

VOLUME 1

NUMBER 5

MONTANA WILD LIFE OCTOBER



OFFICE OF THE COMMISSIONER
MONTANA STATE FISH AND GAME DEPARTMENT

My Father

Memories of the Kind of a Pal Every Boy

Ought to Have

WHEN A LITTLE SHAVER I followed him always ecstatic adoring. In the bright cold sunshine of spring, I was trudging behind his plow and so, I shall have ever with me the miracle of freshly turned earth a saucy red-breasted blackbird sings in my memory. A picture is etched on my mind it is that of my father's hands big and calloused and brown gentler than any girl's saving a baby rabbit from trampling hoofs rescuing a bird with a broken wing patting the head of a friendly dog. And the pleasure of fishing with him and hunting and swimming! Sportsmanship, patience and skill he taught me and the difficult art of timely silence. He it was who kindled within me the love of God's great out-of-doors and its denizens Thy woods and templed hills. In the shimmer of afternoon heat I went with him to the field where he worked with his men where he found the meadow lark's nest where he held back the thicket and pointed out the track of the fawn. If I am given the words, some day I shall pass on the charm, the magnetism of it all. My bit of imagination is the reflection of his great store of knowledge which colored for me every commonplace thing rain meant more than the wheat it was the pale-tinted veil of beauty and the wheat when it ripened was akin to the Golden Fleece. So the high, silver hills of the future lie lovely, for my father who has passed on has shown me the way and I go forth unafraid.



MONTANA WILD LIFE

The Official Publication of The State Fish and Game Commission

VOL. I. HELENA, MONTANA, OCTOBER, 1928. NO. 5.

For Each Resident--345 Game Fish

HAVE YOU hooked the 345 game fish which have been planted for you in Montana streams during the last five years by the State Fish and Game Commission? Official figures compiled at Helena headquarters show that from 1924 until today, the 14 hatcheries operated by the State Department have produced and planted a total of 188,789,887 game fish in the waters of the state. According to the last estimate compiled by the State Department of Agriculture, the population of Montana at the opening of 1928 was slightly more than 546,000. Hence, during the last five years since the total annual count started, the State Commission has planted more than 345 game fish for every man, woman and child in Montana.

Authoritative figures compiled from the daily reports from each state hatchery produce the following amazing totals of game fish planted by employees of the Department:

1924	24,471,098
1925	38,985,517
1926	53,510,202
1927	46,823,070
1928	*20,000,000
Total	188,789,887

*The 1928 planting season has just started, yet approximately 20,000,000 fingerlings have already been planted.

These figures have been compiled in no haphazard manner. They are taken from daily sheets submitted to Department headquarters by hatchery superintendents and totaled by the State Fish and Game Department. True it is that each little fish is not counted separately. Hatchery experts measure them in scientific containers, then count the number in an average container. Mathematical calculation brings the result and countless tests have proven the count correct. Similar tests are made in counting fish eggs.

Today Montana leads the nation in the production and distribution of game fish.

From the spawn-taking station at the mouth of Flint Creek on Georgetown Lake, which is recognized as the largest institution of its kind in the nation, an average of 50,000,000 game fish eggs is annually taken by artificial means during the spawning season. These eggs are distributed throughout the battery of 14 hatcheries maintained by the State Commission with funds provided by sportsmen in the purchase of hunting and fishing licenses. In the

MONTANA'S FISH HATCHERIES AND SUPERINTENDENTS.

District supervised by Dr. I. H. Treece of Anaconda:

- Anaconda—Kenneth McDonald.
- Somers—M. L. Matzick.
- Station Creek at Polson—Eli Melton.
- Libby—Leo Gilroy.
- Ovando—T. E. Day.
- Rock Creek, Philipsburg—A. E. Allen.
- Hamilton—J. P. Sheehan.
- Ronan—Leo Gilroy.
- Missoula—O. E. Johnson.

District supervised by John W. Schofield of Big Timber:

- Emigrant—Orin L. Hathaway.
- Big Timber—Iver Høglund.
- Great Falls—A. G. Stubblefield.
- Lewistown—L. R. Donaldson.
- Red Lodge—M. L. Høglund.

hatcheries, the fingerlings are produced which are later planted in Montana streams. The spawning season closes in July and the planting season has just well started. All hatcheries are filled with an ample supply of eggs and the planting process will continue until the supply is exhausted. Already 20,000,000 baby trout have been liberated in 1928.

Careful consideration of these figures is illuminating. Incessant effort on the part of State Department officials in making possible this vast work is beyond the ken of the ordinary man. Scientific investigation has revealed the fact that only a fraction of one per cent of fish eggs taken by artificial means is lost, while the same rule pre-

vails with regard to the transportation and planting off fingerlings under modern systems. Thousands fall prey to predatory birds, other thousands go to feed their cannibal brothers, but the majority survive to provide summer sport for Montana anglers and the constantly increasing number of tourists from east, west, north and south.

The method of artificial propagation of fish has been known for more than 500 years, but its practical application is modern. In 1853 the first American who attempted to perfect the process was Dr. Theodatus Garlick of Cleveland, Ohio, who was assisted by Professor Ackley. In that year, in the headwaters of the Cuyahoga river, they artificially fertilized and successfully hatched a large number of brook trout. That was the beginning.

In 1924 the State Fish and Game Department hatcheries planted 24,471,098 fingerlings as follows:

Native trout	7,780,005
Rainbow trout	3,844,974
Eastern Brook trout	698,064
Silver salmon	1,750,038
Chinook salmon	527,236
Loch Leven trout	650,401
Whitefish	
Grayling	8,244,000
Sunfish	5,300
Bass	48,400

In 1925 the planting of Lake Superior whitefish was resumed in Flathead Lake with the purpose of ascertaining the value of the lake for commercial fishing. In 1925 the total distribution of fingerlings reached 38,985,517 game fish as follows:

Native trout	17,921,240
Rainbow trout	4,308,890
Eastern Brook trout	1,160,600
Salmon	1,302,537
Loch Leven trout	1,213,000
Whitefish	200,000
Grayling	12,577,000
Sunfish	262,250
Bass	40,000

In 1926 the fish planting program reached its height. The planting of Lake Superior whitefish in Flathead Lake likewise reached its high point. The total for that year was 58,510,202 as follows:

Native trout	29,761,932
Rainbow trout	3,813,575
Eastern Brook Trout	695,500
Salmon	421,450
Loch Leven trout	424,145
Whitefish	5,612,200



Dr. I. H. Treece



J. W. Schofield

Grayling	15,844,000
Sunfish	370,000
Bass	1,500,000
Eyed eggs	67,200

Last year the total plant reached the amazing figure of 46,823,070—enough to fill several creels—as follows:

Native trout	22,678,418
Rainbow trout	5,617,477
Eastern Brook trout	2,843,326
Salmon	466,897
Loch Leven trout	1,533,200
Whitefish	2,791,400
Grayling	12,495,000
Sunfish	315,000
Bass	53,200

Just suppose, for the purpose of cigar store argument, that each of these fish had lived to weigh a pound. That means a total of 188,789,887 pounds or a mere 94,398 tons of trout and other game fish. If placed end to end—figger it out for yourself.

This year's spawn-taking activities at Georgetown Lake were hampered by the late season and the prevalence of ice that delayed the run of trout into the traps up the creek, hence the total figure will be lower than last year when the planting season ends. Figures compiled by Jack W. Carney, assistant game warden, show the following distribution already this season:

Anaconda Hatchery

Yearling Natives	258,400
Eastern Brook	185,000
Rainbow	750,000
Salmon.....	45,000
Grayling	5,200,000

Big Timber Hatchery

Loch Leven	900,000
Eastern Brook	247,000
Rainbow	878,800
Natives	1,157,370

Emigrant Hatchery

Rainbow	342,236
Natives	1,546,850
Eastern Brook	730,000

Great Falls Hatchery

Rainbow	270,000
Eastern Brook	396,300
Loch Leven	61,675
Salmon	5,000

Hamilton Hatchery

Rainbow	168,000
Natives	200,000
Salmon	49,000

Lewistown Hatchery

Natives	955,569
Rainbow	144,400

Ronan Hatchery

Rainbow	213,106
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Ovando Hatchery

Natives	500,000
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Red Lodge Hatchery

Natives	447,500
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Somers Hatchery

Natives	940,000
Rainbow.....	96,000
Eastern Brook	134,200
Grayling	1,600,000
Salmon	146,700
Whitefish	1,022,480

Station Creek Hatchery

Rainbow	40,000
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RELEASE 80,564 RABBITS

PENNSYLVANIA'S Board of Game Commissioners has announced the release of the largest number of cottontail rabbits ever purchased in any one year, says a bulletin of the American Game Protective Association. A total of 80,564 rabbits were distributed during the latter part of the winter.

All of these animals were procured from dealers in Missouri and Kansas who guarantee that no stock handled is affected by the dreaded and mysterious tularemia, or rabbit fever. All animals are in perfect condition when leaving the dealers' hands. Upon their

arrival in Pennsylvania they are promptly cared for by the game protectors and any sick or imperfect animals are weeded out. They are shipped in new, clean crates and are given the best of attention on their journey.

The game protector often finds it advisable to keep the crated animals for a time until weather conditions are propitious. Sometimes it is necessary to take the animals for some distance. If they are released in the winter months the protector considers it part of his duty to see that food is placed in accessible situations for the animals. These rabbits are released to provide shooting for Pennsylvania sportsmen.

