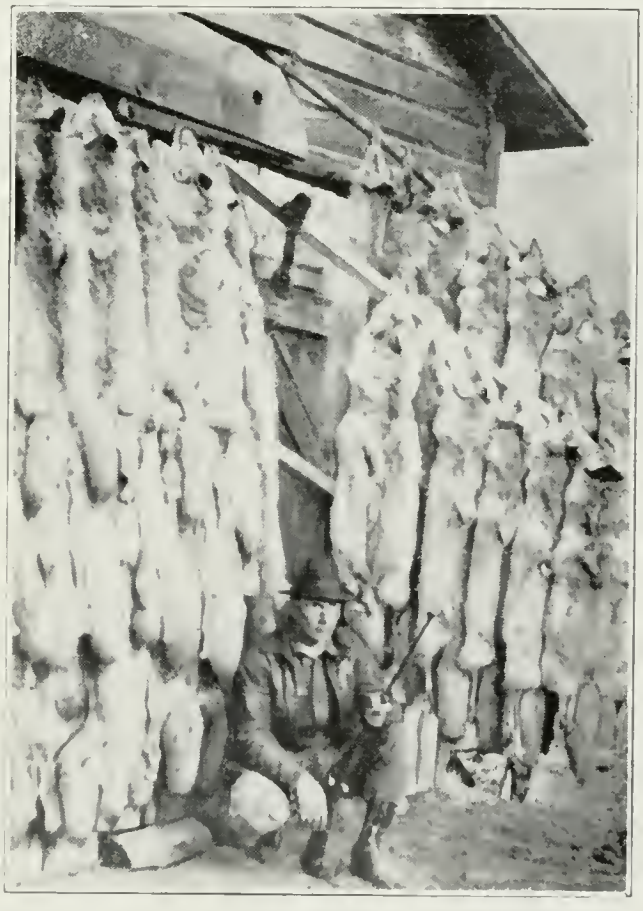
MONTANA has taken steps to provide public shooting grounds for future generations. It is the policy of the state fish and game commission to acquire shore line areas and other tracts to be set aside for sportsmen of the future, in the face of the fact that desirable shooting grounds are being rapidly acquired by private shooting clubs.

Michigan is likewise following out this policy. A plan is on foot to urge the legislature of Michigan to provide for the purchase of some five million acres of tax-delinquent land in the northern part of the state for public use in the development of the forest and game resources of the state.

The financing of the purchase of these lands, once forested but now cut over and largely unproductive, is recognized as one of the conservation problems of the state.

Legislation is proposed to permit the state to take over these lands permanently as recreational areas and for state parks, forests, game breeding grounds, public shooting grounds and sanctuaries. The state now owns only 350,000 acres of such lands in widely scattered small tracts. The plan proposed is that the state shall purchase such lands at from 50 cents to a dollar an acre, the funds to be derived from a statewide hunting and fishing license fee of $3.

One good argument for the plan is that it will assure all the people of the state an equal right to use the lands for recreation purposes. One of the great problems of the future is to provide places for the people to go for their recreation, including hunting and fishing.



Coyotes, wolves, mountain lions and other predatory animals trapped and shot by Montana's salaried hunters have in former years decimated game animals. Here's one of the experienced men and a part of his December catch.

DON'TS! for Deer Hunters

DON'T—

Shoot at moving brush.
Shoot at any animal until you see the horns.
Carry your gun cocked.
Carry a loaded gun in car or wagon.
Pull your gun through a fence by the muzzle.
Pull your gun from a car or a boat by the muzzle.
Ever point a gun at another person.
Load your gun until ready to shoot.

DO—

Be careful!
Handle your gun at all times as though it were loaded.

REMEMBER—

It is the "empty" gun that kills.
That men do not have horns.
That female deer do not have horns.

ALWAYS—

Look before you shoot.

NEVER—

Pull the trigger until you see the horns.

