DEPARTMENT OF GAME

STATE OF WASHINGTON

THIRD BIENNIAL REPORT

OF THE

WASHINGTON STATE GAME COMMISSION

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April 1, 1936, to March 31, 1938

WASHINGTON STATE GAME COMMISSION

Department of Game

Claude C. Snider, Chairman.....Vancouver
Harry G. LeGear.....Port Angeles
Lou Ovenden .....Wenatchee
Virgil B. Bennington.....Walla Walla
Dr. H. C. Nickelsen.....Tacoma
Thomas A. E. Lally.....Spokane

Bernard T. McCauley.....Director of Game

LETTER OF TRANSMITTAL

To His Excellency,
Clarence D. Martin,
Governor of the State of Washington,
Olympia, Washington.

Dear Sir:

Herewith is submitted, in accordance with law, the third report of the Washington State Game Commission for the biennial period beginning April 1, 1936, and ending March 31, 1938, inclusive.

Respectfully submitted,

WASHINGTON STATE GAME COMMISSION

Claude C. Snider, Chairman,
Harry G. LeGear,
Lou Ovenden,
Virgil B. Bennington,
Dr. H. C. Nickelsen,
Thomas A. E. Lally.

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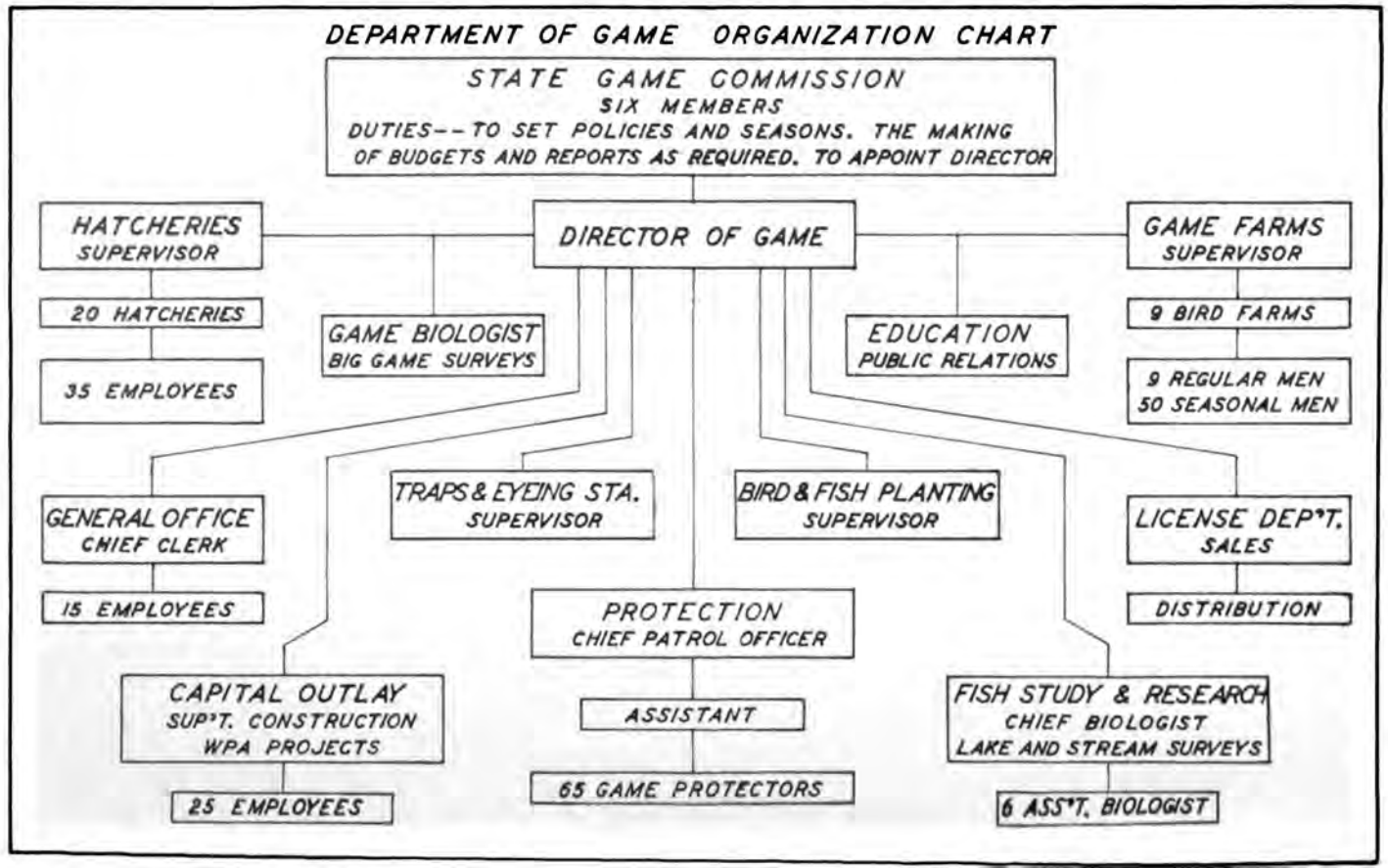


THE PAST TWO YEARS

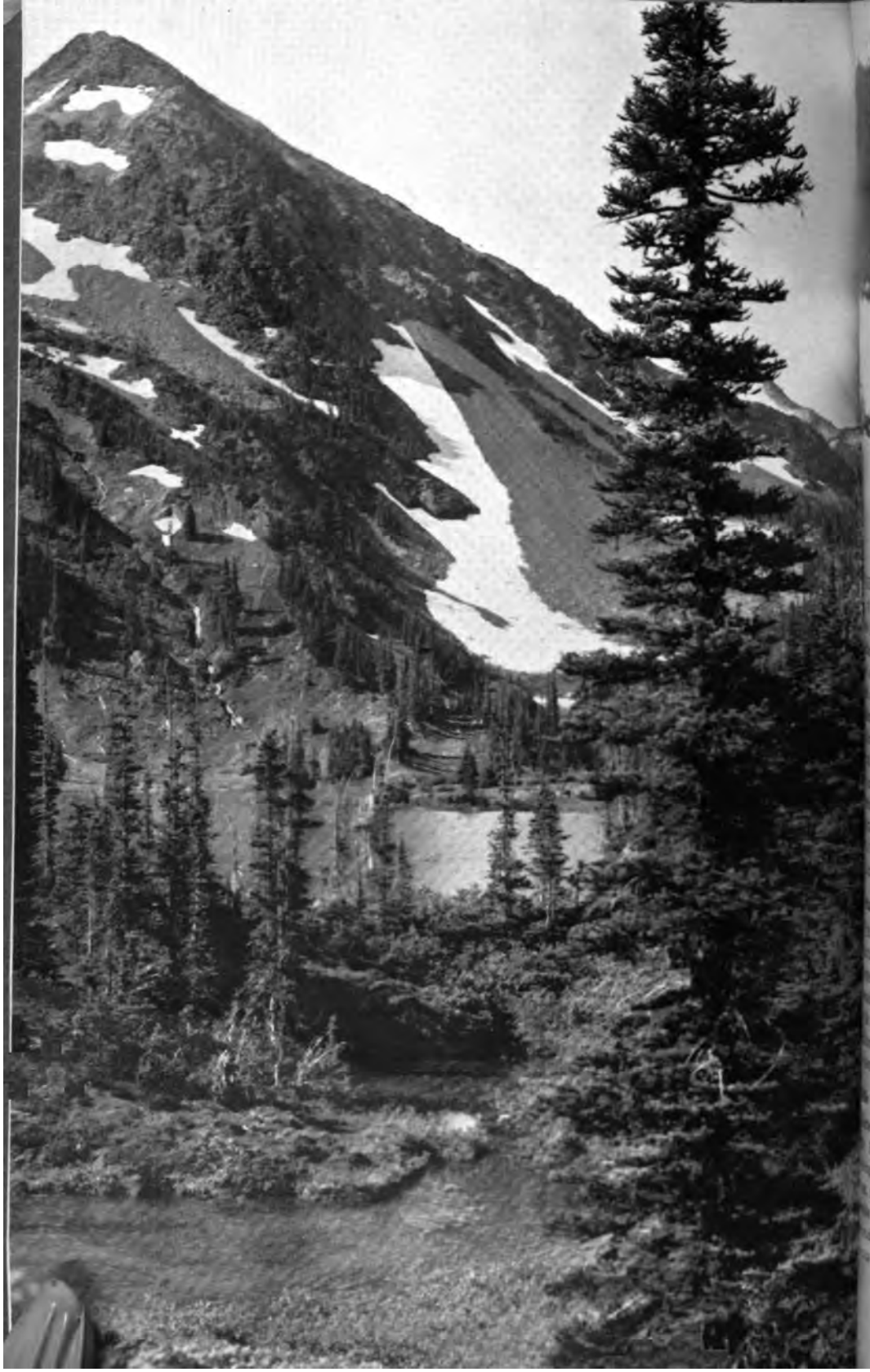
SINCE the pioneer's quest for game in early days, administration and control of wildlife have passed through several stages of growth. In reviewing the activities of the Washington State Department of Game during the past two years, the State Game Commission aims to present a statistical digest of disbursements, revenue and facts attesting the progress of the Department. The Commission wishes to explain in the fullest manner possible the methods and policies which have governed development and routine work during the past biennium, April 1, 1936, to March 31, 1938.

The first three years of state control, 1933, 1934, 1935, saw general rebuilding and modernization of Department of Game properties. The past two years have seen the development of propagation, biological and protection divisions; the completion of modern hatcheries and game farms; the organization of a new fish and game biological program and state-wide improvements in all branches. It is felt that with the present operating facilities, bird and fish production will go forward more efficiently in the future and give greater returns.

No longer is hunting and fishing restricted to a minority group. The low license fees have stimulated interest in the sports in all walks of life. Proof of its widespread popularity is indicated by a comparison of license sales over recent years. License sales increased from 129,622 in 1933 to 207,807 in 1937. It is obvious that this sharp increase places a serious strain on the present supply of fish and game and taxes the Department of Game propagation units to the utmost. This additional revenue credited to the Game Fund is being passed along to sportsmen in the form of modern hatcheries, bird farms, and improved production equipment. At present the Department of Game is in a better position to cope with the problems of wildlife conservation and restoration than in any previous period in the state's history.

Much of the groundwork for a sound future program of wildlife conservation in Washington has been laid and policies have been adopted of a permanent and practicable nature—plans not only for the recreation and enjoyment of sportsmen of today, but for the thousands of hunters and fishermen of future generations.

It is the contention of the Commission that much of the "trial and error" period of development has passed and that future advancement will be expedited by the initial years of experimentation. In wildlife conservation, no state really reaches the peak of perfection, nor does it climb above the problems which frequently encompass game agencies. The work of restocking depleted fish and game resources, wasted by another generation, is accomplished only after years of careful practice of the laws of game management. State expansion has been rapid with industry, farm and ranch life reaching out to encroach upon the former habitats of game. Step by step the Commission has had to keep pace with these changing conditions which challenge the future of state wildlife.



Big game of the Olympic Peninsula, the stately elk.

Wildlife Sovereignty of the State

WASHINGTON is a state of rich and vast natural endowments. Its range of variant scenery and outdoor attractions stretches from the snow-crested Olympics, over the Cascade's rugged peaks to the plains and rimrocks of eastern Washington—cleft by the mighty Columbia River. Much of the state's scenic beauty is still unchanged and unspoiled through the years of growth since statehood. During Washington Territorial days, game life was in abundance, with field and stream well stocked with birds and fish. Big game browsed in large numbers in the mountain regions. Uncontrolled hunting and fishing, game waste and lack of stringent game management policies, have contributed, during the first quarter century of state expansion, to a depletion of the bountiful supply of game. This period of wildlife spoliation is written into the history of every other state. Restoration and conservation of Washington's game resources is the duty of the State Game Commission through the Department of Game as administrative agency.

The State's Part in Game Restoration

With encroachment of civilization and advancement of commercial and industrial enterprises by man, the natural balance of wildlife has been largely destroyed. This forward movement was inevitable, but it has placed a new responsibility upon the state—the task of establishing a program which will provide for the future of game. Scientific treatment of disease, control of predators, launching of workable game restoration projects and regulation of seasons now are the duty of the state.

Wildlife Values Growing in Importance

Game life has two major values to the state in addition to its intrinsic worth: Sport and recreation and its economic importance. As an outlet for obtaining relief from the tense, complex life of today the recreational resources, which include mountains, valleys and streams, are open for considerable development. Fishing and hunting have few equals as recourse from modern high-speed civilization. The public, generally, is becoming more conscious and appreciative of the heritage of the wildlife property of states.

Game Status Increases in Popularity

Rapid increase in license holders serves as a gauge to show the ever-increasing popular status of game life. More leisure hours, fast transit highways and improved roads linking remote areas have stirred renewed interest in game. This trend demands that wildlife be adequately safeguarded and placed upon the fullest productive basis.

Commercial Value of Hunting, Fishing

Business has come to look to trade and buying in sporting goods which is general throughout the state, prior to opening of hunting and fishing seasons. A survey conducted during the biennium of a representative group of sportsmen revealed that $28,500,000 was spent in connection with hunting and fishing in 1936.

Washington wilderness scene.

Commend Work of Sportsmen's Clubs

Sportsmen's clubs, numbering more than 200, follow many fields of service in pursuing their conservation objectives, largely shaped according to local needs and the problems faced by sportsmen in certain localities. The broader phases of club activities include: Predatory control—thousands of vermin are destroyed each year by sportsmen; junior sportsmen—training young boys to be firm believers in game conservation and supporters of the game code and teaching junior sportsmen the value of wildlife. This worthwhile work has

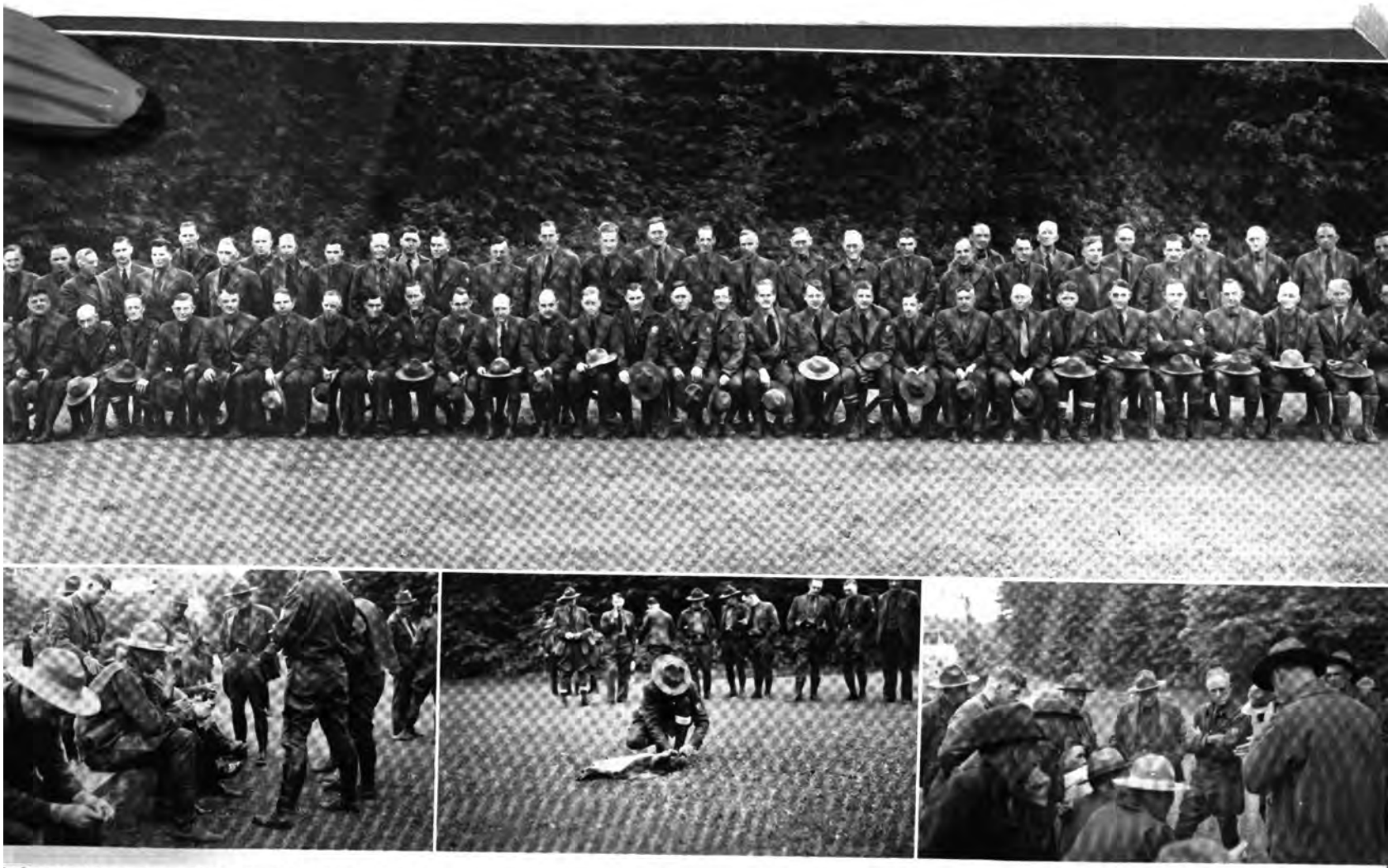
During winter, mule deer of north central Washington range in the foothills.

become a bulwark in the plans of many clubs; winter feeding of game by sportsmen is an important aid to wildlife. During the severe winter weather of 1936-1937, game life required attention in many regions. Many sportsmen, collectively and individually, gave freely of their time to the cause of suffering game, supplementing the work of game protectors. Sportmen's clubs are organized to improve the recreational features of wildlife and to work for efficiency in the administration and control of the state's game resources.

Cooperative Efforts of Clubs Cited

Through the offices of the Washington State Sports Council, sportsmen have been able to further their objectives and consummate their plans into workable projects for restoration and conservation of game. When vital issues involving the welfare of state wildlife have arisen, sportsmen have offered constructive suggestions and wholehearted cooperation which the Commission has found invaluable on many occasions. The Game Commission welcomes the constructive proposals and resolutions of clubs and outdoor organizations. Through frequent attendance at sportsmen's meetings, the Commission has an understanding of the sportsman's point of view. At its regular conferences the Commission has given due consideration to the many letters and resolutions submitted by sportsmen and outdoor agencies. The Commission commends the excellent service of these agencies.

(Left) Western Washington black-tailed deer. (Right) White-tailed deer of eastern Washington game regions.



Each year state game protectors attend a training school where they receive instruction in conservation methods. Note the demonstration of beaver pelting by protector in center photo.

Game Protection Division

GAME protection today has developed to a high point of efficiency. The requisites of experience, education and training, asked of applicants for game protection posts are specified in order to obtain men of all-around ability. Work of the game protector is yearly becoming more and more varied in scope. An ever-increasing state population, expansion of farm lands and grazing acreage and growth of business and industry have gradually changed the status of the warden from strictly a game protector to a game management specialist. Conservation of wildlife and the many problems incidental to game restoration call for a practical working knowledge of the biological fundamentals controlling game's existence.

Protectors' Annual Training School

Advanced training in game management problems is given game protectors at the annual training school conducted by the Department. Here, the common questions confronting protectors in their relationship to wildlife are discussed from practical and scientific sides.

Training School Aims and Program

Two protectors' training courses were held during the period April 1, 1936, to March 31, 1938. The first was held at The Oakes, South Tacoma, Pierce county, and the second at Canyon Creek Lodge, Snohomish county. Both courses were attended by the full force of protectors and supervisors. Emphasis was placed upon the instruction of protectors in advanced predatory control work, trapping and pelting. Protectors were given a thorough review of the rules and regulations of the game code and the work of other department divisions was explained by supervisors.

The objectives of state protectors' meetings are education of the patrol force in advanced conservation practices, technical training in the school of the protector and instruction in work routine.

(Left) Protector checks a hunter's kill of bear and elk. (Right) Method used to scatter elk in certain feeding areas.

Employees Deputized for Special Duty

The regular roster of game protectors numbers sixty-five, headed by a chief patrol officer and assistant. This force is supplemented by 75 to 100 special deputy protectors employed during the fall hunting seasons. During the 1937 hunting season special deputy posts were filled by regular employees from game farm, hatchery and biological divisions. Department employees thus assigned received valuable training in game protection and first-hand knowledge of the problems confronting game protectors in the field.