Hunters Increasing In Numbers

DURING the season 1926-27 more than 5,750,000 hunting licenses for the taking of wild game were issued to sportsmen throughout the United States, including Alaska, and the revenue to the states amounted to more than \$7,800,000. Although data from four states are lacking, detailed figures for the season compiled by the Bureau of Biological Survey of the United States Department of Agriculture show increases in numbers of licenses issued and fees received over the preceding three years. In the 1923-

24 season, the licenses numbered 4,395,038 and the fees paid were \$5,594,982. One year later, 4,904,740 hunters paid for their licenses a total of \$6,190,863, while in 1925-26 hunting licenses to the number of 5,168,353 were issued, bringing a revenue of \$6,872,812 to the states. During the season just past, New York state with 620,414 licenses and fees of \$822,415 headed the list both in licenses and money returns. The complete figures are given in the following table:

Hunters' Licenses Issued by States, with Total Money Returns for 1926-27.

	State	Resident	Non-Resident and Alien	Money Returns*
	Alaska†		182	\$12,860.00
	Alabama	54,635	131	83,484.24
	Arizona x			
	Arkansas	\$90,000		90,000.00
	California	250,891	2,641	279,701.00
	Colorado	\$90,999	365	205,237.45
	Connecticut	37,521	599	111,070.50
	Delaware	12,115	356	6,064.50
	Florida	59,679	709	163,105.00
	Georgia	64,755	226	79,155.00
	Idaho	\$70,500	568	143,357.75
	Illinois	286,908	1,691	231,196.02
	Indiana	\$251,226	449	232,930.20
	Iowa	\$161,008	290	163,908.00
	Kansas	113,526	129	115,461.00
	Kentucky	90,954	62	78,850.00
	Louisiana	106,210	262	126,097.00
	Maine	\$37,241	54	62,913.35
	Maryland	62,862	2,117	117,420.55
	Massachusetts	108,746	2,621	234,556.00
	Michigan	293,084	2,385	379,003.20
	Minnesota x			
	Mississippi x			
	Missouri	\$255,426	3,998	313,265.48
	Montana	\$67,078	\$3,578	145,104.30
	Nebraska	\$146,246	1474	150,995.25
	Nevada	5,506	60	8,259.00
	New Hampshire	\$52,647	\$2,305	105,648.45
	New Jersey	\$167,415	\$1,787	232,093.25
	New Mexico	16,399	723	49,388.45
	New York	615,344	5,070	822,415.00
	North Carolina	137,099	876	203,000.00
	North Dakota	34,238	160	51,943.70
	Ohio	363,000		453,750.00
	Oklahoma	\$80,169	154	82,416.50
	Oregon	53,353	715	199,916.50
	Pennsylvania	520,574	3,505	649,549.10
	Rhode Island	13,213	274	16,313.00
	South Carolina	68,048	1,065	116,466.05
	South Dakota	91,924	1,464	133,136.00
	Tennessee x			
	Texas	83,707	397	163,540.95
	Utah	\$52,223	1129	87,734.47
	Vermont	\$37,049	\$1,128	53,454.15
	Virginia	95,054	2,194	154,242.60
	Washington	\$196,213	\$729	358,656.00
	West Virginia	\$127,305	235	130,830.00
	Wisconsin	\$55,842	231	146,046.10
	Wyoming	\$23,885	\$592	63,000.00
	Total	5,691,825	47,680	\$7,807,535.06

* Includes amounts received from combined hunting and fishing licenses, but not from licenses to fish only. † No resident license required. ‡ Combined hunting and fishing license. § Estimated. x Figures not available.

Western Wild Life Worth Millions

From The Northwestern National Bank Review of Minneapolis

BANKERS ARE INTERESTED

MONTANA'S program of wild life conservation, in which members of the State Fish and Game Department are intensively engaged, is winning attention throughout the nation. The accompanying article from the Northwestern National Bank Review of Minneapolis is but another indication that financial leaders and commercial captains are beginning to realize the actual value in dollars and cents of fish and game. It isn't often that an authoritative article of interest to the sportsman is found in statistical literature of crops and commerce issued by a great banking institution. The accompanying survey again emphasizes the importance of the work being done by Montana's Commission.

place for sportsmen to make an annual trip from Louisiana or other distant states to Montana for the hunting and fishing, or to establish camps in the northern lake region of Minnesota, or to whip the hundreds of trout streams of Michigan or Wisconsin (there are 10,000 miles of trout streams in Wisconsin). It is estimated that a quarter of a million anglers fish in Minnesota waters alone in the course of a year.

In the same state, in 1926, hunters killed 25,616 deer (an open season is now maintained in Minnesota every other year for a period of ten days, with hunters limited to one deer each), and in the same year 2,923,349 game birds were bagged; in the five years ending in 1926 fur-bearing animals ranging in number from 83,332 to 474,-

544 yearly were trapped in this state, the wide fluctuation being due partly to closed season for some species. Eighteen thousand deer were dressed by hunters in Michigan in 1925. An open season of 30 days for ringneck pheasants in South Dakota in 1926 netted a bag of about one million of these imported birds.

Without active conservation policies it will be seen that the Northwest and the lake states would soon be depopulated of game birds, fish and fur-bearing animals. With so great a seasonal turnover, are our stocks becoming exhausted? "We believe that we are able to keep up with the supply of trout," says the state conservation commission of Wisconsin; "some of the pan fish may be decreasing to some extent."

WILD life in the midland Northwest, the animals, birds and fish, is similar in the several states, despite their topographical diversity. In the six states wholly or partially in this reserve district (the entire areas of Wisconsin and Michigan include, since the main areas of these states refuse to be arbitrarily segregated from the northern sections when wild life is considered), we have now entered upon the time of year when we watch the northern flights of migratory birds in an attempt to predict the outcome of fall hunting, and more actively in the realm of sport, when we begin both to put in and take out fish from our lakes and streams. The latter is, of course, the hook-and-line operations of amateurs, and the formal the more professional function of planting young fish in our many waters.

Beginning as early as March 15 in some years in Michigan, and extending until early November in the entire region, a billion fry and young fish in a more advanced stage of maturity than is indicated by "fry" are placed annually in the waters of these states. They are artificially propagated in the 66 states and 8 federal hatcheries maintained here, or are taken from natural breeding places such as Mississippi bayous which become cut off from the main stream at time of low water. About one-half of the more or less billion are planted in Minnesota (520,173,776 in the year ending June 30, 1927).

The magnitude of the Northwestern effort to maintain ample supplies may be seen from the fact that the entire production of fish and eggs of all federal hatcheries of the United States last year intended for all waters, inland, international and coastal, was but six and a half times greater than our own output.

Increasing population, the advent of automobiles and good roads and more spending money have multiplied the number of sportsmen into a vast army, many of them journeying to the Northwest from long distances. It is common

Montana Cow Nurses Fawn



—Photo by courtesy W. R. Mills, Great Northern Railway, St. Paul, Minn.

Mrs. E. Cooper, who lives on a homestead bordering the Glacier National Park game preserve in northern Montana, is visited every morning by a fawn that leaves its mother in the forest to nurse bossy. The mother deer patiently waits for the fawn at a safe distance and appears to be contented to allow this relay relief furnished by the cow. The cow offers no objections and Mrs. Cooper generously spares the milk.

In the other five states, so far as the number of fish is concerned, the supply is increasing. Improved methods are being used to make less hazardous the growth to maturity of the millions of fry that are planted—greater precautions are taken to insure a food supply, thousands of predatory fish are removed, and there is a general tendency to retain fry hatcheries until they reach the growth of fingerlings, or larger, up to the nine-inch length of muscallonge as artificially propagated in Wisconsin.

A greater variety, also, has been provided. Whitefish, once the glory of Lake Superior, are successfully planted in Flathead lake, Montana; various waters are stocked with rainbow, steelhead and other trout from the Atlantic and Pacific coast, German brown trout are brought from Europe, grayling eggs are imported from the Rockies into Michigan, and Pacific salmon (with no appreciable success as yet) have been introduced into the waters of Lake Superior. Commercial fishing, when confined to rough species and carried on under the supervision of state wardens, is a means of conservation of game fish. In some states it is not permitted, as a project for private gain, and in the Northwest is carried on most extensively in Minnesota. The commercial catch of this state in inland, interstate, and minor international waters, has amounted to about 7,000,000 pounds annually in recent years, which is about one-half the total Lake Superior catch by both Canadians and Americans. The three principal species caught in this manner in Minnesota inland waters are carp, dogfish, and buffalo fish. Such projects are carried on under the supervision of the state commission, and game fish that are seined are thrown back. About three-fourths of this catch is shipped to the East for sale in retail markets, chiefly in New York city. The product is sold fresh, in the round, and as a large part.

A conservation effort that is not practised to any large extent in the Northwest, but which is apparently on its way in some sections, is the planting of aquatic foods for water fowl in lakes and marshes, none of this work will be done this year in the Northwest, except by private agencies, but a start by state officials was made last year in Montana.

The introduction of carp in the Northwest, which began about 40 years ago, has been a source of regret, in that this fresh water raider not only drives out our more desirable species, but that it consumes to a devastating extent the natural food of water fowl. In Montana the planting of aquatic food was apparently not done because of any destruction by carp but to add to the natural supply "in order to attract year after year," in the words of a member of the game and fish commission, "not only the migratory waterfowl that pass over the state in the spring and fall flights, but also to retain waterfowl that breed and raise their young in lakes, sloughs and other water within the borders of the Treasure state."