MONTANA HAS LARGEST MUSKRAT FARM IN AMERICA

MONTANA has the largest muskrat farm under fence in the United States. Through the activity of James M. Hall of Swan Lake in Lake county, five acres is fenced, more than 100 experimental pens have been constructed and weekly shipments of these fur bearing animals are being received for breeding purposes from Minnesota, Michigan, Ohio and Wisconsin. Within a short time the operator of the enterprise expects to produce 20,000 to 30,000 pelts annually. Regular reports from the fur farm are made to the state fish and game department as provided by law. Applications for live muskrats produced on the fur farm are constantly pouring in, these shipments being made by permit issued by the department.

The photograph above shows the main buildings and a portion of the land under fence at the Swan Lake fur farm. The lower fence fronts on the lake shore. The experimental pens are located back of the buildings and the fence is so arranged that the fur-bearing animals may be controlled and conserved.

Portion of Swan Lake utilized by the muskrat farm established by James M. Hall in Lake County. The farm is the largest of its kind in the Nation.

FISH AND GAME LAW VIOLATIONS—1925-1926

	1925	1926
Alien in possession of firearms without a license	20	25
Catching over the limit of game fish	0	3
Catching more than 5 fish under 7 inches in length	9	9
Destroying evidence of sex of deer	3	1
Dumping refuse in stream	1	0
Fishing without a license	82	63
Fishing through the ice	0	1
Fishing in closed streams	22	21
Fishing during closed season	5	14
Fishing with more than one pole, line and hook	7	0
Guiding without a license	1	0
Hunting without a license	7	22
Hunting on game preserve	18	10
Killing a moose	1	4
Killing elk out of season	9	4
Killing deer out of season	20	25
Killing grouse out of season	10	14
Killing Hungarian partridges	1	7
Killing ducks out of season	3	1
Killing doe deer	10	3
Killing deer with horns less than 4 inches in length	1	0
Killing deer in closed county	2	1
Killing more than one deer	4	3
Killing mountain goats	2	0
Killing antelope	4	0
Killing protected wild birds	0	2
Killing more than one elk	1	2
Killing wild geese out of season	3	1
Killing prairie chickens from automobile	1	0
Making false statement in application for a license	39	29
Opening muskrat houses	2	3
Possession of a seine without a license	1	0
Seining fish without a license	3	2
Selling game fish	4	2
Shipping furs from the state without a permit	79	28
Shipping fish from the state without a permit		
Shipping trumpeter swan out of the state without a permit	0	1
Shooting ducks after sunset	4	10
Selling game birds	1	0
Snaring fish	0	1
Selling elk meat	1	0
Setting traps for bear	1	0
Selling bear meat	1	0
Trapping fur-bearing animals out of season	36	15
Trapping fur-bearing animals without a license	30	8
Trapping beaver without a license	23	21
Trespassing	1	1
Transferring license	3	0
Using set line	2	5
Shipping predatory animals without labeling package	1	2
TOTAL LAW VIOLATIONS	482	364

VIOLATIONS BY COUNTIES

	1925	1926
Beaverhead	16	28
Big Horn	19	6
Blaine	3	0
Broadwater	4	4
Carbon	34	15
Carter	3	1
Cascade	13	10
Chouteau	8	3
Custer	2	1
Daniels	5	1
Dawson	0	1
Deer Lodge	32	18
Fallon	0	0
Fergus	19	8
Flathead	23	37
Gallatin	27	42
Garfield	0	1
Glacier	2	3
Golden Valley	1	0
Granite	1	1
Hill	2	2
Jefferson	5	2
Judith Basin	10	2
Lake	16	19
Lewis and Clark	14	13
Liberty	0	0
Lincoln	12	15
Madison	16	10
McCone	0	0
Meagher	1	5
Mineral	3	3
Missoula	14	18
Musselshell	7	2
Park	6	8
Petroleum	0	0
Phillips	3	2
Pondera	0	0
Powder River	2	2
Powell	9	7
Prairie	0	0
Ravalli	20	1
Richland	0	0
Rosebud	0	1
Roosevelt	1	3
Sanders	14	6
Sheridan	2	12
Silver Bow	32	5
Stillwater	11	9
Sweet Grass	4	2
Teton	3	0
Toole	5	1
Treasure	1	0
Valley	3	1
Wheatland	4	0
Wibaux	3	0
Yellowstone	43	33
TOTAL	482	364
Total amount of fines imposed	$12,945.00	$12,116.45
Total number fines assessed	417	329

