

AN ABSTRACT OF THE THESIS OF

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Title "Results of a Controlled Shoot on the Soap Creek  
Experimental Pheasant Area, Corvallis, Oregon,  
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(Major Professor)

The Controlled Shoot on the Soap Creek Experimental Area, Corvallis, Oregon, was an experiment set up to (1) improve the farmer-sportsman relationship, (2) harvest a surplus of Chinese pheasants, *Phasianus colchicus torquatus* (Gmelin), (3) demonstrate a simple plan of protection and management which would produce an abundance of game, and (4) obtain certain desirable data relative to shooting. The experiment was relatively successful in attaining all these ends. As a basis from which to present the discussion of the Controlled Shoot on the Soap Creek Experimental Area the plans for controlled hunting used in the ten states of Connecticut, Iowa, Michigan, Minnesota, Nebraska, New Jersey, New York, Ohio, Pennsylvania, and Wisconsin were reviewed. Excessive trespass by hunters was the main cause for the development of controlled hunting in the United States.

Game census work, training of observers, advertising the Shoot, and selling permits were all a part of the many details which preceded the controlled hunting arrangement.

Dates of the Shoot were October 22, 25, and 26, 1941. Oregon State game laws were in effect and were supplemented by the special regulations for hunting on the Soap Creek Experimental Area. Observers accompanied each party, which was limited to three hunters or less. In addition to acting as escorts, the observers recorded hunting data as the Shoot progressed. The results of the shooting are summarized as follows:

1. The average shooting distance was 36 yards.
2. Of 329 shots, 75 per cent missed, 18 per cent killed, and seven per cent crippled Chinese pheasants.
3. The average crippling loss was 39.4 per cent. This loss varied from 34 per cent when dogs were used, to 48 per cent when dogs were not used.

4. The percentage of successful shooting increased as distance increased, up to 50 yards, where it started to decrease rapidly, due probably to lessened penetration of the shot. The per cent of crippled pheasants increased as distance increased, reaching a 100 per cent loss at 50 yards or over
5. Sixty-one Chinese pheasants were killed, and 24 were crippled during the three day period.
6. The average flushing distance increased considerably as the Shoot progressed, and varied from 22 to 30 yards for the different days.

Pheasant hunting under controlled conditions is feasible and practical when the expenses are kept at a minimum. This is best accomplished by a program which makes the sportsman an active cooperator, obviating the necessity for much costly checking by State and Federal authorities. With 100 per cent cooperation of the sportsmen, controlled hunting would not be necessary. The farmers in this experiment were not nearly so interested in the money return paid them, as they were in the orderly hunting, free from property damage and trespass.

RESULTS OF A CONTROLLED SHOOT ON  
THE SOAP CREEK EXPERIMENTAL PHEASANT AREA,  
CORVALLIS, OREGON, OCTOBER, 1941

by

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James S. Lindzey, graduate student with the Oregon Wildlife Research Unit, also deserves credit and thanks for the many hours of work he spent in the field while engaged in quadrat census work.

To the landowners on the Soap Creek Area, Benton County, Oregon, whom I have come to know quite personally, I wish to express sincere thanks for their splendid cooperation. The response of the sportsmen who turned out for the occasion is also very much appreciated.

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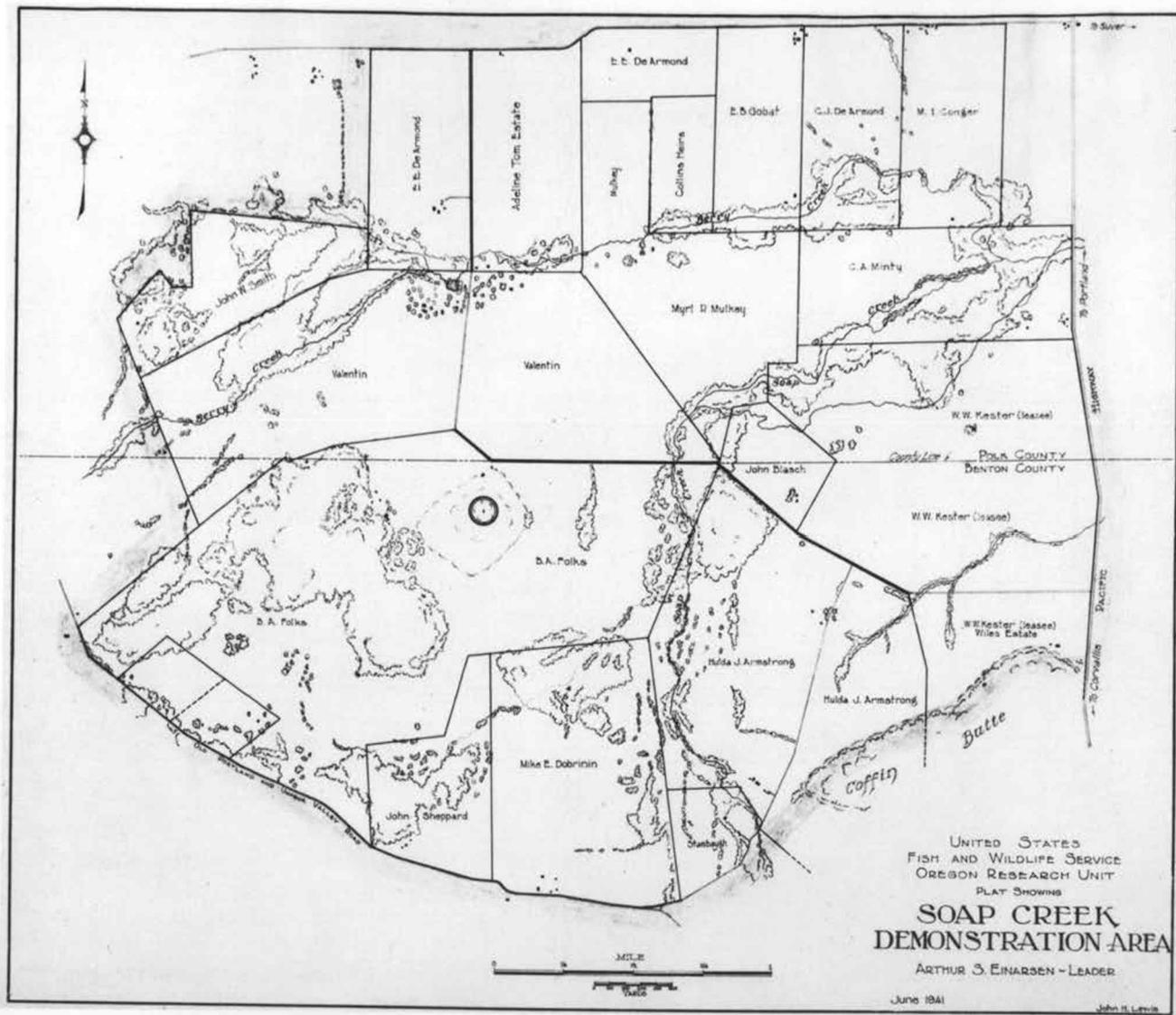
RESULTS OF A CONTROLLED SHOOT ON  
THE SOAP CREEK EXPERIMENTAL PHEASANT AREA,  
CORVALLIS, OREGON, OCTOBER, 1941

INTRODUCTION

This thesis is an account of a pheasant shoot conducted under controlled conditions on the Soap Creek Experimental Area, near Corvallis, Oregon, in October, 1941. A discussion of the planning or foundation work, the mechanics of the controlled hunting arrangement, and a report on the resultant findings will all be considered. Before these points can be fully appreciated, however, the history of controlled hunting in the United States and a discussion of the various farmer-sportsman relationships which have brought about the necessity for such arrangements should be reviewed.