Other Duties of State Game Protectors

Protectors have covered a wide range of service. One is the establishment of fish catch record stations throughout the state. This service is explained more fully in the chapter on the work of the fish biological division. It has for its principal aim the recording of takes and species of trout by sport fishermen in order to determine future plantings of fish in given lakes and streams. Through the year protectors assist in the planting and stocking of public waters and fields with fish and birds. Protectors approve predatory animal permits and bounty all pelts. A total of $49,477.00 in bounty payments were made during the biennium and a total of 16,133 pelts were bountied by protectors.

Sports fishermen fill out Department fish catch record questionnaire.

Checking stations operated by the Department during the hunting seasons are located at junctions of main highways. These posts are for the purpose of recording the kill of game. Records are tabulated in survey form and serve as a helpful source of information in regulating future seasons.

Protector's Job in the Community

The game protector's job as a conservationist and guardian of wildlife serves a definite purpose in the community life of the state. As a police officer he is charged with the protection of game in his district, and, as a game management specialist the protector's duty is one of game restoration. He keeps constantly abreast of game issues affecting his district and welcomes the sportsmen's point of view and the general public on matters of wildlife conservation. Game has benefited immeasurably from the correlation of effort, pursuance of worthwhile objectives and friendly cooperation given local game protectors by sportsmen's clubs, outdoor organizations and the public.

Quick Communication Essential to Patrol

Lack of rapid communication between the main office and game protectors about the state has long hampered the patrol force in following up information on game violators. The Kitsap County Sportsmen's Association has financed

the installation of a low-wave radio receiving set in the state game protector's patrol car operating in that district. Messages from the chief patrol officer are telephoned from Seattle to the Bremerton Police Department, who in turn radio the dispatch to the game protector. Experiments are being made with this system with the view to future consideration of low-wave radio reception for protectors' patrol cars.

Early Day Game Control Methods

Washington's trained, uniformed game protection force of 65 protectors contrasts with early day wildlife patrol methods. In 1890 the first state game warden was named by the governor for a term of four years and served without pay. Deputy wardens were appointed in each county. One-half of a fine went to the county game warden and the remainder to the county school fund. County commissioners appropriated $25.00 from the county general fund toward a monthly salary for county wardens. Deer were protected in the state as early as 1875 and the state legislature levied the first license fees on sportsmen for hunting and fishing in 1903. The license fee charged was $1.00.

REPORT OF THE PROTECTION DIVISION

Fines, Arrests, Convictions, Etc.

	April 1, 1936, to March 31, 1937	*April 1, 1937, to March 31, 1938*
Total number of arrests	1,460	1,775
Total number of acquittals	65	60
Total number of convictions	1,395	1,715
Total number of appeals	11	14
Food fish cases included	35	20
Big game cases included	144	237
Jail sentences imposed	5,776 days	6,203 days
Jail sentences suspended	3,809 days	4,997 days
Fines assessed	$43,639.00	$65,202.00
Fines suspended	6,520.00	16,521.50
Fines collected	15,001.00	21,479.75*
Fines served out in jail	11,785.00	12,869.75
Fines unpaid	10,333.00	14,331.00
Bail forfeitures	229.00	569.50

NOTE: In addition to the above report, the following is a report on fines collected, suspended, or served out in jail, of fines that were pending from previous years:

Fines collected	$2,713.95	$1,224.60*
Fines suspended	2,065.00	524.00
Fines served out in jail	1,343.00	40.00

*One-half of the fines collected go to the State Game Fund, and one-half to the county in which the arrest is made.

The high Olympics is known as America's "Last Frontier."

Protectors Devote More Time in Field

Since January, 1938, sales of game licenses have been supervised from the main office through selected dealers. Formerly, game protectors acted as the Department's agent in their districts, directing local sales of dealers. Much time was spent by game protectors in discharging this duty which would otherwise have been used to advantage in game protective work. The Commission has already noted an improvement in the work of protectors who are applying the additional hours to field service. A state game protector now devotes his entire time to protection and game management.

Game Patrol Ranges Throughout State

Adventures and experiences of state game protectors in line of duty offer a wealth of story-book themes. Protectors travel to remote regions of the state in search of game violators and to determine the condition of wildlife. Protectors must be hardy, robust men of stamina, able to cope with any emergency. Several protectors' districts border wilderness areas. It is in these remote regions that the game protector spends much of his time.

Effect of Predatory Animals on Game

Control of predatory animals in Washington has long been a problem of game authorities. Bounty payments have been increased in recent years on cougar, bobcat or lynx, and coyote, which are the principal predatory animals, and this has encouraged interest in predatory hunting. Although state game protectors, bounty hunters and special department trappers take a large number of predators through the year, it is known that these animals annually destroy considerable big game and upland birds. Control of the state predatory situation is necessary if state plans for conservation of Washington wildlife are to be successful.

Comparison is often made between Washington and some eastern states which claim large annual crops of deer. It should be considered that these states are comparatively free of the common predators which take such a heavy toll of big game in this state.

Type of Equipment Used in Patrol Work

Game protectors travel a total average of 100,000 miles monthly in patrolling their districts. Skiis and snowshoes are supplied protectors for winter travel in snow areas. Protectors having public waters to patrol, use department-owned outboard motor boats. Three boats are used to patrol public waters. A recent purchase is a swift, 28-foot cabin cruiser, equipped with a sixty h.p. engine and having sleeping accommodations for four. This boat is operated to patrol Puget Sound waters. A large seagoing boat is used on Lake Chelan. The Department also has a speed boat used in patrolling Lake Washington. Saddle and pack horses are made available to protectors for long trips over mountain trails.

Bounties are paid for cougar, bobcat or lynx and coyote, principal game predators of Washington. The three large cougars in top photo were bagged in one morning by a predatory hunter, for which the Department of Game paid bounties totalling $150.00.

Large Predatory Animal Kill Aids Game

Game life must be protected from its natural enemies. Much of the protectors' time is spent in predatory control work, trapping destructive beaver, predatory animals and birds. Trap lines are placed for coyotes, bobcats or lynx, and cougar are trailed with dogs. The state game protector stationed in Ferry county has a specially built truck to house six cougar dogs used in stalking predators in the region bordering the Canadian line in northeast Washington. His recorded kill during the winter of 1938 was five cougar and one Canadian lynx. In Whitman county the resident game protector has accounted for nearly 500 coyotes during a four-year period.

PROTECTORS' PREDATORY KILL

1934-1935-1936-1937

PREDATORY ANIMALS	1934	1935	1936	1937	Totals
Cougar	14	5	5	5	29
Bobcats	10	56	49	19	134
Coyotes	207	517①	636	499	1,859
Skunks	57	168	251	154	630
Beaver	86	91	126	165	468
Weasels	.....	.....	63	35	98
Porcupines	.....	.....	49	14	63
Badgers	.....	.....	31	11	42
Civet Cats	.....	.....	35	.....	35
Ground Hogs	.....	.....	751	260	1,011
Ground Squirrels	.....	.....	710	646	1,356
Rattlesnakes	.....	.....	69	124	193
Miscellaneous	1,015	3,169	576	184	4,944
	1,389	4,006	3,351	2,116	
Total animals	5,395		5,467		10,862

① Includes 1 timber wolf.

PROTECTORS' PREDATORY KILL

1934-1935-1936-1937

PREDATORY BIRDS	1934	1935	1936	1937	Totals
Crows	1,527	1,843	2,494	1,498	7,362
Crows' nests	2	29	24	7	.....
Crows' eggs	.....	28	137	64	.....
Magpies	1,023	2,460	2,064	1,871	7,418
Magpies' nests	103	234	60	118	.....
Magpies' eggs	130	468	657	375	.....
Hawks	186	712	1,321	1,164	3,383
Hawks' nests	.....	2	15	.....	.....
Hawks' eggs	.....	5	8	9	.....
Kingfishers	210	328	675	263	1,476
Kingfishers' eggs	.....	.....	.....	12	.....
Owls	18	129	278	196	621
Owls' eggs	.....	.....	.....	4	.....
Ravens	.....	.....	94	88	182
Ravens' nests	.....	.....	.....	26	.....
Ravens' eggs	.....	.....	.....	42	.....
Bluejays	73	185	315	193	766
Eagles	.....	.....	.....	52	52
Fishducks	.....	.....	.....	179	179
Miscellaneous	258	126	119	12	515
	3,295	5,783	7,369	5,516	
Total birds	9,078		12,876		21,954

Mountain peaks blend with evergreen forests in Washington's scenic outdoors.

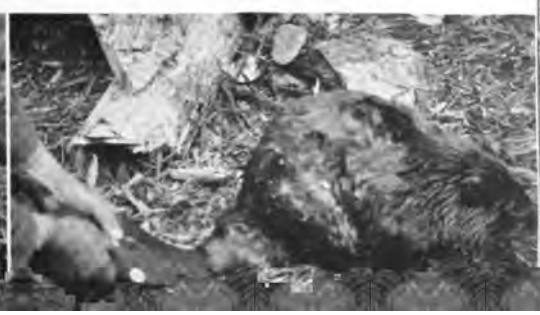
Activities of the Floating Patrol

The floating patrol, a unit of the protection division, is sent to trouble areas and works closely with local protectors. Many important game cases have been solved by this unit in the past two years. Department vigilance over game has been strengthened and given added impetus through the field activities of the floating patrol. The steelhead patrol, like the floating patrol, is a unit of the patrol force and responds to calls for increased protection on steelhead streams in winter time. Investigation of illegal steelhead sales and transactions is one of its duties.

Scope of Beaver Control Operations

Under certain conditions the beaver is of value as a conservationist, but in many instances this "forest builder" is found to be destructive to property. Transplanting destructive beaver from localities where damage to property has been noted, is carried on during late summer after kits are able to care for themselves. In winter, when the transplanting of destructive beaver is impracticable, protectors steel trap, but only beaver found to be destructive to property are pelted.

Beaver are tagged to determine their migrations.



PROTECTION DIVISION
ADMINISTRATION AND GENERAL EXPENDITURES
April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Salaries and wages	$83,100 47		$86,547 75	
State car expense	16,357 31		17,361 45	
New state cars	7,756 88		5,488 34	
Private mileage	18,854 78		21,404 04	
Fares	317 72		366 59	
Meals	5,827 17		6,962 56	
Rooms	2,103 92		2,604 17	
Telephone and telegraph	543 85		550 94	
Postage	4 64		3 88	
Freight and express	75 79		59 49	
Medical aid	2,425 68		2,157 13	
Boat expense	1,383 87		758 05	
New equipment	1,655 98		400 34	
Miscellaneous	1,234 74		1,403 73	
Totals	.....	$141,738 80	.....	$146,077 46
TEMPORARY PROTECTORS				
Salaries and wages	$10,450 92		$12,127 50	
State car expense	.....		354 23	
Private mileage	6,801 02		4,919 20	
Fares	2 00		25 89	
Meals	93 43		449 99	
Rooms	7 00		152 52	
Telephone and telegraph	.....		40	
Boat expense	61 13		15 25	
Miscellaneous	12 35		19 42	
Totals	.....	$17,427 85	.....	$18,064 40
Grand totals	.....	$159,166 65	.....	$164,141 86

Record of Predatory Bounty Payments

Bounty payments made to predatory hunters during the period April 1, 1937, to March 31, 1938, show a sharp increase over the previous year's registered total of payments for cougar, coyote and bobcat. This is due to increased bounty payments on cougar and coyote authorized by action of the 1937 state legislature. A substantial gain was recorded for the fiscal years 1936 and 1937 over the fiscal year 1935 in the number of predatory coyote and cougar taken.

Fiscal Years April 1 to March 31	Predatory Animals Taken			Total Bounties Paid
	Cougar	Coyote	Bobcat	
1935-1936	94	4,001	1,759	$15,156 00
1936-1937	151	6,067	2,315	21,417 00
1937-1938	140	6,036	1,424	28,000 00

Fur trapper's take of raccoon.

Trend of State Fur Industry

ONE of the oldest world industries—fur trapping and marketing—a trade which has played a major part in American history—is today a $1,000,000 biennial business in Washington. Value of the fur catch in the United States to the trapper has been conservatively estimated at between $60,000,000 and $70,000,000 annually. Demand for furs has shown a steady trend upward in recent years and many fur trappers have succeeded in making a profitable income from their activities.

Washington Fur-Bearers Rate High

Muskrats taken in Washington are generally valued as high quality. The wild Washington mink has, within the last five years, become a prominent article in the fur trade, with top prices going to western Washington mink. This latter fur-bearer is in demand in the United States as well as in England. The third fur-bearer, which may be classified as an important fur item, is the eastern Washington prairie wolf which, under ordinary circumstances, is worth twice the price paid for a western Washington wolf skin. Skunk, raccoon, badger and other fur items do not compare in importance with mink, muskrat and prairie wolf.

From the best sources, opinion is expressed that, as a whole, Washington furs average well above other Pacific Northwest states. Washington beaver, for example, are regarded as possessing a better color than beaver taken in the other western states and are generally considered as among the best beaver taken in the United States.

A total of 5,760 county trapping licenses were issued during the period April 1, 1936, to March 31, 1938, with a total income of $28,800. This is a gain of 29.9 per cent over the number of trapping licenses issued during the previous biennium. Fur dealers' licenses increased from 197 during the previous two years to 258 issued during the period of this report.

The Useful Role Played by Fur Bearers

Many of the common fur bearers play an important and highly useful role in preying upon injurious insects and rodent pests. The weasel, for example, is beneficial in destroying large numbers of mice and rabbits which damage gardens, orchards and property. The skunk is helpful in its destruction of white grubs, wireworms, grasshoppers and mice.

Trout Hatchery Division

Picking trout eggs.

TROUT propagation has gradually reached the point where scientific rearing methods largely control the routine and management of state hatcheries. The relative factors which govern rearing of fish—disease, feeding, water conditions and planting—are studied carefully. Present-day methods call for trained men who are experienced in fish biology and the practical problems of trout propagation. The Commission is pleased to report the progress made the past two years in rearing game fish.

Heavy Demand for Popular Trout Species

In meeting the challenge of an annual gain in anglers, the Commission has faced several obstacles which have impeded its plans, but which have been gradually overcome. Modern hatcheries have been built to supplement old equipment, holding facilities have been expanded with construction of larger rearing ponds and fish biologists are correcting disease and feeding conditions. With installation of broodstock ponds the Department has increased its facilities for taking rainbow spawn. Expenditure of game fund money in the trout hatchery division has brought greater all-around efficiency and results attained during the biennium have surpassed any previous period.

New Modern Trout Hatcheries Built

One of the best future safeguards to insure well-stocked lakes and streams is a modern system of fish hatcheries. This is the hub of the entire state trout propagation program. Considerable money has been expended to thoroughly rehabilitate and modernize this division. New hatcheries of the latest design have been built and are now in operation at Spokane, Bellingham, Aberdeen, Yakima and Chelan. The plant at South Tacoma has been enlarged and improved while at Vancouver the twentieth state trout hatchery is nearing completion. Operation of these new plants will make it possible for the Department to plant fish of larger size and in greater numbers.

Works Progress Administration Grants

Federal Works Progress Administration projects materially aided the Department in its building and improvement plans. The Commission expresses its appreciation for the special grants and cooperation which the Works Progress Administration has freely given during the biennium. The total allotted projects for game farm and hatchery improvements numbered sixteen.

Projects completed included construction of new hatcheries, improvement of bird farms and general landscaping and beautification of hatchery grounds. State Department of Game properties have been made more attractive to visitors and tourists by modernization of propagation facilities and hatchery sites.

Broodstock ponds where hatchery reared trout are held for spawn taking. Upper, pond at South Tacoma; lower, broodstock pond at Spokane hatchery.

Of special interest to sportsmen is the state's new plan for a system of broodstock ponds. This program was mentioned in the previous biennial report of the Commission. For a number of years it has become difficult to obtain sufficient rainbow and cutthroat eggs to keep pace with the sport fisherman's demand for these popular species. A system of broodstock ponds where fish are held for spawn taking purposes was put in operation during the winter of 1937-1938.

Trout Carefully Selected for Broodstock

Broodstock trout are selected from carefully culled hatchery-reared fish. Department biologists believe that the pressing questions of supply and demand will be met only by scientific propagation. Studies are now going forward to rear high-spawning trout for broodstock purposes. It has been proved conclusively that hatchery-reared trout produce a greater number of eggs than fish spawned in the wild state. From actual test, it has been found that trout hatched from broodstock fish rear better in ponds. If future experience substantiates this theory, it will be possible to establish broodstock which will be more or less immune to the common hatchery diseases and will propagate more readily under artificial feeding. It should be pointed out, however, that the Department will not depend entirely upon returns from broodstock ponds, but this system will supplement the normal take of eggs from spawning stations.

Three hatcheries are equipped with broodstock ponds—Spokane, where rainbow eggs were taken during initial spawning operations; South Tacoma, which produced a good take of rainbow eggs; a unit of three broodstock ponds at Yakima hatchery, which were completed at the close of the last fiscal year. Broodstock ponds are also specified for Tokul Creek Hatchery and the new Vancouver Hatchery.

Bolster Spawn Taking Facilities

The first step in bolstering production of fish is to provide additional egg-taking stations. This has been done. The Commission is now able to report that with the new broodstock ponds, supplementing the increased egg-taking stations, a higher percentage of trout eggs will be turned over to hatcherymen for propagation.

Fast Trucks Used in Fish Stocking

Rapid transit fish carriers have facilitated the handling and planting of trout. Three large tank trucks—two 400 gallon units and one 800 gallon truck—are now in use. A fourth planting truck is under construction. Large consignments of fish can be transported to the far corners of the state at varying temperatures with a minimum of loss. Water is circulated in the tanks by a small gasoline engine, drawing the water from the tank and returning it under pressure. This gives the vital oxygen content to water and enables planting crews to haul capacity loads of trout long distances. By circulating water through coils in an ice box, temperature is controlled on warm summer days.

Suction pumps are used to pump water into tanks when fish plantings are made in order to equalize the temperature before stocking. Gradually, as new equipment is provided, the use of milk cans, barrels and small tanks, having no water circulation, is being discontinued. Cost of trout planting has been reduced to a fraction of its former cost by operation of the fleet of fish planting carriers.

...e of three new trout-planting trucks used in stocking lakes and streams. Insert shows interior of tank units.

Catching trout in rearing pond by seining methods.

Sizing trout. Keeping fish at uniform length minimizes cannibalism in rearing ponds.

Large fingerling rainbow of the size the Department of Game is planting in greater numbers each year.

Seining net full of six-inch rainbows, catchable size.

Cleaning rearing ponds. Sanitation is an important phase of fish culture.

New Plan Governs Game Planting

Planting of birds and fish is closely interlocked with the actual propagation of game. A record output of pheasants and trout would be of little gain were the important factors which enter into liberation and stocking given secondary consideration. The successful planting of game is as essential to the efficient administration of conservation agencies as production. During the past biennium, the Commission has given this subject careful study and a full-time supervisor has been placed in charge of the work. As a result of this plan it has been possible to achieve a more satisfactory and effective distribution of game.

Factors Controlling Planting of Fish

Past experience in restocking public waters has demonstrated clearly the importance of a plan based on scientific study of the factors which govern the biological properties of lakes and streams in relation to trout species. The Department follows a definite program of study in its fish plantings. Points that are considered include: (a) Suitability of certain lakes and streams for the various kinds of fish, (b) popularity of certain lakes and their proximity to centers of population, (c) resort facilities available to anglers, (d) reports of fish biologists which show the mineral properties of water, food content and chemical values, essential to support fish life. The biological features of fish stocking are explained in a resume of the work of the fish biologist.

Trout are carried on horseback, often back-packed to mountain lakes.

