MONTANA Wildlife

Vol. II - No. 1

Official Publication of
The Montana Fish and Game Department

With this issue, the official publication of the Montana Fish and Game Department assumes a new name—MONTANA WILDLIFE—and a new editor.

Essentially the same as SPORTING MONTANA, its predecessor, MONTANA WILDLIFE will continue to report news of Departmental activity, special projects and articles of timely interest to sportsmen, conservationists and nature lovers. It is anticipated that the change of title will more clearly define subject matter and objectives of this publication.

Subscriptions are free and may be obtained by writing:

MONTANA FISH AND GAME DEPARTMENT
HELENA, MONTANA

MONTANA FISH AND GAME DEPARTMENT

Official  Publication

State of Montana

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MONTANA FISH AND GAME COMMISSION

Edward M. Boyes, Chairman

Elmer Johnson — Walter Banka

William Carpenter — Thomas S. Morgan

Robert H. Lambeth, Secretary

The Commissioner's Message

Now is the time when sportsmen all over the nation are reminiscing about their successful hunting and fishing trips and begin planning even bigger and better expeditions for the coming year.

So, too, the Montana Fish and Game Department takes stock of its aims and accomplishments in contemplating immediate and long-range objectives. The blue-prints of the future are in the capable hands of highly trained specialists who direct research and analysis of old and new problems in wildlife management.

But satisfactory completion of any task cannot be made through the efforts of one side alone, and success in this instance requires the whole-hearted cooperation of sportsmen, educators, conservation groups and everyone interested in the out-of-doors.

Therefore, we take this opportunity to express our appreciation for the fine cooperation extended during the past and ask for continued consideration and assistance to make 1952 a still greater year.

Tom S. Morgan

Montana Wildlife

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OUR COVER

Rugged SawTooth Mountain towers above a portion of the Sun River elk herd, caught for our cover by the aerial camera as they forage on a winter game range. This herd, numbering upwards of 4,000 animals, is one of the largest in the state. These elk annually migrate to the 20,000 acres of rangeland purchased in 1947 by the Wildlife Restoration Division through provisions of the Pittman-Robertson Act.

Other projects currently in operation under this Act are graphically and pictorially illustrated in "Ten Years of Wildlife Restoration by Bob Cooney, Director of Montana's Wildlife Restoration Division (pages 10-15 of this issue.)

VOLUME II **No.1**

Marjorie Mitchell, Editor

(Editor's Note: Lorraine Kurfiss Remington, former editor of "Sporting Montana" resigned in November, 1951, to make her home in Honolulu.)

CREDIT

Our thanks to Gordon Foote and A. C. Jacobson of Billings whose pictures of a deer fight appear on page 17; the U. S. Bureau of Reclamation for the photograph on page 21; and to the Yellowstone National Park Service for elk lift pictures on pages 24-25. All other photos used in this issue were taken by Montana Fish and Game Department personnel. Special mention to artists Paul Ferryman for drawings on pages 1, 4-5, 8, 16 and 24; and Gerry Salinas for the cartoon on page 23.

EDITORIAL:

HOW MUCH DOES A PULP MILL COST?

How often in industry have projects been pushed with only one goal in mind? How often has lack of "whole-sightedness" obscured the effect of certain types of industrial development upon our natural resources?

Dams, drainage, dredging, unwise grazing, improper timber cutting—all these, with neither foresight nor hindsight, have left thousands of acres desolate with eroding soil, destroyed natural habitat for wildlife, and gained for men nothing—often not even experience.

Now in Montana we have a question on pulp mills, an industry which is easily adapted to Montana's timber resources.

But hand in glove with such a plant goes stream pollution. In a state like ours where there are practically no polluted streams, it is difficult to imagine the filthy, contaminated waters of some eastern states which support no aquatic life and are poisonous to humans and game alike.

Those who favor establishment of paper pulp mills in this state protest that "Montana NEEDS Industry" in order to move forward, and they gloss over the problem of stream pollution with varying versions of a chemical treatment which removes most of the harmful wastes of pulp.

Their arguments are fundamentally correct. BUT—before we seek this or any other kind of industry, let us first take stock of the over-all picture. Let us not progress at the cost of losing our crystal clear waters, scenery and wildlife.

First, let us pass laws to make mandatory the use of manufacturing methods which will guarantee elimination of harmful waste. When this first step is taken—when we are assured that our lands and waters will have legal protection from industrial poison—then will we whose job it is to protect our natural resources fall in step with industry in the development of business in Montana.

But business cannot and must not be allowed to develop at the expense of leaving a stagnant, slimy mess which is the mark of industry in other states.