For various reasons waterfowl have probably been decreasing in number in recent years in parts of the Northwest, one of the reasons being a depletion of

water areas due to drainage; others, more temporary in effect, are drouth and disease. The last cause has had notably spectacular results in other states, as in Utah, Oregon and California, where soluble salts upon ducks and geese. The drouth that caused a shrinkage in the Northwest farm income two years ago also resulted in a decrease in the resident and tourist population of fowl.

Wild geese whose aerial routes between their summer and winter homes formerly led them over the Dakotas have changed their line of flight and this has caused some sportsmen to believe that former days of plenty will never return. "Detachments of stragglers will continue to come and go this way," says the latest biennial report of the North Dakota game and fish commission, "but the main flight will be to the westward so long as present conditions exist." Nevertheless, an unusual number of wild geese have passed along their former routes this spring in both the Dakotas. If the return journey is made over the same course, this kind of game will again help to fill the bags of the hunters.

In Minnesota the kill of geese last year was as good as in other recent years. In numbers they are far inferior to ducks; in 1925, for example, statistics compiled from reports furnished by licensed hunters showed that 1,321,924 ducks were bagged, and 2,328 geese. Duck hunting in Minnesota was not as satisfactory last fall as usual, which may have been on account of a change in flights of migratory birds, or scattered flights, or wether conditions. Local wild fowl—those that nest and breed here—were probably as numerous as ever. Waterfowl account for about 70 per cent of the number of game birds taken in this state.

Of the rest, in a normal season, partridge (ruffed grouse) make up the largest number (about half a million in 1922) and prairie chicken next (411,971 in 1925). Since 1924, due to disease, the supply of partridge has not been normal in the whole Northwest. Importations of Chinese or ringneck pheasants into this part of the country have had remarkable results, in points of numbers, chiefly in South Dakota. There are some objections to the new pheasant citizen (as, alleged fighting proclivities and intemperate appetites for farm produce), but on the whole reports are very favorable; we all have our failings. Only praise is accorded to another importation, the Hungarian partridge, which has become most numerous in Montana, and which is called an ideal game bird. Both newcomers have withstood the test of drouth and cold.

As for big game, deer are about the only animals for the shooting of which there are open seasons, although 700 elk were killed in 1926 on the upper Yellowstone adjoining the Yellowstone National park.

In North Dakota an open deer season is being advocated. Wardens in Minnesota are reporting that there are as many deer this spring as have been seen in recent years. A numerous deer population is indicated in Wisconsin in the latest biennial report: "The closed season, together with the buck law, has again demonstrated its merits as a

practical means of replenishing the supply of game." In Michigan it is said that "under the provisions of the buck law white-tailed deer have increased in numbers nearly equivalent to the supply of pre-regulation days"

A need that is becoming pressing in this part of the country is the establishment of public shooting grounds, as desirable locations are being rapidly taken up by private individuals or interests, of 45 acres of duck pass owned by the state of South Dakota, there is nothing of this sort in the six states although the matter has been widely agitated. A common complaint is that a hunting license merely affords the holder the opportunity to hunt for a place to hunt.

Refuges for game in the six states of Montana, the Dakotas, Minnesota, Wisconsin and Michigan are greater in area than that of the state of Massachusetts. In Minnesota alone 2,946,390 acres are devoted to this purpose, and the state ranks with California and Wyoming as foremost in the United States in aggregate acreage of game sanctuaries. A new refuge, one of the most important in the United States, the Upper Mississippi River Wild Life and Fish Refuge, is now being acquired by the federal government by the ceding of state lands and by purchase, lease and gift of private property. It extends along nearly 300 miles of river, from one to four miles in width, from Wabasha, Minnesota, to Rock Island, Illinois, and when consolidated will contain about 200,000 acres. It consists of timbered swamps, marsh lands, islands, overflowed bottom lands, and buffs, and provides breeding places for animals, birds and fish.

ON THE FLATHEAD

(By M. L. Matzick, Foreman Somers Fish Hatchery)

Where is the finest fishing found?

On the Flathead.

Where do the native and rainbow abound?

On the Flathead.

Where do you find the most elk and deer?

Where can you catch fish any day of the year?

There are very few sportsmen disappointed here

On the Flathead.

And here the sunshine always plays

On the Flathead.

Throughout the long, long summer days

On the Flathead.

And here we have the loveliest view,

And here the skies are ever blue,

Of course we have a fog or two

On the Flathead.

Now I will close my little rhyme

Of the Flathead.

And tell you more some other time

Of the Flathead.

But come and prove my story true,

I know it will appeal to you,

And you will be a booster too

For the Flathead.

A GENUINE ANTIQUE

Talkative Spinster: "This piece of lace on my dress is over 50 years old."

Bored Visitor: "Oh, it's perfectly lovely! Did you make it yourself?"

SHOOTING SQUARE

SIGNS bearing the legend: "Fishing Permitted" are beginning to appear throughout the land to displace the baneful notices that trespassers will be prosecuted to the full extent of the law. Reports from Oregon, particularly, are to the effect that farmers and sportsmen are reaching a better mutual understanding. Rod and gun club leaders of Montana may well follow the example of the Tillamook Rod and Gun Club which has inaugurated a campaign of education urging upon sportsmen the necessity of respecting the rights of land owners and impressing upon them the fact that organized sportsmen will not tolerate abuse of fishing and hunting privileges. The farmer is given a better understanding of the real character of sportsmen and the fact that they desire to cooperate with him is stressed.

Fishing Permitted

Do Not Damage Fences
Do Not Drive Across Fields
Keep to the Edge of Meadows
Leave No Rubbish
Close the Gates

BE CONSIDERATE

If you wish to continue this privilege.

Signed

The accompanying reproduction shows one of the signs furnished for the use of farmers who agree to put them up. They are 12x14 inches, printed on cloth and neatly mounted on one-inch board.

The farmers are taking kindly to the idea and some have journeyed to Tillamook to get them, not waiting for the club to bring the signs to the farm.

"VACATION LAND"

(By C. J. Byrne)

Somewhere out beyond the cities
On the other side of Spring,
Stretching through the months of Summer,
Where the wild birds come to sing;
There's a land of recreation,
Where the sparkling waters gleam,
'Tis a land they call "Vacation,"
A reality—not a dream.
How we grind that we may prosper,
And in prospering we find
That the very joys we try for
Are the ones we leave behind.
We have hopes, of course, that some day
Nature's blessings we shall know,
But vacation is a blessing
If we take it "as we go."
Somewhere out beyond the cities,
Far from toil and daily grind,
Where the game fish lurk in waiting,
Where you leave all care behind.
Don't let months and years slip by you,
You have everything at stake,
See the Land of your Vacation,
The best investment you can make.

EVER FELT THAT WAY?

Thar's a feelin' comes a'stealin'
And a creepin' 'round my heart—
'Pears like I ain't good for nothin'
anymo';

My appatite's a failin'
And it seems I'se allus ailin'
I'se so tired I can scarcely reach
the do'.

Something' seems a callin', callin',
From de woods beyond de hills
Where de willows droppin' boughs
are a swishin';

Where the speckled beauty lies—
Mandy, git dem hooks and flies—
Dis ol'e nigger is obleeged to go a
fishin'.

OBEY THAT IMPULSE

SPORTSMEN of Montana have responded graciously to the call for subscriptions to MONTANA WILD LIFE. To further the cause of conservation and make possible continued publication of this magazine it is mandatory that the subscription list be strengthened. Secretaries of sportsmen's clubs are especially urged to interest their membership. Hundreds of Montana conservationists have subscribed for their eastern friends. They are interested in aiding the program outlined by the State Fish and Game Commission. The fee is 50 cents a year for the 12 monthly copies. Obey the impulse. Do it now!

Montana Elk Feed Under Water



In the waters of the lakes of Glacier National Park there is a succulent moss which is a morsel of which the elk are greedily fond. Superintendent Eakin's rangers this summer have found many elk feeding on this piece de resistance in certain regions of the park where it grows profusely. The rangers had missed a herd of elk and at first thought they had wandered across the Canadian boundary into the Waterton Lakes National Park, but instead they found them in the Hidden Lake country where an abundant growth of the favorite moss was known to flourish.

MONTANA STATE FISH AND GAME COMMISSION

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Joseph L. Kelly, Anaconda.
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TO A MIGRATORY WATER FOWL

WHEN the first gray streaks of dawn sent silvery shadows over Montana's lakes, marshes, pot holes and ponds on the morning of September 16, the bark of scatterguns announced the opening of the annual season on migratory waterfowl and sportsmen of the Treasure State ushered in what promises to be one of their best shooting seasons. Greenheaded quacks and blue-winged quackesses are aplenty. Bluebills and spoonbills, black mallards and widgeon, snow goose and Canadian honker are reported on the sportsmen's menu. And it's the sport that thrills. Hungry, wet, unwashed, chilled to the marrow, yet happy, comes back the duck hunter and the truth isn't in him, says the cynic. He's had his day and he has thoroughly enjoyed it.

To the duckst who permits his mind to flip mental gymnastics while squatting in a coolish blind waiting for the sizz of wings when they're coming in, there's something eerie, something mysterious about these waterfowl. They're in the northland, tomorrow they're feeding on Montana's marshes, next day they're winging their way southward over Utah, traversing desert wastes, into California, Florida, down the Missouri to the Gulf or braving the barrage along the Mississippi. And next spring what's left returns for the nesting.