Figure 1. Map of the Soap Creek Demonstration Area. Reproduced through the courtesy of the United States Fish and Wildlife Service.

Figure 1. Map of the Soap Creek Demonstration Area.



A BRIEF HISTORY OF CONTROLLED SHOOTING IN THE  
UNITED STATES AND THE  
REASONS FOR ITS DEVELOPMENT

Introduction

Within the past twenty-five years, hunters and fishermen in the United States have increased tremendously in numbers. Hunting and fishing licenses issued by the various states indicate this very clearly. There have been several reasons for this increase. First, upward trends in population have been partially responsible. More time for leisure, due to shorter working hours or days per week, caused many sportsmen to go afield more often than had been their custom. The development of modern arms, ammunition, and equipment, and placing them on the market within reach of all persons encouraged many to hunt. The wildlife conservation program was started, making many of the younger generation more game conscious. The United States was opened up by a system of main and secondary roads leading into formerly remote areas. With increased leisure time, improved equipment, an abundance of game, and enhanced transportation into these areas, it was only natural that America should take to the out-of-doors.

With all this increase in hunting, trespassing on many private lands increased. The problem was not serious at first, but as more and more land was placed under inten-

sive cultivation, the public hunting grounds for the sporting element became fewer and fewer. Those forms of wildlife dependent upon wilderness country for their existence were forced back, while farm game increased greatly.

Bobwhite quail, Chinese pheasants, and cottontail rabbits became increasingly important to the hunter. At this point the farmers' and sportsmen's interests began to clash. Many hunters, long accustomed to hunting where and when they pleased, felt they could continue to do so. Farms were entered without permission, gates were left open, livestock was molested or perhaps shot, grain crops were trampled down, and the ill will of the farmer was engendered in numerous ways. Farmers tried to protect themselves by putting up "No Trespassing" signs, which were often either torn down or totally disregarded. This pressure was first felt by the landowners in the East and Mid-west, especially those who were nearer large centers of population. In those parts of the country the first farmer-sportsman cooperatives, game protective associations, and controlled hunting areas were set up, mainly for the purpose of protecting the farmer against the trespass evil. Many states saw the development of controlled hunting in some form or another. Frequently the plans were scrapped after short trials, or perhaps they were modified and made more workable. In some places an entirely new arrangement was set

up after the original plan fell by the wayside. Basically, however, all or nearly all of these agreements were alike in one respect—they were intended to protect the farmer against those unscrupulous hunters who caused the entire shooting public to appear in a bad light. Plans for controlled shooting in the United States today are diverse enough to warrant brief descriptions of the better known examples.

## Connecticut Plan

Connecticut provides for the hunters in two ways, namely by land purchase and by compensating the landowner for hunting and fishing rights.

The first method, known as The Connecticut Plan, was started in 1925 (1). Cheap land, yet productive for game, was acquired by the State, while hunting and fishing rights were secured on private land. It was found that landowners were primarily interested in protection to their property, and rights were often given the State with the assurance that the State would properly manage the sporting public. By 1935, 64,000 acres had been purchased, most of which was woodland. In addition to this, 35,000 acres of farm hunting land and over 200 miles of trout streams had been leased, besides many ponds and lakes for public fishing.

In 1935 the Connecticut Fish and Game Commission decided to float a bond issue in the amount of one million dollars for the purpose of land acquisition, especially of sub-marginal lands. Land was cheap at that time, and the Commission foresaw a possibility of obtaining the land in one year that it would otherwise take many years to obtain.

The issue of 20-year bonds drew interest at about three per cent, this being financed through a slight increase in the price of hunting and fishing licenses sold

in the State. The plan was financially sound, and the bonds were sold. By 1937, over 120,000 acres were under the plan, and it was apparently operating very successfully. An interesting sidelight was the unanimous vote of Fish and Game Clubs throughout the State to raise the license fees with the understanding that the increased revenue thus obtained was to pay interest and liquidate the debt.

## Iowa Plan

Iowa has tried at least two methods of answering the farmer-sportsman problem. The first (3) may be simply stated. The State owns a considerable amount of the five per cent of land in the state which is lake, marsh, or other "waste area". Of this the Conservation Commission controls several dry or drained lakes. Sportsmen's associations lease these from the State for one dollar a year. Game management plans for the areas are drawn up by game technicians and the plans are carried out by the sportsmen. Results quickly warrant a harvest and thus some hunting pressure is removed from surrounding private land. Since 95 per cent of the land in the state is agricultural, however, this plan alone did not entirely answer Iowa's farmer-sportsman problems.

The second plan (6, 10) is one which has been revised considerably and actually is still evolving. Any farmer is eligible to make his farm a game management area. He must first agree to carry out recommended game management practices. If he does so, his farm is posted with Game Commission signs. The farmer must allow sportsmenlike hunters to hunt on his land with written permission but he may charge "a reasonable sum of money" for that privilege. The Commission furnishes shrubs, trees, and seed for food

and cover plantings and erosion control. Proponents of this plan believe that the Iowa farmer will cooperate with the sportsmen when he receives something tangible for doing so. This plan was in operation, under the direction of the Iowa Cooperative Wildlife Research Unit on the Winnebago Area in North Central Iowa during the fall of 1941. Sportsmen paid \$1.00 the first day and \$0.50 each succeeding day for their hunting privileges on this area, according to information received from the Iowa State Conservation Commission in a letter dated May 11, 1942.

### Michigan's Williamston Plan

The Williamston Plan (4) is so called because of the fact that it is one of the developments of the Williamston Township Wild-Life Management Project in Michigan (16). This township was selected as an outdoor laboratory for wildlife management, with the ring-necked pheasant receiving most of the emphasis. Farmers there had already organized in 1929 to control hunting and had posted their farms cooperatively. A ticket system was used to restrict the hunting, permits being issued by the individual farmers. Their plan received the general approbation of the sportsmen in that no individual farmer received pay for the privilege of hunting. Hunting permits could be issued regardless of whether or not the farmer knew the hunters.

The present arrangement in Michigan is basically the same. Hunters who abide by the rules are welcomed back. Usually four is the maximum number of permits issued by each farmer at any one time. Permits are free. When these permits are returned, additional hunters may enter the area. Cars are left parked in the farmer's yard, hunters proceeding from there on foot. This eliminates gang hunting and roadside parking. Game benefits under the plan, since the areas are not "over-hunted" under this

arrangement. Farmers run the organization themselves, elect their own officers, and so on. The original basic rules of the first or "Williamston Plan" are followed by all organizations insofar as hunting is concerned.

Areas organizing must contain at least 640 acres, and every landowner or lessee must be a member of the organization. The hunting privilege must be available to all, except that farmers may refuse certain parties admission for any valid reason. Farmers give the Conservation Department reasonable amounts of information regarding hunters and kill data and allow conservation officials to check hunters, estimate game trends, and to cooperate in law enforcement.

The Commission promotes game management and posts the areas. County agents also help work out details for the individual clubs. Farmers usually cooperate by planting food patches, providing winter food and cover, and by engaging in their regular farming activities in such a way that game is benefited and not harmed. This latter category includes the use of "flushing bars" in mowing, refraining from unnecessary burning, and soil conservation programs.