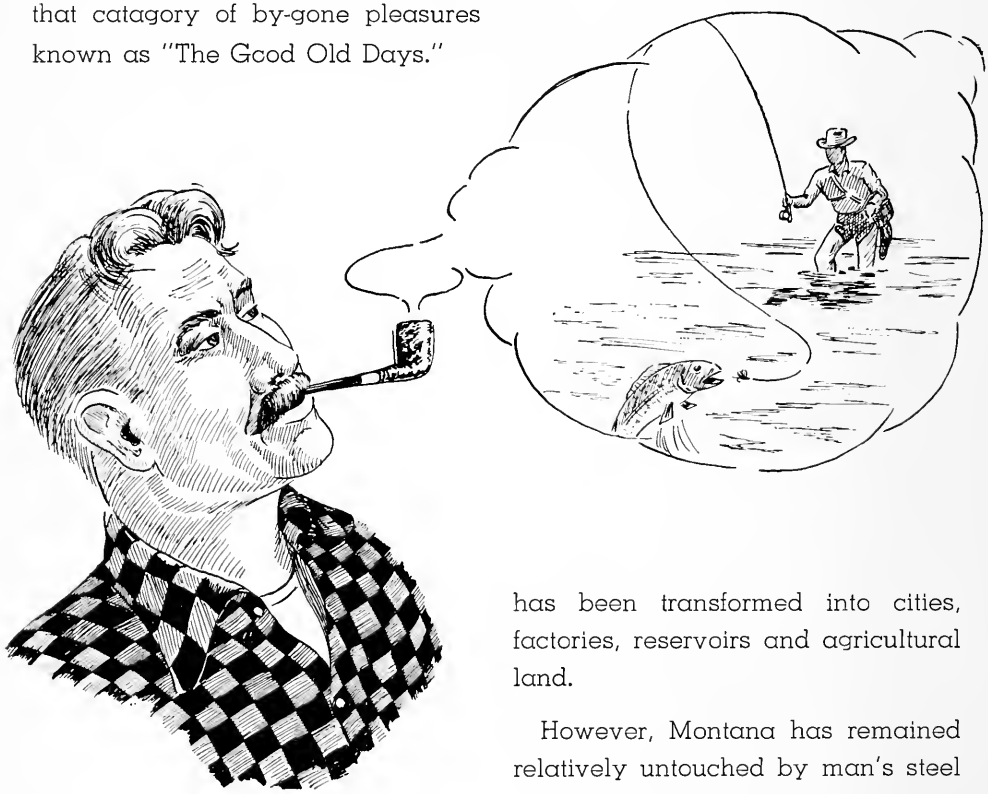
Yours to Use Wisely

Into the book of memories, the hunting and fishing trips of 1951 have been carefully placed: pleasant days spent on Montana's streams; thrilling hunts for big game, upland game and waterfowl; or perhaps just the relaxation of a trip into a wilderness wonderland.

These are prerogatives which have been accepted as part of the Montana way of life. Yet, they can be lost. They can be relegated to that catagory of by-gone pleasures known as "The Good Old Days."

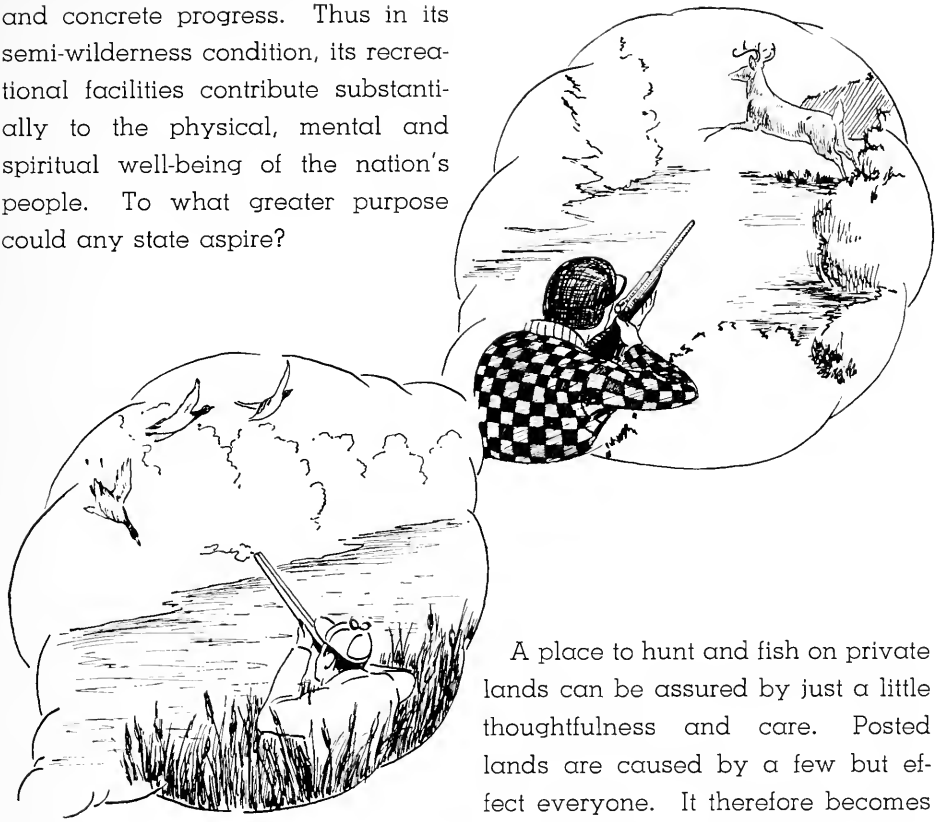
In many respects it is a privilege to live in Montana, but with that privilege goes a responsibility—an obligation to make the wisest possible use of the natural resources which were so generously heaped upon this state.

Across the nation much of the land which was once habitat for wildlife has been transformed into cities, factories, reservoirs and agricultural land.



However, Montana has remained relatively untouched by man's steel

and concrete progress. Thus in its semi-wilderness condition, its recreational facilities contribute substantially to the physical, mental and spiritual well-being of the nation's people. To what greater purpose could any state aspire?



To assure the wisest use of wildlife and the maintenance of hunting and fishing as a top recreational activity is one of the most important responsibilities of Montana sportsmen.

Hunter casualties take an unnecessary toll of Montana outdoorsmen each year in death and injury. Ignorance, greed and carelessness can be largely blamed for these accidents and Montana has no place for hunters with these faults.

A place to hunt and fish on private lands can be assured by just a little thoughtfulness and care. Posted lands are caused by a few but effect everyone. It therefore becomes every hunter's responsibiilty to safeguard the rights of the farmer and rancher even if it means reporting an irresponsible fellow hunter.

Lastly, if the future of the state's fish and game is to be assured, facts obtained by qualified persons doing detailed investigations must be the basis for management practices.

Sportsmen represent a powerful force in Montana and wildlife is dependent upon their actions.

Their responsibiilty is not only to the state—but to the nation.

Fisheries Restoration In Montana

By Charles K. Phenicie

Privacy for piscine creatures is a thing of the past. For now, the wily fish is tempted from favorite haunts not only by worms and dry flies, but is routed from reverie by inquisitive fishery biologists seeking answers to management and restoration problems.

Prior to July 1, 1951 Montana fishery restoration projects operated on a small scale and finned freedom was only occasionally disturbed except by fortunate fishermen. But on that date, the Dingell-Johnson Act became effective, channeling federal excise taxes derived from the sale of fishing tackle back to the states to step-up fisheries conservation programs.