During 1925, in the 482 violations of the fish and game laws there were 417 fines assessed, 16 jail sentences were given, 13 were found not guilty, 32 were dismissed, two cases are pending and two cases were dismissed because defendants were under age.

During 1926 there were 364 violations. Of this number 329 fines were assessed, three were given jail sentences, six were found not guilty, 16 were dismissed and 10 cases are pending.

RECEIPTS ANALYZED AS TO SOURCE

1925

73042	Resident Hunting and Fishing Licenses	$146,084.00	
3369	Non-Resident Fishing Licenses	11,791.50	
74	General Non-Resident Hunting and Fishing Licenses	2,220.00	
81	Limited Non-Resident Hunting and Fishing Licenses	810.00	
2	General Alien Hunting and Fishing Licenses	100.00	
369	Alien Fishing Licenses	3,690.00	
		$164,695.50	
	Less Agents' Commission	7,506.90	
			$157,188.60
1843	Trapper's Licenses	$ 18,430.00	
2660	Shipping Permits	1,330.00	
49	Guide's Licenses	490.00	
10	Seining Licenses	100.00	
41	Game Farm Licenses	205.00	
15	Taxidermist's Licenses	225.00	
562	Beaver Permits	5,620.00	
6190	Beaver Tags	3,095.00	
3	Alien Gun Licenses	75.00	
			$ 29,570.00
	Refunds 149.21	Fur Sales 6,865.82	
	Fines 8,963.88	Royalties 582.61	
	Confiscations 2,675.76		
			$ 19,237.28
	Investments Received		40,000.00
	Investment Interest Earnings		2,801.75
			$248,797.63
	Less Biological Income		19,346.45
	Net Fish and Game Income		$229,451.18

1926

71249	Resident Hunting and Fishing Licenses	$142,498.00	
3133	Non-Resident Fishing Licenses	10,966.00	
108	General Non-Resident Hunting and Fishing Licenses	3,240.00	
89	Limited Non-Resident Hunting and Fishing Licenses	890.00	
8	General Alien Hunting and Fishing Licenses	400.00	
337	Alien Fishing Licenses	3,370.00	
		$161,364.00	
	Less Agents' Commission	7,206.30	
			$154,157.70
1338	Trapper's Licenses	$ 13,380.00	
3564	Shipping Permits	1,782.00	
73	Guide's Licenses	730.00	
12	Seining Permits	120.00	
43	Game Farm Licenses	215.00	
12	Taxidermist's Licenses	180.00	
607	Beaver Permits	6 070.00	
9714	Beaver Tags	4,857.00	
2	Alien Gun Licenses	50.00	
	Flathead Seining Licenses	95.00	
			$ 27,479.00
	Refunds 236.58	Confiscations 1 469.00	
	Fur Sales 5,274.60	Royalties 495.78	
	Fines 9,686.25	Equipment Sold 370.00	
			$ 17 532.21
			$199,168.91
	Less Biological Income		18,694.75
	Net Fish and Game Income		$180,474.16