The United States Biological Survey, now the United States Fish and Wildlife Service, the Izaak Walton League,

American Game Institute, Williamston Progressive Hunting Club, Michigan Department of Conservation, Michigan State College, and the University of Michigan originally cooperated in acting as a technical committee. Under their guidance the Williamston Plan was further developed and the project diversified to include management, food and cover, mortality, and population studies. An open range rearing system was developed for pheasant production purposes. These studies were developed under the direction of Professor H. M. Wight, Dr. Paul D. Dalke, Dr. P. F. English, and Mr. W. H. Long, all of Michigan at that time.

The plan became generally well known, not only because of its relative success, but because it pioneered in the movement to answer the farmer-sportsman difficulty. By 1941, the plan had been applied to over 430,000 acres in 26 counties, and 118 cooperative clubs were in operation.

Minnesota's Farmer-United Sportsmen  
Controlled Hunting Area Plan

Farmers are invited to join local clubs of the United Sportsmen Association, as honorary members (13). They cooperate with the sportsmen in establishing controlled hunting and game management areas on their lands. The sportsmen plant feed patches on the farmers' land, using seed furnished by the Game Commission. They agree to raise and harvest this crop, turning half of it over to the farmer. They use their half to feed the birds. Trees and shrubs are planted on waste lands, the area is stocked with game birds, and the land is posted to all but the club members whose hunting is regulated. This plan should work well if the sportsmen do all the foregoing work.

## Nebraska "Hunters' Shooting Script Act"

This plan (14) was adopted in 1930 at the behest of Nebraska sportsmen. The Nebraska Game Commission sold script to the hunters, allowing these hunters to hunt on "script farms" upon presentation of the coupons. Farmers in the program were encouraged to feed the birds in winter and to practice game management in other ways in order to build up the ring-necked pheasant populations. The coupons were to be turned back to the Game Commission, which then reimbursed the farmer in an amount dependent upon the number of coupons he had collected from the hunters. Coupon value was fixed at a maximum of fifty cents per bird.

Many coupons were sold the first year, but most farmers never bothered to collect them, and the plan eventually fell by the wayside. The plan was intended to arouse the farmers' interests to the point where they would undertake the responsibility of raising pheasants on their own land, supplying the birds for the hunting public at a cost appreciably below game farm costs. The initial breeding stock was to be supplied by the State or organized sportsmen under the above plan. Proponents of the plan recommended it heartily, maintaining that both farmers and sportsmen would profit by the arrangement. The plan was promulgated without

much background having been laid by either the sportsmen or the farmers. This may have been one of the reasons for its failure.

## New Jersey Sportsmen's Club Plan

Sportsmen's clubs are organized (12), often for the express purpose of opening land to hunting. The farmer is immediately asked to become a member of the club. Both the sportsman and the farmer take an active part in the organization, and as many as 100 farms are often opened to hunting and fishing through the efforts of one club.

The Game Commission offers advice and assistance, stocks the areas, and enforces fish and game laws. The number of hunters is not controlled under this arrangement, and all licensed hunters within the state may hunt or fish the areas.

Feeding and care of game is carried on by both the sportsman and farmer, and the sportsman is responsible for any necessary posting. Land adjacent to buildings is posted against trespass, while the remainder of the area is posted with educational signs, aimed at elevating the qualities of the shooting public.

The sportsmen realize the value of this movement, and actively cooperate in winter-feeding programs and other wildlife management practices. The psychology of the plan is good in that the farmer is called in as a member from the start. Secondly, he is asked to advise, which is another "pat on the back" to him. Sitting in with the

sportsmen, he readily sees their problems and becomes one of them. This is seemingly a trivial point, but it is perhaps one of the greatest stumbling blocks in the way of bettering farmer-sportsman relationships today.

## New Jersey Farmer-Sportsman Cooperatives

This plan (16) is to maintain a farmer-sportsman cooperative hunting arrangement while the State Fish and Game Commission acts as a go-between and general referee. One-fifth of the land owned by the cooperating farmer remains a refuge, posted and maintained by the Commission. This area is usually adjacent to buildings or pastures and trespass is punishable by a fifty dollar fine. Sportsmen may hunt the remainder of the farm, after registering with the farmer. The farmer may limit hunters to one per 20 acres if he so desires. Stocking, seed for food patches, and game management recommendations are supplied by the Commission. The land acreage in New Jersey under this plan has increased rapidly since 1935. Over 110,000 acres were in use for this purpose in 1941.

The arrangement is designed to reopen land formerly posted to hunting. Hunting is controlled and the registered hunters are known to the farmer, thus fixing responsibility for any damage done. This plan is very similar to the Connecticut Plan as well as several others.

A letter from the New Jersey Board of Fish and Game Commissioners, May 4, 1942, states that the plan has been in successful operation over an eight-year period. Present acreage can be easily increased at the same expense as in

the past, or for about three cents per acre per year. The refuge areas are proving adequate in carrying over the game crop and landowners are protected. Most of the ground in use was formerly posted, and the owners agreed to open it for no more incentive than reasonable assurance of property and crop protection. The areas selected are said to be especially suitable for maintaining the game crops without expensive restocking and the plan is in successful operation at present.

## New York "Plans"

The New York Conservation Department tried out a plan (5) in 1939 for the first time. Two projects proved successful enough to warrant five more the fall of 1940. This arrangement requires leasing of hunting rights by the State over large areas. Leasing charges were ten cents per acre. In addition to this, posting and patrolling, stocking and winter feeding, and feed patch establishment fell on the State's shoulders. The total cost per acre averaged 32 cents.

In 1935, analysis of cooperative plans of other states revealed that farmers were satisfied and allowed hunting in 90 per cent or more of the cases when they were merely requested permission to hunt (15). The State went ahead with an educational campaign for the sportsmen on that basis. Posted land was usually made available to the hunter who politely asked permission to hunt. At that time New York was fortunate also in having some 2,700,000 acres of state-owned land throughout the state. This area was open to public hunting and fishing and a large proportion of it was posted by the Conservation Department as public hunting grounds. Two hundred thousand acres were also in State Parks, acting as refuge areas, and in addition to all this, some five million acres of sub-marginal farm land was

about to become state property in 1935. With all this state-owned land New York is not spending much money to set up additional public hunting grounds.

## Ohio's Wood County System

This plan (9) for controlled hunting originated in Wood County, Ohio. It developed in 1930 as a defense against trespassing by hunters. Associations were formed by the farmers of the various townships. The townships were made up of farmers who formed a natural group through their church, school, or lodge. The first association was formed to pay off a church mortgage. Many associations were formed, and after a study of their good and bad points, they were standardized, incorporating the best qualities of them all. A hunting permit was issued and a fee charged. The income paid for the operating expenses of the association for part-time and full-time enforcement officers. Game management practices were kept going and were financed through the arrangement. The unexpended balance was usually divided as follows: one-sixth to the church, one-sixth to the school, and two-thirds to the landowners on an acreage basis. Payments in most cases covered little more than property damage by hunters and grain consumption by the pheasants. The plan became defunct about 1936 and was succeeded by two other arrangements, which in turn have evolved into the present plan of State Supervised Hunting in Ohio.

## Ohio State Hunting Preserve Plan

State hunting grounds were developed on forested lands (2). These lands were kept partially open to build up wildlife populations. Census work was conducted and limited controlled hunting practiced. Restocking, habitat improvement, and protection kept up game populations. The game was used as a source of income to the State. The advantage here was that much real game management could be practiced without interfering with the farmers' interests in any way. This plan was apparently merged with the plan for State Supervised Hunting in Ohio in 1939. Since then more public lands have been included in the arrangement, and at present 25 supervised areas are on public land, while only nine are on private land.