Montana's share of this federal appropriation is $61,820, supplemented by $20,607 from the state, for a total of $82,427 in the fiscal year 1951-52. Initial expenditures will be primarily for investigations with three objectives: first, a general survey to determine problems of the entire state and restoration steps to be taken; second, individual problems of immediate urgency; and third, investigation into fish culture methods.

Walter M. Allen, State Superintendent of Fisheries, has been named coordinator of Montana's program and under his direction the state has been divided into six units or districts, illustrated by the map on opposite page.

At present, three districts are in operation: District One at Somers under Frank Stefanich; District Four at Belt, supervised by Nels Thoreson; and District Six at Miles City headed by Arthur N. Whitney. Vacancies in Districts Two, Three and Five are expected to be filled in the 1952-53 fiscal year.

These biologists will survey their districts for the first two or three years to ascertain what restoration and management measures are necessary for Montana's diverse terrain and water types.

Already begun in each district are experiments to evaluate the contribution of trout from hatchery and rearing ponds to the fishermen's creels; fish abundance for certain important fishing waters; effects of logging on trout stream populations; studies of fish populations and effects of fishing on certain streams and lakes.

In the central and southeastern districts, biologists are working in cooperation with Montana State College and the State Extension Service in addition to general survey work. These two districts embrace some of the more arid land in the state where stock water reservoirs provide the bulk of fishing. A two-year study of these reservoirs showed that many fish species were not always suited to the specific pond in which they were found. Controlled experiments will determine species

and combination of fish best suited to particular pond environments.

Statewide creel census information, supplied by game wardens and cooperative fishermen, will supplement district surveys on species of fish found in various waters.

Grayling and irrigation ditch studies are also important phases of the Dingell-Johnson program in Montana. The grayling study, under the direction of Perry H. Nelson, is at present confined to the Red Rock Creek Drainage in Beaverhead County in an effort to insure perpetution of this species in an area where it is still found in abundance.

William D. Clothier is project leader for the study of fish losses in irrigation ditches. This work is restricted at present to ditches in the Gallatin Valley, but as techniques develop and extent of losses are discovered, investigations will expand to other parts of Montana.

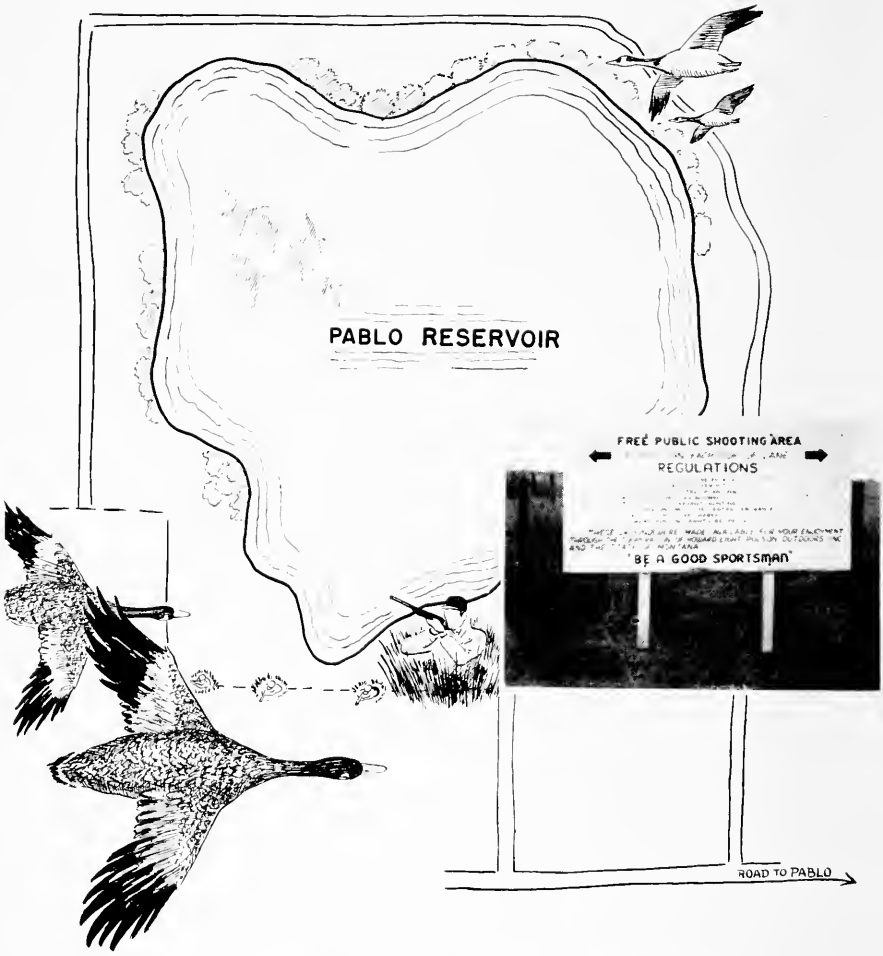
Diseases and nutritional problems of state hatcheries' "sick fish" are being investigated by Jack E. Bailey to assure absolutely healthy, prime conditioned fish for release into lakes and streams.

Dingell-Johnson projects planned for the near future call for (1) habitat improvement including installation of protective structures such as screens and dams of various types; rough fish control; watershed improvement; and stream and lake improvement (2) creation of new fishing waters by stocking fish in virgin lakes; building and stocking small impoundments and (3) acquisition and development of fishing areas for public use.

MONTANA.

Of the Six Montana fisheries restoration districts shown above, Districts One, Four and Six are now in operation.

FIRST IN A SERIES



Montana Sportsmen's Projects

A place to hunt is an American heritage and yet in many regions it is gradually slipping away from hunters because of several factors.

First, because of selfish, thoughtless, careless hunters many "No Trespassing" signs have ben posted. Hunting privileges leased on private land for use only by clubs and organizations restrict others.

Result? Mr. Average Hunter finds fewer and fewer places to hunt.

Montana has been fortunate in this respect because there is so much public land and also because private land owners are generous.