The number of trout eggs taken from the principal egg-taking stations during the biennial period, April 1, 1936, to March 31, 1938, is given:

EGG-TAKING STATIONS	Fiscal Year April 1, 1936, to March 31, 1937	Fiscal Year April 1, 1937, to March 31, 1938
BELLINGHAM, Whatcom county—cutthroat, silvers	511,000	565,000
DUMPKA LAKE, Chelan county—rainbow	587,700	389,900
FERRY TWIN LAKES, Ferry county—rainbow	.....	326,500
GREEN RIVER, King county—steelhead	219,500	264,500
LAKE WHATCOM, Whatcom county—cutthroat, silver	10,565,900	29,871,500
OWHI LAKE, Okanogan county—eastern brook	11,401,445	10,243,200
PACKWOOD LAKE, Lewis county—rainbow	961,000	2,150,700
PEND OREILLE, Pend Oreille county—cutthroat, eastern brook, blackspotted, rainbow	1,087,000	376,395
SAN POIL, Ferry county—rainbow, silver	150,250	325,000
SOUTH TACOMA, Pierce county—cutthroat, silvers, rainbow, steelhead	.....	758,400
SPOKANE, Spokane county—rainbow, silver	.....	219,326
TOKUL CREEK, King county—rainbow, silvers, steelhead	11,707,050	1,057,250
TWIN LAKES, Chelan county—cutthroat, blackspotted	882,000	1,364,000
WALUPT LAKE, Lewis county—rainbow	227,900	73,200
Totals	38,300,345	47,985,741

The following traps of the latest design have been built during the biennium and were in operation at the close of the fiscal year, March 31, 1938:

Trap	*Location*	*County*	*Species of Fish*
1. Barnes Creek	Tributary Lake Crescent	Clallam	Crescentii
2. Beaver Creek	Tributary N. Twin Lakes	Ferry	Rainbow
3. Chambers Creek	Outlet American Lake	Pierce	Steelhead & Cutthroat
4. Harvey Creek	Tributary Lake Sullivan	Pend Oreille	Cutthroat & Rainbow
5. Indian Creek	Outlet Lake Sutherland	Clallam	Cutthroat
6. Inlet Brown's Lake		Pend Oreille	Montana Blackspotted
7. Inlet Half Moon Lake		Pend Oreille	Rainbow
8. Juanita Creek	Tributary Lake Washington	King	Cutthroat
9. Matthews Creek	Tributary Lake Washington	King	Cutthroat
10. McAleer Creek	Tributary Lake Washington	King	Cutthroat
11. Smith Creek	Tributary Lake Whatcom	Whatcom	Cutthroat
12. Swamp Creek	Tributary Lake Washington	King	Cutthroat
13. Upper Satsop River	Tributary Chehalis River	Mason	Cutthroat
14. Wolf Creek	Tributary Patterson Lake	Okanogan	Rainbow

Up to the end of the biennium, March 31, 1938, the take of eggs from this unit of fourteen new fish traps was considered very satisfactory.

TROUT PLANTING EXPENSES—STATE TROUT HATCHERIES

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Salaries	$4,893 87		$5,380 40	
State cars	4,418 02		3,206 78	
Purchase new trucks	2,250 57		609 74	
Private mileage	188 85		57 40	
Fares	102 82		80 20	
Meals and rooms	1,101 88		1,151 44	
Telephone	16 29		25 20	
Freight	48 00		30 28	
Small tools and equipment	11 36		.....	
New equipment	2,046 58		.....	
Miscellaneous	60 27		543 39	
Totals	.....	$15,197 51	.....	$11,144 89

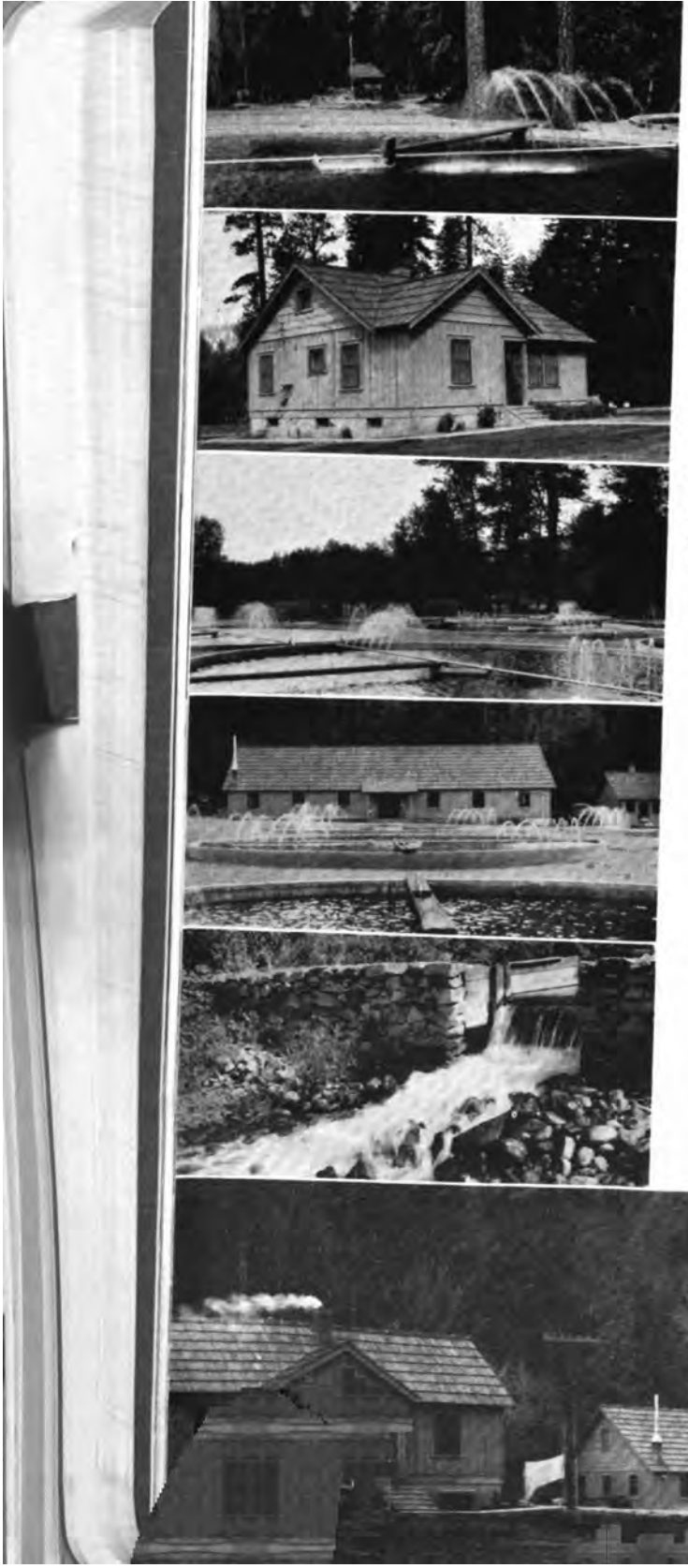
Bellingham hatchery, showing three of battery of ten rearing ponds.

Walla Walla hatchery building and ponds.

South Tacoma hatchery, with ponds in foreground.

Air view of Aberdeen hatchery ponds and buildings.

Rearing ponds at Seward Park, Seattle.



SPOKANE HATCHERY

This hatchery plant was the first completed under the Department's modernization program. It is the largest of state trout hatcheries with sixteen 40-ft. concrete circular rearing ponds, one large brood-stock pond and 96-trough hatchery. Spring water supplies ample water for ponds and hatchery.

Spawning operations. (Left) Inspecting a large steelhead ripe for egg-taking. (Center) Spawning cutthroat. (Right) Putting the measuring stick on a buck cutthroat.

Working behind the scenes are Department spawning crews. The annual take of trout eggs is a matter of great concern to hatcherymen because it determines the working capacity of the plants during the year. It is, therefore, impossible to plan ahead, to make objectives materialize in fish stocking, unless at least an average annual take of eggs is recorded. It has been pointed out in this report that shorter work hours and paved highways have been an impetus to more widespread trout fishing in Washington than in former years. This increase in fishermen has placed added responsibility on hatcherymen to show greater returns.

More Fish Planted of Large Fingerling Size

More fish of the preferred large fingerling size are being planted each year as hatchery rearing pond facilities are expanded. Fish culturists have established the fact that larger fish withstand the natural barriers to survival better than small fry. Catch records placed with resort owners have offered data which bears out the Department's practice of studied planting methods.

Sportsmen's Requests Carefully Considered

Requests from sportsmen's organizations, outdoor groups and individuals for plantings of fish in public waters are given careful thought and each request is thoroughly investigated to establish its merit. When waters comply with the conditions heretofore listed, requests are granted. Private waters cannot be stocked by the Department of Game unless the public is given free access to the lake or stream.

Refrigeration System Cuts Costs

Installation of refrigeration at the South Tacoma, Yakima, Spokane and Chelan hatcheries has proved a money-saver by lowering fish food costs. Before cold storage plants were installed, it was necessary to purchase feed frequently to avoid spoilage, and without adequate holding facilities, the cost of feed was consequently high. The Department can now purchase food in large quantities and store for an indefinite period in the refrigeration houses

at hatcheries. It is estimated that a saving of at least 20% in feed c
been effected by installing cold storage plants.

Operation costs have been reduced in the hatcheries by install
time-saving equipment, including larger meat choppers, power blow
tion pipe pumps and other modern devices and by the use of chen
cleaning rearing ponds.

Construction of the new Vancouver hatchery was nearing completion at close of the biennium.
are of the latest design and include several advanced features. The plant will take its pl
other modern Department hatchery units.

Salvage Work in Spiny-Rayed Fish

The Department's fish propagation program has been largely devoted to rearing of trout. No attempt has been made to culture rough or spiny-rayed fish such as crappie, perch and bass. Considerable work in salvaging spiny-rayed fish has been carried on. Bass, for example, are transplanted to lakes more suited to this species and in waters where there will be no conflict with trout. Fish planting crews are careful not to stock spiny-rayed fish in waters which are known to be trout habitats because of their cannibalistic nature. A total of 177,974 spiny-rayed fish were salvaged from April 1, 1936, to March 31, 1937. During the following fiscal year, April 1, 1937, to March 31, 1938, the Department salvaged a total of 96,671 spiny-rayed fish.

Visitors Attracted to State Hatcheries

Landscaping and beautification of hatchery grounds has been completed at several plants. Works Progress Administration grants have made this possible, although in many cases hatchery superintendents have taken it upon themselves to improve grounds. The hatcheries now present a more attractive appearance to visitors and have brought favorable comments from many sources. Superintendents of game farms and hatcheries have been instructed to keep state property in the best possible condition.

Many license-holders and the general public find game farms and hatcheries interesting places to visit on week-ends and holiday motor trips. Plants on well traveled highways have been hosts to large numbers of visitors. One hatchery, the Tokul Creek plant on the cross-state Snoqualmie Pass highway, had, by actual count, more than two thousand visitors during one day. This public interest in game conservation reflects the mounting desire of laymen and sportsmen to study the plan of propagation carried out by the Department of Game.

WORKS PROGRESS ADMINISTRATION PROJECTS COMPLETED

April 1, 1936—March 31, 1938

(1)	**ABERDEEN HATCHERY:** Supplementary project to previous project on the construction of complete hatchery consisting of ten 40' circular rearing ponds; one 36'x42' hatchery with 48 standard rearing troughs; one 24'x26' four room caretaker's house; one only garage, tool house and feed room; general landscaping of grounds. **Total**.....	$2,846.67
(2)	**AUBURN GAME FARM:** Clearing and levelling 20 acres of land and construction of 3,900 feet of 6' wire mesh fence. Tearing down six old buildings; building a feed house and 10 seedling pens. Painting and staining roofs of five buildings and construction of rock mortared foundation walls under two of the buildings. **Total**.....	8,954.00
(3)	**AUBURN GAME FARM:** General improvement of farm by demolishing 30 acres of old wire pens. Clearing, grubbing and levelling 20 acres of land. Building 9,420 feet of 7' rat-proof fence and relocating approximately 2,100 lineal feet of ¾" pipe in new pens. **Total**.....	18,130.00
(4)	**AUBURN GAME FARM:** Clearing and grubbing 7 acres for improvement of farm. Levelling and seeding 18 acres. Building 6 setting pens and two 150'x200' covered rearing pens; building 1,792 lineal feet of fence; remodelling garage, redecorating house and building septic tank. **Total**...	15,512.05
(5)	**BELLINGHAM HATCHERY:** Project to beautify and complete ground work at this hatchery consisting of clearing, grubbing and landscaping 5½ acres. Building approximately 100 cubic yards concrete rubble masonry and 20 yards concrete curbs; 500 yards gravel surfacing for roads and 250 lineal feet of footpaths with rustic steps as needed with 100 yards pea gravel as path surfacing. **Total**.....	4,593.58

(6) **COLVILLE GAME FARM:** Project consisting of grubbing and clearing 10 acres, plowing and seeding 2 acres, constructing 5,267 feet of 10' fences and painting and staining of buildings—approximately 2,000 square yards with repairing of buildings. **Total**..... 3,174.00

(7) **COLVILLE HATCHERY AND FARM:** General improvement by clearing and grubbing 16 acres with 1,800 yards levelling and grading. Grading and improvement of roads. Reshingling, painting and repairing of hatchery building and general repair of fences. **Total**..... 7,054.00

(8) **SOUTH TACOMA GAME FARM:** Reshingling and painting of buildings; dismantling of old sheds and constructing usable buildings. Three field houses moved to better locations and the reroofing of three sheds with 130 rolls of paper. General clearing of grounds and cleaning of ditches. Roads gravelled. Sixteen pens reseeded and trees trimmed. **Total**..... 14,294.74

(9) **SOUTH TACOMA GAME FARM:** Clearing, grubbing and levelling of 20½ acres of land with removal of 10 acres of dilapidated pens. Construction of 19,200 lineal feet of 7' rat-proof fence and installation of 4,000 feet of ¾" water main in new pens. The remodeling of six 10'x12' field houses and construction of 1,400 feet of new roads. **Total**..... 12,607.98

(10) **SPOKANE HATCHERY:** Clearing of 30 acres of land with the construction of 8,400 lineal feet of 6' rat-proof fence. Construction of nine 40' circular rearing ponds and one 67,000 square foot broodstock pond by building two hundred feet of 3' dike and one 125' dam and spillway with 6,000 cubic yards excavation on 1,400 feet of ditches, etc. **Total**..... 17,254.24

(11) **SPOKANE HATCHERY:** Construction of 24'x44' garage and one only approximately 6,000 gallon reinforced concrete tank, complete with overflow system, roof and frostproof shell. The removal of old garage building and salvaging of materials. **Total**..... 6,650.00

(12) **SPOKANE HATCHERY:** Clearing and brushing of entire grounds. General improvement of broodstock and rearing ponds by installation of 1,330 feet of drainage systems. Installation of 350 lineal feet of fire protection lines and general improvement of grounds. **Total**..... 18,684.00

(13) **TOKUL CREEK HATCHERY:** Reroofing, staining, painting and general repair of buildings. Seven acres of ground light cleared and levelled for park with small buildings, picnic tables and stove erected. New road into grounds where approximately 1 acre of ground was graded and planted for lawn with 400' curbings in place. **Total**..... 12,720.00

(14) **TOKUL CREEK HATCHERY:** Improvement of park area by clearing, grubbing and landscaping. Construction of a log shelter, rock walls, trails, roads, playfield equipment, concrete pump house and tank for hatchery outlet waters, and stuccoing hatchery building walls. **Total**.. 16,223.00

(15) **NEW VANCOUVER HATCHERY:** Construction of a complete new hatchery consisting of twelve 40' reinforced concrete rearing ponds, all needed. Excavation and fill for two broodstock ponds with all necessary supply and discharge lines, dams and intake boxes. Clearing, terracing and landscaping 6 acres of land. **Total**..... 24,223.22

(16) **YAKIMA HATCHERY:** Construction of a complete new hatchery consisting of ten 40' circular rearing ponds, excavation of three 40'x213' broodstock ponds with approximately ¼ mile ditch from creek for water supply. Complete levelling and landscaping of 5½ acres of land. Construction of one only 38'x108' hatchery with 96 troughs, freezing rooms and office. Construction of one 27'x27' five room superintendent's house, and one 24'x57' 3-car garage and storeroom. **Total**..... 24,428.58

Grand total ***$207,350.06**

* NOTE: A percentage of expenditures for Works Progress Administration projects, which is variable according to classifications of work, is appropriated by the Department of Game. Thus, the $207,350.06 total cost of all projects granted during the past biennium period is contributed by both the Works Progress Administration and Department of Game. The greater percentage of project expenditures is met from Works Progress Administration grants.

EXPENSES—EYEING STATIONS AND TRAPS

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Salaries	$5,745 75		$7,709 14	
State car	269 02		589 64	
Private mileage	52 45		92 60	
Fares	32 00		.....	
Meals and rooms	373 13		613 33	
Freight, express and packing	215 78		137 93	
Rent of land	.....		167 00	
Light, heat and water	.....		4 23	
Small tools and equipment	55 90		3 65	
Materials	.....		380 39	
Feed	.....		91 27	
Miscellaneous	2,843 62		114 87	
Totals	.....	$7,588 25	.....	$9,904 05

STATE TROUT HATCHERIES

ADMINISTRATION AND GENERAL EXPENDITURES

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Salaries and wages	$34,836 45		$40,200 85	
State cars, trucks	2,249 54		2,650 14	
Purchase new cars	2,001 45		.....	
Private mileage	328 29		703 35	
Fares—railroad, boat and stage	68 39		.....	
Meals and rooms	790 39		1,049 61	
Telephone and telegraph	339 54		384 79	
Freight and express	386 03		560 34	
Rent—traps	16 00		35 00	
Medical aid	320 55		303 39	
Light, heat and water	2,072 05		2,140 20	
Slicker coats, boots and pants	124 89		220 54	
Small tools and equipment	801 22		704 45	
Repairs—traps and hatcheries	796 04		1,086 32	
Operating state boat	2 86		1 17	
Feed—including feed in storage and salmon on hand	20,087 32		13,813 58	
Ice, chemicals and salt	34 59		.....	
Purchase trout eggs	3,108 55		4,476 34	
Seeds and lawn expense	23 88		338 95	
New equipment	5,639 41		1,002 90	
Miscellaneous	226 21		816 45	
Totals	.....	$75,354 55	.....	$70,518 37
CONSTRUCTION				
Salaries	$8,036 40		$1,984 87	
Salaries Auburn warehouse	1,243 04		.....	
State car expense	639 01		692 87	
Private mileage	.....		39 00	
Fares paid	.....		75	
Meals and rooms	.....		152 55	
Material	9,152 01		2,078 33	
Auburn warehouse	1,292 83		.....	
Totals	.....	$20,363 29	.....	$4,948 37
SEWARD PARK PONDS				
Paid by Seattle Park Department	.....	$2,998 48	.....	$2,088 86

TROUT PROPAGATION FACILITIES—STATE TROUT HATCHERIES

	HATCHERY	COUNTY	NUMBER REARING PONDS	Number Troughs	Source of Water	Number Broodstock Ponds
1.	Aberdeen	Grays Harbor	Ten 40′ circular concrete	48	Lake Aberdeen and Wynoochee River	
2.	Bellingham	Whatcom	Ten 40′ circular concrete	48	Lake Whatcom	
3.	Chelan	Chelan	Ten 40′ circular concrete	48	Beebe Springs	
4.	Colville	Stevens	Two 4′ x 30′ concrete One 10′ x 10′ concrete	68	Spring water	
5.	Chiwaukum	Chelan	One 40′ concrete circular	94	Chiwaukum Creek	
6.	Kittitas	Kittitas	Twenty-four 6′ circular galvanized rearing tanks	48	Spring water	
7.	Lake Crescent	Clallam	Two 40′ circular concrete	48	Barnes Creek	
①8.	Lake Whatcom	Whatcom		80	Brannian Creek	
9.	Naches	Yakima	Six 4′ x 20′ concrete raceways Six large dirt rearing ponds	36	Spring water	
10.	Pend Oreille	Pend Oreille	Four 4′ x 60′ concrete raceways	56	Spring water	
11.	San Poil	Ferry		48	Spring water	
12.	Seward Park Ponds	King	Ten 40′ circular concrete		Lake Washington	
13.	Skamania	Skamania		24	Creek water	
14.	South Tacoma	Pierce	Twelve 40′ circular concrete Six 6′ x 50′ concrete raceways	60	Spring water	One large
15.	Spokane	Spokane	Sixteen 40′ circular concrete	96	Spokane springs	One large
16.	Tokul Creek	King	Two 40′ circular concrete Three 10′ x 25′ concrete Two 60′ x 20′ concrete	96	Spring water and Tokul Creek	②One
17.	Vancouver (new)	Clark	②Twelve 40′ circular concrete	96	Spring water	②Two
18.	Vancouver (old)	Clark	Twelve 5′ circular concrete rearing tanks One large dirt pond	24	Spring water	
19.	Walla Walla	Walla Walla	Three 28′ circular concrete One 30′ x 135′ concrete	48	Spring water	
20.	Yakima	Yakima	Ten 40′ circular concrete	96	Spring water	Three

① Used primarily for taking silver trout eggs. A total of 29,000,000 silver eggs was taken in 1937.
② Under construction at close of fiscal year, March 31, 1938.