DISBURSEMENTS ANALYZED BY PURPOSE

1925

GAME DEPARTMENT.		
Operating Expense	$ 13,303.07	
Salaries Warden and Assistants	9,266.15	
Capital Expenditures	114.83	
Repairs and Replacements	928.75	
Salaries, Special Deputies	21,867.55	
Salaries, Regular Deputies	16,592.85	
Expense, Deputies	15,543.82	
Educational Secretary	2,833.13	
Purchase of Birds	2,362.50	
Undistributed Expense	961.91	
TOTAL GAME DEPARTMENT EXPENSE		$ 83,774.56
FISH DEPARTMENT.		
Operating Expense	$ 17,497.39	
Salaries and Expense Superintendent of Hatcheries	2,724.83	
Capital Expenditures	3,554.20	
Repairs and Replacements	4,988.84	
Hatcheries Payroll	31,004.76	
Hatcheries Employees' Expense	3,572.56	
TOTAL FISH DEPARTMENT EXPENSE		63 342.58
		$147,117.14
BIOLOGICAL DEPARTMENT.		
Undistributed Expense		21,483.78
TOTAL DISBURSEMENTS		$168,600.92

1926

GAME DEPARTMENT.		
Operating Expense	$ 11,472.17	
Salaries, Warden and Assistants	10,304.82	
Capital Expenditures	500.00	
Repairs and Replacements	1,200.00	
Salaries, Special Deputies	5,641.50	
Salaries, Regular Deputies	33,101.77	
Expense, Deputies	17,000.38	
Educational Secretary	3,181.60	
Purchase of Birds	6,494.00	
Duck Food	2,928.76	
Undistributed Expense	383.34	
TOTAL GAME DEPARTMENT EXPENSE		$ 92,208.34
FISH DEPARTMENT.		
Operating Expense	$ 31,483.87	
Salary and Expense Superintendent	1,439.02	
Capital Expenditures	10,126.39	
Repairs and Replacements	86.45	
Hatcheries Payroll	39,557.82	
Hatcheries Employees' Expense	5,971.41	
Refunds	320.00	
TOTAL FISH DEPARTMENT EXPENSE		$ 88,984.96
		$181,193.30
BIOLOGICAL DEPARTMENT.		
Undistributed Expense		$ 21,459.68
TOTAL DISBURSEMENTS		$202,652.98

1925

FINAL REPORT OF DISTRIBUTION AT ALL MONTANA HATCHERIES FOR 1925

Hatchery	Natives	Rainbow	Eastern Brook	Salmon	Loch Leven	Montana White-fish	Grayling	Sunfish	Bass
Anaconda	1,892,000	266,000	718,250	143,000	.....	200,000	8,100,000	.....	.....
Missoula	2,691 000	688,840	.....	.....	.....	.....	.....	.....	.....
Hamilton	1,406,000	522,000	.....	.....	.....	.....	.....	.....	.....
Meadow Creek (Co-op. Eggs furnished by State. Incubated by U. S. Bureau)	784,896	.....	.....	.....	.....	.....	4,477,000	.....	.....
Kilbrennan Lake (Co-op. eggs furnished by State, Incubated by S. S. Drew)	.....	.....	20,000	.....	.....	.....	.....	.....	.....
Columbia Gardens (Co-op. Eggs furnished by State, Incubated by Butte Anglers' Club)	901,000	672,000	.....	.....	.....	.....	.....	.....	.....
Big Timber	1,605,000	552,000	.....	.....	.....	.....	.....	.....	.....
Emigrant	3,017,900	306,400	292,500	248,800	351,000	.....	.....	.....	.....
Somers	2,740,770	292,000	129,850	523,000	.....	.....	.....	262,250	40,000
Ovando	637,000	185,500	.....	331,000	.....	.....	.....	.....	.....
Lewistown	588,660	233,500	.....	.....	.....	.....	.....	.....	.....
Red Lodge	975,902	.....	.....	.....	.....	.....	.....	.....	.....
Renan Lake	188,112	191,000	.....	.....	.....	.....	.....	.....	.....
Great Falls	490,000	399,650	.....	56,737	862,000	.....	.....	.....	.....
Totals	17,911,140	4,308,890	1,160,600	1,302,537	1,213,000	200,000	12,577,000	262,250	40,000

TOTAL GAME FISH, 38,985,517.