How do they find their way up and down the continent and across the wastes of trackless seas? What of the long night flights? What compass guides them? Instinct? The word is defined as an inherited habit or sixth sense that is passed on from parent to young. But the mystery remains and the study of migration of birds leads on and on into reaches of unexplored natural history. To those who choose to look beyond for solutions, the lines which inspired Bryant to pen his poem "To a Water Fowl" carry an appeal:

He who from zone to zone
Guides through the boundless air thy certain flight,
In the long way that I must tread alone,
Will lead my steps aright.

PROOF OF BUCK LAW VALUE

MONTANA'S open season on deer is approaching and with the first fall of snow and the zip in the air comes the annual debate anent the value of enforcement of the buck law. Season after season hunters return with the plea for reopening the season on does. Yet season after season, under strict enforcement of the buck law

by the State Commission, Montana's herds of deer are increasing to cope with slaughter that marked no-limit days. Deer are now being seen where in former years they were unknown. True it is that many shortsighted sportsmen glimpse herds of does in the valleys while the wary buck, capable of matching wits with the sportsman, is browsing on brakes and ridges.

For the first time New York has been able to report immediately after the hunting season the approximate number of deer killed in 1927, and the figures are astonishing. More than 7,000 antlered deer were killed in a two weeks' season early in November, according to an announcement by the Conservation Department. These were nearly all matured animals, not fawns or "spike" bucks.

Most of the deer hunting country in New York is in the Adirondacks and the Catskills, but deer are found in many counties outside these districts and hunting is permitted in several. The kill reported in the Adirondacks was 5,647, in the Catskills 648, and elsewhere 70, a total of 6,365.

These figures are impressive when it is realized that the number of licensed hunters is very large. The report furnishes incontrovertible proof of the efficacy of deer conservation, the buck law and sanctuary. By applying these methods of deer protection the supply has been restored to abundance from practical extinction under the old system of market hunting and indiscriminate killing, and an open season for legitimate shooting of bucks has been had every year.

In the Catskills deer were at one time entirely gone and were restored by liberating a private herd. So low had the supply become in the Adirondacks, at one time, owing to market hunting, that the deer supply was confined almost wholly to isolated bunches on the protected estates of a few wealthy men.

It would seem that the lesson taught by the experience of New York is so plain and so simple that the most obtuse or prejudiced opponent of the Montana buck law must comprehend its significance.

New Jersey furnishes a similar object lesson. The kill of deer in that small, densely populated state in the open season in December, 1927, was 1,772 bucks, 42 more than the previous year. Pennsylvania, possibly the most conspicuous example of what can be done by sanctuary and protection of brood stock, reports a kill of from 12,000 to 15,000 antlered deer last season.

MONTANA WOMEN GUARD GAME

WHILE Montana Sportsmen endowed with the enlightened cause of fish and game conservation have taken strides toward aiding the State Commission in preserving the heritage of wild life for posterity, they are being given constructive assistance by enthusiastic women. Many are honorary game wardens. It's nothing new for Montana women to take an active part in field sports, trap-shooting, fishing and hunting. It's something of an innovation, however, for women to take an active part in securing legislation for game conservation.

An article in AMERICAN GAME, the bulletin of the American Game Protective Association describes the remarkable work of Mrs. Hannah Kempfer, a member of the Minnesota legislature and chairman of the committee on Fish and Game at the last session. Mrs. Kempfer has shown remarkable ability and rare understanding of the problems involved in framing laws that will be effective. The article also describes the services of women game wardens including Mrs. Florence Stukel of Minnesota and Mrs. Caryll V. Hoffman of South Dakota, both of whom have distinguished themselves for efficient service.

THAT BLACK BRIGAND—THE CROW

ALMOST anything is grist that comes to the mill of the black brigand of Montana's feathered world—the crow. Foe of birds of the field and the farmer as well, during the year he divides his food almost equally between vegetables and animal matter. An interesting revelation has been brought forth in the examination of the stomachs of more than 900 crows in Michigan by the late Prof. W. B. Barrows of Michigan State College. His findings are of vital interest to Montana folks. Professor Barrows asserts that in winter the crow eats about 67 per cent animal substance. In summer he balances by exactly reversing the ratio. Insects comprise part of the animal matter eaten and in his selection of them the crow displays unusual tastes. He is apparently fond of those which have a pungent, sour or strong taste or odor. For instance, he devours soldier bugs whenever he gets a chance. This insect has a very strong taste. Also the crow seems fond of certain varieties of large ants which are well known to have an extremely sour flavor. Quantities of smaller varieties of ants are found in the crow stomachs but scientists believe these are swallowed along with dead insects which the bird finds and eats.

Another characteristic of the crow's choice of insect fare is the selection of hard-shelled varieties. Beetles of many kinds including dung beetles, ground beetles, June beetles and others, and grass-hoppers form the bulk of the insect diet.

Besides a variety of insects the animal diet of the crow covers a wide range. He feeds on rabbits, mice and other small animals, on snakes, frogs, toads and fish, on wild birds and their eggs, on crawfish, clams, snails and other shell-fish and on carrion, to say nothing of eggs and young chickens or other poultry stolen from a farmyard when ever the opportunity affords. It is estimated by ornithologists that crows destroy several times as many young chickens each year as do all kinds of hawks put together.

A CARTRIDGE A DAY

HERBERT F. Prescott, secretary of the New York State department of conservation has coined the slogan: "A cartridge a day keeps the vermin away" in an attempt to enlist the support of sportsmen of New York in a war on birds and animals destructive to game and song birds. Montana's State Fish and Game Commission supplies all deputies with ammunition to wage relentless war on these brigands and consistently urges Treasure State sportsmen to join in the crusade. Contests are annually staged among boys' and girls' clubs of sportsmen to encourage destruction of vermin.

The New York Department of Conservation maintains a blacklist of these vermin—the outlaws of the animal kingdom, against which every hunter is entitled to turn his gun at all seasons. On this list are the common crow, cooper's hawk, goshawk, sharp-shinned hawk, weasel, red squirrel, great horned owl, red fox, and the ordinary domestic cat when he is caught hunting.

Reverting to his slogan, Prescott pointed out that there are 700,000 licensed hunters in New York state. If each of these used one cartridge on vermin each day in the year, omitting Sundays, the result would be 218,400,000 destructive birds and animals killed in a year.

The 150 game protectors of the state last year killed 3,290 of these enemies of the songbird, but the vermin is increasing at such a rate as to threaten the extermination of protected species.

THE BULLFROG A GAME FISH

IDAHO has decreed that the lowly bullfrog has the legal status of a game fish, having an open and closed season and other legal protection such as is accorded the aristocracy of the finny tribe. It is reported that in Idaho the bullfrog is seriously regarded as desirable game. It is hunted with small calibre rifles or by rod and line. If angled for with hook and line, a piece of red flannel is used as bait. The bullfrog is taken not merely for sport but because it is a desirable article of food, as a good sized mature bullfrog weighs over a pound and provides delicate meat equivalent to that furnished by any eight-inch trout. Then, again, some wag has asserted that a good many will weigh a pound and that many of them sit on a log and bark.

HUNTERS AND TRAPPERS WEAR BUTTONS

EVERY hunter and trapper in the state of Wisconsin will have to wear a button this year, according to word just received from the State Conservation Commission. The commission has received 237,000 resident hunting buttons and distribution to the county clerks was begun in time for clerks to issue buttons when they issue licenses.

It is expected that the new system will save bother for the hunters and work for the wardens. It will not be necessary for a warden to ask a button-wearing hunter to exhibit his license.

The hunting buttons for residents are green and have a white ribbon across the middle bearing the word "Wisconsin." Above the ribbon is the year and the number of the button, which corresponds to the number of the license. Below the ribbon is carried the description of the licensee. Buttons worn by trappers are blue. Non-resident hunting licenses are yellow. The buttons are about one and three-quarters inches across and can be used for some distance.

A man without mirth is like a wagon without springs, in which one is caused disagreeably to jolt by every pebble over which it runs.—Henry Ward Beecher.

OBJECT TO KILLING PHEASANTS

NOTWITHSTANDING the fact that there is a considerable feeling among many farmers where Chinese pheasants are plentiful that they are injurious to agricultural interests in that they do at times eat growing crops to some extent, it is also true that whenever steps are taken to control the number of pheasants by killing them off very strenuous objections are heard from the farmers themselves.

A situation of this kind has recently arisen in Oregon where the State Game Commission instituted an investigation of the food habits of the pheasant in connection with which it was ordered that five pheasants each month be killed in each of ten Oregon counties and the contents of their crops and gizzards be scientifically examined so that exact information might be had of the character of their food throughout the year.

As soon as this order was issued, protests from farmers began to be received by the Commission against the killing of the birds. The investigation is a very meritorious one indeed and will do a great deal to set at rest the disputed question of the food habits of this species of game. Any rational attempt to secure basic facts on which to frame methods of administering game should have wholehearted encouragement.

Enemies of the pheasant maintain that he is destructive, while on the other hand it is claimed by sportsmen that harmful seeds and insects will predominate in the average dietary of the pheasant for the year.

The man who hasn't anything to boast about but his illustrious ancestors is like a potato—the only good belonging to him is underground.—Sir Thomas Overbury.

SHEEP DIP REPELS DEER

CAPTAIN DAVE DONDERO, in charge of the Division of Fish and Game Patrol in the Lake county, California, district, has figured out a method that he declares will keep deer from invading orchards and damaging fruit trees. Ranchers complained that deer were damaging fruit trees in their orchards. They wanted the right to shoot the deer. This being contrary to law as well as to the spirit of conservation and good sportsmanship, Dondero tested the following scheme and found that it worked:

Take a woolen garment and cut in strips four inches wide by six or eight inches long. Soak in pure sheep dip and hang one piece on each tree. A good method is to use wire about six inches long. Hang so the cloth does not come in contact with the bark of the tree. It is very easy to go over the orchard and resoak the cloths when they dry.