## Ohio State Supervised Hunting

Careless hunters forced farmers in Ohio to close their land to hunting. A plan to protect the farmer and yet allow hunters to hunt was worked out by the Bureau of Game Management, Propagation, and Protection in 1937 (2). In 1938, a group of 15 demonstration areas was established in 12 counties throughout the state in order to include varied situations and habitats. Agreements between the Conservation Commission and the farm owners were put into effect.

The issuance of permits, posting of land, predator control, food and cover improvement not interfering with farming practices, game law enforcement, furnishing of personnel, etc. were all taken care of by the Division.

The agreements were to run for five-year periods and could be terminated by either party any year. Areas of 800 to 4,000 acres were selected and the landowners varied in number from one to 48.

Game management men established hunting and closed areas, checking station sites, and posted the land. Publicity was started and hunters were invited to hunt on these lands. Permits were issued daily up to the point where too much hunter pressure in the areas might occur. Total permits for the season were issued according to the

amount of game to be removed. Checking stations recorded the shooting bag, weights, sex figures, and other desired information. When the surplus had been removed, the area was closed to further hunting. Hunters entered the area on a "first come, first served" basis. No permits were issued in advance.

No complaints of damage to farm property resulted in 1938. Hunters were well pleased also. The Conservation Division acted as an intermediary. No fees were charged, although a small fee to pay for supplies and the limited personnel might be permissible.

The plan is claimed to be flexible, economical, and popular. The original intent of the Commission was to continue the plan through the five-year period in order to make recommendations for improvements.

Private land is playing a smaller and smaller part in the state supervised hunting arrangement, while more public lands are being brought under control. Private landowners and associations either broke up or are operating their associations without assistance of the Conservation Division. In 1940 supervised hunting was extended to squirrels, ducks, and some furbearers in addition to the upland game originally considered.

Hunting concentrations in the future should not be greater than one hunter per 30 acres during the upland

game season, and pre-hunting season census work is to determine the removable game surplus.

## Pennsylvania Cooperative Farm Game Program

This program (8) was inaugurated by the Pennsylvania Game Commission in 1936. Research was desired regarding sustained yield and hunting pressure on intensively farmed sections. Controlled shooting areas were the most effective means of obtaining this data. Visions of greatly increased hunting population on these areas was another reason for setting up these "areas".

The plan closely resembles the Williamston Plan of Michigan, of which it is admittedly an adaptation. Groups of landowners sign an agreement with the Game Commission, said agreement to be effective for one year. Either party may withdraw on thirty days' notice. The landowners are usually represented by one of their number, after local organization meetings have been held.

The area is posted, and notices explain that limited hunting is allowed by written permit, obtainable at the nearest farm house. Posted "safety zones" are established in each area. These consist of all areas within 150 yards of occupied buildings and small rest areas or sanctuaries wherein the game may retreat.

Permits are issued for the landowners' families and for guests. Family permits are good throughout the season. Guest permits are issued for one day only and are free of

charge. These permits entitle the hunter shooting privileges throughout the whole "area" except for the safety zones and sanctuaries previously mentioned. The landowners are allowed a fixed number of these guest permits, dependent upon their acreage, game supply, and other factors considered by the Game Commission. These permits are granted by the landowners to those hunters requesting them, insofar as the supply lasts. At the end of the day the permits must be returned to the issuing landowners. Desired data are filled in on the permit form by the hunters.

Two hunting areas were operative in 1936, three in 1937, and 58 in 1938. This plan gives the farmers protection and does not attempt to return them any other remuneration. The deputies employed proved to be the most costly part of the program. The Commission cannot continue to pay this, hence sportsmen would have to contribute enough to operate the plan if it is to continue permanently. The farmers are encouraged to plant food patches, leave standing cover, use flushing bars, and to adopt other good game management practices. The Game Commission furnishes pheasant chicks which many farmers rear to six weeks of age and release. Up to 1938 the Game Commission spent 32.8 cents per acre annually on the projects. Seventy-three thousand acres in 27 counties were involved. Farmers are not paid in cash, but are recompensed in incidental ways.

## Riley (Wisconsin) Game Cooperative Plan

The Wisconsin Agricultural Experiment Station cooperated with sportsmen and farmers (11) to learn how land could be restocked with game without too much expense and at the same time have an annual harvestable surplus. Five areas were set up including the one at Riley. Data since 1931 has shown an annual increase in the ring-necked pheasant population and in the annual kill. Ten farmers contributed the use of a total of 2,000 acres of land for the experiment in addition to some labor. Town members of the Cooperative contributed cash costs. The farmers shared in all privileges on an equal basis, although they received no cash income. The game increased and yielded an annual harvest, the farmer was protected against undue trespass, and all with little cash expense or without undue interference with farming practices.

### Other Wisconsin Plans

Wisconsin has tried a variety of "farmer-sportsman setups". Mr. Aldo Leopold (11) has classified these as follows: commercial areas, cooperatives, Iowa farmer pools, private individual areas, farmer-sportsman associations, and farmer pools, similar to the Williamston Plan. These are all variants of other plans in use in other states.

Present Situation

A letter, dated May 12, 1942, from Mr. Ralph C. Conway, Supervisor of Refuges and Public Hunting Grounds in Wisconsin, states that the Wisconsin Conservation Commission is not operating any type of Farmer-Sportsman controlled hunting plan as of that date.

## CONTROLLED HUNTING IN OREGON

### Introduction

Human relationships are of serious importance in the orderly development of a farm game management program. They are as critical in the State of Oregon as anywhere else. Danielson (7) analyzed the situation well as it applied to Benton County in 1939. In a survey of 251 farmers he recorded that 144 showed some dislike for hunters. Their reasons for such a sentiment include hunting without permission, damaging fences, scaring stock, shooting around buildings, and other unsportsmanlike practices.

Steps toward bettering farmer-sportsman relationships should be taken by the sportsmen. If they do not right their wrong voluntarily, controlled shooting may be the only other solution.

### History of the Soap Creek Experimental Area

The history of the Soap Creek Experimental Area is well summed up in a statement sent to prospective hunters during the summer of 1941. The land involved is composed of typical Willamette Valley pasture and agricultural land. Under an agreement with The Oregon Cooperative Wildlife Research Unit, the land was put on a hunting closure basis for the purposes of naturally increasing the game supply

(Table I) and for use as an outdoor laboratory for wildlife management studies. From the standpoint of ring-necked pheasant production it is below the average in the Valley because of the relatively high amount of pasture and timber land included. There are approximately 6,000 acres in the area concerned. Sixteen farmers owned or had leased the land in blocks of 40 to 1101.8 acres.

The following account is the history statement sent to the hunters some time prior to the controlled shoot:

The Soap Creek Experimental Area was established in 1936 by the Oregon Cooperative Wildlife Research Unit. The farm owners on the area, the Oregon Game Commission, Oregon State College, the U. S. Fish and Wildlife Service and the American Wildlife Institute were cooperating agencies.

The area was established in order to learn what could be done by natural means toward building up a good population of upland game birds. The ground chosen was some of the poorest habitat available, since it consisted mostly of pasture.

In 1936 a mere "handful" of pheasants were to be found on the area. Other game birds-- valley quail, ruffed grouse, and bob-whites-- were all seen occasionally, but were at a comparatively low ebb.