REPORT OF GAME FISH LIBERATED BY DEPARTMENT OF GAME
April 1, 1936—March 31, 1937

COUNTY	Black-spotted	Cutthroat	Eastern Brook	Mackinaw	Rainbow	Silver	Steelhead	Grayling	Lochleven	Total
Adams	.....	.....	4,000	.....	16,000	.....	.....	.....	.....	20,000
Asotin	.....	.....	.....	.....	45,000	.....	10,000	.....	.....	55,000
Chelan	5,823	308,822	105,500	.....	258,250	1,847,000	259,774	.....	.....	2,785,169
Clallam	.....	.....	284,197	.....	92,415	356,371	884,000	.....	.....	1,616,983
Clark	.....	49,040	58,912	.....	156,149	279,500	163,844	.....	.....	707,445
Columbia	.....	.....	.....	.....	97,000	.....	90,000	.....	.....	187,000
Cowlitz	4,000	4,000	25,000	.....	.....	201,500	636,200	.....	.....	870,700
Douglas	.....	.....	13,000	.....	.....	.....	.....	.....	.....	13,000
Ferry	15,000	.....	933,975	.....	155,140	175,000	101,235	.....	.....	1,380,350
Garfield	.....	.....	.....	.....	3,000	.....	.....	.....	.....	3,000
Grant	15,000	.....	.....	.....	9,000	.....	.....	.....	.....	24,000
Grays Harbor	9,951	.....	.....	.....	24,000	.....	467,000	.....	.....	500,951
Jefferson	4,000	4,000	10,000	.....	.....	.....	84,000	.....	.....	102,000
King	5,000	24,300	214,000	.....	383,375	895,000	413,520	.....	.....	1,935,195
Kitsap	11,000	3,700	38,000	.....	.....	20,400	4,000	.....	.....	77,100
Kittitas	.....	36,500	274,250	.....	108,650	978,524	97,800	.....	.....	1,495,754
Klickitat	.....	.....	30,704	.....	46,175	250,000	.....	.....	19,500	346,379
Lewis	10,000	7,000	34,500	.....	269,600	.....	215,215	.....	.....	536,315
Lincoln	.....	.....	4,000	.....	44,400	.....	.....	.....	.....	48,400
Mason	13,700	22,000	44,600	.....	37,500	408,000	694,000	.....	.....	1,219,800
Okanogan	.....	58,080	1,550,123	.....	267,700	319,050	88,717	.....	.....	2,283,670
Pacific	.....	.....	.....	.....	1,000	.....	518,735	.....	.....	519,735
Pend Oreille	68,640	25,000	693,000	35,830	93,000	487,840	86,145	.....	.....	1,489,455
Pierce	23,000	12,980	25,000	.....	64,563	780,000	314,750	.....	.....	1,220,293
San Juan	.....	.....	.....	.....	20,000	100,000	15,000	.....	.....	135,000
Skagit	10,000	60,000	107,000	.....	54,200	185,000	667,446	.....	.....	1,083 646
Skamania	1,550	.....	174,227	.....	60,000	54,252	.....	.....	.....	289,029
Snohomish	.....	5,000	74,920	.....	119,200	1,200,000	359,282	.....	.....	1,758,402
Spokane	10,750	.....	174,000	.....	293,150	673,800	.....	.....	.....	1,151,700
Stevens	126,130	.....	1,005,200	24,500	156,830	556,500	68,860	100,000	.....	2,038,020
Thurston	19,000	17,000	.....	.....	44,835	504,500	16,000	.....	.....	601,335
Wahkiakum	.....	.....	.....	.....	.....	.....	75,000	.....	.....	75,000
Walla Walla	.....	.....	.....	.....	28,800	.....	13,625	.....	.....	42,425
Whatcom	.....	143,130	85,000	.....	88,000	5,434,850	1,098,805	.....	.....	6,849,785
Whitman	.....	.....	56,000	.....	22,500	.....	.....	.....	.....	78,500
Yakima	3,503	15,000	228,500	.....	191,900	891,000	.....	.....	.....	1,329,903
Totals	356,047	795,552	6,247,638	60,330	3,260,332	16,598,087	7,442,953	100,000	19,500	34,880,439

NOTE—Includes fish reared by Department and received from outside sources and planted by Department.

REPORT OF GAME FISH LIBERATED BY DEPARTMENT OF GAME
April 1, 1937—March 31, 1938

COUNTY	Black-spotted	Cutthroat	Eastern Brook	Lochleven	Rainbow	Silver	Steelhead	Total
Adams			23,000					23,000
Asotin					58,555			58,555
Chelan	109,500	159,000	437,900		285,250	1,434,152	52,000	2,475,702
Clallam	93,416		124,223		94,415	246,945	730,335	1,289,334
Clark		56,788	35,127		148,816	40,000	110,500	391,231
Columbia					185,330		32,000	217,330
Cowlitz			45,000		10,000	250,043	114,000	419,043
Douglas			15,000					15,000
Ferry	3,500		1,087,105		246,412	511,725	49,179	1,897,921
Garfield					6,000			6,000
Grant			48,000		22,920	650,290	10,000	731,210
Grays Harbor		1,400			4,000		675,763	681,163
Island					2,000	50,000		52,000
Jefferson			70,000		65,000		90,000	225,000
King	11,200	20,390	233,071	22,300	267,511	2,098,930	483,654	3,137,056
Kitsap	13,000		18,000		1,994	400,000	19,491	452,485
Kittitas		120,390	362,592		136,467	487,730	47,230	1,154,409
Klickitat		45,000	20,000		60,000	102,800	18,880	246,680
Lewis			16,000		14,400	80,000	22,000	132,400
					92,480*			92,480*
Lincoln			25,000		30,800			55,800
Mason			5,000		47,050	684,520	533,298	1,269,868
Okanogan		46,000	1,042,227		90,300	1,261,337		2,439,873
Pacific							322,493	322,493
Pend Oreille	87,057	78,875	910,942		95,583	489,539	17,600	1,679,596
Pierce	57,100	3,372	16,700		27,960	1,441,719	435,350	1,982,201
San Juan			25,000		20,000	200,000	30,000	275,000
Skagit			18,500	40,000	20,000	421,000	800,000	1,299,500
Skamania		37,760	177,260		34,106	35,540	29,794	314,460
					57,200*			57,200*
Snohomish	10,000	6,222	145,052		257,553	1,568,724	307,150	2,294,701
Spokane		16,000	105,000		67,390	1,300,000	15,198	1,503,588
						1,000,000*		1,000,000*
Stevens	31,437	12,800	760,500		321,020	1,184,800	28,940	2,339,497
Thurston					11,895	250,000	22,000	283,895
Wahkiakum					5,000			5,000
Walla Walla					45,380		8,000	53,380
Whatcom	15,000	35,180	192,000		129,300	3,930,000	357,865	4,659,345
Whitman			6,500		75			6,575
Yakima		63,900	419,820		73,136	125,000	73,940	755,796
Totals	428,210	703,077	6,384,609	62,300	2,885,627	19,244,794	5,437,560	35,146,177
					149,680*	1,000,000*		1,149,680*

* Eggs.

NOTE—Includes fish reared by Department and received from outside sources and planted by Department.

VIEWS OF STATE GAME FARMS

(1) Brooder houses. (2) Broad acres of cultivated crops provide food and cover for birds on the Okanogan pheasant farm. (3) Rearing field at Kennewick farm. (4) Ellensburg farm, (5) Spokane, (6) Colville, (7) Yakima.

Game Farm Division

Pheasant chicks.

PHEASANT rearing today, like fish propagation, has progressed to a point where systematic planning, practical methods and scientific study of the factors of growth are essential to large-scale bird production. Once plentiful native upland birds, such as prairie chicken, sage hen, grouse and quail, have decreased at an appalling rate in most states and sportsmen have turned to the Chinese ringnecked pheasant for sport in the field.

The ringneck originated in that part of Asia where civilization had its start and from early times the pheasant has stood its ground in densely populated China. Reared on state game farms, the wild instinct predominates in the pheasant and he is well able to take care of himself in the field. They are regarded as among the most adaptable birds to feeding and habitation. It is because of this inherent ability to fit into varying conditions of climate that the pheasant has spread prolifically throughout the United States during the past fifty years.

Popularity of Upland Bird Hunting

Upland bird hunting is a popular pastime of thousands of license-holders each year. The Commission has met the problem of native game bird depletion, brought about by increased population and settlement of former native bird areas, with consideration for the future as well as the present. By application of sound business methods to the problems of rearing and by taking heed of past experiences, pheasant propagation in Washington has progressed to the point where a permanent and substantial increase in game birds can be obtained. It is the thought of the Commission that the present system of pheasant rearing will provide for the future, greater opportunities for recreation, sport and enjoyment of the outdoors with gun and dog.

Outlook on State Pheasant Production

A record of 139,586 pheasants liberated during the past biennium as against 60,051 planted during the previous two years is an indicator of the achievements by the game farm division. Washington is now one of the heaviest pheasant producing states. Despite this record output, bird hunters take to the field in greater numbers yearly. It should be made clear that the Commission does not intend that the farm hatch of pheasants will keep pace with the annual take of hunters. However, increased production of pheasants will provide the nucleus for more game birds reared in the wild state. In the last analysis, the domestic hatch of birds can only be supplementary to the wild hatches and game farms offer a means of creating broodstock for the wild covers.

Advantages of Open Pen System

It will be noted from the illustrations that state game farms are for the most part of the open pen type. More than 600 acres are now in operation under this system. The practical values of this form of rearing are listed herewith: (1) Open farms are more economical to construct and can be moved from place to place if occasion demands; (2) more space ratio per bird is offered over covered pens; (3) cover crops—alfalfa, clover, wheat, millet, etc.—may be cultivated more profitably while supplying birds with needed food and cover; (4) pheasants are reared under conditions as near the wild state as is known to science; (5) open pen farms can be operated more efficiently by workers; (6) by actual practice pheasants show a greater growth under the open pen system; (7) given the range of the open fields, pheasants grow stronger, obtaining the vital vitamin "A" from the cultivated farm crops; (8) disease and feather picking minimized to a low degree; (9) more insect life available.

Activity about a Washington state game farm.

Pheasant Broodstock Carefully Selected

Careful selection of pheasant broodstock is important to propagation of healthy birds. To prevent inbreeding, the Department follows a practice of selecting choice pheasants for broodstock purposes. By adding new blood to bird rearing stock, it is unlikely that pheasants produced will show domestic traits.

Each fall, game farm superintendents search for prime cocks and hens for use as broodstock the following spring. These birds are held through the winter months on game farms along with thousands of pheasants held over for spring release in the wild. Broodstock hens begin laying in late March or early April and continue to lay eggs up to June when the Department liberates all broodstock. Birds thus released generally rear a setting of birds in the wild during the summer and these young birds are matured for fall hunting.

Department Ceases Rearing of Mutants

The Department has terminated the rearing of the dark pheasant, or melanistic mutant, a bird which has been propagated on the Ellensburg game farm for several years. Experimentation on both the farm and in the wild has disclosed conclusively that this bird is unsuited to Washington. This breed has been a popular game bird in England for a century, but the Department has found it a poor investment. Upland bird hunters will doubtless uncover dark pheasants in the field in ensuing years, but the remnants will eventually be absorbed by ringneck stock since, by nature, the mutant reverts back to the ringneck stock.

Pheasants Improve Under New Ration

Various experiments have been made to lower pheasant feed costs without curtailing growth of birds. In 1936 and 1937 results of feed experiments were most encouraging. A balanced ration in mash and pellet form and of a dry nature was tested with gratifying results. Six of the nine game farms used dry feed 100% and three farms used a ratio of 50% dry and 50% wet feed. Noticeable improvement in the vitality of birds was the result of dry feeding. Diseased conditions of birds were also curtailed and plumage showed to better advantage. Labor costs were reduced through fewer feeding periods and the possibility of disease was lessened by eliminating sour or mouldy feed caused by wet feed being exposed to weather conditions.

Cultivated Crops Lower Feeding Costs

Cultivated crops such as wheat, corn, sunflower and millet were produced to supplement the artificial feeding of birds. Alfalfa hay was grown for pheasant, deer and elk feeding. Cost of winter holding of game birds was reduced as much as 50% at some farms. Corn and alfalfa provided good cover for birds during the winter holding period. Grain crops are consumed by birds without the expense of harvesting.

Chukor partridges.

Chukor Partridge Experiments Watched

Further tests are contemplated to determine practical propagation of the Chukor partridge, famed upland bird from India and Afghanistan. This bird weighs twenty-three ounces and the Hungarian fifteen ounces. Unlike its European cousin, the chukor ranges well up in the highlands from two to ten thousand feet elevation and thrives on the coarse food of high altitudes. For that reason, many believe the chukor, given protection, can flourish in the broad expanse of upland country in eastern Washington. The Department is considering construction of an experimental chukor farm adjacent to the Yakima Game Farm. Experiments are now being conducted at Ellensburg. Chukor propagation work is being watched closely and it is hoped that good results will be forthcoming.

Experiment With Imported Upland Birds

Imported upland species have been propagated successfully in America, with a few exceptions, and many states are now testing the suitability of imported birds. Observations made by the Department indicate that the Hungarian partridge, one of the best known foreign upland birds, is holding its own in Washington.

Progress Made in Combating Bird Diseases

Sanitary handling of game farm equipment, careful cultivation of crops and enlarged space ratio per bird are factors which have served to check coccidiosis, blackhead and gapes, principal diseases, during the past two years. Other important points in guarding against disease on farms and which the Department has successfully used to combat disease include: Selection of choice broodstock, improved methods of feeding, and a balanced ration. Irrigation operations on farms have been reduced and lighter crops produced, allowing for increased sunshine to destroy disease germs.

New Methods Improve Quality of Pheasants

The trend in game farm management is to eliminate frequent handling of birds. The method perfected by the Department of catching up pheasants for brailing or planting is briefly described. Traps, 4′ x 6′ x 2′, are spread over a field to catch birds at the liberation age of ten weeks. By using fifty or more traps to a field, birds are caught before they have had time to become alarmed. The pheasants are segregated at this time, cocks being dispatched for planting and hens brailed and released to open fields, where they are held for liberation. This improved plan of handling birds on the open pen farms has improved the quality of birds produced.

Methods of rearing pheasants have changed in recent years from covered pens to broad open fields.

South Tacoma game farm.

Modern hatching yard built at Auburn farm.

Holding pens for birds, South Tacoma farm.

Before construction started on enlargement of Auburn farm. Picture shows type of land cleared.

Land cleared, cultivated and ready for pheasant rearing, Auburn farm.

Improvements to State Game Farms

General modernization and improvement of state game farms and the building of one new unit has enabled the Department to produce birds efficiently and economically. Expenditure of money for new construction and expansion of farms has made possible a greater output of birds the past two years.

Factors Regulating Pheasant Plantings

As a solution to bird planting problems, which have annually faced game officials, the Department has outlined points which must be considered before granting allotments of birds. These are, briefly: (1) Population and total area of each county, (2) number of farms and crop acreage, (3) number of predatory animals taken each year, (4) climatic conditions—severe winter weather, excessive rainfall, (5) poaching, (6) the attitude taken by certain communities within the state toward the pheasant, (7) food available, (8) wild covert, (9) average yearly concentration of hunters. From a compilation of these factors, the planting of pheasants is accomplished on a percentage basis.

Photos illustrate steps in pheasant rearing from the freshly hatched chick to actual liberation of the Chinese pheasant.

Orphan fawn and cub bear, found by game protectors, find homes on state game farms. After reaching maturity, these animals are released in wild areas.

Birds Are Banded to Show Migration

Several thousand birds are banded each year to determine their migratory tendencies. Returns from tagged pheasants checked at stations during the hunting seasons indicate that pheasants do not often migrate more than two or three miles from the point of liberation.

Routine Followed in Planting Birds

The Department follows this routine in the planting of pheasants. Birds are trapped on game farms and loaded on trucks late in the evening. The birds are transported during the night to the point of planting and liberated in the wild by game protectors early the next morning, usually before 9 a. m. The largest single load of pheasants planted during the winter of 1937 was 2,000 birds, or eighty-four crates. Sportsmen are invited to witness plantings of fish and birds.

State Pheasant Rearing Area Only 11.5%

Study of the state's principal pheasant areas reveals 582 regions suitable for pheasants. Of the 4,913,300 acres in Washington the survey revealed that only 11.5% of the total acres are suitable for pheasant range. For example, counties vary in pheasant habitat, one county having a low total of .0017% suitable pheasant range, while other counties have as high as 46.2%. All bird plantings must be attested to by an individual or sportsman not a member of the Department.

Sportsmen Aid in Pheasant Liberations

The Commission is appreciative of the cooperation and interest shown by sportsmen in assisting the Department in its planting program. Particularly welcome are the large number of requests by sportsmen's clubs citing areas for planting. Reports show that birds liberated in recent years are of a higher quality and planting records reveal too, that pheasants have been liberated in greater numbers the last two years. More care has been taken in the handling of birds and pheasants are being held to a larger size before planting. All birds liberated are of shooting age.

4-H Clubs Work in Pheasant Rearing

The practice of enlisting the aid of 4-H Club members to rear Chinese pheasants for liberation in the wild was continued during the biennium. The training young boys and girls have received from home propagation of birds and their partnership in the state game restoration plan, it is believed, has had definite educational value. They are given settings of eggs by the Department and carry out all steps in the production of pheasants up to ten weeks of age, when they are returned to the state for liberation. Members of 4-H Club units sharing in this service receive the sum of 75¢ for each healthy bird suitable for planting at this age. The Department, it is pointed out, can rear birds to this size for considerably less than 75¢ per bird, but the merits of the program in every respect have justified the additional expenditure.

Great horned owls which are classed as predacious birds and destroyers of game.

Each year several hundred deer are killed on Washington highways by passing vehicles, often leaving young fawns orphans. The Department cares for orphan game life on state game farms.

Chinese Pheasant a Friend of the Farmer

That the Chinese pheasant is a friend of the farmer is borne out by observations made by Department biologists in the agricultural areas of the state. Their food during the winter months consists largely of weed seed. A large percentage of the pheasant's summer food consists of cutworms and other destructive worms, beetles and insects. In the orchard country they feed upon moths and flies detrimental to fruit crops. In many instances, farmers and orchardists have requested that pheasants be planted on their land to control insects.

Samples Show Nature of Pheasant Feed

Following are seasonal samples of the craw and gizzard contents of pheasants examined by biologists:

(King county) January, 1936	Male pheasant	—12,754 weed seeds, 90% Lady's Thumb (dock), balance sour dock and bitter dock.
(Okanogan county) August, 1937	Young male pheasant	—57 grasshoppers, 1 snail, 2 beetles, 16 chokecherry seeds, 61 dock, 98 alfalfa seeds, 615 unidentified grass and weed seeds.