Farmers bothered by deer are advised by Captain Dondero to try this method, as he claims it is much cheaper and more effective than spraying. He insists the deer are kept away from the fruit trees for six weeks with one soaking of the dip.

There is much complaint of deer and elk browsing on fruit trees. The method may prove a solution.

WATERFOWL SUPPLY IS DECLINING

FROM REPORTS received from many countries, Dr. T. Gilbert Pearson, President of the National Association of Audubon Societies, is led to believe that there is a gradual diminution of waterfowl throughout the world. At the recent International Congress for Bird Protection at Geneva, Switzerland, Dr. Pearson classified the destructive human agencies that are tending to drive from the earth ducks, geese, and shore birds as follows:

- (1) The open market for birds which gives ample incentive for systematic slaughter on a large scale.
- (2) The shooting of wildfowl in spring, killing individuals of pairs already mated for the season.
- (3) The use of petrol-driven cars and boats that swiftly take hunters from one shooting ground to another.
- (4) The greatly increased destructiveness of modern firearms, particularly repeating shotguns.
- (5) The absence in many countries of laws which specify a daily bag limit.
- (6) The destruction of feeding and breeding places for wildfowl by drainage.
- (7) Oil liberated on lakes, rivers, and coastal waters.
- (8) The extensive utilization of eggs by inhabitants of arctic and subarctic regions.
- (9) The killing of wildfowl by means of nets, shooting over lights at night, and other devices for wholesale destruction.
- (10) The general disregard shown by many hunters for the restrictive laws.

Die when I may, I want it said of me by those who knew me best, that I always plucked a thistle and planted a flower where I thought a flower would grow.—Abraham Lincoln.

HOW OLD IS A FISH?

IT MIGHT be doubted that there is any practical or certain way of determining the age of a fish. However, scientists have learned that the age of a fish can be determined by microscopic study of its scales, each year's growth being indicated by rings just as the age of a tree may be determined by the growth of its rings. No matter how small the scale of a fish, the telltale rings indicate its age.

Wisconsin, through its Geological and Natural History Survey, has undertaken a survey of the lakes and streams of the state, which will include the collection of scales of 50,000 sample fish. Sportsmen are invited to help in this survey by measuring and weighing their fish, taking samples of their scales and sending same with their report to the survey.

Professor George Kemerer, limnologist, has announced the details of the survey and conditions on which cooperation is requested. By this survey it is expected to determine the rate of growth of fish in various waters and the factors which determine that growth. It is known that temperature affects the growth of fish, as in warm water fish are more active and consume more food than in cold water; therefore, the rings on the scales of the fish produced during the winter are more closely spaced than those produced during the fast-growing summer season.

WANTED—A worthy substitute for the overworked phrase, "Sportsmen's Paradise."

BISON TRANSPORTED TO ALASKA

TRANSPORTED successively by railroad, steamship and automobile truck, 25 Montana buffalo were shipped to Alaska and liberated on range in the vicinity of Fairbanks this season. This introduction of buffalo into Alaska is a part of the game restoration work being carried on by the territorial government in cooperation with the United States Bureau of Biological Survey, and is the first attempt to introduce buffalo into Alaska. The animals were placed in individual crates and shipped by express the entire distance. After reaching Fairbanks over the Alaska railroad from Anchorage, they were taken by truck to the McCarty district south of Fairbanks, where they were placed in corrals to remain until they had become accustomed to their new surroundings, after which they were to be given their liberty. The region seems well adapted to the grazing habits of buffalo, and it would appear that this attempt should be successful. Canada has had marked success in similar transplanting of buffalo into the Peace River district where the climate is similar.

WHAT THE OUTDOORS IS WORTH TO A STATE

WE QUOTE this extract from an article by Henry L. Betten in the "National Motorist"—Game, Fish Conservation Urged:

"Other commonwealths recognized that value long before we did and some have advanced far along the road of reconstruction. For instance, carefully conducted surveys show that tourists drawn by the fish and game resources and scenic attractions of Minnesota expend \$65,000,000 in pursuit of recreation annually. Colorado has receipts of over \$60,000,000 through the same source, Michigan \$40,000,000, Wisconsin \$27,500,000, South Dakota \$22,000,000, Florida \$70,000,000.

"California's unexampled potentialities could be developed to an extent where business to the value of \$150,000,000 might accrue from recreational sources. That, fellow citizens, is BIG BUSINESS, the kind that can be made to yield larger dividends than any industrials developed in the land."

Don't cheat. The man who illegally takes game or fish robs his fellow man and defrauds his state. He robs posterity of its rightful heritage. It is the duty of every good citizen to report violations of fish and game laws and to endeavor to cause the erring brother to see the error of his ways.

HUNTING ELK BY PROXY

SOME ONE in Montana has suggested that the state employ expert hunters to kill surplus elk and discontinue issuing hunting licenses for elk hunting. The further suggestion is made that licenses be issued to non-residents to take elk out of the state that have been killed by the state's experts. It is needless to say that sportsmen in and outside of Montana have not approved of this suggestion. If elk are plentiful enough anywhere for hunting the sportsman believes that he should be permitted to shoot them himself. No one deserving the name of sportsman will permit any one else to do his shooting for him. The time has not yet come, it is to be hoped, when the exhilarating sport of the chase is to be indulged in only by proxy.

Conservation means guarding, preserving, and, if possible, enhancing the natural resources of our country that we may enjoy them to best advantage and hand them down unspoiled to our children.—Henry van Dyke.

SPEAKING OF CATS

Two hunters in the North Carolina woods had chased a wildcat to a clearing and were terrified to see the beast jump through the window of a cabin from which the sound of a woman's voice had just been heard. Friend Husband sat on the porch, rocking comfortably.

"For heaven's sake, is your wife in there?" screamed one of the hunters.

"Yep—reckon so."

"Good Lord, man, get busy. A wildcat just jumped in the window."

"Yeh? Wal, let him git out the best way he kin. I got no use for the pesky critters. Danged if I'm goin' to help him."

The real way to know a little river is not to glance at it here or there in the course of a hasty journey, nor to become acquainted with it after it has been partly civilized and spoiled by too close contact with the works of man. You must go to its native haunts; you must see it in youth and freedom; you must accommodate yourself to its pace, and give yourself to its influence, and follow its meanderings whithersoever they may lead you.—Henry van Dyke.

HENRY O'MALLEY, chief of the United States Bureau of Fisheries, says, "Any dam, no matter how small, in any stream is a menace to fish life."

Do not keep the alabaster boxes of your love and tenderness sealed up until your friends are dead. Fill their lives with sweetness. Speak approving, cheering words while their ears can hear them and while their hearts can be thrilled by them.—Henry Ward Beecher.

The seeds of first instructions are dropp'd into the deepest furrows.—Tupper.

A small unkindness is great offense.—Hannah More.

THIS MAN DEFRAUDS YOU

The man who unlawfully takes game or fish or kills birds diminishes the food supply and defrauds his state and its people.

What Ails The Blue Grouse?

MONTANA'S upland bird season opened September 16 and closed September 25 and sportsmen are again complaining of the shortage of native blue grouse on slopes and in wooded canyons of the Treasure State. Last year the season was kept closed by order of the State Fish and Game Commission because of the realization that unfavorable nesting seasons had cut down the hatch. Two years ago, preceding the closing of the season, a shortage was reported by sportsmen who emulated mountain goats and climbed crags and precipices to reach the haunts of the denizens of the forest. Despite efforts put forth to protect them and aid in replenishing the supply, complaints continue to be made that they have disappeared from familiar haunts.

Suggestions as to the cause of the disappearance are varied. Prevalence of sheep on forest reserves where the birds formerly nested and thrived has been put forth by some more venturesome sportsmen. Others assert that they have moved to other haunts to get away from civilization, excessive shooting, predatory animals and birds, while still other students of wild life lay the shortage of just plain "shotgun disease."

In the October edition of *Outdoor America*, publication of the Izaak Walton League of America, "Waterwood" has this to say on the subject:

There is much discussion among sportsmen concerning the supposed scarcity of out most generally distributed game bird of the north, the grouse. The individual follower of the gun, as well as the large club and hunting preserve member, are naturally worried, as the grouse constitutes the main attraction to the field in the early fall, and before the opening of the "big" season.

The subject is claiming the attention of several state game keepers, as well as the federal government. The fact that the scientists have become interested, however, does not necessarily mean that the problem is to have a speedy remedy.

The work of the Biological Survey in attempting to exterminate the predatory animals of the west is an example of misdirected energy.

Experts who spend the greater part of their lives on the pavement, with the exception of occasional trips afield, and which are often vacation and partly pleasure jaunts as well, simply do not have the complete training necessary for their work.

Has it ever occurred to the many sportsmen that the diminished numbers of grouse is not due to disease at all, but to some other obscure cause? A woodsman writes me that the whole trouble is due to several cold late springs in succession. The opinion of a trapper is that the marked increase of foxes the past several seasons has

accounted for many of the grouse. While a ranger, who presumably "knows his onions" assures me that the birds, in his territory, are just as plentiful as they ever were.

Old woodsmen have observed that birds and animals of all kinds, especially the smaller ones, vary greatly in numbers as from one period to another—the normal fluctuations of wild life. The city sportsman who makes only infrequent trips to his grounds, is quick to note any change for the bad in the results of his shooting, and becomes alarmed accordingly.