However, the hand-writing has appeared on the wall in some areas of this state in recent years, worst of which is Pablo Reservoir.

This is a Federal Wildlife Refuge and hunting is permitted around its boundary. However, private hunting clubs have leased shooting privileges surrounding it until access for non-club-member hunters was restricted to one small area owned by Howard Light, Pablo rancher. He had steadfastly refused to lease hunting rights on his property to a few individuals because he felt that all should have a place to hunt.

Unfortunately, without proper guidance, the hunters generally fouled up the fowl hunting. The small piece of unrestricted land became alive with hunters who shot with no discretion at birds out of their range; argued over whose bullet had downed a goose; and created a fine uproar which distracted hunters and hunted alike.

To remedy this situation, Mr. Light, members of Polson Outdoors, Inc. and the Montana Fish and Game Department got together to solve the problem.

Thirty-six pit type blinds were dug at the edge of Mr. Light's winter wheat crop by sweating Polson sportsmen. Each pit was about three feet deep and eight feet long, large enough to hold two hunters. These pits are filled in at the close of hunting season and re-dug for the following year.

Sign boards were erected and leaflets printed by Polson Outdoors, Inc. to explain objectives and regulations of the shooting grounds. A game warden was assigned to patrol and maintain the area.

Rules governing this hunting ground are simple, designed only to assure equal rights to all hunters. Briefly these rules specify that hunters enter and leave by central entrance; register and check out Pit Identification Discs from warden; leave cars and dogs out of hunting area; proceed carefully and not disturb other hunters.

The project has been most successful and may become a pattern for other state shooting grounds.

Nearly 2,000 hunters (1,892 to be exact with a maximum of 72 occupying the blinds at one time) used this shooting area last year.

They had good shooting too, for the warden in charge checked out 493 mallards, 171 pintail, 83 Canadian Geese, 54 baldpates and 14 teal with other less common species.

Duck hunters are directed by grounds supervisor (left) to unoccupied blinds at this entrance to open hunting area.

Elk migrating from the South Fork of the Flathead to the Sun River winter range were photographed crossing the Continental Divide.

Ten Years of Wildlife Restoration

By Robert F. Cooney,
Director Wildlife Restoration Division

Until last year when the Dingell-Johnson Act was passed for restoration work in fisheries, the Wildlife Restoration Division was the Montana Fish and Game Department's youngest child.

This Restoration program came into being in Montana with the assent to the Pittman-Robertson Act by the 1940-41 legislature. Three-fourths of the funds thus made available originate from an excise tax on sporting arms and ammunition and the Fish and Game Department budget supplies the remaining one-fourth. This new source of funds made it possible for the Department to inaugurate a much needed program previously impossible because of inadequate finances.

Early Emphasis on Investigations

The program has been divided into three general phases: investigation, development and acquisition. As the work has progressed these three have, however, become closely interwoven. In almost every case, investigation has indicated the need for various types of management often involving wildlife development or acquisition. It was felt necessary to emphasize investigations during the early years of the program. In that way a rapid state-wide inventory of big game, game birds and waterfowl was accomplished. This overall coverage brought out specific problems which needed more detailed, immediate attention.

Grizzly Bear

The grizzly was found to be dangerously low in numbers. This big bear had disappeared entirely from most of its former range throughout the west. Because of the seriousness of the problem, a special study was made covering the wilderness habitat of the silver tip in Montana. It was found that the spring hunting seasons allowed at that time were taking a heavy toll. On the brighter side of the ledger closed areas, such as the Sun River Game Preserve, were functioning as important sources of stock for surrounding range. Immediate action was taken by the Commission discontinuing the spring hunting season and establishing a more complete pattern of open and closed areas as recommended by the study. By combining these two factors of management, Montana was able to retain first place in grizzly numbers and has been able to continue with the regular hunting season.

Sun River Elk Herd

Detailed work with the Sun River elk herd emphasized the need for additional winter range. The Commission was able to turn these recommendations into action with Restoration funds by the acquisition of the Sun River Winter Elk Range. This area, which included State and public lands, makes up a tract of approximately 20,000 acres. The winter range thus acquired in the foothills has solved one of the State's most difficult big game problems.

Gallatin Elk Herd

The Gallatin was selected for detailed work because the relationship of the Gallatin elk with the Northern Yellowstone herd and those of the Madison range presented a very complicated problem. The tagging of elk and return of these tags by hunters has aided a great deal in gaining definite information on this inter-relationship between the herds.

Because of a critical winter range condition existing in the Gallatin, the area was also selected for a careful game range inventory. The Forest Service and Park Service have aided in working out the needed information to be used as a basis for the proper stocking of the winter ranges. It has been found that the "trial and error" method was much too costly in winter-killed game and was badly depleting forage. The purchase of winter elk range in the Gallatin, amounting to 6628 acres, has been a further outgrowth of the original work and is materially aiding in the management of this important herd.

Blackfoot-Clearwater Game Range

Winter investigations on the game ranges of the Blackfoot and Clearwater drainages pointed up the need for additional winter forage for both deer and elk. An acquisition project was, therefore, adopted which led to the purchase and lease of a tract of approximately 55,000 acres in the heart of the most critically needed winter range. An important additional result of this purchase, as well as others, has been the drawing of game off nearby private lands.

Work on the Fish Creek-Thompson River area resulted in a lease of approximately 120,000 acres of winter game range.

Judith River Range

The purchase of 2,149 acres of winter game range in the Judith River area followed a careful investigation of that region. This added winter range is aiding materially in working out a serious forage problem that has existed in that area.

The effect of deer upon pine seedlings has long been a controversial subject in northwestern Montana. A project has been set up to gain information on this important phase of deer management.