BIENNIAL REPORT OF GAME BIRDS LIBERATED BY DEPARTMENT OF GAME
April 1, 1936—March 31, 1938

April 1, 1936, to March 31, 1937			April 1, 1937, to March 31, 1938		
Chinese Pheasant	Melanistic Mutant	Totals	Chinese Pheasant	Melanistic Mutant	Totals
52,876	3,526	56,402	73,896	4,708	78,604
Note—In addition the following were planted direct to counties:			Note—In addition the following were planted direct to counties:		
Received from outside sources		99	Upland birds raised by State Game Protectors		49
Purchased from 4-H Clubs		936	Purchased from 4-H Clubs		1,860
Quail trapped		312	Quail trapped		108
Mallards and Pintails		49	Hungarian partridges		128
Purchased		1,039			
Grand total for state		58,837	Grand total for state		80,749

BIRD PLANTING EXPENSES—STATE GAME FARMS

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Salaries	$2,822 00		$3,550 15	
State car	1,599 75		1,818 64	
Private mileage	139 05		168 15	
Fares	38 33		59 59	
Meals and rooms	543 71		641 64	
Telephone	36 32		37 41	
Freight	.....		9 65	
Miscellaneous	16 93		25 14	
Totals	.....	$5,148 99	.....	$6,310 37

STATE GAME FARMS—ADMINISTRATION AND GENERAL EXPENDITURES

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Salaries and wages	$32,478 94		$34,044 06	
Private mileage	236 00		364 55	
State car expense	2,886 78		2,164 54	
Purchase new cars	1,372 13		.....	
Fares—Railroad, boat and stage	65 56		.....	
Meals and rooms	900 95		1,084 91	
Telephone and telegraph	523 00		453 80	
Postage	3 12		1 61	
Freight and express	212 53		211 64	
Rent of land	1,600 00		1,780 00	
Medical aid	1,969 39		1,959 12	
Light, heat and water	1,021 02		2,617 16	
Groceries and kitchen supplies	338 13		1,109 82	
Repairs—Pens and buildings	195 78		163 96	
Ammunition for vermin control	400 94		209 82	
Feed birds	26,754 72		29,565 11	
Feed animals	.....		459 97	
Purchase game birds	1,375 00		1,264 50	
Purchase birds—4-H Club	702 00		1,418 50	
Purchase game bird eggs	22 00		40 00	
Purchase hens	5,344 25		6,761 75	
Seeds and plowing	1,651 82		1,658 22	
Chemicals	629 27		730 02	
Small tools and equipment	861 77		799 00	
Brails	773 44		937 03	
Purchase equipment and horses	4,587 28		1,839 02	
Miscellaneous	203 28		421 21	
Totals	.....	$87,709 10	.....	$92,050 32
Less credit for broody hens sold at close of rearing season	.....	$3,258 51	.....	$3,657 01
Less credit for sale of sacks	.....	$54 30	.....	$317 43
Live trapping expense	.....	$97 45	.....	$33 46
CONSTRUCTION—				
Salaries	$5,110 87		$8,422 75	
Salaries Auburn warehouse	1,243 65		710 18	
Materials	16,020 50		7,476 79	
State car expense	572 37		743 33	
Private mileage	.....		39 40	
Meals and rooms	.....		303 80	
Auburn warehouse	1,292 81		988 74	
Miscellaneous	.....		15 45	
Totals	.....	$24,245 60	.....	$18,700 44

STATE GAME FARMS

SPECIFICATIONS AND PROPERTIES

ACREAGE AND TYPES OF LAND	Auburn	Colville	Ellensburg	Kennewick	Okanogan	South Tacoma	Spokane	Walla Walla	Yakima	Totals
Total acres all game farms	160	40	50	40	100	100	80	40	80	690 acres
Total acres in farms state owned	160	40	.....	.....	.....	100	80	40	.....	420 acres
Total acres in farms rented	.....	.....	50	40	100	.....	.....	.....	80	270 acres
Irrigated land bird rearing	.....	.....	50	40	70	.....	.....	.....	70	230 acres
Dry land for bird rearing	60	30	.....	.....	.....	70	20	30	.....	210 acres
Acres suitable for bird rearing	60	30	50	40	70	70	20	30	70	440 acres
Land not suitable for bird rearing	100	10	.....	.....	30	30	60	10	10	250 acres
Yearly rental on farms	.....	.....	$500	$400	$400	.....	.....	.....	$375	$1,675
BROODER HOUSES, INCUBATORS AND CAPACITY—FIELD SHACKS										
Brooder houses—16′×50′	.....	.....	.....	.....	.....	6	.....	4	.....	10
Brooder houses—10′×10′	.....	.....	.....	.....	42	12	10	10	.....	74
Brooder houses— 5′× 5′	5	.....	.....	.....	.....	5	10	2	.....	22
Brooder houses— 8′×14′	.....	.....	.....	.....	.....	.....	.....	14	.....	14
Capacity brooder houses	.....	.....	.....	.....	8,000	6,500	3,000	7,200	.....	24,700
Jamesway incubators	.....	.....	.....	.....	1	1	1	2	.....	5
Capacity incubators—eggs	.....	.....	.....	.....	12,000	6,000	3,000	7,500	.....	28,500
Field shacks	.....	2	3	2	3	4	2	.....	2	18
Bird capacity	6,000	6,000	10,000	10,000	10,000	10,000	6,000	10,000	10,000	78,000

WINTER SURVEY BY DEPARTMENT BIOLOGISTS SHOWING DEER SEX RATIO

Winter 1937-1938

AREA	Does	Fawns	Bucks	Total	Ratio Bucks to Does	Ratio Does to Fawns
Touts-Coulee	251	251	54	556	1 to 4.6	1 to 1.00
East of Methow	161	177	60	398	1 to 2.7	1 to 1.10
West of Methow	281	314	87	682	1 to 3.2	1 to 1.11
Twenty-five Mile Creek	113	118	37	268	1 to 3	1 to 1.04
Lake Chelan (above Twenty-five Mile Creek)	104	130	39	273	1 to 2.7	1 to 1.25
Mad River	173	180	43	396	1 to 4	1 to 1.04
Mission Creek	132	154	69	355	1 to 1.9	1 to 1.17
Totals	1,215	1,324	389	2,928	1 to 3.1	1 to 1.09

Approximately 80% of yearling mule deer bucks are 2 points or more.

At start of hunting season 60% of bucks are yearlings approximately 16 months old.

A kill of 50% of all bucks will still leave a buck increase sufficient to take care of 20% doe increase and keep a 1 to 3 ratio.

1936-1937 DEER KILL

	1936	1937	Percent Increase or Decrease
State total	5,114	5,651	Increase 11%
Eastern Washington	3,981	3,557	Decrease 11%
Western Washington	1,005	2,094	Increase 91%
North Central Washington (Chelan, Okanogan, Ferry)	2,705	2,372	Decrease 12%
Northeastern Washington (Spokane, Stevens, Pend Oreille)	638	637	Decrease .1%
Southeastern Washington (Garfield, Columbia, Walla Walla, Asotin)	220	244	Increase 11%
South Central Washington (Kittitas, Klickitat, Yakima)	418	304	Decrease 27%
Olympic Peninsula (Clallam, Kitsap, Mason, Grays Harbor, Jefferson)	311	558	Increase 79%
Western Washington (Without Olympic Peninsula)	784	1,536	Increase 96%
Western Washington (Without islands)	1,031	1,657	Increase 61%

Note—Due to failure of some hunters to return big game seal cards, this report is incomplete. Return of cards approximates 85% of the total number of big game tags issued during 1937.

1936-1937 ELK KILL

1936 County	No.	1937 County	No.
Clallam-Jefferson (Blue Mountains)	278	Columbia	45
		Garfield	47
Asotin, Garfield and Columbia	100	Jefferson	811
Kittitas	50	Kittitas	40
Yakima	177	Yakima	70
TOTAL	605	TOTAL	1,013

Note: Due to failure of some hunters to return big game seal cards, this report is incomplete.

Game Management Division

GAME conservation is the wise use of wildlife. Before the pioneer era and expansion of American frontiers, nature carried out its own plan of game management, maintaining a balanced condition in relation to wildlife species. This natural balance has been disrupted with the advance of civilization and game life can no longer overcome the many handicaps which impede its growth. As this natural balance was destroyed, conservation agencies have advanced methods to care for the welfare of wildlife.

Buck deer in velvet

Department's Game Management Plan

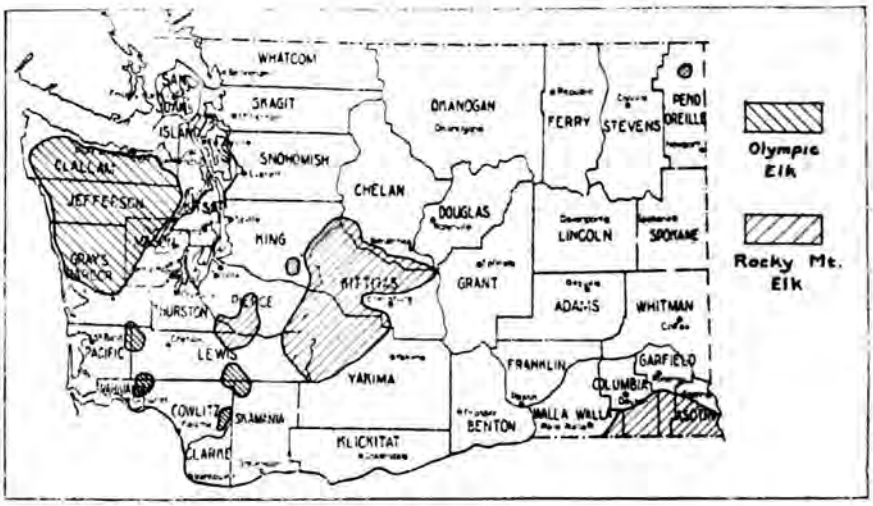
In the state of Washington, the challenge of maintaining a crop of game which will stand yearly harvesting has been given serious consideration by the Commission. Department of Game biologists are now engaged in research studies which are directed at the common problems affecting wildlife's balance of power—disease, predators, range abuse and forage for big game. To methodically survey big game range conditions, the Department has assigned trained game biologists to make seasonal studies of the principal elk and deer areas of the state. First hand knowledge of the problems underlying big game growth is invaluable to the Commission in intelligently administering and regulating seasons for license-holders.

Purposes of Big Game Survey Work

Big game surveys have several definite purposes: To plan and carry out a practical and constructive game management plan or program for the administration of the game of the state; to determine definite scientific facts and data on which to base game administration, management of game preserves, opening, closing and length of seasons. This is accomplished by first determining the kill by hunters, which information is noted on cards received by the Department; by ascertaining the rate of reproduction by doe-fawn counts; by computing losses from predators, parasites, diseases and other factors. Through planned surveys data is also obtained which shows the buck ratio during the winter—buck-doe counts, range and food conditions, food preference of game, ways to safeguard the future food supply of game and initiation of plans to combat problem areas, caused by over-population, is also given careful attention. From facts derived from seasonal big game surveys, manipulation of game reserves and control of hunting seasons, the Department is providing an annual harvest of big game. Every effort is being put forth to insure a maximum production.

The Department has a game biologist whose duties include the study of wildlife conditions and the planning of means to insure proper management of the state's game life resources. As a result of seasonal surveys in game areas, the Game Commission has been given a comprehensive report of the vital factors controlling the growth and decrease of wildlife in Washington.

WASHINGTON STATE ELK RANGE



Sportsmen Urged to Return Game Cards

Return of big game cards recording the kill of game is requested by the Commission. Many sportsmen have cooperated in this detail but there are still a large percentage of big game seal tags issued of which the Department has no record. Returned cards are helpful to the Commission in regulating big game areas and seasons.

Summer and Winter Surveys Conducted

Summer and winter big game surveys were conducted by the Department during the period April 1, 1936, to March 31, 1938. The first survey, a two months' study of game conditions in the Rattlesnake Game Reserve, Yakima county, was completed during the summer of 1936. It was made by the Department of Game in conjunction with biologists of Washington State College. The survey had two principal objectives: (1) To determine the relative concentrations of elk and deer on the Rattlesnake Reserve and the extent to which these conditions had affected the range and its future carrying capacity. Main interest was centered on elk, although deer were given some attention; (2) obtaining data on the summer ranges of both deer and elk and their concentration points at this season.

Game authorities made the first stocking of Rocky Mountain elk in the Rattlesnake Reserve more than two decades ago and the initial plant has shown a heavy increase. It is estimated that elk number several thousand in the region of the southern portion of the Cascade Mountains.

A winter survey of the Rattlesnake Reserve was conducted as a continuation of the summer game management studies. The Department biologists were given valuable assistance by instructors and students of Washington State College. The Rattlesnake Reserve includes all elk wintering in the area between the Naches and Tieton Rivers. The duration of this survey extended from November, 1936, to January, 1937. Estimated count of elk in this region was 2,055.

Study Chelan, Pend Oreille Deer Conditions

Results of a survey conducted during the winter of 1937 in Chelan County showed deer in good condition. Survey of deer in Pend Oreille county was made during the same winter period and general observations indicated that deer were in comparatively good condition. Statewide surveys of big game refuges were made during the summer of 1937 and the winter of 1938, following along lines of previous surveys.

Conclusions from Game Management Surveys

As a result of game research conducted during the past biennium, Department biologists have made these conclusions:

(a) Deer and elk are increasing over most of the state, except for a few limited concentration areas, where the population is near to capacity and losses are larger.

(b) Buck deer are increasing rapidly in spite of the heavy annual kill.

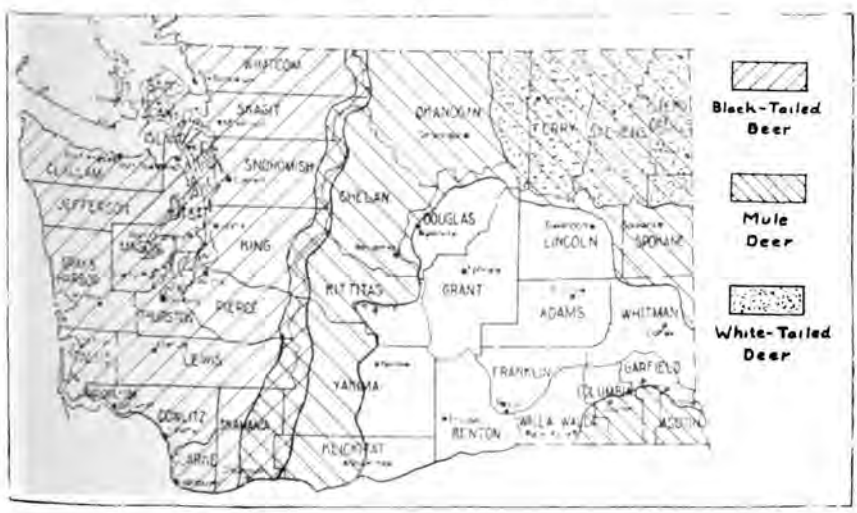
(c) Possibility of buck shortage is lessened with the present system of game reserves and seasons in effect. With continued surveys conducted yearly, more information will be obtained and practical conclusions arrived at with greater consistency.

Big game research studies are a regular part of game biological work and surveys are made to improve boundaries of refuges. New refuges are being created to cope with new and changing conditions confronting the Department in the conservation of big game in Washington.

Biologists Study Crop Damage Problems

Biologists are also studying methods of preventing game damage to crops and property while considerable time and study has been given to the migratory tendencies of beaver. Beaver were tagged in 1937 to determine the percentage of transferred beaver which migrate back to damaged areas. Protectors spend much time during the year steel and live trapping beaver from regions where they are found destructive to property.

WASHINGTON STATE DEER RANGE



APPROXIMATE GAME RESERVE ACREAGE OF WASHINGTON

December 1, 1937

County	*Acres*
Adams	1,200
Asotin	26,720
Benton	22,582
Chelan	174,220
Clallam	70,070
Clark	2,590
Columbia	70,740
Cowlitz	12,800
Douglas	24,680
Ferry	176,600
Franklin	62,720
Garfield	35,858
Grant	44,843
Grays Harbor	16,360
Jefferson	259,645
King	141,960
Kitsap	20,900
Kittitas	85,480
Klickitat	46,300
Lewis	2,700
Lincoln	11,320
Mason	22,400
Okanogan	352,700
Pacific	4,640
Pend Oreille	117,120
Pierce	64,278
San Juan	6,690
Skagit	7,300
Snohomish	150,709
Spokane	71,410
Thurston	14,700
Walla Walla	24,520
Watcom	860,300
Whitman	15,440
Yakima	143,709
No reserves in Stevens, Skamania, Island and Wahkiakum Counties.	
TOTAL	3,166,204

NOTE: This includes both reserves closed to all hunting and reserves closed only to migratory waterfowl hunting.

Olympic Peninsula Elk Observations

Big game hunters took approximately the number of elk on the Olympic Peninsula as had been predicted by Department of Game biologists for the season of 1937. However, the number of hunters present in Jefferson county were more than anticipated. For the most part, elk killed were resident herds, elk which feed along bottoms most of the year and scatter parasites in the vicinity. It is felt that elimination of some of these animals will relieve over-browsed conditions in the region—creating better food and range conditions for elk which come down from the highlands to winter in the bottoms.

Elk Losses From Over-Browsed Conditions

Studies of Roosevelt elk conditions on the Olympic Peninsula were conducted by the Department of Game and the United States Forest Service during the winter of 1937, revealing heavy losses on the Hoh, Queets and Quin-

ault watersheds. The elk loss, which is directly attributed to an over-browsed condition in this region, is listed conservatively at five hundred animals. In areas showing serious depletion, it was found that the entire reproduction of the previous year was lost.

Elk Browse, Migrations and Range

Elk annually migrate to the same winter feeding grounds after snow has covered their summer range. Heaviest concentrations of elk during winter are found along the river bottoms and lower benches. Although there is an insufficiency of natural food, elk will not leave ranges on which they first wintered as calves, returning each year. The survey showed that elk losses were heaviest on the Hoh and Quinault Rivers.

Effect of Range on Roosevelt Elk

Elderberry and salmonberry are almost entirely gone on most of the over-browsed winter range areas. Huckleberry and vine-maple are the principal remaining foods, but the diminished supply has reached the point where its yearly growth is insufficient to support elk. Hemlock and spruce have served as foods in many instances. Inspection of animals indicates that quality of food rather than quantity has caused the high number of deaths on the Peninsula—malnutrition, rather than starvation. Other factors in elk depletion are liver fluke and heavy lung worm infestations found in most of the area.

Washington is famed for its Olympic and Yellowstone elk.

Spawning of cutthroat, showing modern type traps built during the biennium.

Fish Biological Division

SCIENTIFIC research of the biological factors relating to fish life has been an integral part of the Department's trout propagation program the past two years. Work of this division is covered under the heads of trout tagging, catch records, feeding experiments, disease and hatchery sanitation, water diversions, fish ladders, pollution and lake and stream survey. Trained fish biologists, graduates of the University of Washington School of Fisheries, have been employed to carry out the Department's program of scientific research into hatchery plants and public waters.

The State's New Biological Program

Of prime importance to the future of trout propagation in Washington is the Department's new biological program, which was formulated during the winter of 1938. Under this plan the state has been divided into districts, shaped by their accessibility, size and intensity of fishing. A trained biologist capable of carrying on research work will be stationed at each biological district. Two research areas are already established. In eastern Washington, area No. 1 consists of Spokane, Pend Oreille, Ferry and Stevens counties, and in western Washington, area No. 2 includes King and Snohomish counties.

Fish Planting Data Gathered, Compiled

Biologists assigned to this work ride fish planting trucks to lakes and streams, making surveys of water temperatures, chemical contents of waters, food values and important fish planting data. Each biologist is supplied with scientific equipment for testing and survey work. Research data gathered in this manner is compiled and kept available at hatcheries to govern future plantings of fish. Greater returns from stocking of trout will be possible with the taking of accurate lake and stream planting data. Information assembled from biologists' surveys will be coupled with data recorded from fish catch records, thus giving the Department a working knowledge of the fish requirements of state public waters. The new planting program is an improvement over the old plan which sent biologists to lakes and streams only during the summer months. This gave but a partial cross-section of the biological condition of public waters.

Department's Use of Fish Catch Records

One of the most helpful methods advanced to determine numerical and species ratios of fish in public waters is the Department's use of catch records. This census of sportsmen's take of trout is obtained in three ways. The first

Resort owners cooperate with game protectors in recording the fish catch of anglers. Catch records are supplying much useful data for biologists.

source of returns comes from catch records compiled by game protectors in the field. This report includes listing of trout species caught, number of fish checked and number of fishermen. Notation is made on the report whether the fisherman was checked in the forenoon or afternoon.

Resort Owners Cooperate in Creel Census

Resort owners, cooperating with the Department in its endeavor to ascertain fishing results obtained from public waters, furnish the second source of information. For the most part, fish biologists have received helpful cooperation from resort owners asked to join in the fish survey. About eighty-nine lakes have been placed under observation. Catch records are an indication of the number and species of fish taken from the more popularly fished lakes.

The game-minded sportsmen who voluntarily offer to register their take of fish with the Department supply the third source of catch record data. These men are usually experienced fishermen and their catch is relatively high.

Policy on Water Rights and Diversions

Granting of certain water diversion rights has many times hampered the Department in its fish production program. Through the cooperation of the Division of Water Resources of the State Department of Conservation and Development, the Department of Game now receives information relative to issuing all water rights, and has the privilege of protesting the granting of an application for a water diversion. A careful check is made on all applications and the temperature of water, stream flow and intensity of fishing are all duly considered. Based on a summary of this information suitable screening precautions are required when necessary. The Department endeavors to minimize as much as possible the detrimental effect of these diversions on fish life.