Disease is taken for granted in the farmer's poultry yard. But in the wilds, where nature is allowed to work undisturbed, things are different, and disease may be only one of a number of causes operating to control the destiny of wild life.

Last spring, at nesting time, I laid off (roughly) a half mile square of "cut over". Covering this carefully I located seven nest of grouse. Watching these daily until the young birds left the nests, I found that not one of the seven hatched the full nest of eggs, while in three of the nests not more than half were hatched. This would mean about a 40 per cent mortality at the nest, to begin with. Has this always been the case, or is it a development of later conditions? Scientific investigators might look into this while they are at work.

Last October four physicians left a large Ohio city in search of "some good bird hunting." Going by automobile they traveled into at least six states—and returned disappointed saying grouse were scarce everywhere. One wonders, however, if there was not more traveling done than hunting. City doctors in a bright, shiny car are not keen about negotiating October mud roads in search of the best hunting.

The vicinity of the good roads are everywhere shot out from one end of the country to the other. Sportsmen must learn that game bags are not filled by keeping the rubber on the concrete. Just before the New Transcontinental was completed in upper Canada, tapping new territory, hunters and prospectors by the score were applying for tickets and awaiting the coming of the first green sprout.

A thirteen-mile stretch of highway was lately finished through a wild territory that had been good hunting ground, including deer and bear in sizeable numbers. Today one must go back at least six miles from this new road to find any sign of wild life at all. Figuring six miles both sides of the road would be twelve times thirteen, or one hundred and fifty-six square miles that has been cleared of game, and this in just two short seasons.

We may expect that enough money will be spent trying to find a dozen

hatcheries. Commissions will appointed and much "to do" in general. All to find out in the end that the trouble is just plain "shotgun disease".

THE OLD, OLD STORY

In urging the necessity for restoration of marsh areas in California for use of wild waterfowl, J. P. Cuenin uses the following impressive statement in the *San Francisco Examiner*:

"We have reached the stage now where we must do more than merely talk about providing breeding, feeding and resting grounds for our ducks and geese—we must act at once. Ducks can't breed in the air, they can't feed in the air and they can't rest in the air, and we have passed the stage where we can count on badly overworked nature to assist the hunters.

"Some duck shooters seem to have the idea that without the restoration of marsh areas the present supply of ducks can be maintained, but this class of hunter has evidently given little thought to the subject. A few figures may enlighten them. Nine years ago there were 174,291 hunting licenses issued in California. At that time there were 697,560 acres of marshland in the concentration points of the ducks in this state. At the present time there are more than 253,000 hunters in California, and the marsh area has been reduced to the insignificant size of 77,000 acres. Here is an increase of more than 78,000 hunters and a decrease in the duck grounds of 620,560 acres."

What is true of California is true of every other state where waterfowl congregate. Congress has played horse with every bill introduced to make provision to handle this situation as a national project.

SOME FACTS ABOUT FISH

The smallest known fish is the tiny Goby of Philippine waters. Average adult length is about 1-2 inch.

The largest known fish are, perhaps the Basking Shark of sub-Artic waters, and the Carchardon of the tropical waters near Australia and New Zealand. They both grow to a length of about 45 feet.

The most extraordinary fish is the Vampire Ray of the West Indian waters. It reaches a width of about 25 feet across the wings.

Fresh water catfish of the Danube River sometimes reach 10 feet in length and 400 pounds in weight.

The most remarkable fish is the Regalecus or "King of the Herrings," of the littoral waters of Northern Europe. It grows to about 20 to 25 feet in length, about 4 inches wide and about a foot high or deep.

Habit is a cable; we weave a thread of it ever day, and at last we can not break it.—Horace Mann.

Fishing In 1876 and In 1928

SPORTSMEN conversant with the fish and game conservation program of the State Commission have oftentimes been called upon to answer the question: "Does the restocking of streams bring good results?" Here's a letter from a pioneer that speaks for itself. Fred G. Bond of Clinton, Mont., near Missoula, declares that he began fishing Montana streams back in the formative days of 1876 before the automobile caravans began bringing eastern neighbors to Montana to spend vacations in the forests and along the streams. In the communication, addressed to Thomas N. Marlowe, Chairman of the State Fish and Game Commission, Mr. Bond writes:

"When the fishing season opened in 1928 I was at the Montana Soldiers' Home. I took a trip to Kalispell to rig up for fishing. I purchased a long cane pole, 100 yards of good fish line, two mother-of-pearl spoons (very small), some No. 6 royal coachman flies and two piano wires for leaders. This was to catch some of those salmon trout in the Flathead river, the trout with red meat. The people there call them Flathead trout. I had nothing to do for over one month but eat, sleep and fish.

"At first I caught only a few salmon trout, some up to 2½ pounds, with the spoon hook. But they appeared to increase in number, all heading upstream. Also the char (bull trout). Most all the salmon trout I hooked were about ready to spawn. They were going up the river to cooler and cleaner water. They prefer sand reefs near the heads of the rivers.

"Some lay their eggs on the way up but they fall prey to the large char (bull trout) and the shifting of the river. These fine trout will not stay in Flathead Lake. The water gets too warm; so they head upstream like the Alaska salmon.

"The Flathead has spring and late June raises. The main upstream rush of the salmon is just before and after the June raise; also the char.

"I began fishing in Montana in 1876 and I have fished most all the large rivers in the state, but at no time did I find the beautiful, large, active salmon trout like those in the Flathead river near Columbia Falls, with pole, spoon and line from the river banks.

"But you can go fishing and the fish don't know it."

EXPLOITING FISH WRONG

IT CAN not be too often or too strongly emphasized that the current practice of advertising and exploiting the fishing opportunities on lakes and streams of the several states by tourist and recreation resort interests is a bad mistake. There is a strong sentiment against this among many resort owners themselves and many of them are now issuing beautiful and attractive advertising without making use of the disgusting fish hog pictures which formerly decorated such publicity. Others not having seen the

light still persist in this kind of advertising, which is bound eventually to have a very unfavorable reaction on their business.

The fish propagation department of every state and of the United States are exerting their utmost efforts to meet the demand for re-stocking and all possible protection is given by law to fish in spawning time nearly everywhere but there is continual complaint that fishing is growing steadily poorer, notwithstanding the efforts that are made to maintain it. This being true, it would seem to be the height of folly to try to induce more people to take the choice varieties of game fish and thus hasten the depletion.

Every state which maintains a tourist advertising bureau has an abundance of attractive features which can be exploited to attract visitors without telling them that the streams and lakes are overflowing with fish and that the fishing is exceptional. Such advertising is usually untrue and misleading, as well as destructive. It ought to be discouraged by every sportsmen's club in America. This sort of exploitation is nothing more or less than commercializing a resource which demands greater protection and more encouragement by propagation if it is to be maintained.

BUNS IN TOOLE COUNTY

HUNGARIAN PARTRIDGES planted in Montana by the State Fish and Game Commission to replenish the depleted stock of upland game birds, are thriving in Toole county, according to reports reaching the Commission. Thousands of coveys are reported in the vicinity of Sweet Grass along the Canadian border. From 18 to 20 eggs have been found in nests and with conditions favorable the hen nests twice each season. They are protected under the law.



—Photo by K. D. Swan.

Montana's big game season opens in a few weeks and with the first fall of snow deer and elk hunters will be on the trail of antlered monarchs. This photo was taken by K. D. Swan of the U. S. Forest Service—another sportsman who hunts with the camera.

AGREE ON FISH NAMES

FISH nomenclature is in a woefully chaotic state. Local names of even the most common species vary to such an extent that the result is very confusing. The United States Bureau of Fisheries has adopted a system of nomenclature which, if followed, would clarify the current fish literature.

Outdoor writers have taken a hand in the solution of the difficulty and action was taken at a recent meeting of the Outdoor Writers' Association of America intending to standardize the names of the most common of the sporting fishes. This agreement does not follow the United States Bureau's system, but ought to go a long way to accustom the public to more uniformity of names.

In the fishing articles and stories of these writers the term "musky" will be used to designate the king of fresh water sporting fishes known variously as muskellunge, maskinonge, muskalunge, maskallonge and so on ad infinitum. The plural will be "muskies."

The term "wall-eye" will be used to name the pike-perch, which is called a pike, pickerel, dore, susquehanna salmon, etc., depending upon the locality.

Gray trout, gray lake trout, salmon trout, mountain trout, land-locked salmon, mackinaw trout and togue will all be called "lake trout." "Brook trout" will be applied to the native speckled trout, salvelinus fontinalis, which is known by variety of names. "Croppie" was agreed upon as the spelling of crappie, known as lamp-lighter, shad, strawberry bass, new light, speckled bass, and so on.

Many of the best known outdoor writers are members of this organization.

HOW TO WATERPROOF A TENT

Dissolve a one-half pound of alum in two quarts of boiling water, than add two gallons of cold water. Place the tent in this solution and let it remain for a day. Next dissolve one-fourth pound of sugar of lead in two quarts of boiling water and add two gallons of cold water. Then remove the tent from the alum solution, and leave for five or six hours; than wring it out again lightly and allow it to dry.

Another good formula is: mix ten ounces of quicklime and four ounces of alum in ten quarts of water. Stir occasionally until the lime is slacked. Now place the tent in another pail and pour the solution over it, letting it stand twelve hours. Then remove and hang it on the clothes-line to dry.—L. E. Phillips, in Hunter-Trader-Trapper.

Art in its various fields is man's noblest expression. Nature is a revelation of God.