The area was closed to all hunting to protect the remnant of game. The land was posted and regularly patrolled. The landowners were urged to combine farming practices with good game management practices wherever possible. Crop rotation, cessation of stubble burning, the interspersal of grains between pastures and the improvement of water holes were a few of the aids undertaken.

A field assistant, residing on the area, divides his time among several tasks. Constant control of skunks, Douglas ground squirrels and foxes has been maintained to protect game and farm poultry. The assistant helps maintain water holes and studies mortalities. His contacts with the landowners are constantly aimed at bettering the farmer-sportsman relationship. He records in field notebooks much basic information. Sex ratios, egg fertility, nest losses, cruising radius of birds, amount of predator kill, value of certain plants for food or cover—these and many other facts are recorded to bring enlightenment to game management in Oregon.

The combination of all the above practices has paid handsome dividends. The pheasant population alone has increased from the "handful" of 1936 to about 1,000 birds in 1941. In addition to this, the area has served its purpose well in stocking several thousand acres of surrounding land. All this has been done by natural methods. Game-farm birds have not been released periodically as is often the case on preserves. The remnant of seed stock was protected in order that they might propagate naturally. No great expense was incurred and yet a shooting crop has resulted on ground which at the inception of the program harbored very few game birds. You will judge its effectiveness by your own observations. You are welcomed to the Soap Creek Experimental Area to enjoy this seasonal sport.



Figure 2. Photograph showing part of the timbered portion of the Soap Creek Experimental Area.



Figure 3. One of the signs used in posting the Soap Creek Experimental Area against hunting and trespassing.

### Reasons For a Controlled Shoot

With the total hunting protection afforded game on the Soap Creek Experimental Area since 1936, it became increasingly evident in 1941 that a well controlled harvest of surplus Chinese pheasants, Phasianus colchicus torquatus (Gmelin), on the area would be both justified and prudent. "Surplus" is meant to include male Chinese pheasants over and above those birds needed to maintain high egg fertility for the hen population present. Regular bi-annual census work and daily field observations revealed male pheasants in predominance. Game managers throughout the country recognize that a cock-hen ratio of 1:5 is more than sufficient to maintain high egg fertility in pheasants. This meant that we could safely remove approximately 30 cock birds per 100 pheasants on the area without limiting our annual increases, so valuable in the natural restocking of surrounding land. Plans for maximum removal proceeded on that basis.

A second reason for holding the shoot as quickly as a good population built up was inherent in the very nature of the plan. The "Experimental and Demonstration Area" was just that. The primary purpose of the plan was to demonstrate that a remnant of game birds, given only the protection necessary to reproduce themselves, could do so without expensive restocking and improvements programs

in this climatic range. It is true that some management practices were applied. However, these were all simple, everyday practices that any farmer could easily accomplish. Predator control stressed Douglas's ground squirrels, skunks, and foxes especially, and predatory birds where their depredations were persistent. These were all forms which were inimical to both game and the farmers' interests, so a dual purpose was accomplished by this work. Cooperators benefited to perhaps a greater degree than did the game in that offending species were removed or farmers were shown the methods of control. Some farmers asked for and received flushing bars for use during mowing operations. These attachments flushed old birds and saved nests or young in at least three instances in a two-day period on one farm. Water developments and fenced plots helped distribute cattle and sheep, thus protecting some parts of the area from local overuse and resultant cover destruction in certain spots. These were about the total of management and improvement practices other than regular daily patrol by the observer stationed on the area. This small amount of management plus total hunting protection demonstrated to all who hunted the Soap Creek Experimental Area what such a program can accomplish in but five years' time. The Shoot was also designed to demonstrate to the landowners an arrangement whereby good hunting and friendly relations

with the sportsmen could prevail without fear of property damage or trespass.

Other considerations and reasons, though minor, included requests from some landowners for an open season. Some felt that greater increases might work a hardship on growing crops. Finally, opening of the area meant an opportunity for many busy sportsmen to proceed directly from their work to a well-stocked hunting ground and hunt without worry that they were trespassing. This they did, and those who hunted were in general agreement that basically the plan was a marked success.

#### Preliminary Work and Plans

Considerations for a controlled shoot on the Soap Creek Experimental Area go back to the time when the area was set up. Sex ratio data, increases in numbers, and other field data have been recorded for each year back to and including 1936 (Table I). The area has been well posted along all boundaries and along all secondary roads running through the grounds. The signs were designed to inform the public of the experimental nature of the arrangement, Figure 3.

Definite planning for a controlled shoot to be held during the regular Willamette Valley open season on pheasants started in the spring of 1941. Census work then showed that a fine population of pheasants had come through

the winter and the time seemed ripe for the final development and planning of the shoot which, barring a disastrous nesting season, could certainly be held the following fall.

### Census Methods

Continued close checking of birds throughout the spring and summer and extending up to the week before the shoot revealed that a highly successful nesting season had occurred. Sex ratio studies for the year prior to the shoot showed an approximately 51:49 cock-hen ratio. Census methods were of two kinds. A quadrat method, developed by Mr. Arthur S. Einarsen, was employed from mid-July on into early October. The method required an observer to walk the boundaries of a rectangular quadrat, one mile long by one-fourth mile wide. This two and one-half mile strip was scanned for running or flying pheasants for a distance of 50 feet on each side of the quadrat boundary. This area amounts to 60 acres and only the birds within this 100 foot strip were eligible to be counted. Thirty-five such quadrats were set up in a random fashion in order to include the most nearly average habitat in the samples. The quadrats were run by James Lindzey, another field assistant at the Oregon Cooperative Wildlife Research Unit, and myself. The work was done under varying weather conditions throughout the warmer periods of the day in

order to have all birds away from roosting areas. The quadrats were all run twice and some were run three times, allowing several days to elapse before running the same or an adjacent quadrat another time. Quadrats in most cases fell across or intersected each other due to the limited acreage in the Experimental Area. This was thought to be preferable to limiting the quadrats to a small number, inasmuch as representative samples are essential to the success of the method. After all quadrats were completed, the number of pheasants from each was averaged and the bird-per-acre figure computed. This was expanded to the total acreage and the calculated pheasant population for the entire area was thus determined. Results of this census method approximated the results of the so-called "100 per cent count" method in which seven or eight men with the aid of dogs completely traverse the area involved, attempting to get a count of every bird present. The figure of 1,000 pheasants on roughly 5,000 acres, over 900 acres of timber land not being censused, revealed a concentration of one bird per five acres, a very good population considering that so much of the area was brushy pasture and was relatively poor pheasant cover.

Table I

Record of Chinese Pheasant Increases From  
1936 to 1941 Inclusive, on the  
Soap Creek Experimental Area  
Corvallis, Oregon

Year	Number of Pheasants
1936	30*
1937	13*
1938	119
1939	136
1940	368
1941	985

\* The 1936 census was taken in the fall, and the 1937 census was taken in the spring. This accounts for part of the decrease. The small numbers involved very likely introduced considerable error also.