Problems Faced in Guarding Fish Migration

Expansion of industry and public utilities throughout the state—building of power dams, irrigation diversions and other water projects—presents a difficult problem for Department fish biologists for these projects curb the upstream passage of migratory fish.

Biologists' Tests in Fish Tagging

Closely aligned to the biological study of public waters and system of catch records is the Department's program of trout tagging. The principal purposes are: Obtaining returns from hatchery planted fish, rate of growth and checking migratory tendencies. By interpreting this data, the Department is able to determine the size at which fish may be planted with greatest returns and lowest cost. First returns from young steelhead tagged in July, 1937, have been registered. These fish were held eighteen weeks before being released in the Green River, King county, after close of the regular fishing season in October, 1937. Planting was made fifty miles up from the mouth of Green River at the Tacoma Water Works dam. The tagged fish had nearly six months to migrate out to salt water before the opening of the regular fishing season on April 24, 1938. Results of the experiment will, it is believed, furnish new data on the life history of the steelhead.

Substantial Saving Made in Fish Foods

Biologists have continually strived the last two years to prepare a better diet for fish. Search for fish foods which would include both the features of low cost and high vitamin content for hatchery use has received year-around study. The following conclusion may be made from fish food experiments: A higher percentage of meal may be included in the diet of fish. This supplement of meal lowers the total water content of the diet with increased food value. Formerly it took 3½ pounds of food to grow a pound of fish but the meal portion lowers the amount of food to 1½ pounds for the same growth. The approximate saving in food cost per pound of fish is the difference between 30c and 15c.

Fish biologists tagging young steelhead to determine their migratory tendencies.

Pollution Causes Untold Losses of Fish

The question of water pollution and its effect on fish life has caused widespread discussion among sportsmen and conservationists the past year. The Department of Game has assigned biologists to research in the field of pollution and has constantly striven to free lakes and streams of polluted conditions. It is known that industrial and municipal pollution causes untold losses of fish life yearly in the United States.

Although Washington has escaped the huge losses that pollution has caused to fish life of other states, it nevertheless has a potent pollution problem of its own. Sportsmen's organizations have lent their efforts to the cause of fish life and through many avenues of approach have worked to free lakes and streams of pollution. The Commission commends this active and cooperative interest.

Departments Form Pollution Commission

Control of pollution conditions is now vested in a body formed of the directors of four state departments: The Department of Fisheries, Depart-

Pollution scene showing mill waste in lake water. Lower, same location after wall had been constructed to stop flow of waste.

Laboratory routine at the new pollution laboratory at Purdy on Puget Sound.

ment of Game, Department of Health and Department of Conservation and Development; known as the State Pollution Commission. For years the problems of pollution in its many forms have been administered and treated separately by each of the four departments controlling natural resources. It is hoped that under the present plan of administration much will be accomplished in this important field. Pollution problems as they occur will be faced cooperatively by the directors forming the Commission. Under the Pollution Commission a fund has been provided by these four departments for operation of a laboratory at Purdy, five miles north of Gig Harbor on Puget Sound. Chemists and biologists stationed there will conduct tests and experiments on the effect of polluted waters to fish life.

Efforts Made to Insure Hatchery Sanitation

The fish biologist enters very definitely into the field of hatchery sanitation. Rigid rules are in effect which require cleanliness and sanitary handling of hatchery equipment. Separate equipment is used, for example, on different lots of fish. When the mortality of a lot of fish exceeds the natural loss, the diseased lot is promptly isolated and all equipment is given a soaking or dipping in a solution of high chlorine content.

Feed Experiments Show Food Values

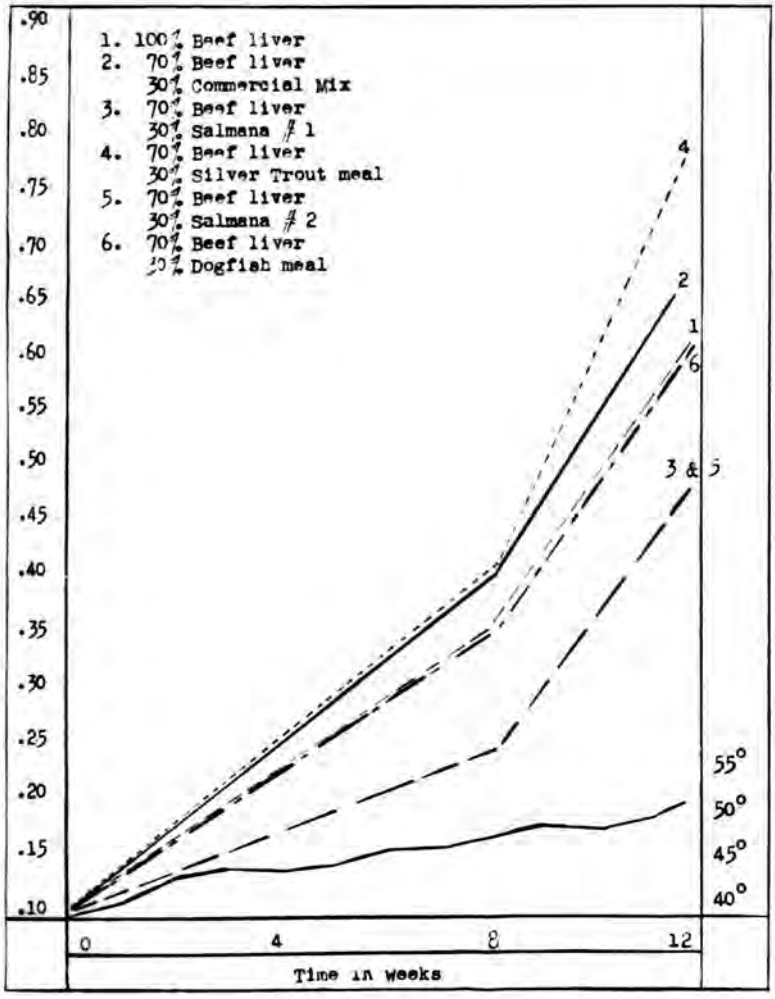
Experiments have been made in each state hatchery in order to determine how each species of trout reacts to diets used under varying conditions. Biologists have recently tested the value of salmon viscera with the view to reducing the quantity of liver and spleen fed.

The substantial saving in fish food costs is due to experiments and studies conducted by Department biologists in fish diets and foods. If these tests had not been carried on the cost of fish propagation would be much higher, liver having been one of the principal items of fish foods.

BROOK TROUT

Summary of Feeding Experiment Conducted at State Game Department's Hatchery No. 2 on Six Different Diets. Experiment Time, 12 Weeks—Initial No. of Fish Per Trough, 6,000

Lot No.	DIETS	Initial Average Length in Cms.	Final Average Length in Cms.	Per Cent Gain in Length	Initial Average Weight in Grams	Final Average Weight in Grams	Per Cent Gain in Weight	Condition Factor	Mortality Number	Per Cent Mortality	Total Weight of Food Fed in Grams	Efficiency Factor	Lbs. of Food to Produce 1 Lb. of Fish	Cost to Produce 1 Lb. of Fish
1	100% Beef Liver	1.84	3.44	87.0	.095	.67	605.0	1.6	251	4.2	12,375	.27	3.7	0.185
2	70% Beef Liver 30% Commercial Mix	1.84	3.51	90.8	.095	.73	668.0	1.7	262	4.4	6,300	.58	1.7	0.082
3	70% Beef Liver 30% Salmana No. 1	1.84	3.27	77.7	.095	.52	447.0	1.5	1,176	19.6	6,300	.33	3.0	0.148
4	70% Beef Liver 30% Silver Trout Meal	1.84	3.60	95.7	.095	.85	792.0	1.8	267	4.5	6,300	.69	1.5	0.075
5	70% Beef Liver 30% Salmana No. 2	1.84	3.28	78.3	.095	.52	447.0	1.5	1,107	18.5	6,300	.33	3.0	0.132
6	70% Beef Liver 30% Dogfish Meal	1.84	3.51	90.8	.095	.65	563.0	1.5	263	4.4	6,300	.51	1.9	0.101



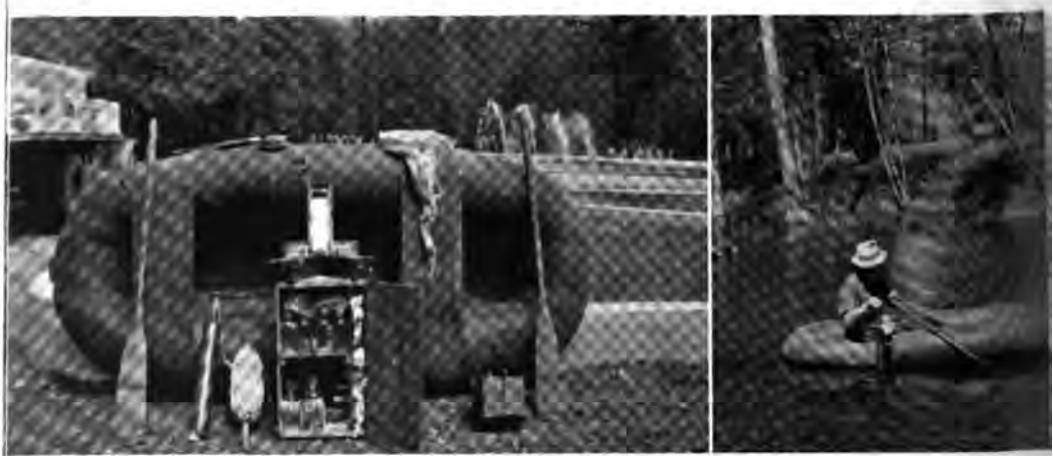
Steps Followed in Remedying Fish Disease

Analysis of fish disease causes is one of the vital problems studied by Department biologists. It is known that thousands of fry, fingerlings and fish eggs are lost each year for various reasons. An accurate file of all disease cases studied, epidemics and contagion is kept by the Department together with the progress experienced in remedying each disease. There is a maximum limit of growth to which fish can be forced with present artificial diets. This limit may vary with different lots of fish, water temperatures and types of food fed. This problem alone warrants exhaustive study. Tests have demonstrated that over-crowding and over-feeding of fish, like disease, contribute largely to yearly losses in hatcheries.

Activities of Lake and Stream Survey

A comprehensive lake and stream survey plan is one of the fundamentals of a state's biological program. Such important features of lakes and streams as depth, size, charting of shallows, landmarks and objects of a physical nature are basic features of a survey. Chemical analyses of water temperatures and amount of dissolved gases all enter into a survey of this form. Chemical tests are variable at different seasons and observations are made at different times during the year.

In making stream surveys other factors must be considered and are being studied by Department biologists. The survey of chemical properties of streams is conducted similarly to lakes. Physical studies deal primarily with obstructions which retard spawning migrations of fish upstream. Streams usually contain less food value than lakes, therefore, fish are smaller and fewer in number. Pollution problems are greater in streams because they cover longer distances and come in contact with more detrimental causes of pollution.



Equipment used by fish biologists in making lake and stream surveys.

Services of Press, State, Federal Agencies

The State Game Commission wishes to commend the cooperation of many agencies which have worked with the Department of Game during the past two years on development projects and game conservation objectives. The Washington state press has been fair and cooperative in a number of helpful ways, while the United States Forest Service, United States Bureau of Biological Survey, United States Bureau of Fisheries and Federal Works Progress Administration have each assisted and joined with the Department in the development of important conservation plans and problems. State agencies, the Department of Fisheries, Department of Health, Department of Conservation and Development, Department of Agriculture, State Attorney General's office and other state department units have proved of valuable aid to the Department of Game during this biennium.

Cooperative aid given the Department by the University of Washington School of Fisheries, International Fisheries and Washington State College has been of definite assistance to biologists in overcoming many scientific prob-

lems which have confronted the Department the past two years. Dr. Lauren Donaldson of the University of Washington School of Fisheries, Dr. W. F. Thompson of the International Fisheries and staff members of the Division of Game Management, Department of Zoology, Washington State College, have given the Department of Game biological division much technical advice. Libraries and laboratories have been opened for use by the Department. The Western Washington Experimental Station, Puyallup, has also proved of helpful aid the past two years.

The Washington State Game Commission wishes to express its appreciation for this friendly, cooperative service.

GENERAL EXPENSES—FISH AND GAME SURVEYS
April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	April 1, 1936, to March 31, 1937		April 1, 1937, to March 31, 1938	
	Game Surveys	Lake and Stream Surveys	Game Surveys	Lake and Stream Surveys
Salaries	$1,128 21	$2,986 77	$2,102 05	$4,595 49
State car expense	236 21	731 38	622 43	913 41
Purchase new car	496 00	.....	.....	.....
Private mileage	102 75	332 15	37 00	769 65
Fares—railroad, boat and stage	5 95	40 35	12 95	33 50
Meals, rooms and berths	327 25	497 91	542 92	694 06
Telephone and telegraph	2 27	.....	6 08	.....
Freight and express	45	4 61	.....	2 33
New equipment and small tools	4 10	167 28	.....	296 10
Pictures and films	.....	.....	35 44	24 12
Scientific supplies	.....	50 05	.....	14 36
Stream improvement and construction	.....	396 35	.....	30 14
Boat expense	.....	25	.....	8 80
Feed—experimentals	.....	52 75	.....	34 27
Miscellaneous	81 80	99 51	74 21	152 00
Totals	$2,385 89	$5,350 36	$3,500 08	$7,569 19

Trained Biologists Assigned to Fish Problems

Graduate fish biologists of the University of Washington School of Fisheries have been added to the staff of the biological division during the biennium. Bringing into the Department the training and educational background in fish culture obtained from one of the nation's foremost fisheries schools, these biologists have been assigned difficult problems in fish feeding diets and disease. The trend of game management and wildlife conservation among state and federal agencies is requiring of applicants a sound educational and scientific foundation. In several states, fisheries and game management courses have been included in the curriculum of universities and colleges.

Schools Play Part in Wildlife Conservation

In the State of Washington, many grade and high schools are encouraging organization of wildlife clubs while special instruction and courses of study are provided in game conservation and nature lore. Instruction in wildlife conservation is of direct benefit to the state in its efforts to safeguard the future of Washington game and fish resources. Such courses are also helpful to children, for they teach the intrinsic value of wildlife and its recreational advantages. The Department of Game has carried on an extensive program of conservation education in public schools throughout the state during the past two years. Educational talks and movie-lectures have been made available to grade and high schools and a great number of schools have been given wildlife instruction in this way.

PREDATORY ANIMAL BOUNTIES

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

COUNTY	April 1, 1936, to March 31, 1937			April 1, 1937, to March 31, 1938		
	Coyote	Bobcat	Cougar	Coyote	Bobcat	Cougar
Adams	$215 00	.....	.....	$807 50	.....	.....
Asotin	23 00	$30 00	.....	118 50	$25 00	.....
Benton	816 00	35 00	.....	1,034 50	35 00	.....
Chelan	121 00	180 00	.....	93 50	60 00	$75 00
Clallam	8 00	1,470 00	$1,275 00	26 00	795 00	750 00
Clark	82 00	230 00	100 00	195 00	115 00	.....
Columbia	82 00	115 00	.....	192 50	50 00	50 00
Cowlitz	48 00	600 00	200 00	143 50	425 00	100 00
Douglas	241 00	25 00	.....	359 00	50 00	.....
Ferry	57 00	115 00	.....	430 00	100 00	500 00
Franklin	173 00	5 00	.....	321 00	.....	.....
Garfield	125 00	.....	.....	99 50	.....	.....
Grant	1,041 00	90 00	.....	2,162 50	90 00	.....
Grays Harbor	9 00	795 00	150 00	52 50	475 00	.....
Island	.....	.....	.....	.....	.....	.....
Jefferson	.....	470 00	$25 00	7 50	355 00	775 00
King	102 00	1,045 00	25 00	650 00	770 00	100 00
Kitsap	.....	15 00	.....	.....	35 00	.....
Kittitas	145 00	135 00	25 00	286 00	70 00	.....
Klickitat	354 00	335 00	.....	850 50	240 00	500 00
Lewis	73 00	1,555 00	200 00	204 50	770 00	400 00
Lincoln	306 00	65 00	.....	694 50	20 00	.....
Mason	4 00	235 00	200 00	2 50	110 00	325 00
Okanogan	798 00	570 00	25 00	1,569 00	230 00	300 00
Pacific	33 00	610 00	.....	68 50	430 00	.....
Pend Oreille	22 00	.....	.....	115 50	5 00	.....
Pierce	70 00	525 00	.....	159 50	290 00	125 00
San Juan	.....	.....	.....	.....	.....	.....
Skagit	39 00	590 00	.....	116 00	290 00	.....
Skamania	31 00	115 00	400 00	121 00	175 00	1,150 00
Snohomish	70 00	675 00	.....	324 50	425 00	.....
Spokane	158 00	5 00	.....	332 00	5 00	.....
Stevens	325 00	155 00	25 00	967 50	65 00	.....
Thurston	2 00	60 00	.....	30 00	105 00	.....
Wahkiakum	3 00	205 00	.....	13 50	180 00	50 00
Walla Walla	56 00	.....	.....	96 00	.....	50 00
Whatcom	12 00	330 00	325 00	26 00	215 00	1,500 00
Whitman	81 00	.....	.....	177 50	.....	.....
Yakima	334 00	130 00	.....	764 50	115 00	.....
Totals	$6,097 00	$11,575 00	$3,775 00	$14,190 00	$7,120 00	$6,750 00

Note—By act of 1937 Legislature bounty payments were changed from Cougar, $25.00; Bobcats, $5.00; Coyotes, $1.00, to the following basis, effective June 9, 1937: Cougar, $50.00; Bobcat or Lynx, $5.00; Adult Coyotes, $2.50 and Coyote pups, $1.00 each.

Ducks feeding on a Washington game refuge.

Education and Public Relations

THERE is a growing feeling among conservationists that education should play a more conspicuous part in wildlife restoration. The theory advanced deals with the point that many of the serious and practical problems confronting state departments of game can be satisfactorily solved through the medium of education. In a great many instances school children, sportsmen and laymen can be approached through educational medias and the foundation for much future good laid.

The part public relations play in arousing public interest in wildlife conservation was clearly demonstrated throughout America during the national observation of National Wildlife Restoration Week, March 20-26, 1938.

Need of Education in Game Conservation

During the past biennium definite strides have been made to apprise the public of the educational aspects of game conservation. Programs have been prepared to instruct in nature lore, wildlife propagation, game restoration, and in the recreational features of hunting and fishing.

Films Tell Story of Conservation

Visual education has proved an effective medium for instructing school children and informing sportsmen on all phases of the Department's work. Moving pictures are generally accredited as a practicable and worthwhile plan of public instruction. The Department moving pictures consist of 16 mm. silent film. Four half hour reels are available and the film is about ninety per cent in natural color. The reels contain the following texts:

(1) **Washington's Wildlife Heritage**—depicts game life in natural habitat and illustrates how game management methods are conserving game.

(2) **Pheasant Rearing**—an educational travelogue around the state, showing game farms, routine of pheasant production and the propagation methods used by this division.

(3) **Trout Culture**—from spawn taking to stocking of public waters. This reel gives the scientific side of modern trout propagation.

(4) **Field and Stream**—the recreational side of game life—hunting and fishing as popular outdoor sports.

Scope of Film Showings, Lectures

Individual showings of films during the past two years numbered 210 with approximate attendance totaling 66,103—actual show hours aggregated 262. Requests for movie programs were received from many sources—public schools, colleges, sportsmen's clubs, outdoor groups, service clubs and various miscellaneous organizations. Especially encouraging is the eager, wholehearted response given movie-lectures by school children who seem receptive to programs which offer a greater understanding of wildlife, its habits, habitats and methods used by the Department of Game in its conservation. It is believed, too, that sportsmen have benefited in the presentation of programs which show the development, program and activity of the Department of Game.

Other Department Educational Outlets

Through press releases, sports and class publications and the radio, the Department has kept the public informed of its plans and program. Within the Department a personnel bulletin is published which has for its purpose the release of interesting and important data affecting employees. Through this medium, the full staff of the Department of Game is advised of modern developments in the field of game conservation, not only from a local viewpoint, but from the broad national standpoint as well. Frequent radio broadcasts have also been programmed. Over a Seattle station, the Department carried a continuous program for a six-month period, while the Director of Game and supervisors have made conservation talks over other state stations on several occasions.