Food For Montana's Fish and Game

By DR. EMIL STARZ, Chemist, Montana State Livestock Sanitary Board



Dr. Emil Starz

WILD LIFE is what makes Nature attractive to the sportsman. The true sportsman is a keen observer of Nature's wonderful creations. He is interested in the birds flying from tree to tree, in the industrious ants, in the ever-busy bumblebees sucking nectar from wild flowers, in the fish, and animals roaming the forests. He supports generously the game laws made to prevent

vandalism and useless decimation of wild animal and plant life, and is a sincere advocate of the conservation of Nature's useful creations and their welfare.

The latter includes the provision for nutritious and sufficient food. The food question is a paramount issue with all living things. Life has to be destroyed to support life and the cycle of food is one of the wonderful processes of Nature. Plants furnish the food supply for our herbivorous animals, which absorb from them the elements which are necessary for the upbuilding of their body and maintaining it in a healthy condition. The unused material serves again as food for the growth and development of plant life. Thus nothing is lost in Nature. It is but changed.

Almost all plant life contains, besides its well known constituents, so-called food accessories or stimulating substances called vitamins, which produce normal growth and development of the animal body. Sunlight plays an important role in enriching the vitamin content of plants. From the vegetation these vitamins find their way into the animal body of our herbivorous animals and are deposited there, especially in the glandular tissues and fluids.

In this way the milk and subsequently the butter becomes possessed of vitamins, especially the so-called fat soluble A, which is indispensable for the bodily welfare and development of the young and adolescent.

The carnivorous animals obtain the vitamins by consuming the flesh and juices of their herbivorous brethren, and are thus able to maintain a normal and healthy growth. Flesh is after all nothing but changed plant life.

Some of our larger fish receive their vitamins from eating smaller fish, which feed on plankton and which consist mostly of copepods, or small crustaceans. These copepods live on diatoms (small plants), which are known to synthesize Vitamin A. It is assumed at the present time that the Vitamin A is principally produced by plants

LIVER FOR TROUT

SCIENTISTS engaged in research work for years have found that fresh liver is the logical food for young trout. Montana's Fish and Game Commission last year purchased five tons of this fish food for use in state hatcheries. Fingerlings for distribution among streams of the state are produced in this battery of "fish factories" and more than 10,000 pounds of liver, ground and prepared by state experts, was required to bring these little fish from the spawn stage to planting size. In the accompanying interesting article Dr. Starz explains the value of various foods that sustain wild life in the state.

containing green coloring matter called "chlorophyll."

It is probably no mistake to assume that some of the insects which feed on green leaves, such as grasshoppers, caterpillars, et cetera, furnish vitamins also when eaten by fish. The larger vegetation on the banks of our streams is generally made up of trees and bushes, on the leaves of which caterpillars and other insects feed. Some of these fall into the water and are eagerly devoured by the fish. Other insects lay their eggs near the banks of the streams. These eggs develop into larvae, many of which fall into the water and serve as welcome food for the fish.

The growth of larger algae, such as we frequently see adhering to the stones in a stream, serves as a retaining screen for small animalculae which also furnishes a source of food for the fish. Thus it can be seen that during spring, summer and fall the fish in our streams receive a goodly share of nutritious foods.

Fish fry in the hatcheries, however, must be largely fed artificially with carefully selected food. The United States Bureau of Fisheries has made, and is still making, extensive research experiments with artificial feeding materials and their report will be of great help to those engaged in raising fish in ponds and hatcheries.

Of the many foodstuffs for fish in hatcheries, liver has been the best so far. Besides many other valuable elements, liver contains vitamins and glycogen, and in its raw state is an excellent material for feeding fish fry.

According to a recently published article in "Science Service," a new vitamin needed by young trout and designated as "Factor H" was discovered by C. M. McCoy, F. C. Bing and W. E. Dille of Cornell University. It came as the result of an effort to learn the scientific reason underlying the common practice of feeding young trout in fish hatcheries on raw liver. The article goes on to show that dried and cooked liver would not have the same results as the raw liver when fed to

young trout, and that a synthetic milk compounded from substances found in natural milk was also unavailing to keep the little fish alive.

The investigators, therefore, concluded that young trout for life and normal growth need something that is found in raw liver and to a less extent in dried milk, but yet is not any known vitamin. When we have once found out the chemical composition of the vitamins and can make them in a pure condition in the laboratory, the feeding question will assume a different aspect than the present one, and the raising of fish will be greatly simplified.

TEACHING THE PUPPY TO "HEEL"

Now that every back country road has its quota of motor traffic, it behooves the dog owner to take every precaution in guarding against this added menace to canine life, Dr. James S. Goodwin writes in *Hunting and Fishing* magazine.

Valuable dogs if allowed to roam at large are in constant danger from even the most careful motorist. No dog lover worthy of the name will knowingly subject his dumb friends to unnecessary dangers, particularly when precautionary measures are so easily undertaken.

Most hunting dogs meet their fate by motor accidents through lack of training. All dogs should be kept at heel when near or on a highway. Aside from sentiment most sportsmen can ill afford to lose a dog valued in hundreds of dollars. Failure to obey the command "HEEL" has caused the sudden death of many a fine shooting dog.

Obedience to this command should be one of the very first lessons in every dog's education. The procedure of imparting this knowledge to the dog is simple and a few lessons will usually accomplish the desired results.

All that is necessary in the way of equipment are ten- or fifteen-foot cord attached to the dog's collar and a two-foot section of broom handle to one end of which is attached a snap and swivel.

Give the puppy a run to take the edge off his spirits then snap the cord on his collar. When he has reached the end of the cord give the command "HEEL." Should he come to you all well and good, if not haul him back with the cord and snap the abbreviated broom stick to his collar.

By grasping the stick firmly he will be obliged to adapt his pace to yours. Any attempt on his part to forge ahead or drag back should be controlled forcibly by pressure on the stick, repeating the command "HEEL."

This method will produce the desired results more quickly than the use of the flexible leash and whip and this lesson should be repeated until the puppy will come in instantly at command and remain at "heel" until ordered on.

Getting Your Money's Worth

WHEN you see a man rushing along a trout stream, slipping over rocks, splashing water with his waders and disturbing things in general, you may well believe that that man is not getting his money's worth. He may think he is, but he's cheating himself. He hasn't time to listen to the notes of the woodthrush singing in the grove. In these words **FIELD AND STREAM** sounds the harmonic note of the out of doors that encourages such men as are sponsoring the conservation program of the Montana State Fish and Game Commission.

He doesn't know that it's one of the finest days of the year. He can scarcely tell you whether the sky is blue or gray. Sometimes in his eagerness to catch fish he defeats his own purpose.

Such an angler may be so anxious to reach a pool two bends ahead of him that he fails to see the rise of a splendid trout two rod lengths to the fore.

If we are going to make the most of our fishing and hunting opportunities, we shall simply have to slow down enough to concentrate on every possibility. If we do this we are going to have plenty of time to see nature at her best.

Most people work too fast and they play in the same manner. If we could only remember that vacation is not a time to pile up speed records, or to cover distance, but rather a period in which we may relax, take things easy and soak up as much of the out-of-doors as is possible in our allotted space of

time, assuredly we should be far better off.

The following article was written by Dr. O. M. Moore. It contains so much of what its title implies, the psychology of sport, that it would be well for every outdoorsman to read it carefully and take unto himself its message.

A fan is not necessarily a sportsman, but only an enthusiastic admirer of sports. A true sportsman must take an active part.

Not many golfers would enjoy witnessing a golf game from a grand stand seat, but, to obtain its benefits they must play the game themselves, and, excepting perhaps to a professional, the score is only incidental. The mental, and, we might add, the moral training consisting of the exercise of courtesy, the almost certain failure that follows an exhibition of temper or an attempt to show off; resisting the temptation to improve the lie of the ball, or to ignore counting a dubbed shot, is character building of the first order.

Then also in a purely physical sense, the exchange of hard pavements for soft green turf, the presence and songs of birds, the frisking of squirrels, the exposure to the healthful sunlight and other electro-magnetic vibrations from the sun,—sunlight is composite of vibrations of different wave lengths, consisting of 80% invisible heat rays, 13% visible rays and 7% Ultra Violet rays,—this has been the environment of humanity from time immemorial and

is now largely withheld by modern clothing and our sedentary occupation.

These are some of the benefits that accrue from an intermission in a sedentary life to periods of out-door activities and healthful exercise.

Work is not exercise. Exercise is activity accompanied by pleasurable emotions and change in our routine of life. These factors are true of all outdoor sports. The true sportsman realizes that the results of his day's activities cannot be weighed in pounds or counted in numbers, for he realizes that he can and does have successful days as a hunter when he does not bag a single bird or as a fisherman on days when the fish refuse to strike.

The pseudo-sportsman who lies in ambush until he can fire into a flock of ducks on the water is not a sportsman but a pot-hunter. A fisherman also, who exceeds a normal or legal catch is in the same class. Mere killing is—or should not be a sport. Sport is rather a matching of the skill of the hunter or fisherman against the defensive tactics of the game.

Therefore one bird brought down at long range gives more satisfaction than a murderous onslaught on a flock at close range. To kill for the love of killing is not a sport but barbarism, and does not give a kindly reaction, so we, as sportsmen, justify our actions by moderation and legitimate benefits received, always remembering that in one sense we are blood-brothers to

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all created living things, because Chlorophyl, the green pigment of plant or vegetables life, and Hermatin, the red pigment of the blood of all vertebrate animals, including man, when separated from their disassociation products, are identical, namely, Hematic acid, hence the close relationship, and there could be no life on earth, neither vegetable nor animal, without the aid of the 7% Ultra Violet invisible rays. Therefore, how essential it is that we should embrace every opportunity to avail ourselves of the benefits of outdoor life.