#### Landowner Contacts

As soon as it became evident that a controlled shoot could be held, the matter was discussed and explained to all the farmers on the area. Since they had long been aware of the demonstrational nature of the plan, they were all in accord with the proposed shoot. The fact that hunting was to be by special permit inspired their confidence inasmuch as trespass evils had been one of the

main difficulties on their farms prior to the establishment of the Demonstration Area. Removal of only the surplus birds also met with their approval. They were allowed the privilege of free hunting for themselves and guests and any other hunting on their farms would be allowed only after these guest permits had been issued. If a farmer did not wish to hunt and asked for no guest permits, he was shown that his cash return would be correspondingly higher in that more paying permittees could be accommodated on his land. That farmers were little interested in their cash return was evidenced by the fact that with few exceptions farmers presented a list of guests for whom they wished the free hunting privilege. The mechanics of the shoot were carefully explained to each farmer and he was asked to sign an agreement, also signed by the Research Unit representative, stating that he was in accord with the proposed arrangements. The agreement was signed by all sixteen cooperators.

A short time prior to the shoot each landowner was asked if he wanted certain fields, pastures, or other areas closed to hunting. Where this was the case, all such areas remained closed. Orchards, land around buildings, corrals, and other stock concentration areas were likewise continued closed to hunting.

As the work progressed, the farmers were kept informed and some offered suggestions for planning the shoot. One disturbing influence crept in early in the summer when the area was found to be included in the site of a proposed army cantonment. Some felt that this might preclude the possibility of shooting, but it soon developed that we would have more than sufficient time to fulfill our plans.

Another point worth mentioning is the very fine cooperation received by the Research Unit. Since there was a certain amount of animosity among a few residents of the area, it is doubtful if a program of this nature could have been carried along to its successful conclusion by the farmers themselves or without the leveling influence of a neutral, outside party. This common situation weakens the presumption that Farmer-Sportsman associations can be handled without stable guidance from outside these groups.

#### Advertising the Shoot

With the plans for the shoot nearly complete, the necessity of advertising became apparent. Although sportsmen in the immediate vicinity knew something of the proposed plans, an official announcement was deemed necessary in order to give all interested hunters a chance to participate. Notices were posted in The Sunday Oregonian of August 31, 1941, in the Sunday Oregon Journal of the same

date, and in the Corvallis Gazette Times of August 30, 1941. Local as well as state-wide coverage of the event was expected from these announcements. Reasons for the poor response they elicited will be discussed later.

The following is an announcement which appeared in The Sunday Oregonian of August 31, 1941.

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HUNTERS  
ATTENTION

Applications will be received until September 20, 1941, for permission to hunt pheasant on the well-stocked Soap Creek Experimental Farm Game Area unit, located on Highway 99W about 11 miles north of Corvallis, Oregon, during the open season, October 22, 25 and 26. The fee will be \$2.00 per day per man to cover cost of a managed shoot and to pay for land use. Each hunter must have a regular hunter's license and be familiar with the game laws. Checks or money orders must accompany the application. Permits will be issued in order requested. This opportunity exists since this experimental area falls within the boundaries of the cantonment proposed by the United States Army and faces discontinuance. The game must be harvested in order to complete experiments and ascertain management effectiveness. Apply for permits to the Oregon Co-operative Wildlife Research Unit, Ag. Engr. Bldg., Corvallis, Oregon, agent for the farmers.

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## Sale of Permits and Rules for Shooting

Soon after the aforementioned announcements were published, money for permits and requests for further information started to arrive. A three-page mimeographed report was sent in response to all such requests. Page one was a history of the Soap Creek Experimental Area. The second page consisted of rules and regulations for controlled shooting on the Soap Creek Experimental Area. This was divided into two parts: (1) general and (2) shooting rules. The rules in Part One were adhered to throughout the Shoot while the "Shooting Rules" of Part Two were designed to make the hunter think in sportsman-like terms. Obviously, five such rules would be extremely difficult to enforce, but these five points were apparently well taken, and few real violations of the "shooting rules" actually occurred. The following is a copy of the "rules and regulations" page sent to the prospective hunters:

### Rules and Regulations for Controlled Shooting Soap Creek Experimental Area

#### I GENERAL

(1) Every hunter must have a special permit in his possession to hunt on the Soap Creek Area.

(2) All hunting parties will be checked into the Experimental Area at the Checking Station (see map). They will there be assigned an observer who will conduct them to their shooting grounds. After the day's shooting, they must be checked out of the Experimental Area through the Checking Station. The Checking Station will be open at 7 a.m., daily.

(3) Shooting dates are October 22, 25 and 26, 1941-- between 8:00 a.m., to sunset.

(4) Male Chinese pheasants only are to be taken, with two birds constituting the day's limit.

(5) All hunting parties are to be accompanied by an observer who will advise regarding the location of gates, livestock, etc. He will enforce all rules, assist wherever possible, record data, etc.

(6) Each hunting party will be limited to a maximum of three (3) hunters.

(7) Each party is to vacate the shooting grounds reasonably soon after filling out its quota of birds. Parties are to remain together during the progress of the shoot.

(8) Dogs may be used but they must be kept on leash or in the cars until hunting actually starts.

(9) Hunters must comply with all Oregon Game Laws in effect at the time of the shoot. Violations will be reported to the state police.

(10) Hunters must skirt around any horses, cattle, sheep, or other livestock which may get in their way. (It is intended that livestock will be pastured in the closed areas; however, this rule is only precautionary.)

(11) Persons under the influence of liquor will not be accepted on the area.

(12) Real sportsmanship is encouraged--clean kills, regard for the farmer's right, for the fellow hunter, and compliance with all laws is expected.

## II SHOOTING RULES

In order to minimize crippling of birds and to obtain needed data, certain rules must be laid down. Where it is obvious that a crippled bird may result, the observer will ask his party to hold its fire. In general the following rules will apply:

(1) Thirty to forty yards is ideal range. Shots over 50 yards will not be permitted unless it is obvious that the bird is crippled, when more shots may be taken to bring it down.

(2) Shooting through dense cover is not to be allowed. In other words, have an unobstructed view of a well-outlined bird before shooting.

(3) Do not shoot if it is not obvious that the bird is a male.

(4) Hunters in each party are to alternate shots somewhat in order to fill out all bags at about the same time. Where practicable, the hunter on the left is to take birds on the left, and so on.

(5) Crippled birds are to be searched for diligently or until it is evident that they cannot be found.

The third page of the mimeographed report was a simple map showing the prospective hunter the location of the Soap Creek Experimental Area and how to drive to it by automobile. These three pages were considered sufficient, and any further information the sportsman requested was answered by letter or was explained when he arrived at the checking station.

Twenty-seven paid permits were issued. This small number responding was probably due to several reasons:

1. The announcements of the Shoot were seen by relatively few people. This was perhaps the sportsman's most frequent criticism when queried as to how to improve future "shoots".

2. Pheasant populations throughout many parts of the Valley were high enough so that most hunters foresaw good free hunting outside the Experimental Area. Actually the \$2.00 is a small part of the average hunting trip, but many hunters, still thinking in terms of free hunting, shy away from paying for their hunting privilege, even though success may be guaranteed.

3. Some sportsmen thought that controlled hunting with observers would spoil their hunting. Seeing a list of rules they "scared out" before really investigating the possibilities of the new arrangement. The universal reaction of all hunters questioned after the Shoot was decidedly in favor of controlled hunting and the observer system. Several considered it a free guide service.

#### Refunding Permit Money

A small number of sportsmen responded to the published announcements and there were but 27 paid permits issued. This was indicative of the average hunter's reaction to the idea of a payment for the privilege of hunting. Had it been known that all funds collected by the permit system were to be refunded, a true response could not have been obtained, and the applications would have probably exceeded the supply. It is apparent that this amount of income was extremely small, considering the five years of cooperation by the landowners, and the popular idea that farmers may look for an added income from a farm game crop has little factual substantiation in the Willamette Valley.