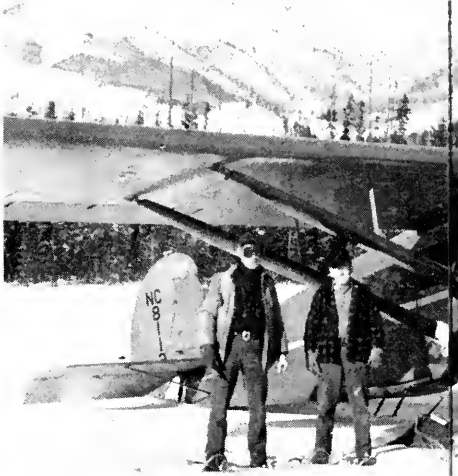
The Mountain Sheep Problem

The mountain sheep has perplexed game managers and sportsmen for many years. From the vast abundance in historic times,

(Continued on page 14)

The Fish and Game Department works closely with the U. S. Forest Service in solving big game problems. Here, technicians examine forage on Gallatin Drainage winter range.

These mule deeer were live-trapped and await transportation from their sector to an area of low population and better forage. Many new herds are developed this way.



Airplanes have made big game census t
surveys are coordinated with information co

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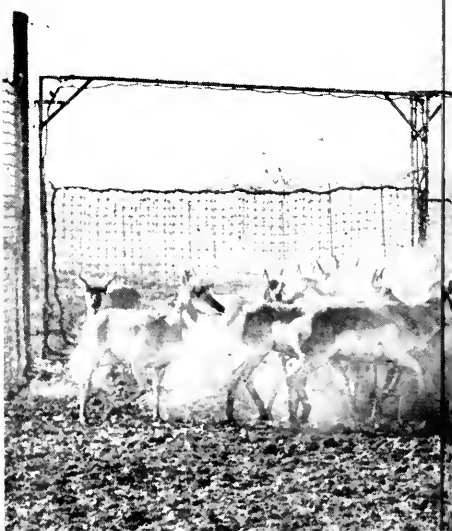
Mountain goats are the most difficult big game animals to capture because of the rough, remote terrain they inhabit. Salt is the most effective bait used to entice goats into small wire pens, built in almost inaccessible places.

Montana ranks first in number of antelo
an improved portable trap to capture these
Antelope are driven in



ing more efficient in remote areas. Aerial
oiled by ground crews on snowshoes.

Waterfowl are banded annually to determine migration routes and summer-wintering grounds. Montana's program is tied in with continent-wide studies of the flyways.

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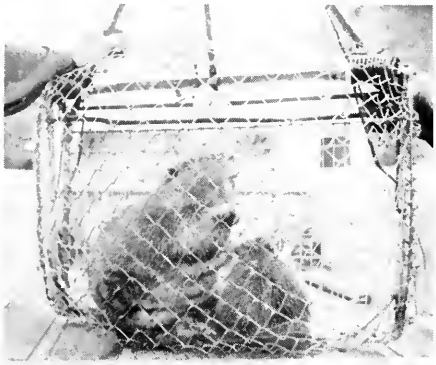
Pheasants found in areas of abundance are caught in winter when conditions are favorable for live-trapping and released in regions where populations are lower.

trapped and transplanted and has devised
eet-footed animals rapidly and economically.
he trap by an airplane.



Suitcase-like wire traps are used to catch beaver for transplanting to localities where dams are needed to check swift waters and create pools for fish and waterfowl.

only a handful remain. Because of this serious situation, the bighorn became an important target for a state-wide study. The lack of adequate winter range was found to be a distinct handicap. In this regard, the recently acquired Sun River Game Range is aiding materially as it now draws elk off the previously over-used mountain sheep ranges. Most recent census checks in this area indicate a definite improvement among the mountain sheep.

A careful coverage of eastern Montana led to the reintroduction of big-horns into the badlands where the now extinct Audubon sheep was once abundant. This initial plant on the south side of the Fort Peck Game Range may well represent the most important single step in the Restoration program for bighorns in Montana.

Antelope

An airplane was found essential in keeping abreast of the rapidly expanding antelope herds of the eastern half of the State. Census figures thus gained have been used each year as a basis for the setting of hunting seasons. During the past ten years antelope numbers have nearly trebled. During this time the hunting of this fleet-footed animal has taken its place high on the list of big game sport.

Upland Game Birds and Waterfowl

In addition to these big game projects, a great deal of important work has been carried out in obtaining information on upland game birds and waterfowl. A study was completed on the food habits of the ring-necked pheasant with particular reference to their relationship to agriculture. Along with state-wide census work these have been examples of some of the more intensive projects carried out in regard to this important game bird.

The banding of 16,000 ducks and six hundred geese in cooperation with the Fish and Wildlife Service has represented a real contribution to the better understanding of the facts upon which waterfowl management is based.

Trapping and Transplanting

Trapping and transplanting has been a very important phase of wildlife restoration work. Montana sportsmen pioneered in this field. They sponsored the transplanting of elk out of Yellowstone Park, to form new herds, as early as 1910. When the Restoration funds became available ten years ago, it was determined that transplanting other species of big game should also be explored. In all cases, the plan was the same. Animals would be taken from areas of abundance and moved to desirable new ranges. The greater part of the trapping and transplanting technique was new. For this reason, the fieldmen who actually did this work are to be complimented because of their ingenuity in working out a multitude of problems. Among the big game, mountain goats, mountain sheep, mule deer, white-tailed deer and antelope were moved in substantial numbers.

Aquatic vegetation planted for food and cover for ducks and geese is an important feature of waterfowl habitat development. This vegetation also checks siltation.

SUMMARY OF BIG GAME TRAPPED AND TRANSPLANTED UNDER THE RESTORATION PROGRAM

Species	Number Trapped	New Herds Produced
Mountain goats	112	6
Mountain sheep	32	2
Mule deer	1,295	14
White-tailed deer	422	9
Antelope	3,469	65

In addition to the big game, numerous game birds have been moved to replenish new areas. Of these 5,683 ring-necked pheasants were captured. The introduction of these thrifty wild birds was found to be particularly stimulating in building back depleted areas. Sage grouse were trapped in the southeastern corner of the state. Two hundred fifty of these big grouse were moved into sage land areas in central Montana from which they had long been absent. Hungarian partridges and sharp-tailed grouse were also trapped in smaller numbers.