One of the legitimate results of outdoor life is the temporary period of relief from an onrushing, soul-destroying and seemingly purposeless civilization, to slip back for a few days or even hours to primitive conditions when humanity was in closer communion with nature, which freshens and revives us from the now necessary battles of life.

Some of our most pleasant memories are of mornings spent in a boat on an inland lake, to see the clouds mirrored in the water, hear the call of the waterfowl, to feel the morning breeze in our faces, to hear the lapping of the water against the gunwales. Oh, boy! That's the life.

GIRLS MEET MOUNTAIN LION

TO TURN in the saddle and look full into the face of a huge mountain lion, ready to spring, was the recent experience of Alice and Laura Webber and L. S. Weaver of Red Lodge, when riding on the old stage road leading from Red Lodge toward Cody. They were just crossing Grove creek, about 10 miles south of Red Lodge. For an instant the girls and the lion viewed each other, then the animal shifted to take a course down the stream. Presence of the marauder helped to explain frequent loss of lambs and sheep.



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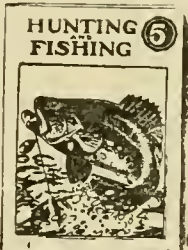
THE NOBLEST ROMAN

JUDGE WALTER M. BICKFORD, former member of the State Fish and Game Commission, is credited by Missoula sportsmen with being directly responsible for the introduction of silver salmon in the landlocked waters of Lake Mary Ronan. In 1916 Judge Bickford was on the coast, and visited the Oregon state hatchery. While there the judge, a member of the State Fish and Game Commission, made arrangements to get 1,000,000 salmon eggs for the waters of Montana. Judge Bickford took the matter up with the Commission upon his return to Montana, and they authorized the purchase and the hatching of the eggs. Hundreds of thousands of the fingerlings were put in the lakes and streams, but wherever there was an outlet the salmon went to the sea. Where the lakes were landlocked the salmon grew to good size and it is not uncommon to take silver-sided scrappers that weigh as much as nine pounds.

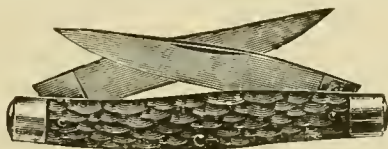
Ronan Lake and Brown's Lake, up the Blackfoot, are alive with the silver salmon. They are exceptionally fast and untiring fighters, and to take one on light tackle is to realize the ultimate in sport.

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THAT MAKES IT UNANIMOUS

A Montana farmer, a Dane, applied for naturalization papers. The judge asked him: “Are you satisfied with the general condition of the country?”

“Yas-s-s,” drawled the Dane.

“Does the government suit you?” queried the judge.

“Yas, yas, only I would like to see better fishing,” answered the Dane.

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Duck Hunting and Sportsmanship

MONTANA'S season on migratory waterfowl opened September 16, coincident with that established by federal laws, and the boom of the scattergun has again been heard in the land. Prevailing indications are that sportsmen will enjoy the best duck hunting in a decade. Reports from deputy wardens throughout the state tell of thousands of quacks on sloughs, lakes, rivers and marshes, and green-head time is here again. To bring about better shooting conditions Montana's State Fish and Game Commission has expended large amounts in the distribution of duck food throughout the state. The results of the experiment concluded two years ago are now apparent.

Duck shooting calls for the keenest kind of sportsmanship. Duck hunters must have red blood in their veins and stout hearts, be able to enjoy discomforts, laugh at the weather and put up with trials such as convince the tenderfoot that duck hunting is no pastime for the spineless man.

When conditions are right for ducking they are usually wrong for any other hunting. When once the duck hunter is bitten by the germ, the inoculation is complete and his sporting star hangs high forever after. American sportsmen enjoy all that goes with a day outdoors. That's why more men are converted to battery and blind, and right here comes the thought that more guns must of necessity take their toll of more game. Duck shooting is genuine sport, but with it comes the imposition of an obligation. This sport will continue only in the ratio that each sportsman does his share to aid that continuance. Granted that you obey the law — this is important — why shouldn't you? But saying "Amen" to the set of rules stretched out in the code book will not produce more game. For every duck you shoot another must be raised. Nature is willing to do its share, but we've got to furnish the means by which Nature can function. If we take we must put. This goes for you, Mister Duck Shooter, and no exceptions. Nature cannot balance production when the odds are weighing down the other scale.

Time was when marsh land was within a short ride of the city, when the farmer only needed to slip down to the edge of his field for a fairway shot at wildfowl. That time was, as things are clocked off in this day, that time has gone, and gone forever. Marsh lands are being drained; the farmer talks in terms of bygone days when he points to the old ducking grounds; the autoist glides over smooth roads to miles and hours away, and the birds themselves are hard put to find a nesting and feeding ground.

The individual gunner has a hard time to find a place, and then it's usually a matter of a long launch ride with guide hire to settle for. The ducking clubs of the more influential

type are becoming more numerous and restricting hunting!

Every gunner should belong to a club — every gunner has an individual responsibility which comes collectively to the club. Nothing for nothing gets you the same place you're starting from. Your obligation as an individual and as a club is to pay your way as you go along, and from these dues set aside sufficient funds to breed wildfowl. Your club should arrange to raise at least twenty-five ducks per year per member. Follow here suggestions on propagation and feeding:

First, buy ducks for breeding and get them from different places. This is better than raising from eggs. One drake to three ducks on a small pond. Wild birds will come to pair with them.

Do not burn the marsh in the dry season. Seeds carried over winter in the fruiting heads of bayonet grass or tule furnish valuable food. Burning the marsh destroys mats and tangles of dead vegetation that form shelter for breeding ducks, insuring successful hiding of their nests and later protecting the young until they are strong enough to venture out in the open. Prevent, if possible, the mowing of areas along river banks and overflow land for wild hay. In many instances a club can for a reasonable consideration induce the owner to permit this hay to stand. When mowing is necessary, it should be done after the middle of July. In any case the vegetation bordering the channels should be left untouched. Comparatively few ducks locate their nests more than a hundred feet away from the water's edge. Ducks have their natural enemies, and these vermin must be kept in control. Among the worst offenders are the crow, magpie, duck hawk, fox and coyote.

The gadwall feeds either on dry land or in shallow water near the edges of ponds, lakes and streams. The baldpate feeds similarly to the gadwall but favors less seeds. The widgeon likes to feed on salt water on the short bottom grass. The green-winged teal feeds largely upon the seeds of pond weeds, bulrushes, and other aquatic plants, also insects, small crustaceans and snails. The pintail obtains its food from under the surface of the water and from the bottom in shallow water. The mallard and black duck are marsh feeders.

Among the kinds of food favored by wildfowl are musk grasses, duck weeds, frogbit, thalia, water elm, swamp privet, coontail, wild rice, and wild celery.

Wild rice thrives best on a mud bottom. It is not adapted to stagnant water. The seed can be sown thickly and should be planted in the fall. Wild celery grows best on muddy bottoms in from three to six feet of water. Do not sow too thickly. When not likely to be covered by mud, the best time to sow is in the fall. Most pond weeds require fresh water. Mud bottom is preferable. Eel grass for salt water, widgeon grass, sago pond weed and

wild celery for brackish water; the pond weeds and water cresses for fresh water with a slight current, and the pond weeds, banana water lily, musk grasses, water weeds and coontail for fresh water that is usually quiet. Along the margin of fresh water where there is no marsh, plant wild millet.

For non-diving ducks use the mallard call; for diving or deep-water birds, use the bluebill. In the first type may be classed mallard, widgeon, teal, gray spoonbill and black. For deep-water duck, red-head, broadbill, whistlers, and butterballs. Don't call too loud.

But there's yet another call—the call for sportsmanship. Make this a test for living power and action. Set yourself to the finer ideals of your outdoor environment; put yourself in tune with Nature; put something in Nature; don't expect to take it all away.

Good sportsmanship comes from the heart. The consciousness of having a day's fun in battery or blind, a game bag bulging or empty, means nothing unless you've done something to deserve what you get. It's not the game that counts, nearly so much as the knowledge that you've spanned the workday of the sun clean in mind, happy in thought and purified in your soul. Play the game fair with the wild creatures, do the right thing by the coming generation, and by the other sportsmen who will follow you tomorrow, and you in turn will trail their heels at a later day.

With these thoughts actively operating, duck shooting will continue as a pre-eminent pastime, wildfowl will be plentiful, good men will be made better citizens and there'll be laughter in the heart of every Montana Duck Hunter!

MILLIONS TO PROTECT GAME

ACCLAIMED one of the most imposing conservation projects ever undertaken by an individual state, Illinois' program for a fish and game preserve in every county will be submitted to a vote of the general electorate in November.

If adopted, \$20,000,000 in bonds would be issued for the purchase of 2,500 acres of land in each of the 102 counties, to be set aside as public recreational ground. On them, game preserves would be established and stocked, artificial lakes built and stocked with fish, and picnicking, camping and playgrounds provided. The plan was authorized by a large majority in the last legislature and has gained the support of the principal outdoor leagues, the state chamber of commerce, the state federation of labor, and manufacturers' and bankers' associations.

It is proposed that the bond issue, upon which the entire program hinges, be retired without direct taxation. More than 600,000 hunting and fishing licenses are sold in the state every year and it is believed the proceeds will be ample for several years to meet the bonds as they come due.