Free "courtesy" permits were issued to friends of the farmers up to the point where the surplus pheasants would be removed. Even then, the hunting pressure was

much lighter on the Experimental Area than on surrounding lands, bearing out the above contention that hunters tend to avoid those areas where hunting is allowed only after a fee is paid or where hunters are under close observation.

The landowners were reimbursed for their cooperation by a payment of five cents per acre rental fees from special funds set aside for the purpose by the Oregon Cooperative Wildlife Research Unit. It is significant that farm owners were not impressed or interested in the rental fee but were enthusiastic over the orderliness of the Shoot and the harmonious spirit of the hunters.

#### Training Observers

Since one of the reasons for having the Shoot was to obtain information regarding crippling losses, effectiveness of dogs, and other data it was decided to send an observer afield with each hunting party to escort the hunters in their allotted areas and to record various facts regarding the party, their dogs, and certain hunting data and to observe field conditions.

Considerable manpower was needed for this phase of the problem. Hiring 25 trained observers for work of this nature would have been extremely costly and probably impractical from the financial standpoint. The Unit was very fortunate, however, in being offered the services of

Professor Dimick's class in Fish and Game Management, FG 351. These men were junior students and proved to be a thoroughly dependable and efficient group for the purpose in mind.

Class room instruction on game management procedures, ethics, field manner, and general conservation practices were given. One afternoon was spent on the Soap Creek Area familiarizing each student with the boundaries and more specifically with the one unit which his group was to hunt. Mimeographed blanks were furnished each observer and they were shown how to fill in the desired information. The hunting units were established in order to definitely limit the hunting to portions of the Area where shooting could in no way endanger the lives of human beings or livestock.

All observers were requested to carry out their detail in the field in such a way that the hunters were helped rather than hindered. Observers acted as advisers, also, in that part of their job was to unobtrusively correct careless hunting practices, to discourage long shots at birds, and to answer intelligently any question their party might ask of them.

## CONDUCTING THE CONTROLLED SHOOT

WEDNESDAY, OCTOBER 22

By 7:00 A.M., Mr. Arthur S. Einarsen, three men assigned to road patrol duty, all observers, and the checking station attendant were on hand at the checking station at the Soap Creek Experimental Area.

A dense fog prevailed until about 11:00 A.M., after which it gradually became brighter, the afternoon becoming bright and clear. Road patrolmen patrolled all roads around the area throughout the day. Observers remained at the checking station until their parties arrived. They were then introduced to the sportsmen in the party, hunters' permits and state hunting licenses were checked, and the party was promptly dispatched to its hunting unit.

Each observer escorted his party to its hunting grounds, saw that cars were parked off the road, and entered the hunting unit through roads, gates, or other proper entrances. He remained behind the hunters at all times, recorded pertinent data as he went along, and kept his party together. Crippled birds were sought for diligently, and the party left the hunting unit as soon as they were through hunting. This arrangement was designed to keep congestion of hunters in any one area at an absolute minimum. This is essential from the standpoint of

safety as well as hunter success, and causes the landowner to feel that his land is not being overhunted. Observers visited the farmers early in the morning to see when they wished to do their hunting. Road patrolmen and observers not scheduled to escort a party attended to these details.

All hunting parties started at the periphery of the hunting unit and worked toward the center. This system materially reduced the migration of pheasants away from the Area. For example, on the last day of the Shoot after hunting closed, 157 pheasants were counted in one field in the center of the tract.

Oregon game laws were in effect at all times on the Area in addition to the special controlled shooting regulations. Two male Chinese pheasants were the daily Willamette Valley bag limit, and this applied to the Experimental Area as well.

The 19 hunters were all checked out by 6:00 P.M., and the first day's shooting had ended. (Tables II to V show the results of all three days' shooting).

#### SATURDAY, OCTOBER 25

Saturday was dark and cloudy throughout the day. A total of 17 hunters checked in and out of the Area. Even with the inclement weather, the pheasants' average flushing distance was eight yards farther out than on the first day

of the Shoot. Poor shooting by hunters was very apparent, and the number of birds killed often seemed more dependent upon the number of shots fired than upon any other factor (Table II).

It was interesting to note the higher hunter success and the lower crippling loss for Saturday as compared with Wednesday's shooting, notwithstanding the fact that the pheasants were wilder and were flushing eight yards farther out on the second day (Tables III and IV). One pheasant was killed per three man hours afield as compared to one pheasant per five man hours afield the first day.

#### SUNDAY, OCTOBER 26

Sunday was disagreeable from the hunter's standpoint in that a heavy morning fog developed into a rain by afternoon. Despite the weather, numerous hunters were afield. Several parties stopped at the checking station and asked permission to hunt. These were granted permission without exception, since the kill during the first two days had been considerably lower than anticipated. It was also desirable to compile as extensive data as possible. A total of 30 hunters checked into the Area. Observers were busy throughout most of the day and considerably more data were obtained Sunday than on either previous day. As might be expected, the small, overlooked details which

sometimes lessen efficiency had been corrected by Sunday, so that although it was the "biggest" day, coordination was the best.

Parties were generous with praise for their observers and a thoroughly satisfied group of sportsmen checked out of the Area. The general opinion of the hunters was that birds were very numerous on the Soap Creek Area, but poor shooting resulted in a very low "take".



Figure 4. Some of the observers at the Soap Creek Experimental Area before they were assigned to hunting units.



Figure 5. Checking station attendant recording hunting license and special permit data.



Figure 6. Hunter proceeding through good pheasant habitat, Soap Creek Experimental Area.



Figure 7. Two successful pheasant hunters.

## PREPARATION OF TABLES

In most cases the hunting data collected for the three days were insufficient to withstand good statistical analysis. For this reason a minimum of conclusions may be safely drawn. Tables when presented are usually drawn to show the comparative results of three days' shooting and are not necessarily the results which might be expected from larger numbers.

Table II

Record of Shots Fired, with their  
Resultant Effect on the Pheasants,  
Soap Creek Experimental Area, October, 1941

Distance (in yds.)	Shots Fired	Misses		Pheasants Killed*		Pheasants Crippled	
		No.	%	No.	%	No.	%
1-20	41	37	90	4	10	0	0
20-30	102	91	89	10	10	1	1
30-40	112	73	65	28	25	11	10
40-50	50	28	56	13	26	9	18
Over 50	16	10	62	3	19	3	19
Ave. = 36							
Totals	321	240	75	58*	18	24	7

\* Three more pheasants were killed but were not included in this table because of insufficient data.

Table III

Number of Hunters, Pheasant Kill,  
and Crippling Loss by Days,  
Soap Creek Experimental Area, October, 1941

Day	Number of Hunters	Number of Pheasants Killed	Number Crippled	Per Cent Crippling Loss
Oct. 22	19	15	12	80
Oct. 25	17	19	8	42
Oct. 26	30	27	4	15
Totals	62*	61	24	Ave. 39

\* Four sportsmen hunted two different days.

Table IV

Average Flushing Distance of 259 Pheasants  
Fired at During Three Days of  
Shooting on the Soap Creek Experimental Area

Wednesday October 22	Saturday October 25	Sunday* October 26
22 yards	30 yards	24 yards

\* Rainy weather apparently caused the pheasants to flush closer than might be expected.