1926

FINAL REPORT OF DISTRIBUTION AT ALL MONTANA HATCHERIES FOR 1926

Hatchery	Natives	Rainbow	Eastern Brook	Salmon	Loch Leven	White-fish	Grayling	Sunfish	Steel Heads	Native Eyed Eggs
Anaconda	2,048,000	153,000	133,000	166,800	.....	.....	7,250,000	.....	.....	76,200
Missoula	374,500	75,500	40,000	160,850	.....	.....	.....	.....	.....	.....
Hamilton	2,063,000	10,000	.....	.....	.....	.....	.....	.....	.....	.....
Libby	441,300	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rock Creek	608,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ovando	1,220,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Somers	3,288,000	901,000	152,000	.....	.....	5,612,200	1,546,000	370,000	.....	.....
Emigrant	2,206,130	523,820	211,500	49,800	98,000	.....	.....	.....	.....	.....
Big Timber	1,804,000	393,000	159,000	44,000	228,300	.....	.....	.....	.....	.....
Great Falls	1,458,500	370,000	.....	.....	97,845	.....	.....	.....	.....	.....
Red Lodge	690,500	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lewistown	592,002	187,255	.....	.....	.....	.....	.....	.....	.....	.....
Co-operative Exchange eyed eggs, Columbia Gardens	824,000	1,200,000	.....	.....	.....	.....	.....	.....	.....	.....
Co-operative Exchange green eggs, U. S. Bureau	5,689,000	.....	.....	.....	.....	.....	5,620,000	.....	.....	.....
Co-operative Exchange eyed eggs, Oregon Commission	3,500,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Co-operative Exchange eyed eggs, Michigan Commission	.....	.....	.....	.....	.....	.....	1,428,000	.....	1,500,000	.....
Co-operative Exchange eyed eggs, S. S. Drew, Troy	2,955,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	29,761,932	3,813,575	695,500	421,450	424,145	5,612,200	15,844,000	370,000	1,500,000	76,200

TOTAL GAME FISH, 58,510,202

OPERATION OF FISH AND GAME FUND

1925

To Balance in Fund January 1, 1925	$ 21,602.05
To Receipts, January 1, 1925, to January 1, 1926	229,451.18
	$251,053.23
By Disbursements, same period	147,117.14
Balance in Fund January 1, 1926	$103,936.09

1926

To Balance in Fund January 1, 1926	$103,936.09
To Receipts, January 1, 1926, to January 1, 1927	180,474.16
	$284,410.25
By Disbursements, same period	181,193.30
	$103,216.95

RECONCILEMENT.

State Treasurer's balance January 1, 1927	$107,003.58	
Plus receipt No. 6208, taken to account in Fish and Game in December, but by Treasurer in January, 1927	226.13	
	$107,229.71	
Les Auditor's Warrants outstanding	4,012.76	
Net Balance as Above		$103 216.95

OPERATION OF BIOLOGICAL FUND

1925

To Balance in Fund January 1, 1925	$ 12,308.24
To Prior Receipt Not Reconciled	1,384.43
Corrected Balance January 1, 1925	$ 13,692.67
To Receipts, January 1, 1925, to January 1, 1926	19,346.45
	$ 33,039.12
By Disbursements, same period	21,483.78
Balance, January 1, 1926	$ 11,555.34

1926

To Balance, January 1, 1926	$ 11,555.34
To Receipts, January 1, 1926, to January 1, 1927	18,694.75
	$ 30,250.09
By Disbursements, same period	21,459.68
Balance, January 1, 1927	$ 8,790.41

RECONCILEMENT.

State Treasurer's Balance January 1, 1927	$ 9,566.91
Less State Auditor's Outstanding Warrants	776.50
Net Balance as Above	$ 8,790.41