Big Game Salting

The placement of salt on big game ranges has become an important project. One of the chief benefits has been the better distribution of game. Increased use has been made of the airplane in distribution, particularly in the more remote back country areas. Last year, seventy-two tons of salt were put out on the game ranges of the State. Of this amount thirty tons were distribtued by airplane.

Waterfowl Food and Cover Plantings

To benefit waterfowl, food and cover plantings were made on thirty-seven reservoirs in the eastern portion of the State. These development areas were protected by fencing portions of the shoreline. Additional nesting, feeding and resting areas were thus developed on key reservoirs.

Pheasant Cover Plantings

Experimental plantings were made to furnish badly needed winter cover for pheasants. This project was carried out north of Billings in the Broadview area. The chief objectives have been to determine the possibility of the expansion of the present pheasant range out into desirable dry land farm areas beyond the present limits of the valley bottoms.

Measuring spurs in one way to determine the age of pheasants. The percentage of young to old birds so checked shows the success of the current year's hatch.

Marsh Land Acquisition

Particular attention is now being focused on the purchase of marsh land for the development of additional waterfowl habitat. Areas now being explored for possible acquisition and development include Freezout Lake in the Fairfield area, Chain-O-Lakes near Fresno Lake northwest of Havre, Little Muddy Creek out of Cascade, Fox Lake near Lambert in Richland County, Brown's Lake in the Blackfoot Valley, as well as a series of smaller areas located within the Milk River Valley. The contemplated purchase in the Bowser Lake area north of Kalispell would combine benefits to white-tailed deer as well as waterfowl.

Looking Ahead

Montana's wildlife resources stand at a crossroad. Hunting pressure has reached an all-time high. Agriculture is becoming increasingly intensive. Industrial expansion is moving in. Whether wildlife can retain its present important place in the State's future complex economy depends upon continued effort. A well balanced restoration program has become one of the important tools by which this work is being accomplished.

by Old Silver Tip

When I wuz helpin' out down at one of the parks a couple of summers ago, I thought I'd bust my suspenders chucklin' and laughin' at the antics of some of those big bears.

They are pretty amusin' entertainers, but anybody with a lick of sense will give 'em a pretty wide berth.

Well, I don't care how big the signs are made, or how many you stick up along the highway warning people not to feed the bears, there's always some dang-fool tourist that can't resist such "cute" little critters.

I was headed down the road one day in the old pickup when I saw a car square-dab in the middle of the road facing me. Soon's I got a little closer I could see a man in his shirtsleeves runnin' back and forth.

(Bears, I sez to myself.)

And sure 'nuff, when he saw me, yelled and waved his arms like a nest of hornets jest set on his ear.

"Get that bear away from here so we can get our stuff!" he bellered.

"That" bear was a female but not much of a lady cuz she had both front feet and her head stuck into the trunk of the car eatin' groceries.

I got a big screw jack from my truck and slammed it into the bear's ribs but she didn't even grunt.

So I told the man's wife to drive up the road a piece, hoping the bear would be left in the dust. She was left all right, but she had her mitts on just the right things and as the car pulled out, everything in the trunk came right out in the middle of a real bear hug.

At that point, the man's wife was all for having me straddle the bear and ride her off like a pet pinto. Ha! I told them in no uncertain terms that I wasn't no "bearback" rider and there wasn't nothing else to do except wait for that old bruin to finish up.

After a good hour of watchin' the bear munch on fruit and cookies and what-not, she finally got her belly full and rumbled off.

The tourists salvaged what was left and from what I heard, they saw the rest of the scenery in the park from behind closed windows.

The Passing of a Buck

One of the chapters of wildlife history rarely seen by man—the battle for survival—was recorded late last fall by the camera of two Billings railroad men.

Gordon Foote and A. C. Jacobson were making a line inspection trip about 15 miles west of Billings when they spotted two large buck deer, (right) horns locked in the death struggle. Closer inspection showed a

large eight-pointer hopelessly entangled in fence wire and the seven-point antlers of his dead adversary.

Approximately 150 feet of fence had been ripped out in the struggle and although near exhaustion, the victorious buck still showed spirit and fight. Neither deer showed any wounds but a large patch of hair was stripped from a front shoulder and flank of the dead deer whose death was attributed to a broken neck.

Mr. Jacobson, armed with a tree limb to ward off any attack from the sharp hoofs, freed the animal with wire cutters while Mr. Foote filmed with his 35 mm camera one of the best deer stories of the year, portions of which are shown on this page.

Liberated from the tangled wire and meshed horns, the victor sank to the ground exhausted. After resting for some time, he wobbled to his feet and struck a zig-zag course for the nearby creek. There he collapsed again as he bent his head to the water, but drank thirstily as he lay in the shallow stream. (left)

He remained in the water for some time, alarming the rescuers who feared he might founder. They threw sticks at the animal to force him out of the creek and up its bank. His first attempt sent him tumbling back into the water, but on his second try he mastered the incline and headed for the brush a short distance away. (below)

PREDATORS - *Enemy or Friend?*

By Walter A. Everin

Animals and birds which man classifies as predators because they prey upon some other form of animal life, have certain characteristics which can be readily perceived by the most casual observer.

One of the main characteristics which both animal and bird predators have in common is the manner in which the eyes are located—well forward in the head so that both eyes can concentrate on the prey.

The field of vision is not too great but evidently every movement within that field can be easily detected. This is in contrast to the location of the eyes of almost all other birds or animals that are predators' victims.

For example, the eyes of an antelope are set on each side of the head. This gives the antelope a wide field of vision on either side enabling the animal to detect an enemy within almost a complete field of vision.

This same arrangement of eyes is found in upland game birds, migratory waterfowl and most all rodents.

Predatory animals, classified as such by law, which are found in Montana are: coyote, mountain lion, lynx cat, Canadian lynx, wolverine, badger, skunk and weasel.

Efforts to control predators in Montana have mostly concentrated on wolves and coyotes. The large cash bounties placed on wolves thirty or forty years ago by cattlemen's associations has almost eliminated the wolf as a predator in this state.

Successful hunters, Roy Guffey (left) and Jim McLucas (right), of the Fish and Game Department are shown above with their specially trained hounds which trailed these mountain lions in the vicinity of Lincoln, Montana. Hides are usually sold for trophies.