Table V

A Comparison of Pheasant Crippling Losses  
With and Without the Use of Dogs,  
Soap Creek Area, October, 1941

Hunting	Crippling Loss Per Cent	Total Birds Involved
With dogs	34	51
Without dogs	48	34
Total Crippling Loss	39.4	85

## RESPONSE OF THE SPORTSMEN TO THE SHOOT

A short time after the shoot was conducted, the sportsmen were sent letters asking for their reactions, suggestions, and criticisms of the shoot. The answers received were all very favorable, and the following letter from Mr. Brian J. Ingoldsby is both typical and expressive:

Rt. 6 Box 356  
10634 S. W. Capitol Highway  
Portland, Oregon  
November 4, 1941

Mr. Arthur S. Einarsen  
Associate Biologist  
U. S. Fish and Wildlife Service  
Corvallis, Oregon

Dear Sir:-

This is the first opportunity I have had since returning to Portland to write you and express my appreciation for the pleasure I was afforded by pheasant hunting the last two days of the season on the Soap Creek Experimental Area.

I wish to say now, that I consider myself very fortunate in having been able to secure the necessary permits to hunt on this area these two days, as if I had missed this opportunity and knew what I know now as to the amount of enjoyment it offered, my disappointment would have been more than I could describe.

The purpose of my application for the permits was, I might say, threefold:-

First, I wanted to hunt on what appeared to be an area that would compare favorably with a well stocked, well managed public shooting ground such as I have had described to me and also read about.

Second, to avail myself of the opportunity of training some young springer spaniels on birds in an area where I expected birds to be plentiful.

Third, to observe the effectiveness and results of a game management program such as yours.

I am very happy to say I feel I more than accomplished my purpose in every detail. With regard to the first desire, I really enjoyed myself. If this is what well managed public shooting grounds mean, I am all in favor of it and the quicker it comes the better. I first of all was received very cordially at your checking station and your observer allocated the area I was to hunt over. He pleasantly explained the purpose of the project and arranged

for one of your men to accompany me and record the necessary data. This was a lot different from having to drive the roads looking for a place to hunt and when finding it, being denied permission because the owner had to consider all hunters alike, good or bad, as he had too much at stake in exposing his stock and crops to possible damage thru carelessness.

The effectiveness of your department's interest in such a program was revealed by the apparent co-operation you obtained from the farm owners in allowing hunting over their lands. They must naturally have felt someone was controlling their property and being responsible for their interests, thereby giving them a sense of protection they would not otherwise have. It must have taken considerable public relations work to accomplish all this. But the point to me is that this arrangement was made for the benefit of any hunter who wanted to participate, rich and poor alike. It might be looked upon as a service we could buy in payment for our licenses. If this is something I could expect, I for one am more than glad, as poor as I am, to even pay a higher license and permit fee to secure the privilege of hunting on such a well managed and controlled shooting ground. I realize this was not the purpose of your project but to me, it is the viewpoint I wish to take in analyzing its possibilities.

It is quite evident the time is not far away when means such as your office provided on this project, will be necessary to assist the artificial propagation measures of the State game commission by developing areas where natural increases in upland game birds can be encouraged, thereby insuring a sufficient number of birds so one can enjoy a day's shooting. I understand this is now being done on a minor scale locally.

The number of birds seen on the section I hunted, far exceeded my expectations. I was more than satisfied as I was able to not only bag a few, but work the dogs so that birds were flushed every time out.

Last year, several members of our Northwest English Springer Spaniel Club discussed the subject of legislation pertaining to controlled shooting areas and means of assisting by private reserve and propagation, as several of us feel the need of some measures to aid what is now being done to increase the bird supply. I am planning at our next meeting to re-open this subject by reporting as fully as I can,

my observations during the two days I was on your reserve.

Since my return, I have been trying to think of some feature pertaining to the project where possibly improvement could be made. I am glad to say I have no criticism to offer. My only regret is that more hunters did not take advantage of the opportunity to shoot on this area. Possibly more cooperation will be obtained the next time such a move is undertaken. I should think each of us who experienced the enjoyment of this privilege will certainly tell our friends and would be responsible for many additional applications for permits. I know this would be the case as far as I personally am concerned. Public education and more generous cooperation by the press in publicizing the project I am sure will develop more interest in such programs as yours now that the local pioneering work of your office has provided such excellent results.

Again thanking you and your staff for the courtesies extended me and wishing you continued success in your efforts to insure a grand sport,

Sincerely,

(Signed) Brian J. Ingoldsby

## A SUMMARY OF THE SHOOTING

Tables II to V reveal the following facts with regard to shooting on the Soap Creek Area:

1. The average shooting distance was 36 yards.
2. There were 329 shots fired (321 plus eight not shown in the tables).
3. Seventy-five per cent of the shots missed their mark.
4. Eighteen per cent of the shots killed pheasants.
5. Seven per cent of the shots crippled pheasants.
6. The average crippling loss was 39.4 per cent.

The crippling loss was 34 per cent when dogs were used and 48 per cent when no dogs were used.

7. In general, the farther the bird the better the shooting. This was true up to fifty yards where successful shooting started to decrease, probably due to lessened velocity and penetration of the shot. A cock pheasant flushing at close range often startles the hunter. This may be the reason for the extremely poor shooting at the closer ranges.

8. As the distance increased, the ratio of crippled to killed pheasants became higher, until at 50 yards and over the crippling loss was 100 per cent.

9. The most hunters were present and the most pheasants were killed Sunday, October 26th.

10. The per cent crippling loss decreased from 80 per cent the first day to 14 per cent the last day.

11. Sixty-one pheasants were killed and twenty-four were crippled during the three-day period.

12. The average flushing distance the second day was 36 per cent greater than the first day. Heavy rain reduced the flushing distance Sunday, October 26th, but it was still 9 per cent greater than on the opening day.

13. Pheasant crippling loss, expressed as the ratio of crippled to killed pheasants, was appreciably lower when dogs were present to catch and retrieve the crippled birds. No allowance was made in the table for the fact that about 50 per cent of the dogs used were untrained. Trained hunting dogs should be expected to help reduce this loss even further.

## CONCLUSIONS

1. Controlled hunting, as exemplified by the Soap Creek Controlled Shoot, is feasible in most respects. The measure of control which this form of shooting exercised over sportsmen proved popular to both the farmers and the sportsmen involved. The plan used is not economically feasible, however, for direct application to large areas. The observers were used mainly to secure desired data and would be dispensed with on large areas. After cutting manpower to a minimum, controlled hunting could still be successful. A small entrance fee could be charged the sportsmen to defray the expenses of conducting the shoot.

2. The State Game Commission of the state involved should be responsible for the development of such plans throughout the state. Organizations such as the Oregon Cooperative Wildlife Research Unit are primarily engaged in research and cannot be expected to carry a program of this nature beyond the investigational phase. Outside parties such as state game commissions are needed in these programs to develop harmonious relationships between all parties concerned.

3. This Shoot was a step to look further into farmer-sportsman relationships. It shows what can be done when hunters act in a sportsmanlike manner. The final decision

as to whether or not controlled shooting will become a common practice remains with the sportsmen, for most farmers are in accord with orderly hunting on their farms.

4. The Soap Creek Experimental Area has not been an attempt to organize pay shooting in Oregon but to find out whether farm ground could be made to yield high game productivity through natural management methods.

5. Information was also desired relative to whether or not the farmers were interested in an orderly management of farm ground, and freedom from trespass and other evils. Farmers were unanimous in their approval of the plan.

6. Farmers showed little interest in the money return but were vitally interested in controlling unrestricted hunting on their lands. They were perfectly willing to allow surplus pheasants to be removed when this was accomplished in an orderly manner.

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