Members of the Game Commission, the Director of Game and Department supervisors have given freely of their time and have been called upon frequently for talks on conservation affairs at various sportsmen's meetings and special events.

When the dinner bell rings: feeding orphan cub bear.

Game License Division

LICENSE sales over the biennial period have shown a sharp gain, which would indicate that more sports fishermen and hunters are taking to field and stream each year. As has been pointed out in previous reports of the Commission, funds for administration and operation of the Department of Game are appropriated from the Game Fund. This Fund is formed from sale of game licenses and revenue accruing from the operation of the Department, exclusive of Big Game Seals.

License Sales Controlled from Main Office

Administration of the license division entailed the handling of close to $1,000,000 during the biennium and control of sales approximating 400,000 licenses. Business-like methods and efficiency are essential points in the management of this large sum. In the past five years three distinct systems have been in use for the distribution and collection of licenses and receipts thereof. Beginning with the county auditor system, sales were made by the auditors through agents named by them. For this service auditors received no share of license revenue from the Department of Game. In some instances auditors found it necessary to resort to county funds to administrate game license sales.

The second system of license control was installed during the previous biennial period. It removed sales from the offices of county auditors and transferred sales and collections to game protectors, who, in turn, appointed dealers or agents in their districts. Agents named were supplied with hunting and fishing licenses by the Department and sold them direct to buyers.

A trial period of operation demonstrated that the protector-dealer arrangement failed to best serve the needs of the Department and the license-holder. Dealers were often low on license supplies consequently causing undue inconvenience to buyers. Cost of servicing dealers was high and game protectors were spending more and more time away from regular game management and patrol duties.

Licenses Now Sent Direct to Dealers

The system now in effect was put in operation early in January, 1938. Sales have been taken out of the hands of game protectors and a system of "mail order"—office to dealer plan—installed. Licenses are dispatched, according to the requirements of bonded and "cash" dealers, from the license division offices in Seattle. The new system has made possible a substantial saving in the administration and handling of license sales and game protectors are now able to devote their full time to protection work.

License Sales Show Steady Gain

Analysis of a recapitulation of license sales and revenue received during the past five years reveals several important facts. Most noticeable is the steady gain of state resident hunting and fishing license sales over county resident hunting and fishing business. In 1933 there was recorded a total of 69,587 state licenses sold and 55,925 county resident hunting and fishing licenses, as against 112,193 state and 83,309 county sales in 1937.

Easy and rapid access to all hunting and fishing regions of the state, statewide stocking of birds and fish and the small addition in price of a state license over county are given as reasons for the gradual swing to inter-county fishing and hunting by license-buyers.

Trapping License Sales Increase

County trapping license sales increased from 839 in 1933 to 3,368 in 1937, indicating a broader interest is being taken in fur trapping. With the increase in licensed fur trappers has come a pickup in the number of fur dealers granted licenses. In 1933 there were 69 and in 1937 the number had moved up to 123 dealers. A gain in state fishing—non-resident—license sales was registered during the past two years. Five years ago, 1933, there were 998 sold while in 1937 the Department recorded sales of 1,798. Supplemental state resident elk sales have made a gradual gain in five years from 1,114 in 1933 to a total of 4,097 in 1937.

Game farm licenses, which are permits to propagate and market birds and fish, have decreased since 1935.

GAME FARM LICENSES ISSUED AND RECEIPTS RECEIVED
Fiscal Years 1935, 1936, 1937

	1935		1936		1937	
	Number	Receipts	Number	Receipts	Number	Receipts
Renewals ..... @ $10	79	$790 00	59	$590 00	56	$560 00
New licenses ..... @ 20	10	200 00	8	160 00	10	200 00
Totals.....	89	$990 00	67	$750 00	66	$760 00

Big Game Seals Pay Predatory Bounties

Through an act of the 1935 state legislature provision was made for the payment of predatory bounties from revenue acquired from sale of Big Game Seals, a supplementary fee of fifty cents charged on big game. This fund is held separate from the Game Fund which is built up from hunting and fishing license sales. In keeping with the gain in general license purchases, sale of Big Game Tags has increased sharply in three years. For example, a total of 47,253 were issued big game hunters during the fall of 1935 while for the regular game hunting season of 1937, hunters bought 70,407 tags.

REPORT OF BIG GAME SEALS SOLD

1935		1936		1937	
Net Sold	Revenue	Net Sold	Revenue	Net Sold	Revenue
47,253	$23,626 50	57,818	$28,909 00	70,407	$35,203 50

FOUR-YEAR RECAPITULATION OF GAME LICENSES

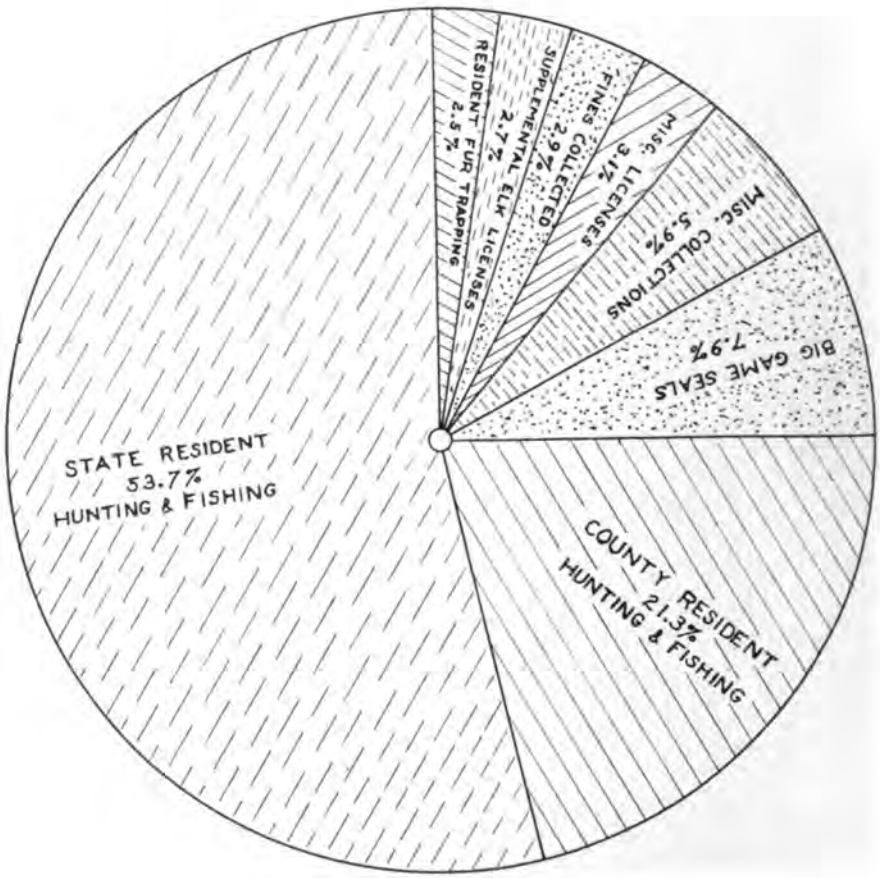
For the Calendar Years 1934, 1935, 1936, 1937

TYPE OF GAME LICENSE SOLD	Price	1934		1935		1936		1937	
		Number Licenses Sold	Total Amount of Revenue	Number Licenses Sold	Total Amount of Revenue	Number Licenses Sold	Total Amount of Revenue	Number Licenses Sold	Total Amount of Revenue
State resident citizen hunting and fishing	$3 00	81,341	$244,023 00	85,569	$256,707 00	97,035	$291,105 00	112,193	$336,579 00
State non-resident citizen hunting and fishing	25 00	7	193 00*	5	103 00†	12	286 00*	11	268 00*
State alien hunting and fishing	25 00	19	475 00	18	450 00	17	425 00	18	450 00
State non-resident citizen (game birds)	15 00	41	615 00	44	660 00	39	585 00	50	750 00
State non-resident citizen, fishing	5 00	1,125	5,625 00	1,312	6,560 00	1,562	7,810 00	1,708	8,540 00
State fur dealer	10 00	89	890 00	108	1,080 00	135	1,350 00	125	1,250 00
State taxidermist	5 00	31	155 00	34	170 00	39	195 00	40	200 00
State resident supplemental elk	5 00	724	3,620 00	878	4,390 00	2,364	11,820 00	4,097	20,485 00
State alien supplemental elk	50 00	.....	.....	.....	.....	.....	.....	.....	.....
State non-resident elk	25 00	.....	.....	1	25 00	1	25 00	9	225 00
County resident citizen hunting and fishing	1 50	71,208	106,812 00	72,680	109,020 00	81,626	122,439 00	83,309	124,963 50
County non-resident fishing	3 00	996	2,988 00	1,157	3,471 00	1,382	4,146 00	1,642	4,926 00
County alien fishing	5 00	130	650 00	119	595 00	121	665 00	134	670 00
County resident citizen trapping	5 00	2,236	11,180 00	1,815	9,075 00	2,332	11,960 00	3,368	16,840 00
County professional guide	10 00	4	40 00	2	20 00	8	80 00	7	70 00
Duplicate licenses	50	.....	.....	643	321 75	1,051	525 50	1,008	504 00
Miscellaneous	.....	.....	.....	.....	.....	.....	53	.....	.....
Totals	.....	157,951	$377,206 00	164,385	$392,647 75	187,814	$453,507 03	207,807	$517,150 50

* See reciprocity agreement.

† One license at $18.00; one at $10.00 and three at $25.00.

THE STATE DEPARTMENT OF GAME DOLLAR
PER CENT COMPARISON OF BIENNIAL RECEIPTS
April 1, 1936—March 31, 1938



Miscellaneous Licenses Include:

State fur dealer.
State taxidermist.
Duplicate licenses.
County alien fishing.
State non-resident elk.
County professional guide.
Private game farm licenses.
County non-resident fishing.
State non-resident (game birds.)
State alien hunting and fishing.
State non-resident citizen fishing.
State non-resident hunting and fishing.

Miscellaneous Collections Include:

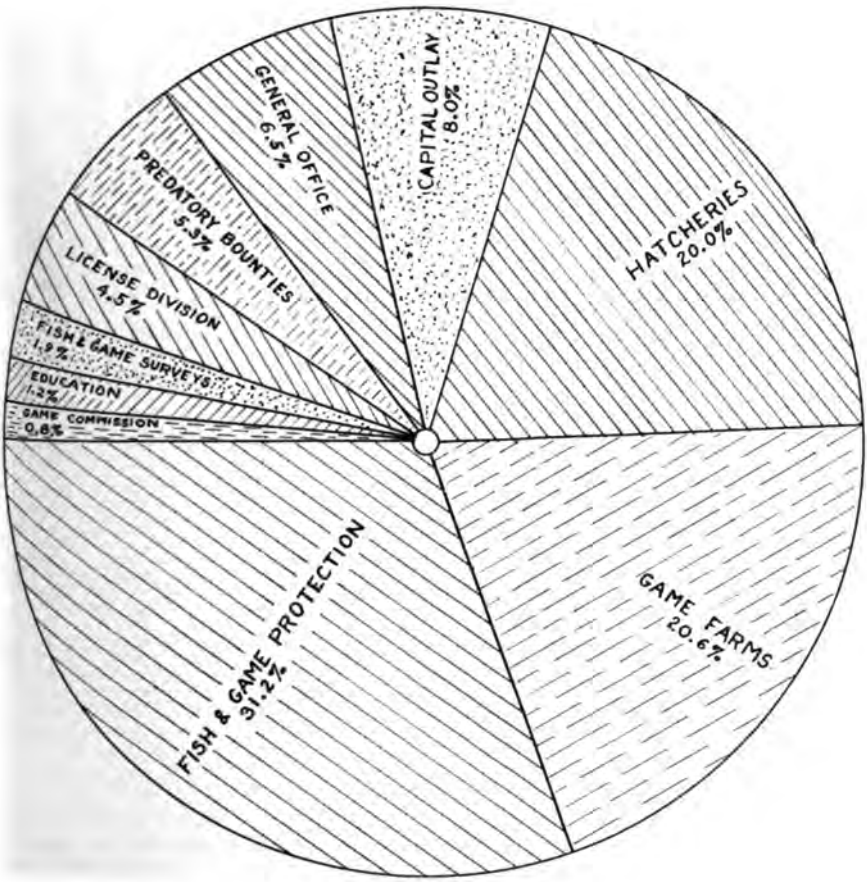
Tagging.
Sale of pelts.
Game fish tags.
Aluminum bands.
Sale of poultry.
Sale of property.
Permits possession live game.

NOTE: Receipts from sale of Big Game Seals are used exclusively for payment of predatory animal bounties.

PER CENT COMPARISON OF DISBURSEMENTS

DEPARTMENT OF GAME

For Period April 1, 1936, to March 31, 1938



GRAND TOTAL DISBURSEMENTS fiscal year 1936	**$544,735.12**
GRAND TOTAL DISBURSEMENTS fiscal year 1937	**$586,495.37**

NOTE: **Major portion of construction shown in capital outlay completed under hatchery program. All construction completed on game farms is included in expense total of game farm division.**

NOTE: **The sum $9,550.14 paid from the State Game Fund for the destruction of predatory animals and spent under direction of Department of Agriculture.**

RECAPITULATION OF BIG GAME SEALS

For Calendar Years 1936 and 1937

COUNTY SOLD	1936		1937	
	Number of Big Game Seals Sold	Total Amount of Revenue	Number of Big Game Seals Sold	Total Amount of Revenue
Adams	102	$51 00	99	$49 50
Asotin	443	221 50	478	239 00
Benton	60	30 00	85	42 50
Chelan	4,177	2,088 50	4,960	2,480 00
Clallam	1,701	895 50	1,963	981 50
Clark	1,563	781 50	1,771	885 50
Columbia	480	240 00	546	273 00
Cowlitz	1,630	815 00	1,902	951 00
Douglas	165	82 50	222	111 00
Ferry	504	252 00	759	379 50
Franklin	125	62 50	157	78 50
Garfield	533	266 50	532	266 00
Grant	479	239 50	688	469 00
Grays Harbor	2,409	1,204 50	3,010	1,505 00
Island	431	215 50	643	321 50
Jefferson	629	314 50	710	355 00
King	6,483	3,241 50	7,419	3,709 50
Kitsap	1,907	953 50	1,904	952 00
Kittitas	1,923	961 50	2,300	1,150 00
Klickitat	801	400 50	920	460 00
Lewis	2,143	1,071 50	2,668	1,334 00
Lincoln	408	204 00	530	265 00
Mason	882	441 00	1,139	569 50
Okanogan	4,212	2,106 00	4,725	2,362 50
Pacific	1,327	663 50	1,425	712 50
Pierre	3,559	1,779 50	4,018	2,009 00
Pend Oreille	1,019	509 50	1,236	618 00
San Juan	289	144 50	379	189 50
Skagit	1,378	689 00	1,760	880 00
Skamania	567	283 50	467	233 50
Snohomish	2,079	1,039 50	2,574	1,287 00
Spokane	3,932	1,966 00	5,804	2,902 00
Stevens	1,930	965 00	2,561	1,280 50
Thurston	1,746	873 00	2,029	1,014 50
Wahkiakum	285	142 50	336	168 00
Walla Walla	824	412 00	806	403 00
Whatcom	1,966	983 00	2,369	1,184 50
Whitman	421	210 50	523	261 50
Yakima	2,216	1,108 00	3,740	1,870 00
Totals	57,818	$28,909 00	70,407	$35,203 50

Game Work Dependent on License Sales

As has been previously stated, the Department of Game is almost wholly dependent on its revenue derived from license sales. It follows that departmental activity in wildlife conservation and restoration is measured by the revenue of this division. Expansion and development in the fields of game management, protection, and propagation of fish and birds goes forward on broader lines as the sales and revenue from game licenses increase. This annual upswing in sales is being returned to sportsmen and license-holders in practical wildlife projects and game management service.

License records show that more women are taking to field and stream in search of game than in previous years. There is also a noticeable gain in the number of boys and young men who are sharing in the fun and recreational features of these outdoor sports. It can be said today that the vast army of state game license holders represents a fair cross-section of state population.

GENERAL EXPENSE—LICENSE DIVISION

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Salaries	$14,851 99		$12,985 00	
State car expense	2,357 44		1,696 95	
Private mileage	3,368 93		2,687 09	
Fares—railroad, boat and stage	44 60		41 86	
Meals and rooms	1,267 01		702 78	
General office supplies	69 79		340 83	
Telephone and telegraph	67 23		54 91	
Postage and envelopes	235 35		978 21	
Freight and express	159 09		197 32	
Printing	1,402 95		2,079 09	
Surety bonds	1,997 58		1,748 02	
New equipment	344 41		578 95	
Deposit box rental	54 55		18 85	
License check and draft fees	.....		51 85	
Miscellaneous fees, books, protector license records	62 33		.....	
Totals	.....	$26,283 25	.....	$24,161 71

Mountain waterfalls lend sylvan beauty to Washington's outdoors.

SUMMARY OF RECEIPTS, CALENDAR YEARS 1936-1937

	Number Licenses Issued		Total Amount Collected	
	1936	1937	1936	1937
COLLECTIONS BY DEPARTMENT OF GAME—LICENSE DEPARTMENT—				
State resident hunting and fishing licenses ..... @ $3 00	97,035	112,193	$291,105 00	$336,579 00
State non-resident hunting and fishing licenses ..... @ 25 00	12	11	286 00	268 00
State alien hunting and fishing licenses.. @ 25 00	17	18	425 00	450 00
State non-resident (game birds) licenses. @ 15 00	39	50	585 00	750 00
State non-resident fishing licenses..... @ 5 00	1,502	1,798	7,900 00	8,990 00
State fur dealer licenses..... @ 10 00	135	123	1,350 00	1,230 00
State taxidermist licenses ..... @ 5 00	39	40	195 00	200 00
State resident supplemental elk licenses. @ 5 00	2,364	4,097	11,820 00	20,485 00
State alien supplemental elk licenses..... @ 50 00	.....	.....	.....	.....
State non-resident elk licenses..... @ 25 00	1	9	25 00	225 00
County resident hunting and fishing licenses ..... @ 1 50	81,626	83,309	122,439 00	124,963 50
County non-resident hunting and fishing licenses ..... @ 3 00	1,382	1,642	4,146 00	4,926 00
County alien fishing licenses..... @ 5 00	121	134	605 00	670 00
County resident trapping licenses..... @ 5 00	2,392	3,368	11,960 00	16,840 00
County professional guide licenses..... @ 10 00	8	7	80 00	70 00
Duplicate licenses ..... @ 50	1,051	1,008	525 50	504 00
Miscellaneous	.....	.....	53	.....
	187,814	207,807	$453,507 03①	$517,150 50①
Private game farm licenses (new)..... @ 20 00	8	10	$160 00	$200 00
Renewal game farm licenses..... @ 10 00	57	58	570 00	580 00
	187,879	207,875	$454,237 03	$517,930 50
Total receipts from sale of big game seal licenses ..... @ 50	57,818	70,407	28,909 00	35,203 00
Total receipts from licenses.....	245,697	278,282	$483,146 03①	$553,133 50①
Fines collected for violations of state game laws	.....	.....	①	①
Receipts from other sources and transfers.....	.....	.....	①	①
MISCELLANEOUS COLLECTIONS IN DEPARTMENT OF GAME OFFICE—				
Sale of poultry.....	.....	.....	$3,258 51	$3,657 01
Sale of property.....	.....	.....	96 45	573 98
Aluminum bands	.....	.....	24 50	30 70
Tagging	.....	.....	1,211 30	266 30
Game fish tags.....	.....	.....	60 67	103 76
Sale of pelts.....	.....	.....	22,806 48	34,889 73
Permits for possession of live game.....	.....	.....	137 00	128 00
Miscellaneous	.....	.....	1,009 80	266 35
	245,697	278,282	$511,750 74①	$593,049 33①

① NOTE—The total number of hunting and fishing, etc., licenses are shown on this sheet, although some of the sales were reported after January 1, 1937, and 1938, respectively, which accounts for the difference between these totals and those shown by the state treasurer. As collections of fines are not reported to the Department of Game office, and this segregated information is not available from the state treasurer's office, this item is left blank. It is included in the state treasurer's reports under "county collections."