All in a day's work of the Predator Control Division. Jim McLucas (above) collects pelts of coyotes which got a dose of cyanide in snatching bait camouflaging a deadly capsule.

The coyote, once found in relatively large numbers throughout Montana, is considered the most serious predator on domestic sheep and many thousands of dollars are spent annually to control this killer.

Currently, funds being used in coyote control work are furnished by the State Livestock Commission, the Fish and Wildlife Service, the Fish and Game Commission and counties which place an assessment on sheep for control funds.

Mountain lions are found in the mountainous timbered terrain of Montana especially where deer are abundant. Mountain lions are the largest member of the cat family in North America, sometimes having a body length of six feet plus a tail up to three feet long and attaining a weight up to 220 pounds.

Cats do not track their prey; they hunt by sight rather than by smell and lie in wait to pounce upon their quarry. Mountain lions can be very destructive to deer herds especially during the winter when deep snows concentrate deer in certain areas.

The Fish and Game Department pays a $25.00 bounty to anyone who kills a mountain lion, except to employees of the Department or the U. S. Fish and Wildlife Service.

The lynx cat or bobcat is very numerous and seems to be increasing its range in Montana. A $2.00 bounty is paid on this animal.

Badgers, skunks, weasles and wolverines are all members of the weasel family. Skunks and weasels often raid domestic chicken houses

(Continued on page 22)

FISHERIES FACT FINDERS

By Frank A. Stefanich
District Fisheries Biologist

Financially aided by federal funds as provided by the Dingell-Johnson Act passed last year, Montana has enlarged its fisheries restoration program by the addition of three biologists in the field.

The question now arises: Where is the fisheries biologist needed? How does he fit into the picture?

The primary job of these biologists is the study and management of various fish in their native habitat. As a starting place, Montana's immense land area was divided into six districts, each of which is as large or larger than some states.

Another sucker gets clipped! Biologist Clint Bishop tags a sucker above to determine migration pattern and this species' effect on other fish.

From these districts each biologist selects critical lakes and streams for thorough study and initiates management procedures to eventually insure a sustained yield of fish to the angler.

Many are acquainted with the fate of some favorite fishing waters and question what can be done to get more fish (or even some fish!) into them.

One measure that has been tried is the introduction of new species of fish. This has been successful in some cases but in others only adds to already existing difficulties.

For example, exotic fish were introduced into a number of lakes without knowledge of what the consequences might be and in many cases developed into a nuisance. In cases like this, the only course at present is to attempt the destruction of the undesirable fish population.

This may be done rather effectively by fish poison but this can be used only in small lakes and ponds due to the high cost of operation.

Admittedly, there is a drawback to this method as it often fails to make one hundred per cent kill of the undesired fish and the process must be repeated periodically.

Uncontrolled cutting of some of our forests changes streams that were steady and permanent into ones that are intermittent and silt-laden from flash floods, thereby unsuitable for trout.

In order to understand this problem better, perhaps a few requirements of trout should be explained.

The water should have a good supply of oxygen as fish need this commodity just as much as do humans. This is supplied either by plant life in the water or direct contact of the water with the air or both.

For trout, the temperature should not climb above 70°F. for any length of time. They also need food whether it be insects, worms, aquatic vegetation or even other fish.

Suitable spawning areas are important and for the trout this requirement is usually a stream of running water that has a non-silty gravel bed. Another necessity is cover or a place to hide, either from enemies or as a place to obtain food easily and unmolested. A fish cannot continue to exist with the loss of any one of these requirements as they are all inter-related.

Many places in Montana have had stream courses changed or altered by highway and railroad construction. The tendency has been to straighten the course of the stream which produces a lot of fast water and no pools.

The result of the construction is that it destroys the homes of fish and leaves only open water. Places like this can be made suitable for trout by placing large rocks or logs in the stream and planting shrubs along the stream bank.

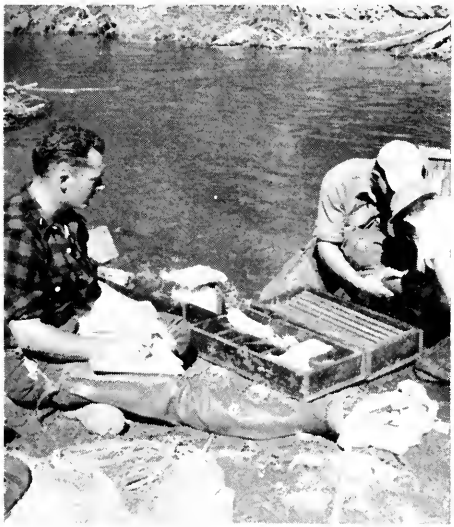
These are but some examples of methods used to improve fishing. More biologists will be added to study areas which are not now covered when finances and trained men become available.

Effects of the work of these "investigators of problem waters" may

Electric shocking equipment which temporarily stuns fish so they can be easily netted and transferred to tank trucks is shown below. Chief Fisheries Biologist Charles Phenicie (left) holds the electrode down into the water as his assistants ply their nets. Left to right they are (in rear boat) Lawrence Diest and Boyd R. Opheim, (front boat) Ed Furnish, Frank Stefanich and Roy Wessels.

not be seen or felt for many years, but if we are going to maintain fishing in Montana along with man's development of the land, we must approach the problem on a sound and scientific basis.

This is the job of the fisheries biologist.



Above, fish taken by the electric shock method are measured for length, weighed and scales taken to determine age.

Final step in shocking fish is cleaning the nets (above.)

PREDATORS — Enemy or Friend?

(Continued from page 19)

and cause some losses in small game birds and waterfowl. The pelts of weasels and skunks are of some value in the fur trade so trapping for fur effects some degree of control.

Other predators such as hawks, eagles and owls are not considered important in serious depredation on small game. Perhaps the good that is done in destroying rodents and smaller predators more than balances any losses to small game.

In recent years the merits of predator control have been a controversial subject among sportsmen and wildlife workers both. Before man pushed westward, predators undoubtedly were one of the important factors in maintaining a balance of nature.

Now the question arises, does man replace the predator by harvesting surplus game amimals or does the predator still play an important part in the scheme of natural adjustments?

Whatever the final answer will be, it is now apparent that control of certain predators such as magpies does not have a significant effect on small game populations. It is also recognized that control of coyotes often results in an increase of big game animals, which in turn man must be prepared to harvest.

One thing stands out above all others in the problem of predators: Control does not mean elimination.

No one wants any measures that might remove forever a part of the native fauna of the state.

"Why Do We Need Special Seasons on Big Game?"

By R. H. Lambeth, State Game Warden

This question, often raised at club meetings and by sportsmen, can best be answered by considering the complexity of game management in the diverse terrain of Montana.

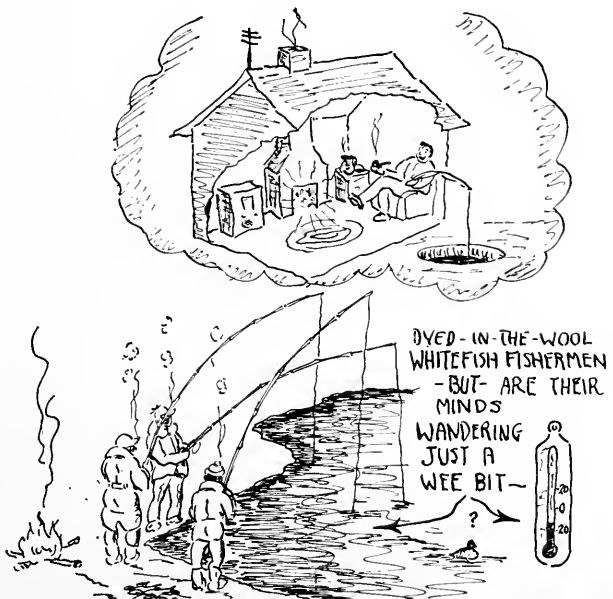
For example, antelope being a prairie species, are easily accessible. If a regular open season were held, the greater part of the harvest would fall within the radius of population centers. In a short time, some areas would become devoid of this animal and others would be overstocked. Therefore, it is imperative for the propagation of this species to designate areas and quantity to be harvested through special seasons.

Moose are limited in number and area in which they are found. An open season, even for a day, could almost destroy this fine animal. A base stock for future harvests can only be assured by hunting specified numbers in given areas.

Special seasons for deer and elk are held for somewhat different reasons. The Montana Fish & Game Commission does not consider the monetary return from special deer and elk permits of any import. Revenue from this source is very small compared to total department income. Furthermore, it is the policy of the Commission to allow hunting of all surplus game by regular season and to permit special seasons only when absolutely necessary.

There are two important factors which are recognized in setting special seasons on these animals. First, to alleviate excessive damage to forage, crops or hay. Quite often this cannot be anticipated until after the regular season has closed. Second, to provide needed harvest on game which was either not available or not hunted during open season. This maintains game in balance with forage, thereby preventing severe winter losses.

It is not always possible to predict when special seasons may be needed. Unusual game migrations, severe weather conditions and many other factors may make a special season imperative. Each case must be considered and remedial measures taken where necessary.



By FAYE COUEY.

The "Mother Hubbard" problem confronting Yellowstone Park elk herds every winter is being partially solved by the Elk Lift. Through its operations, some of these animals are taken to better stocked "cupboards" and at same time provide good hunting in open hunting areas.

For concentrated game management headaches, the northern Yellowstone elk herd has a corner on the market. Thousands of elk that find such abundant summer forage in Yellowstone National Park are confined by winter's deep snow into a narrow strip of winter range where for two decades they have gradually been eating themselves "out of house and home."

The problem is further complicated by difficulties in obtaining a harvest of surplus animals. State and federal officials together with the top spokesmen in Montana's sportsmen groups have wrestled with the problem for years.

But in almost every case a "firing line" type of hunt results due to the restrictive type of terrain and the corridor through which the elk must pass to reach hunting country.

A third factor enters in the form of "old man winter" and unless a deep snow comes before January 31 each year, the hunters take but little game. Elk soon recognize the sanctuary of the Park boundary and prefer to face slow starvation rather than the large numbers of eager hunters waiting in the open territory.

Two years ago a partial remedy was proposed by Gardiner sportsmen and sponsored by the Absaroka Conservation Committee. The proposal became the "elk lift."

In its simplest form, the "elk lift" includes the trapping of surplus animals in the Park and transplanting them to open hunting country north of the Yellowstone Park line. Here they are released after shooting hours and given all night to disperse into adjacent territory. At 9 a. m. the hunters are given a chance to harvest a few of these animals in a sportsmanlike hunt. It is also hoped that surviving animals, encouraged by adequate forage, will remain in the area and re-establish old migration patterns.

Working together in this project are local sportsmen, Yellowstone National Park Service and Montana Fish and Game Department.

One type of corral used to trap elk in Yellowstone Park for the Elk Lift is shown on the opposite page. The animals are first lured into the larger enclosure with hay and their escape blocked. Then, with the aid of a stout rope and common saw, the bulls are de-horned (left) to prevent injury to themselves and to save space in transportation.

Ear tags are attached during this operation to provide accurate information on hunter harvest and movements of elk from this source.

The elk are next herded into the smaller enclosure (below) and finally into the chute that leads to the truck (below right.)

The Park Service has completed five traps and in addition to the "elk lifting" operations, animals captured by this method provide a source of live-shipped animals to zoos and have been the origin of new herds both in and out of Montana.

The actual trapping of elk is not a simple task. It is impossible to begin trapping until heavy snow and low temperatures force the animals out of their habitual feeding grounds. The area surrounding the trap must be accessible for trucks to haul the elk away from the trap and special skills and techniques are required for tagging, loading, de-horning and segregation.

Operation "elk lift" is obviously only a partial solution for by no stretch of the imagination can it be visualized as a means of removing five or six thousand elk from the Northern Yellowstone herd. But it is a start.