SUMMARY OF RECEIPTS—Continued

	Calendar Year 1936	Calendar Year 1937
STATEMENT OF AMOUNT CREDITED TO STATE GAME FUND—(From Report of State Treasurer)		
County collections (includes fines)	$15,518 50①	$18,171 95①
Department of Game (hunting and fishing) licenses	481,503 00	528,834 53
Department of Game (big game seal licenses)	②	37,311 50
Deposit interest	1,750 04	1,314 88
Transfers	66 00	20 00
Department of Game collections	26,083 65	36,374 27
Sale of property	3,354 96	4,230 99
	$528,276 15①	$626,258 12①
Balance on hand December 31, 1935	258,086 35	.....
Balance on hand December 31, 1936	.....	311,220 66
	$786,362 50	$937,478 78
Warrants paid	475,046 84	596,435 05
Transfers	95 00	.....
Balance on hand December 31, 1936	$311,220 66	.....
Balance on hand December 31, 1937	.....	$341,043 73
Biennium grand total	.....	$952,264 39

	Fiscal Year 1936	Fiscal Year 1937
STATEMENT OF AMOUNT CREDITED TO STATE GAME FUND—(From Report of State Treasurer)		
County collections (includes fines)	$16,651 15①	$16,819 39①
Department of Game (hunting and fishing) licenses	480,750 53	533,017 00
Department of Game (big game seal licenses)	②	35,182 00
Deposit interest	1,314 88	1,065 02
Transfers	61 00	20 00
Department of Game collections	28,286 57	32,519 48
Sale of property	3,359 05	4,240 50
Refunds	.....	50 00
	$530,423 18①	$622,913 39①
Balance on hand March 31, 1936	218,364 07	.....
Balance on hand March 31, 1937	.....	243,287 04
	$748,797 25	$866,200 43
Warrants paid	505,420 71	605,815 65
Transfers	89 50	15 00
Balance on hand March 31, 1937	$243,287 04	.....
Balance on hand March 31, 1938	.....	$260,369 78
Biennium grand total	.....	$503,656 82

① NOTE—The total number of hunting and fishing, etc., licenses are shown on this sheet, although some of the sales were reported after January 1, 1937, and 1938, respectively, which accounts for the difference between these totals and those shown by the state treasurer. As collections of fines are not reported to the Department of Game office, and this segregated information is not available from the state treasurer's office, this item is left blank. It is included in the state treasurer's reports under "county collections."

② NOTE—This amount not segregated by state treasurer.

RECAPITULATION OF DISBURSEMENTS

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937			Fiscal Year April 1, 1937, to March 31, 1938		
	Salaries and Wages	Operations	Total	Salaries and Wages	Operations	Total
Game Commission	$2,959 65	$2,036 68	$4,996 33	$2,507 15	$1,702 00	$4,209 15
State Game Director	3,997 07	1,545 01	5,542 08	5,495 53	1,956 16	7,451 69
General office	13,526 28	12,925 41	26,451 69	19,464 35	14,247 48	33,711 83
Biennial report	710 62	1,274 56	1,985 18			
Education and public relations	1,834 30	3,673 37	5,507 67	2,396 15	3,997 05	6,393 20
License Department	14,851 99	11,431 26	26,283 25	12,985 00	11,176 71	24,161 71
Game survey	1,128 21	1,257 68	2,385 89	2,162 05	1,331 03	3,500 08
Lake and stream survey	2,986 77	2,363 59	5,350 36	4,595 49	2,973 70	7,569 19
Seining and salvaging	552 25	540 83	1,093 08	341 81	447 46	789 27
Signs and tags		1,531 99	1,531 99		1,093 65	1,093 65
Protection division—regular	83,196 47	58,542 33	141,738 80	86,547 75	59,529 71	146,077 46
Protection division—temporary	10,450 92	6,976 93	17,427 85	12,127 50	5,936 90	18,064 40
Special fur-bearing and beaver trapping	7,343 27	1,141 03	8,484 30	8,518 64	1,795 21	10,313 85
Special predatory animal hunters	1,095 43	777 97	1,873 40	4,873 12	1,816 48	6,689 60
Feed in the open		2,458 16	2,458 16		355 50	355 50
State Game Farms—						
General	32,478 94	55,230 16	87,709 10	34,044 66	58,006 26	92,050 32
Construction	6,353 92	17,891 68	24,245 60	9,132 93	9,567 51	18,700 44
Live trapping birds	27 99	69 46	97 45	16 37	17 09	33 46
Planting	2,822 00	2,326 99	5,148 99	3,550 15	2,760 22	6,310 37
Pollution Commission					53 61	53 61
State Trout Hatcheries—						
Regular	34,836 45	40,518 10	75,354 55	40,200 85	30,317 52	70,518 37
Construction	9,279 44	11,083 85	20,363 29	1,984 87	2,963 50	4,948 37
Planting	4,893 87	10,303 64	15,197 51	5,380 46	5,764 43	11,144 89
Eyeing stations	3,745 75	3,842 50	7,588 25	7,709 14	2,194 91	9,904 05
Grand totals	$239,071 50	$249,743 18	$488,814 77	$264,040 37	$220,004 09	$484,044 46
Capital outlays			$ 31,090 85			$ 60,833 65
Reliefs by legislature						$ 1,345 40
Reliefs by bounties						$ 9,223 00
Bounties			$ 21,417 00			$ 28,000 00
Seward Park ponds			$ 2,998 48			$ 2,988 86
Department of Agriculture			$ 9,550 14			
Spokane Hatchery—						
Paid by Washington Water Power Company for salaries and materials			$ 414 02			

GENERAL ADMINISTRATION AND OFFICE EXPENDITURES

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937 to March 31, 1938
	General Office	Biennial Report	General Office
State Game Director—			
Salary	$3,987 07	.....	$5,495 53
Car expense	$781 56	.....	$1,241 92
Fares—Railroad, boat, stage	233 90	.....	200 19
Meals, rooms and berths	528 35	.....	512 80
Miscellaneous	1 20	.....	1 25
Total	$1,545 01	.....	$1,956 16
Grand total, State Game Director	$5,532 08	.....	$7,451 69
Office—			
Salaries and wages—Office	$13,473 53	$710 62	$17,688 86
Salaries and wages—State Examiners	47 42	.....	1,755 97
Total, office salaries and wages	$13,520 95	$710 62	$19,444 83
State car expense	.....	.....	$2 46
Private mileage	.....	$146 70	.....
Fares—Railroad, boat, stage	$0 70	.....	.....
Fares—State audit books	.....	.....	3 00
Meals and rooms	7 20	38 35	.....
Meals—State audit books	17 05	.....	276 50
General office supplies	870 91	.....	755 51
Telephone and telegraph	1,587 79	.....	1,923 69①
Postage and envelopes	2,549 39	.....	2,823 30
Freight and express	19 10	5 97	143 09
Printing	1,031 12	1,083 54	841 57
Rent	2,670 00	.....	3,716 60
Surety bonds—Office employees	105 00	.....	103 50
Purchase books, subscriptions, dues, etc	29 50	.....	95 14
Towel service	50 10	.....	63 70
Taxidermist	19 50	.....	.....
Repairs—Office furniture and equipment	55 50	.....	173 45
New equipment	1,126 95	.....	1,146 32
Press clippings	244 95	.....	306 10
Legal advertising	1,850 33	.....	1,250 19
New state car for director	595 00	.....	.....
Miscellaneous	.....	.....	754 99
Total office operations	$12,839 09	$1,274 56	$14,119 11
Grand total, office	$26,360 04	$1,985 18	$33,563 94
Grand total	$31,902 12	$1,985 18	$41,015 63

① All general telephone service charged to office.

CAPITAL OUTLAY

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Supervision	$5,326 06		$4,020 62	
Draftsman	.....		1,761 73	
Lake and stream survey	.....		46 61	
Aberdeen hatchery	7,292 61		.....	
Auburn game farm	.....		1,484 12	
Bellingham hatchery	5,366 03		1,942 64	
Colville game farm	.....		185 52	
Colville hatchery	.....		922 91	
Pend Oreille hatchery	.....		375 75	
San Poil hatchery	.....		62 42	
South Tacoma hatchery	.....		184 09	
①Spokane hatchery	3,931 66		2,070 52	
Tokul Creek hatchery	.....		478 05	
New Vancouver hatchery	.....		24,653 97	
Old Vancouver hatchery	.....		278 54	
Yakima hatchery	8,048 61		20,629 09	
Miscellaneous	1,155 88		1,737 07	
Totals	.....	$31,090 85	.....	$60,833 65
①Spokane hatchery—paid by Washington Water Power Co. for salaries and materials	.....	$414 02		

STATE GAME COMMISSION

April 1, 1936, to March 31, 1937—April 1, 1937, to March 31, 1938

	Fiscal Year April 1, 1936, to March 31, 1937		Fiscal Year April 1, 1937, to March 31, 1938	
Per diem	$2,245 00		$1,825 00	
Stenographers	714 65		682 15	
Private autos—mileage	1,050 50		537 10	
Fares—railroad, boat and stage	217 78		420 60	
Meals	328 25		301 35	
Rooms and berths	294 67		333 80	
Telephone and telegraph	144 90		86 85	
Miscellaneous	58		22 30	
Totals	.....	$4,996 33	.....	$4,209 15

EMPLOYEES

March 31, 1938

Office	Address	Occupation
McCauley, B. T.	7720 E. GreenLake Way, Seattle	Director
Brewer, Grace C.	3718 11th N. E., Seattle	Chief Clerk
Faulds, Marian H.	1825 Nagle Place, Seattle	Accountant
Martens, Bertha M.	2021 4th Ave., Seattle	File Clerk
Hammond, May P.	723 35th, Seattle	Stenographer
Hubbard, Iola	906 E. John, Seattle	Stenographer
Ginnold, Evelyn	435 11th No., Seattle	Stenographer
Phillips, Gwenn	409 10th Ave. N., Seattle	Stenographer
Arthur, Laura	6212 5th Ave. N. W., Seattle	Stenographer
Mitchell, Luella	2204 N. 59th St., Seattle	Bookkeeper
Franich, Cora	3241 15th West, Seattle	Bookkeeper
Brown, L. May	2905 1st Ave., Seattle	Bookkeeper
Clarke, Hazel D.	6708 1st Ave. N. W., Seattle	Bookkeeper
Owens, Loretta	1017 Boren Ave., Seattle	Bookkeeper
Petty, C. F.	4226 12th N. E., Seattle	License Supervisor
Glennon, J. A.	317 West 80th, Seattle	Clerk
Gollaher, Opal A.	5037 Prince St., Seattle	License Stenographer
Tippie, Ardis	1006 E. 40th, Seattle	License Stenographer
Boddy, Herbert R. N.	3928 Bagley Ave., Seattle	Education & Public Relations
Lauckhart, Burton	5810 Cowen Pl., Seattle	Game Survey
Mitchell, G. E.	705 N. 46th, Seattle	Supervisor of Plantings
Pautzke, Clarence	2124 W. 99th, Seattle	Chief Biologist
Cheyne, Harlan	c/o Spokane Hatchery, Spokane	Asst. Biologist
Johansen, J. M.	3444 35th W., Seattle	Asst. Biologist
Meigs, Robert C.	316 E. Harrison, Seattle	Asst. Biologist
Protection		
Loughary, Harold E.	257 E. 45th, Seattle	Chief Patrol Officer
Shields, C. H.	E. 630 Sharp Ave., Spokane	Asst. Chief Patrol Officer
Allen, J. J.	1250 Maple St., Clarkston	Protector
Banta, Floyd	128 W. 82nd, Seattle	Protector
Bercot, Henry F.	Freeland	Protector
Beringer, R. E.	Box 21, Ritzville	Protector
Beusch, Otto J.	Box 51, Silver Creek	Protector
Biggs, John A.	2219 I St., Vancouver	Protector
Boone, M. E.	1603 N. Puget, Olympia	Protector
Brender, John S.	Box 21, Leavenworth	Protector
Burnham, Guy F.	Box 182, Forks	Protector
Chitwood, E. A.	526 Third Ave., Camas	Protector
Douglas, John W.	Friday Harbor	Protector
Drain, H. D.	Kirkland	Protector
Dray, Ed	326 A St. N. E., Auburn	Protector
Drolet, Jos. O.	910 E. Yakima, Yakima	Protector
Duggan, Hugh J.	Box 208, Davenport	Protector
Eide, Ole	Box 102, Stanwood	Protector
Erickson, A. R.	R. F. D. No. 4, Box 309, Olympia	Protector
Fennimore, Gene	Box 413, Colfax	Protector
Fruit, M. M.	214 Spokane St., Wenatchee	Protector
Goodman, H. O.	Box 545, Blaine	Protector
Haley, C. H.	811 S. 25th, Tacoma	Protector
Hall, William O.	104 N. 6th St. W., Kelso	Protector

Protection	Address	Occupation
Hammer, Joe	Silverdale	Protector
Handron, S. J.	702 Spruce St., Hoquiam	Protector
Heslin, Clarence F.	1350 Porter St., Enumclaw	Protector
Hoggatt, Carl	Eatonville	Protector
Holcomb, Ransom C.	1134 Alice, Walla Walla	Protector
Hughey, Paul	Box 72, Shelton	Protector
Huntley, Dennis H.	Kennewick	Protector
Hynes, J. M.	1902 Park Ave., Raymond	Protector
Johnson, Ralph	R. F. D. No. 3, Newport	Protector
Jones, Evan	643 Pierce St., Port Townsend	Protector
Kanz, John R.	Pomeroy	Protector
Klinger, Gar R.	Stevenson	Protector
Little, William J.	Morton	Protector
Long, Chas. B.	2404 Lakeway Dr., Bellingham	Protector
Louden, J. M.	1020 W. Main, Centralia	Protector
Lundgren, A. H.	Quinault	Protector
Moe, H. E.	Cathlamet	Protector
Neil, Lloyd J.	Colville	Protector
Neubrech, Walter	Box 81, Waterville	Protector
Norton, Clyde	2215 Rainier Ave., Everett	Protector
Palmer, N. E.	Prosser	Protector
Resner, O. L.	General Delivery, Stevenson	Protector
Rice, Fred	R. F. D. No. 2, Port Angeles	Protector
Robins, Edw. J.	E. 1427 Nebraska St., Spokane	Protector
Roundy, Fred L.	1717 E. Heroy St., Spokane	Protector
Seabury, Laurence E.	11th and Section, Mount Vernon	Protector
Shager, Grant H.	422 S. Tacoma Ave., Tacoma	Protector
Shaw, Clarence	Republic	Protector
Snider, Donald E.	Hoquiam	Protector
Splane, Maurice E.	821 Ferry, Sedro Woolley	Protector
Springer, Leonard M.	Box 53, Winthrop	Protector
Stark, Harry E.	Okanogan	Protector
Stevens, John L.	Ellensburg	Protector
Van Arsdol, Fred W.	General Delivery, Yakima	Protector
Walsh, Thos. F.	909 8th Ave., Seattle	Protector
Wardall, S. L.	12 S. 8th, Yakima	Protector
Webster, Jack O.	Soap Lake	Protector
Winters, C. L.	Box 206, Goldendale	Protector
Woodward, A. N.	R. F. D. No. 2, Bothell	Protector
Wooten, W. T.	205 Spring St., Dayton	Protector
Game Farms		
Faudree, J. W.	414 Boren Ave., Seattle	Supervisor Game Farms
Morrell, William	Route 3, Auburn	Auburn Supt.
Leslie, R. D.	Route 3, Auburn	Auburn Asst.
Harper, Ross	Colville	Colville Supt.
Wadkins, Wm. W.	Colville	Colville Asst.
Ford, Thos. D.	Route 3, Ellensburg	Ellensburg Supt.
Wahle, Joe	Route 3, Ellensburg	Ellensburg Asst.
Witham, Harold	Route 1, Kennewick	Kennewick Supt.
Johnson, Ernest	Route 1, Kennewick	Kennewick Asst.
Ditlevsen, B. E.	Riverside	Okanogan Supt.
Hedstrom, Hilger	Riverside	Okanogan Asst.
Launer, Evan	Riverside	Okanogan Asst.
Berry, W. M.	Riverside	Okanogan Asst.
Morrell, Chas.	R. F. D. No. 5, Box 618, So. Tacoma	So. Tacoma Supt.
McDaniel, Geo. A.	R. F. D. No. 5, Box 618, So. Tacoma	So. Tacoma Asst.
Ford, Bill G.	R. F. D. No. 5, Box 618, So. Tacoma	So. Tacoma Asst.
Gady, Ralph	Mead	Spokane Supt.
Ford, Dave	Mead	Spokane Asst.
Hedstrom, E.	P. O. Box 520, Walla Walla	Walla Walla Supt.
Johnson, J. A.	Star Route, Wapato	Yakima Supt.
Palmer, Quincy	Star Route, Wapato	Yakima Asst.

Hatcheries	Address	Occupation
Hancock, W. R.	905 E. 65th, Seattle	Supervisor Hatcheries
Dunstan, Wm.	Bothell	Supervisor Eyeing Station
Dunstan, L. A.	R. F. D. No. 1, Montesano	Aberdeen Supt.
West, O. C.	R. F. D. No. 1, Montesano	Aberdeen Asst.
Loveridge, G. W.	Whatcom Falls Park, Bellingham	Bellingham Supt.
Jones, C. A.	Whatcom Falls Park, Bellingham	Bellingham Asst.
Underwood, Wm.	Chelan	Chelan Supt.
DeHart, W. B.	Chelan	Chelan Asst.
Johnston, Virgil	Winton	Chiwaukum Supt.
Krick, H. F.	Colville	Colville Supt.
Youmans, F. A.	Box 334, Cle Elum	Kittitas Supt.
Immenroth, A. F.	Port Angeles	Lake Crescent Supt.
MacKenzie, Daniel	R. F. D. No. 2, Sedro Woolley	Lake Whatcom Supt.
Hilsinger, L. E.	R. F. D. No. 2, Sedro Woolley	Lake Whatcom Asst.
Smith, F. A.	Usk	Pend Oreille Supt.
Johnson, Bertel W.	Usk	Pend Oreille Asst.
Yorke, R. H.	Usk	Pend Oreille Asst.
Lytle, George	Republic	San Poil Supt.
Walters, L. W.	Seward Park, Seattle	Seward Park Supt.
Foster, C. R.	R. F. D. No. 5, Box 615, So. Tacoma	So. Tacoma Supt.
Luzader, G. P.	R. F. D. No. 5, Box 615, So. Tacoma	So. Tacoma Asst.
West, B. J.	R. F. D. No. 5, Box 615, So. Tacoma	So. Tacoma Asst.
Nixon, C. J.	R. F. D. No. 5, Box 615, So. Tacoma	So. Tacoma Asst.
Esveldt, Geo. H.	R. F. D. No. 7, Spokane	Spokane Supt.
Lattish, William	R. F. D. No. 7, Spokane	Spokane Asst.
Mertl, Paul E.	R. F. D. No. 7, Spokane	Spokane Asst.
Rice, Lawrence H.	R. F. D. No. 7, Spokane	Spokane Asst.
Hodgeboom, K. D.	R. F. D. No. 1, North Bend	Tokul Creek Supt.
Ivarson, Tom	R. F. D. No. 1, North Bend	Tokul Creek Asst.
Partee, L. R.	R. F. D. No. 1, North Bend	Tokul Creek Asst.
Ryan, Thos. E.	R. F. D. No. 1, Box 217A, Vancouver	Vancouver Supt.
Dunstan, Wilmer	R. F. D. No. 4, Walla Walla	Walla Walla Supt.
Welshons, C. A.	R. F. D. No. 7, Yakima	Yakima Supt.
Knutsen, Arthur I.	R. F. D. No. 7, Yakima	Yakima Asst.
Bean, Cyril	R. F. D. No. 7, Yakima	Yakima Asst.
Wood, Frank E.	R. F. D. No. 7, Yakima	Misc. Hatchery Asst.
Ashby, W. H.	c/o So. Tacoma Hatchery, So. Tacoma	Truck Driver
Daly, George	2614 E. Spring St., Seattle	Truck Driver
Keightley, T. E.	212 11th N., Seattle	Truck Driver
Vanhook, M. F.	Davenport	Truck Driver
Construction		
Dederick, F. H.	Bothell	Supervisor of Construction
Noel, Aubrey	906 E. John, Seattle	Draftsman
Kurth, Wm.	Bothell	Job Foreman
Westrom, S. M.	c/o Auburn Farm, Auburn	Construction Asst.
Miller, Grant H.	2416 E St., Bellingham	Construction Asst.
Mortensen, W. C.	Seattle	Job Foreman